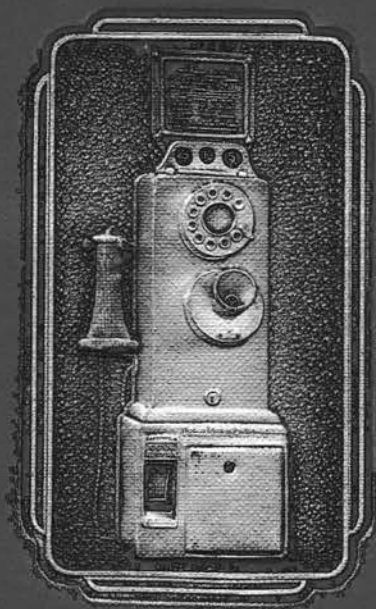


# Gray

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TELEPHONE  
PAY  
STATIONS



SIGNED

THE GRAY TELEPHONE

THIS VOLUME IS  
PRESENTED TO

With the  
COMPLIMENTS OF



PAY STATION COMPANY



TELEPHONE PAY STATIONS

Yesterday  
Today  
Tomorrow



THE GRAY TELEPHONE PAY STATION CO.  
HARTFORD, CONNECTICUT, U. S. A.

# INTRODUCTION

This book is not intended to supplant our general catalogue, but rather to introduce and describe our latest developments in pay stations and to make clear the wealth of practical experience and long years of experimentation which have made this machine of such tremendous importance to the telephone industry.

Therefore we have thought it well to incorporate in this volume a brief survey of the Company's background, from its inception as an idea in the mind of one man on through the phases of its national and worldwide development, and in later pages to add a word of what we vision for the future.

From the time of the installation of the first crude pay telephone in Hartford in 1889 up to the present — a period of nearly fifty years — the advance towards perfection has been constant and steady. Such achievement we believe will prove a fascinating story to others. It is a tribute to American inventive genius, marking one of the many contributions to convenient and economical communication which had its inception in the original invention of Alexander Graham Bell, in the development of which the men instrumental in creating the Gray Telephone Pay Station have played such a part.

Our newest machine is in reality a universal pay station. This one machine allows of operation under both postpay and prepay service, whether the switching is manual or machine. In addition it may be equipped with either the monophone handset or the conventional transmitter and receiver.

Here then, in the sections headed "Yesterday, Today and Tomorrow" you will find set forth a sketch of the early history of the Company and its achievements in the past, an explanation of the latest mechanical developments in our different types of instruments, and a brief forecast of what the future holds in store.

Gran

TELEPHONE

PAY STATIONS

Yesterday

## GEORGE ALEXANDER LONG

George Alexander Long, president and general manager of the Gray Telephone Pay Station Company, has devoted practically his entire life to the pay station and its needs. At the age of sixteen, while in the employ of the Pratt & Whitney Company, he was commissioned to make the model of the first pay station. Today, nearly a half-century later, Mr. Long has received international recognition for the continuous improvements he has added to William Gray's original idea. To him more than any other man is due the credit for this great modern device.

Among the most notable of his many later inventions are the first single-slot coin collector, the first three-slot coin collector, and the first portable coin collector. Following these he developed the compact type of telephone and pay station combined, and later he provided the first automatic multi-coin prepay station.

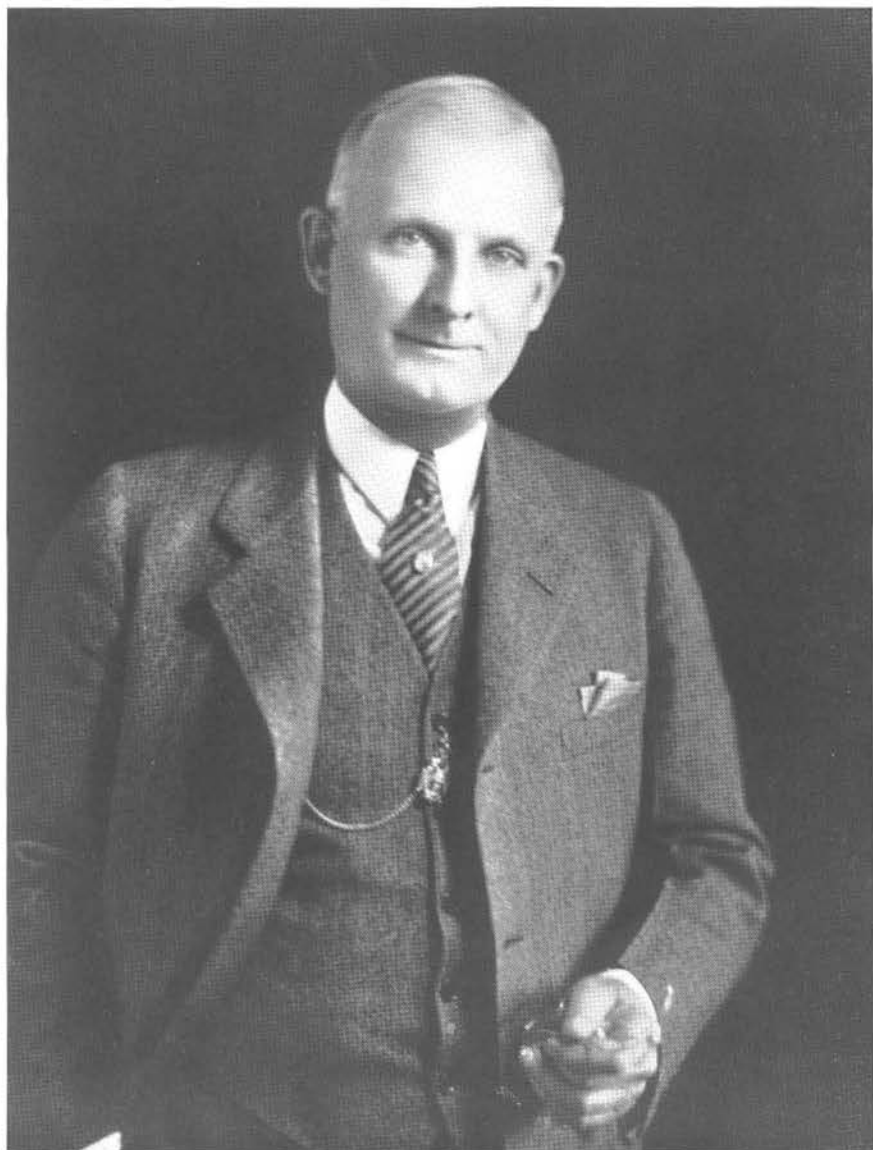
George A. Long is the son of George S. Long, noted American inventor, and Mary E. Brockway, daughter of one of Connecticut's renowned judiciary; thus coming naturally by his inventive genius and keen-witted power of analysis. Immediately after leaving school he served a four year apprenticeship in the model department of the Pratt & Whitney Company.

At the age of twenty he left to become foreman at the National Machine Company, where he personally had charge of building the first gasoline motors in the United States. Many of the men who worked with him at this time later became prominent figures in the automobile industry. It was during this period of his life that he developed a method for producing straight edges that was adopted by the Bethlehem Steel Company, and which has proved a very important contribution to the steel industry.

Both the British Westinghouse Electric Company and the Gray Telephone Pay Station Company, at that time still a struggling young concern, offered Mr. Long attractive positions in 1901. He decided to remain in America and take charge of the Gray Company, where he has remained ever since.

His success in this field is attested by the long and still-growing list of pay station patents granted to him both in this country and abroad. Today he has to his credit more patents on telephone toll apparatus than any other single person.

Gray



George A. Long

P A Y S T A T I O N S

TCI Library - [www.telephonecollectors.info](http://www.telephonecollectors.info)



As the public pay station came into general use and collected increasingly large sums of money, the need developed for a more secure lock than was available. To fulfill this need Mr. Long invented a new lock with many patented features, which is in use today on all Gray Telephone Pay Stations. The Long Security Lock Company, which was formed to manufacture these locks, has also developed and patented several ingenious and successful locks for banks.

Mr. Long has traveled extensively throughout the world studying telephone conditions and has also found time to contribute largely to various technical journals on American telephone practice. Today he is recognized throughout the world as an eminent authority on all matters pertaining to telephone toll equipment.

For his work he has been accorded special honors by the governments of the United States and Japan. Also as a collaborator with the American Telephone & Telegraph Company he received the silver medal of the Panama-Pacific International Exposition for automatic telephone pay stations and telephone meters.

From its very birth in the machine shop of Pratt & Whitney, Mr. Long has seen the telephone pay station grow under his direction until today it has reached the remotest corners of the earth. Far from being content, Mr. Long is still hard at work on new developments, a hint at which is given in the section of this book entitled "Tomorrow."



## History of the Development of the Gray Pay Station

One of the most important and interesting parts of the history of the telephone industry is the story of the invention and development of the pay station. For it was the pay station which first placed the telephone within the reach of the general public and thereby brought millions of dollars into the coffers of the infant industry. And whenever we pay tribute to Alexander Graham Bell for his epoch making discovery we must also remember the men who placed that marvelous instrument at the service of even the poorest man or woman at any hour of the day or night.

William Gray was the man who first conceived the idea of making the telephone available to the general public through pay stations and it was George A. Long who contributed the working model of the first pay station to the world.

Behind the work of these men lies a fascinating story that begins in Hartford, Connecticut when William Gray wished to call a doctor for his wife who was critically ill. There was a telephone in a nearby factory but when he asked permission to use it he was refused. Only after stating his urgent necessity to a company official was a grudging consent finally gained. His offer of payment met with a curt refusal, and the explanation that its use was reserved for subscribers only.

The idea occurred to Mr. Gray, as he returned to work, that some way should be provided by which the general





**WILLIAM GRAY**  
General Superintendent  
1891-1902

William Gray, the inventor of the pay station, was born in Tariffville, Conn., December 17, 1850. He was the son of a man who was noted for his inventiveness and mechanical skill.

Young Gray's first job was in a drug store in Boston, Mass., but he soon left this employment to become a machinist. After a short apprenticeship in Boston he came to Hartford to work at Colt's Armory, later making a second change to become a foreman at the Pratt & Whitney Company. It was while he was employed at these two shops that he came to know Amos Whitney.

Although William Gray's great passion was mechanics he was also an ardent follower of baseball, and in the days when the catcher had nothing but his beard to protect him from swiftly pitched balls, Gray brought some safety to him through the invention of the inflated chest protector. It was through this interest that he became acquainted with Charles Soby with whom he was later associated in the business.

After he had invented the pay station, Gray had the further development of this machine as a single interest for the remainder of his lifetime. Between the years 1888 and 1902 he took out twenty-three separate patents for various improvements on the original model.

public, if it was willing to pay for telephone service, would be able to get it. Necessity was once again the mother of invention.

Gray knew of the attempts that had been made to establish public telephones with paid attendants, and that the expense made such service extremely limited and unprofitable.

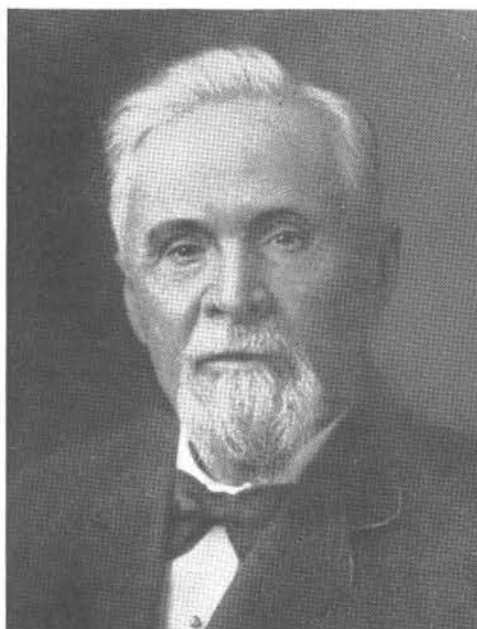
Being of a naturally mechanical and inventive turn of mind he began to work on plans for a machine that would replace the attendant. After working out several crude and unsatisfactory models he took his problem to Amos Whitney, head of the famous Pratt & Whitney Company.

George A. Long was at that time a sixteen year old apprentice in the Pratt & Whitney factory. To him Mr. Whitney entrusted the work of constructing a practical machine from the crude models of Gray. After several trials and much labor a practical model was finally devised.

Money was now needed for further experiment and exploitation. Some years earlier Gray had invented and placed on the market the earliest form of chest protector used by catchers in baseball. Through this he had become acquainted with Charles Soby then the financial backer of the local baseball team. He now placed before him his new invention with which Mr. Soby was greatly impressed and the Gray Telephone Pay Station Company was formed in 1891, the first officers being Amos Whitney, Charles Soby and William Gray. A few years later they were joined by the young George A. Long, the only one of this original company now alive.

The history of the growth of this institution is the story of two things: the steady improvement of the machine to its present practical perfection, and the gradual adoption of the system throughout the world. With these two threads is intertwined the stories of the men who have given their lifetime to accomplish these facts.





## AMOS WHITNEY

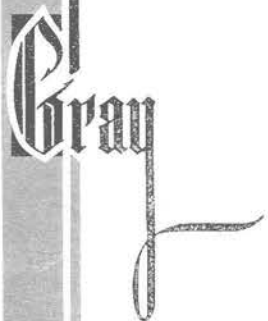
President

1891-1920

Amos Whitney, president of the Company from its formation until his death in 1920, was born in Biddeford, Me., October 8, 1832. He was early apprenticed to a machinist in Lowell, Mass., whence he came to Hartford with his father, in 1850, to work at Colt's Armory. It was while he was employed there that he became acquainted with Francis A. Pratt which acquaintance led to the formation of and eventual greatness of the Pratt & Whitney Co.

While he was still at Colt's Armory he also came to know William Gray, though he became better acquainted with him later as a foreman in his own shop. It was to him that Gray brought his idea of a pay station when he first conceived it, and it was in the shop of the Pratt & Whitney Co. that the first working model was constructed.

In the formation of the Company in 1891, Amos Whitney furnished the necessary knowledge of manufacturing and business, as well as part of the capital. While his name is not so generally identified with the Gray Telephone Pay Station Company as with his own company, he was unquestionably a large factor in the success of the effort.



While the machine is the basis upon which the whole structure rests, it is better to first briefly examine the other phase of the Company's history; how the pay station came to be accepted as an integral part of our civilization.

The first pay telephone was installed in Hartford, Connecticut at the corner of Main Street and Central Row on the ground floor of the old Hartford bank, where the Hartford-Connecticut Trust Company now stands. This was in 1889, two years after the first model had been made. Slowly other pay stations were installed in the State and gradually the movement spread to other sections of the country, but the acceptance was slow by both the general public and the operating companies.

When Mr. Long associated himself with the company in 1901, the firm was struggling along with only an occasional order. While the device itself was now satisfactory, it was necessary to go still further and create a demand for the pay station, which still remained unknown to the general public. The operating companies themselves offered little assistance and Long found it necessary to organize a group of company representatives to call on hotels and other public places and explain what the machine would do.

Generally they were met with a flat refusal when the proprietor understood that his patrons would have to drop a nickel into a slot before getting telephone service, as at that time customers were allowed to use the telephones for local calls without charge. When the hotel man was made to understand that the majority of his patrons would prefer to pay for service and be free from obligation, only then would he sign a contract for the installation of one of our devices on his premises. This contract was brought to the operating telephone company, who then agreed to connect the pay station.



**CHARLES SOBY**  
Secretary and Treasurer  
1891-1921

Charles Soby, who came to Hartford from Suffield, was among the first to raise the famous Connecticut shade grown tobacco for cigars. From small beginnings Mr. Soby developed his company to such an extent that, when he disposed of his active interests, the firm had more than 3,500 acres under intense cultivation.

We have already noted how Soby became acquainted with young Gray through their common interest in baseball. When Gray came to seek capital for the commercial development of his invention, Soby quickly saw the boundless field which could be opened up for the new machine, and advanced \$1,800 to Gray for the further development of his models.

When the Gray Telephone Pay Station Company was formed in 1891, Charles Soby was elected secretary and treasurer of the new corporation, which positions he held until his death in 1921. During his years of active association with the Company Mr. Soby was invaluable in the fight to win over public opinion to the side of the Company.

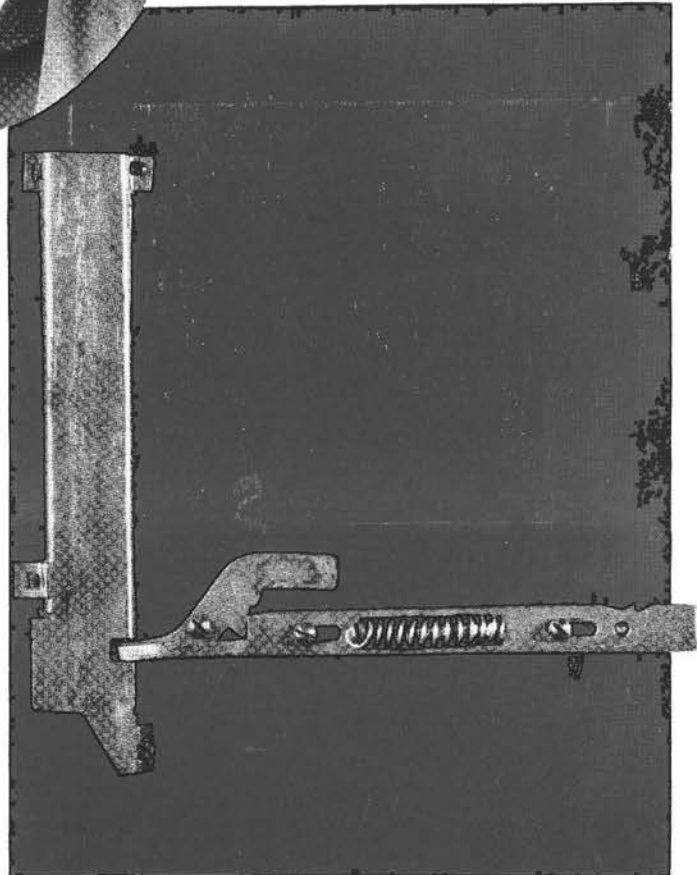
The Gray Company furnished the instrument, and received as its remuneration a percentage of the gross receipts. This arrangement worked fairly satisfactorily, the proprietor getting 10% of the gross receipts, the Gray Company 25%, and the operating telephone company the remaining 65%. Our records show that Kansas City was the last place where pay stations were installed on a rental basis, and in the returns which were made to this company monthly, it was found certain pay stations in that city collected as much as \$3,000. each in a single year.

After the pay station had made some progress and proved itself a public necessity, it was copied in the same manner as all other successful inventions are, with the result that in the early part of the twentieth century there were 25 different concerns building pay stations, all of which infringed our patent. Amongst these companies were several of the largest telephone manufacturers. The infringement of our patents became so pronounced that with reluctance we started suit in 1905. This suit was bitterly contested and carried through the highest courts in the United States, with a final decision in our favor wherein our patents were not only found valid, but pioneer in their scope. At the conclusion of this suit arrangements were made for settlement, there being no further court of appeal for the infringers from this decision. The Gray Company, in place of attempting to collect from the telephone industry all the traffic would bear to reimburse it for the loss sustained through these infringing devices, simply compelled the different manufacturers to stop infringement by destroying all the pay stations they had on hand and discontinuing further manufacture.

Mr. F. P. Fish, then President of the American Telephone & Telegraph Company, in arranging a settlement on behalf of the operating Bell companies, who as users were fully as liable as the makers, also on behalf of the Western



To the left is a photograph of George A. Long taken at about the time when, as a lad of sixteen, he made the first working model of a pay station. The figure below is an actual photograph of that model.



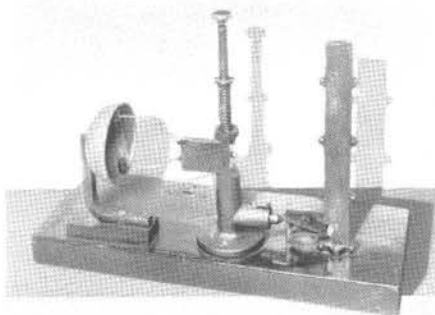
Gray

Electric Company, who was the actual manufacturer, suggested that we be paid a sum much greater than that which we actually felt was necessary. Therefore, we collected but a portion of what was offered us, refusing to accept anything over the amount of our legal expense, which was \$15,000.

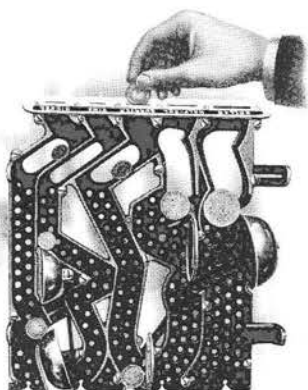
At that time, with the sweeping court decision in our hands, from which there was no appeal, some of the leading lawyers in this country suggested that we allow them to collect, on a percentage basis, with no cost to us whatever, damages from all the operating telephone companies, with the possibility of a master being appointed and the contents of all infringing pay stations being put under his jurisdiction until a full settlement had been made with us. As there were thousands of these devices in use at that time, such action would have put a tremendous burden on the operating telephone companies, involving hundreds of thousands of dollars. The Gray Company declined this proposition, feeling that the future did not warrant any such procedure. They did, however, insist that suitable license plates be attached to all infringing machines which notified the general public of the Gray patents, with the further distinct understanding that as these devices were taken out of use from time to time, they would not be put back into service.

This action on the part of the Gray Company, while saving thousands of dollars for the telephone companies, proved conclusively that it was our intention as founders of the pay station industry to build on lines which would be fair and satisfactory to all concerned.

After the successful conclusion of this suit and the general acceptance of the idea of pay stations, which by that time was practically universal, the business troubles of the firm were at an end. From that point on it was a matter of keeping abreast of the times by constantly im-



This illustration shows the old signalling device of about 1889. With this apparatus the user was required to push down the plunger to sound the signals on the bell after he had deposited the coin. The complexity and number of moving parts, as well as the difficulty of teaching the public the proper manipulation of the plungers, made this device commercially impractical.



Another invention worthy of attention was the placing of the signals in the path of the falling coin as shown in the illustration of a device of about 1890. Previous to this discovery the coin acted in a mechanical combination through the action of plungers and springs to sound these signals. This invention eliminated all movable parts such as levers and springs and provided quick service and low maintenance without confusion to the subscriber. This system of sounding the signals was an important step in the development of the modern pay station and has never been superseded.

proving the machine itself and further expanding the use of the machine to all parts of the world. In both of these problems Mr. Long succeeded exceptionally well. Each time that a new machine was required because of a change in the operating system, it was ready; and today the Company holds patents in five foreign countries.

Having shown the birth of this idea and how it was made a practical reality and commonplace in the world, we may now consider at some length the actual machine itself, the various changes it has undergone, and the difficulties which have been encountered in arriving at some sort of practical perfection.

In the development of the machine there have been three major periods: postpayment machines, manual prepayment machines and prepayment machines with mechanical switching. Beyond these three major developments there is a fourth which has played an important part in all three, this is the device to transmit the sound of the bells to the central office.

The first machines which were made by Gray were found to be impractical. In these first machines the payment was effected by placing the telephone in a locked box which could be opened by the insertion of a coin. This was perfectly satisfactory for the transmission of messages, but the necessity of prepayment for the reception of messages did not meet with approval.

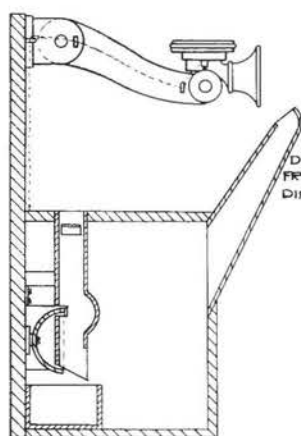
With his fifth model in 1889 Gray solved this difficulty with the postpayment pay station — "Do not deposit money until told to do so by the operator." In this first machine there was a system of plungers which were operated by the user in order to operate a mechanism which sounded the bells, which notified the operator that the money had been deposited. At that time the sounds were conveyed by the sound waves passing through a special



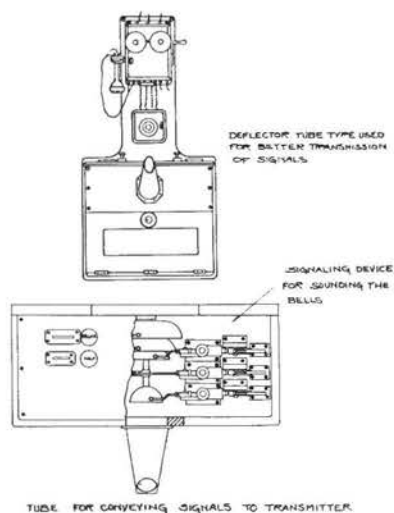
horn-shaped deflector, which projected against the transmitter.

With this, the earliest practical pay station, there were three faults; the idea of postpayment necessitated a great loss of time, the plunger system of notifying the operator was a nuisance, and the deflector was not an adequate method of conveying the signals.

In the elimination of these faults the bothersome plunger was the first to go, the solution coming by mere accident. As a workman was constructing a model at his bench one day, he accidentally dropped a coin against a bell which was laying close by. *There* was the solution; the bell should be placed in the path of the falling coin. The idea was tried and found to be practical, and the long procession of improvements was started on its way, resulting in quick service and low maintenance.

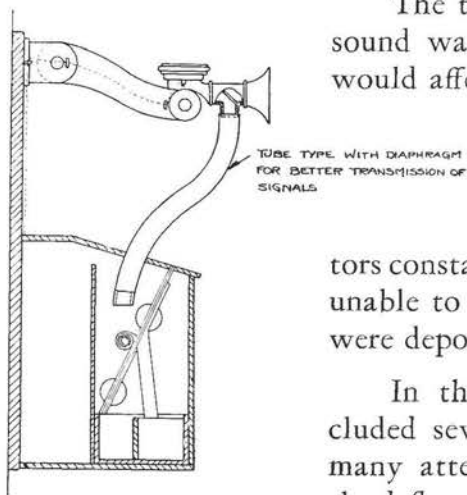


1890 Type Deflector —  
Bell in Path of Falling Coin.



Model of 1889 with Plungers to  
Sound Signals.

Since, as we have said, there was a great amount of trouble in conveying the signals to the central office operator by the deflector method, a concentrated effort towards improvement was the next objective.

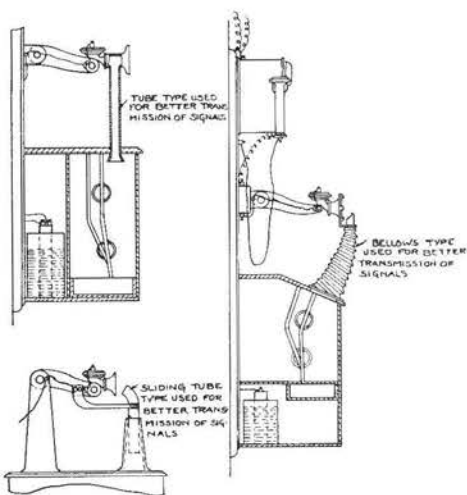


Early Type Coin Signal Tube.

The theory had been that the sound waves created by the bells would affect the diaphragm in the same manner as the spoken word. This did not prove to be true and the operators constantly complained of being unable to distinguish which coins were deposited.

In this volume we have included several illustrations of the many attempted improvements in the deflector. As you will note there is even an attempt to use two transmitters, one inside the box for collecting the signals, and one outside the box for voice transmission.

It was not, however, until we made the discovery of the resonant connection that the problem was entirely solved. With this discovery we found that by rigidly connecting the signals to the pay station, and in turn the pay station to that part of the telephone supporting the transmitter, the different sounds could be passed through the solid material (resonance), and carried to the back of the transmitter, and would then be reproduced at the central office with exact fidelity. This patent was declared pio-



Some 1890 Signal Transmission Devices Designed to Allow Movement of the Transmitter Arm.

neer, as there was no record in this country or any foreign one which would indicate the previous use of it by anyone.

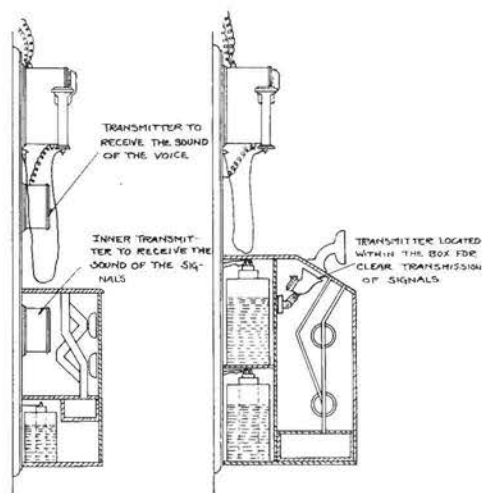
As telephone service became more generally used the loss of time involved in the postpayment type of machines began to be an important factor to the operating companies. This was after Mr.

Gray's death and the problem was turned over entirely to Mr. Long for solution.

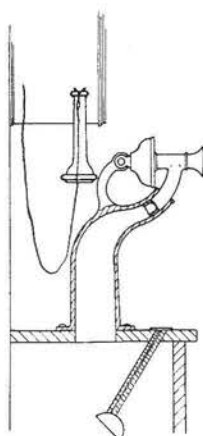
Mr. Long set to work immediately to develop a prepayment pay station. He succeeded in his effort and the full prepayment multi-coin pay station is one of his outstanding contributions to modern telephone practice. This machine was standardized by the American Telephone & Telegraph Company for use on all their lines in 1912. Through its use, not only was

local traffic speeded up, but the charges could be collected on toll

calls before the line was built up, with a consequent speeding up of toll traffic. This invention was of tremendous importance to the telephone business in general, for it



Separate Transmitter Used to Pick Up Coin Signals. The Handset Signal Transmitter Goes Back to this 1890 Model.



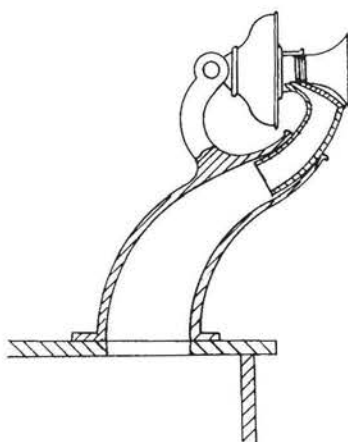
TUBE TYPE USED FOR BETTER TRANSMISSION OF SIGNALS TO THE TRANSMITTER

Transmitter Mounting Arm Used as Tube for Transmission of Coin Signals. Model of 1895.

Gray

served to make the pay station even more popular than before.

When operators were eliminated on local service by the installation of machine switching, it was felt that pay station calls would always have to terminate on a board with operators in order to collect or refund coins. But again Mr. Long had forseen the future development of the telephone and was ready.

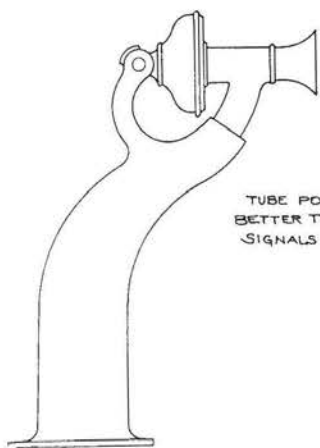


Modified Form of Transmitter Arm Signal Tube.

As early as 1905, he had begun to prepare for this eventuality, and in that year fifty of his prepayment machines for that service had been put in use in Fall River, Mass. on the Strowger System.

Later he developed a full prepayment multi-coin pay station in anticipation of the need he was sure was to come.

Today hundreds of thousands of this type of pay station are in service in all sections of the country.



TUBE POST TYPE FOR BETTER TRANSMISSION OF SIGNALS

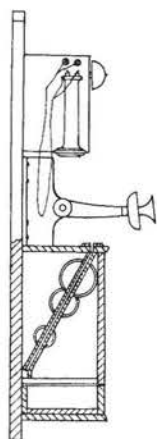
A Design Patent Was Issued for this Tube Post.

Following his successful solution of the difficulties which interfered with the efficient operation of the pay station, Mr. Long turned his attention to a related problem. As soon as the pay station had come into general use, those who live by their wits were



attracted to it as a new source of revenue. The locks then available were an easy prey to any expert at picking locks.

The Company felt it was their responsibility to safeguard the income of the purchasers of the machines, and to this end Mr. Long started work on the development of a lock which would provide safety at all times. Again he was successful in his undertaking and today the 12-B lock is approved equipment on all pay stations. Nearly one million of these locks are now in use throughout the world.



Resonant Connection Patented in 1897. The Signal Vibrations Were Carried to the Transmitter Through the Solid Material by Resonance. This Means Is Still Used Today.

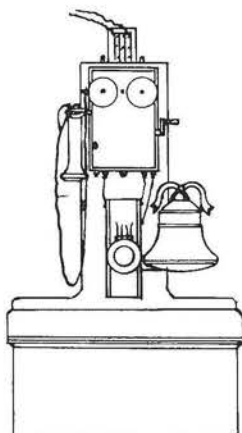
While we have touched upon only the highlights in the development of the pay station, some real idea of the effort and labor which have been expended to bring it to its present form may be gained from the fact that there are 82 American patents and 35 foreign ones covering the various improvements which have been made since the first crude machine was installed in Hartford in 1889.

To briefly bring out the importance of the pay station, we would cite as an example the City of New York where nearly 100,000 coin collectors are now installed, giving service 24 hours a day without any expense to the operating telephone companies, other than the cost of installation and collection. In one year 375,000,000 individual coins, weighing 2,800 tons, were collected in these pay stations. In order to effect the collection from these machines it required over 1,000,000 trips to the pay stations, covering thousands of miles by foot and automobile. It is estimated that if all the nickels collected in New York

Gray

T E L E P H O N E

City were laid side by side, they would form a strip of metal reaching from New York City to San Francisco and extend 800 miles further into the Pacific Ocean. During one year in the State of Connecticut, the third smallest state in the country, the coins collected in Gray pay stations weighed over 98 tons. Compare this result with that if paid attendants attempted to handle this service 24 hours a day. This gives some idea of the important part the public pay station has been and is playing in the telephone industry.



Modification of Early Resonant Connection Patent.  
Bell Shaped Pay Station Attached to Ordinary  
Wall Set.

## OPINION OF JUDGES GROSSCUP, BAKER AND KOHLSAAT FILED OCT. 5, 1909, SUSTAINING BROADLY THE GRAY PATENT AS PIONEER AND BASIC, AND HOLDING IT VALID AND INFRINGED.

"Gray was the first to devise and construct a toll-station based upon the idea that the pay-box-signal should be communicated to the transmitter by means of resonant connection between the two. He took steps to secure the utmost freedom of vibration from one to the other. His means of doing so involved a firm or rigid relation of the one to the other—such as would afford the most complete vibratory medium. This would never have been achieved without the idea of vibratory conduction of the sound signal along the solid wood or metal located in the path of vibration between the signal and the transmitter. The accidental vibration growing out of the constructions of the prior art would never have developed reliable vibratory communication. Accuracy of enunciation is the end toward which telephony is striving. Every step in advance is a victory gained over the unknown. \* \* \* \* \* While the properties of wood and metal as conductors of sound were matters of general knowledge, it cannot be said that the harnessing of this natural principle to the telephonic service was known to be practicable or practical—else why the long continued employment of the clumsy and inconvenient deflectors and signal box openings. We deem invention conclusively established. \* \* \* \* \* That defendant's pay-station complete, is an infringement of the first patent in suit, we entertain no doubt. All three of the machines shown in the record involve the principles and construction of the Gray patent. Wherein there is any difference, the rule as to equivalents obtains."

(Quoted from the opinion)

CHARLES K. OFFFIELD,  
OF COUNSEL.

OFFIELD, TOWLE, GRAVES & OFFIELD  
and  
HARRIE E. HART,  
*Solicitors for Complainant.*

## United States and Foreign Patents owned by The Gray Telephone Pay Station Company

The fact that this Company actually produced the first device in the world for the collection of telephone charges without the use of an attendant, as covered by an application filed April 5, 1888, and the number of patents which have been granted us regularly during the intervening years, proves conclusively that we are constantly studying the problems of improvements and methods of manufacture connected with the industry which we founded.

### UNITED STATES PATENTS

William Gray	408,709	Aug. 13, 1889	George A. Long	782,150	Feb. 7, 1905
William Gray	426,266	Apr. 22, 1890	George A. Long	810,491	Jan. 23, 1906
William Gray	448,024	Mar. 10, 1891	George A. Long	815,107	Mar. 13, 1906
William Gray	454,470	June 23, 1891	George A. Long	821,877	May 29, 1906
William Gray	462,813	Nov. 10, 1891	George A. Long	872,628	Dec. 3, 1907
William Gray	469,649	Feb. 23, 1892	George A. Long	894,388	July 28, 1908
William Gray	469,650	Feb. 23, 1892	George A. Long	912,389	Feb. 16, 1909
C. W. Holbrook	481,903	Aug. 30, 1892	George A. Long	917,629	Apr. 6, 1909
William Gray	510,535	Dec. 12, 1893	George A. Long	917,742	Apr. 6, 1909
W. T. Gentry	527,559	Oct. 16, 1894	George A. Long	932,036	Aug. 24, 1909
William Gray	23,825	Nov. 27, 1894	George A. Long	932,403	Aug. 24, 1909
William Gray	25,128	Feb. 4, 1896	George A. Long	932,404	Aug. 24, 1909
William Gray	569,195	Oct. 13, 1896	George A. Long	992,786	May 23, 1911
William Gray	593,720	Nov. 16, 1897	George A. Long	1,028,945	June 11, 1912
William Gray	593,962	Nov. 16, 1897	George A. Long	89,651	Dec. 31, 1912
William Gray	596,496	Jan. 4, 1898	George A. Long	1,061,093	May 6, 1913
William Gray	597,556	Jan. 18, 1898	George A. Long	1,075,485	Oct. 14, 1913
William Gray	598,610	Feb. 8, 1898	George A. Long	1,087,307	Feb. 17, 1914
William Gray	612,330	Oct. 11, 1898	George A. Long	1,094,000	Apr. 21, 1914
William Gray	636,134	Oct. 31, 1899	George A. Long	1,101,130	June 23, 1914
William Gray	636,135	Oct. 31, 1899	George A. Long	1,114,157	Oct. 20, 1914
William Gray	645,917	Mar. 20, 1900	George A. Long	1,138,128	May 4, 1915
William Gray	654,112	July 17, 1900	George A. Long	1,161,396	Nov. 23, 1915
William H. Barker	664,346	Dec. 18, 1900	George A. Long	1,181,907	May 2, 1916
William Gray	682,986	Sept. 17, 1901	George A. Long	1,188,666	June 27, 1916
William Gray	725,244	Apr. 14, 1903	George A. Long	1,206,557	Nov. 28, 1916
George A. Long	723,694	Mar. 24, 1903	George A. Long	1,285,264	Nov. 19, 1918
George A. Long	727,653	May 12, 1903	George A. Long	1,351,775	Sept. 7, 1920
George A. Long	733,494	July 14, 1903	George A. Long	1,383,472	July 5, 1921
George A. Long	753,411	Mar. 1, 1904	George A. Long	1,439,012	Dec. 19, 1922
George A. Long	753,412	Mar. 1, 1904	George A. Long	1,510,893	Oct. 7, 1924
George A. Long	770,377	Sept. 20, 1904	George A. Long	1,532,706	Apr. 7, 1925
George A. Long	777,525	Dec. 13, 1904	George A. Long	1,609,373	Dec. 7, 1926
George A. Long	37,283	Jan. 3, 1905	George A. Long	1,765,280	June 17, 1930



## UNITED STATES PATENTS — CON'T.

George A. Long	1,778,680	Oct. 14, 1930	George A. Long	1,966,413	July 10, 1934
George A. Long	1,863,525	June 14, 1932	George A. Long	1,967,993	July 24, 1934
George A. Long	1,886,409	Nov. 8, 1932	George A. Long	1,977,884	Oct. 23, 1934
George A. Long	1,888,956	Nov. 22, 1932	Geo. A. Long et al	1,984,976	Dec. 18, 1934
George A. Long	1,889,737	Nov. 29, 1932	George A. Long	1,994,452	Mar. 12, 1935
George A. Long	1,900,185	Mar. 7, 1933	George A. Long	1,998,410	Apr. 16, 1935
George A. Long	1,925,723	Sept. 5, 1933	George A. Long	2,003,946	June 4, 1935

## PENDING UNITED STATES PATENT APPLICATIONS

INVENTOR	SERIAL NO.	DATE FILED	INVENTOR	SERIAL NO.	DATE FILED
George A. Long	509,421	Jan. 17, 1931	George A. Long	682,777	July 29, 1933
George A. Long	664,381	Apr. 4, 1933	George A. Long	697,772	Nov. 13, 1933
George A. Long	670,927	May 13, 1933	George A. Long	23,723	May, 27, 1935
George A. Long	670,928	May 13, 1933	George A. Long	23,724	May, 27, 1935

## CANADIAN PATENTS

William Gray	39,093	June 9, 1892	George A. Long	208,236	Feb. 1, 1921
William Gray	61,286	Oct. 1, 1898	George A. Long	228,514	Feb. 6, 1923
George A. Long	147,748	May 6, 1913	George A. Long	247,564	Mar. 10, 1925
George A. Long	154,258	Mar. 10, 1914	George A. Long	270,163	Apr. 26, 1927
George A. Long	155,165	Apr. 21, 1914	George A. Long	306,769	Dec. 16, 1930
George A. Long	170,502	July 4, 1916	George A. Long	385,732	Mar. 29, 1932
George A. Long	202,109	July 20, 1920	George A. Long	322,891	May 31, 1932

## BELGIAN PATENTS

George A. Long	286,401	May 15, 1920	George A. Long	244,850	Nov. 6, 1922
George A. Long	291,403	Nov. 16, 1920	George A. Long	307,160	Dec. 15, 1922

## BRITISH PATENTS

George A. Long	20,126	June 25, 1914	George A. Long	267,033	Mar. 10, 1927
George A. Long	151,559	Sept. 30, 1920	George A. Long	327,995	Apr. 15, 1930
George A. Long	178,141	Apr. 6, 1922	George A. Long	328,037	Apr. 15, 1930
George A. Long	209,518	Jan. 17, 1924	George A. Long	391,271	Feb. 1, 1932

## FRENCH PATENTS

George A. Long	514,452	Nov. 15, 1920	George A. Long	667,855	June 25, 1929
George A. Long	525,733	June 15, 1921	George A. Long	667,856	June 25, 1929
George A. Long	558,219	May 19, 1923	George A. Long	731,165	May 24, 1932
George A. Long	623,432	Mar. 15, 1927			

## JAPANESE PATENTS

George A. Long	44,019	Nov. 20, 1922	George A. Long	70,463	Dec. 18, 1922
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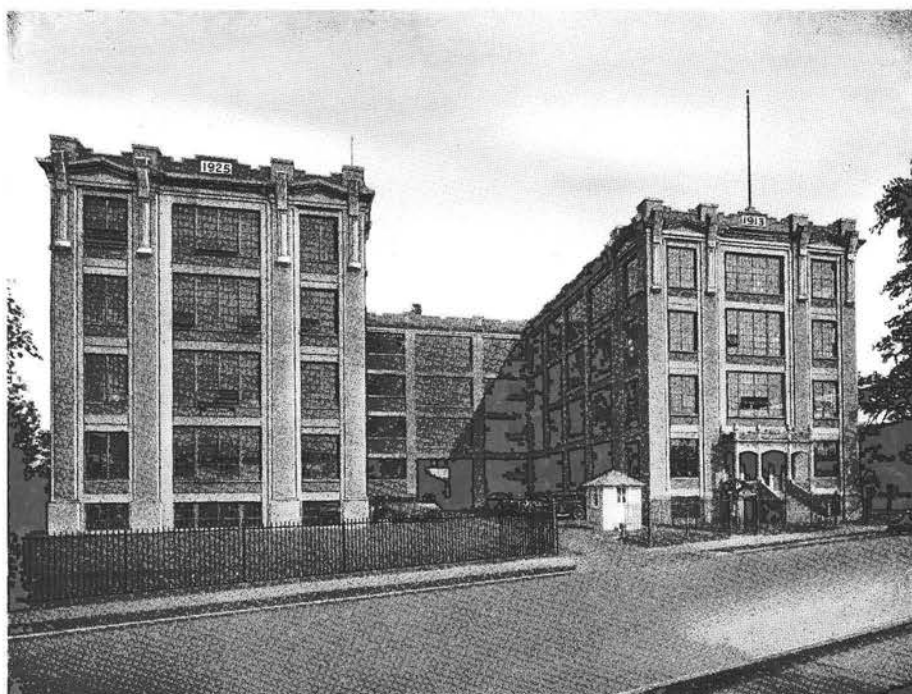


Medals presented in recognition of outstanding contributions to the development of telephone toll apparatus.

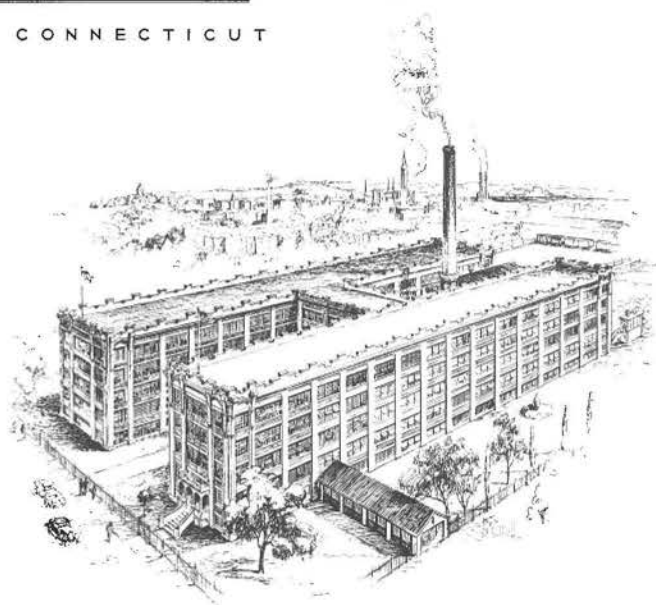
T E L E P H O N E



Diplomas of Award for Gray achievement and for their contribution to the development of the industry.



HOME OF  
THE GRAY TELEPHONE  
PAY STATION COMPANY  
HARTFORD, CONNECTICUT



Gran

TELEPHONE

PAY STATIONS

Today

# GENERAL DESCRIPTION

## Gray G and K Type Pay Stations

Postpayment Manual, Prepayment Manual and Prepayment Machine Switching Service—United States Coinage.

OUR G and K TYPE PAY STATIONS represent the results of many years of continued research and development, and the hundreds of thousands in service today attest to their reliability and worth. Constant improvement in reliability and security against burglary and fraudulent operation have brought these pay stations to a high state of perfection. The present line includes prepayment models for manual or machine switching service, sidetone, sidetone reduction or anti-sidetone circuits, standard or handset instruments, and convertible models for those companies which now operate postpayment but will eventually change over to prepayment service.

The Gray postpayment manual pay station may be connected into a manual office exchange without the addition of any special central office switching equipment. In operation the subscriber asks for the number desired, and when the operator has established the connection she requests the subscriber to deposit the proper charge.

The Gray prepayment pay station, when arranged for manual switching service, requires the deposit of a coin before a connection can be established to an operator. As the deposited coin travels along the runways it closes a switch which signals the operator that service is desired. The deposited coin is held in suspension and is collected or refunded by the operator, depending upon whether or not the called party is available. On long distance toll connections the operator calls for the deposit of the



charge and as each coin is put into the slot a distinctive signal is sounded which is audible to the operator. The coins are held in a coin hopper which has a capacity of ten nickels, twenty dimes, or ten quarters, and may be deposited or refunded at will. This feature makes it possible to use the full prepayment plan on toll calls, thus saving the holding time on expensive long distance trunks while the operator is waiting for the coins to be deposited.

When used for machine switching service the pay station dial is inoperative until a coin is deposited. The deposited coin closes a switch which serves to unlock the dialing circuit so that a local call can be made. The deposited coin is held in suspension and, through a special chain of relays in the central office, is automatically collected or refunded depending upon the completion or non-completion of the connection. On long distance toll connections the operator is dialed after the deposit of a coin and the call is handled as in manual switching service.

These pay stations are designed for wall mounting but may be mounted in a corner by means of a No. 153-A corner bracket, or on a shelf by means of a No. 139-A shelf bracket. The upper housing, coin box and backplate are of heavy pressed steel, and the cash compartment door is of hardened steel to prevent burglary. A burglar alarm switch, which is operated by the cash compartment lock, may be arranged to operate an alarm bell or buzzer adjacent to the pay station. The cash compartment lock is a combination of pin tumbler and flat lever construction giving double security. For the Bell Companies this lock is coded No. 12-B and for the Independent Companies No. 10-L. The pay station is regularly finished in standard black (code-3) or optionally in opalescent statuary bronze (code-13), except the coin gauge and the coin return escutcheon which are chromium plated. Overall dimensions: length, 18 $\frac{1}{4}$ "; width, 7"; depth, 6".



The type 50 pay stations are wired for use in conjunction with a desk set box with a two winding induction coil. The circuit is sidetone but connections are provided for changing to a sidetone reduction circuit if desired.

The type 150 pay stations have an anti-sidetone circuit and must be used with a desk set box with a three winding induction coil.

The hardened pressed steel cash compartment door is part of the standard equipment of each pay station, but the cash compartment lock, coin tray, and other accessories are not standard equipment and must be specified on the order.

The following items are not furnished by the Gray Company on G and K type pay stations, and where shown on the following pages are for purposes of illustration only: transmitter, receiver, receiver cord, handset, handset cord, dial, dial cord, extended dial number plate, extended dial number plate mounting and desk set box. The coin signal transmitter for handset models can be furnished if desired. The transmitter swivel and dial mounting are suitable for equipment of the type used by the Bell Companies but can be adapted for other types of equipment if specified.





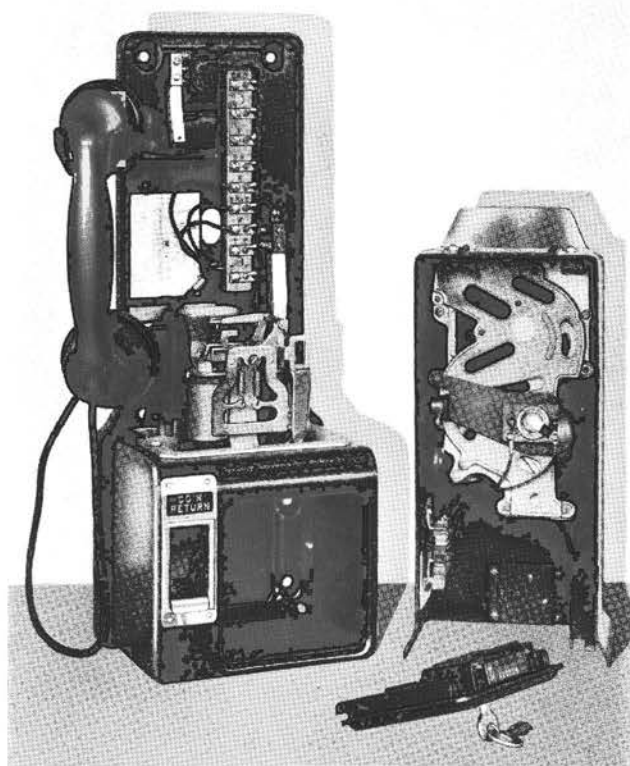
## No. 150-GJ Pay Station

### Prepayment Machine Switching Service

The Gray No. 150-GJ Prepayment Multi-Coin Pay Station is a handset model with an anti-sidetone circuit. The handset has proven its superiority in obtaining high average transmission results, and in addition it has a particular advantage on a pay station because it eliminates the problem of mounting the coin collector at the optimum height for all subscribers, and enables the subscriber to stand or sit comfortably while telephoning without impairing transmission strength. The coin signals are picked up by a separate transmitter mounted within the housing of the pay station on a resonator bracket.

This pay station is designed for full prepayment service. It has an anti-sidetone circuit which is adapted to the handset and requires the use of a desk set box with a three winding induction coil, and must be used with central office pay station switching equipment.

**Gray**



### Method of Ordering for Machine Switching Service

No. 150-GJ-3 Pay Station (black) Machine Switching or No. 150-GJ-13 Pay Station (bronze) Machine Switching equipped with:

- No. 12-B lock (Bell) or
- No. 10-L lock (Independent)
- No. 50-C apparatus blank assembly
- No. 2-A coin receptacle (non-locking) or
- No. 6001-A coin receptacle (self-locking) or
- No. 6001-B coin receptacle (self-locking) (large capacity)
- No. LD-72 signal transmitter (can be supplied if desired)





## No. 150-GJ Pay Station

### Prepayment Manual Service

The Gray No. 150-GJ Prepayment Multi-Coin Pay Station is a handset model with an anti-sidetone circuit. The handset has proven its superiority in obtaining high average transmission results, and enables the subscriber to stand or sit comfortably while telephoning without impairing transmission strength. The coin signals are picked up by a separate transmitter mounted within the housing of the pay station on a resonator bracket.

This pay station is designed for full prepayment service. It has an anti-sidetone circuit which is adapted to the handset and requires the use of a desk set box with a three winding induction coil, and must be used with central office pay station switching equipment.

It is to be noted that this pay station can be used for machine switching service at any time by adding a dial.

**Gray**



### Method of Ordering for Manual Service

No. 150-GJ-3 Manual Pay Station (black) or No. 150-GJ-13 Manual Pay Station (bronze) equipped with:

- No. 12-B lock (Bell) or
- No. 10-L lock (Independent)
- No. 50-C apparatus blank assembly
- No. 2-A coin receptacle (non-locking) or
- No. 6001-A coin receptacle (self-locking) or
- No. 6001-B coin receptacle (self-locking) (large capacity)
- No. LD-72 signal transmitter (can be supplied if desired)





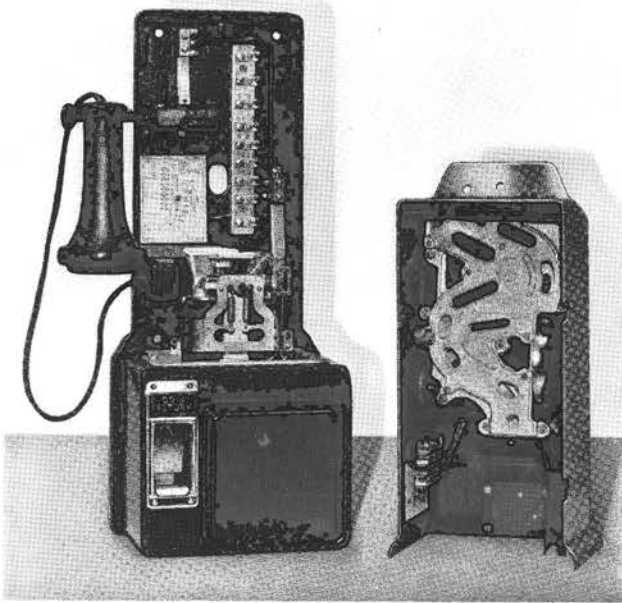
## No. 150-G Pay Station

### Prepayment Machine Switching Service

The Gray No. 150-G Prepayment Multi-Coin Pay Station, when arranged for machine switching service, does not require the services of a central office operator on local connections, and provides for the prepayment of long distance connections before the line is built up. To make a local call the subscriber must deposit a coin which renders the dialing circuit operative. This coin is later collected, or is refunded automatically, depending upon the completion or non-completion of the call. Toll calls are handled, as in prepayment manual practice, by the central office operator. The standard transmitter, receiver and dial are used.

The circuit is anti-sidetone requiring the use of a desk set box with a three winding induction coil. This model can be used only in exchanges with central office pay station switching equipment and is not adapted to the shunted dial method of control.

Gray



### Method of Ordering for Machine Switching Service

- No. 150-G-3 Pay Station (black) or No. 150-G-13 Pay Station (bronze)  
equipped with:
- No. 12-B lock (Bell) or
  - No. 10-L Lock (Independent)
  - No. 1-B card holder assembly
  - No. 2-A coin receptacle (non-locking) or
  - No. 6001-A coin receptacle (self-locking) or
  - No. 6001-B coin receptacle (self-locking) (large capacity)





## No. 150-G Pay Station

### Prepayment Manual Service

The Gray No. 150-G Prepayment Multi-Coin Pay Station, arranged for manual service, requires the deposit of a coin before a connection can be established to an operator, and provides for prepayment of long distance connections before the line is built up. The standard transmitter and receiver are used, with an apparatus blank to cover the dial opening. The circuit is anti-sidetone requiring the use of a desk set box with a three winding induction coil. This model can be used only in exchanges with central office pay station switching equipment.

It is to be noted that this pay station can be used for machine switching service at any time by adding a dial and substituting a No. 1-B card holder for the No. 50-C apparatus blank, making it particularly attractive to those companies which now operate on a manual basis but will eventually change over to machine switching service.

**Gray**



### Method of Ordering for Manual Service

- No. 150-G-3 Pay Station (black) or No. 150-G-13 Pay Station (bronze)  
equipped with:
- No. 12-B lock (Bell) or
  - No. 10-L lock (Independent)
  - No. 50-C apparatus blank assembly
  - No. 2-A coin receptacle (non-locking) or
  - No. 6001-A coin receptacle (self-locking) or
  - No. 6001-B coin receptacle (self-locking) (large capacity)





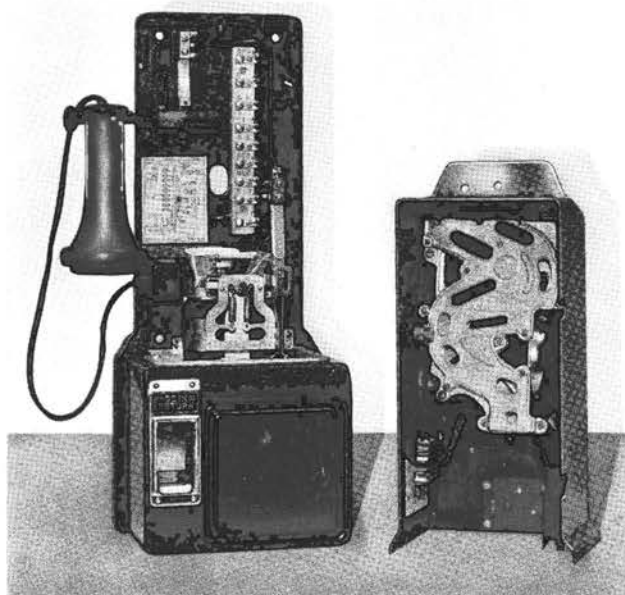
## No. 50-G Pay Station

### Prepayment Machine Switching Service

The Gray No. 50-G Prepayment Multi-Coin Pay Station, when arranged for machine switching service, does not require the services of a central office operator on local connections, and provides for the prepayment of long distance connections before the line is built up. To make a local call the subscriber must deposit a coin which renders his dialing circuit operative. This coin is later collected, or is refunded automatically, depending upon the completion or non-completion of the call. Toll calls are handled, as in prepayment manual practice, by the central office operator. The standard transmitter, receiver and dial are used.

The circuit is sidetone requiring the use of a desk set box with a two winding induction coil. Connections are provided for changing to a sidetone reduction circuit if desired. This model can be used only in exchanges with central office pay station switching equipment.

Gray



### Method of Ordering for Machine Switching Service

No. 50-G-3 Pay Station (black) or No. 50-G-13 Pay Station (bronze)  
equipped with:

No. 12-B lock (Bell) or

No. 10-L lock (Independent)

No. 1-B card holder assembly

No. 2-A coin receptacle (non-locking) or

No. 6001-A coin receptacle (self-locking) or

No. 6001-B coin receptacle (self-locking) (large capacity)





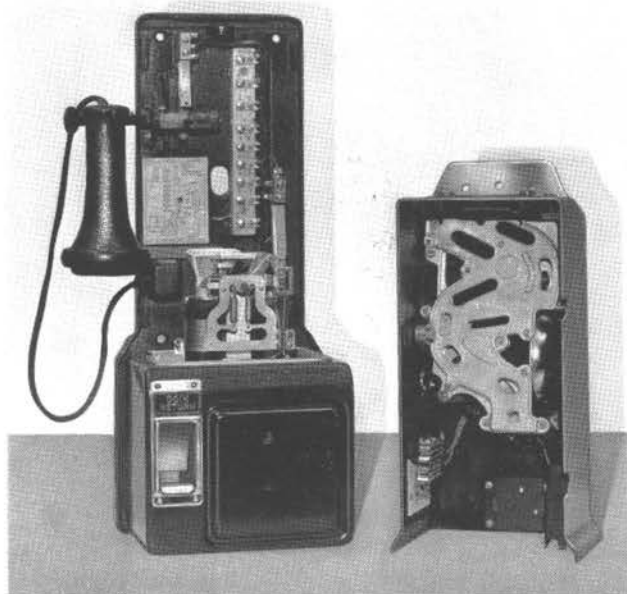
## No. 50-G Pay Station

### Prepayment Manual Service

The Gray No. 50-G Prepayment Multi-Coin Pay Station, when arranged for manual service, requires the deposit of a coin before a connection can be established to an operator, and provides for prepayment of long distance connections before the line is built up. The standard transmitter and receiver are used, with an apparatus blank to cover the dial opening. The circuit is sidetone requiring the use of a desk set box with a two winding induction coil. Connections are provided for changing to a sidetone reduction circuit if desired. This model can be used only in exchanges with central office pay station switching equipment.

It is to be noted that this pay station can be used for machine switching service at any time by adding a dial and substituting a No. 1-B card holder for the No. 50-C apparatus blank.

**Gray**



### Method of Ordering for Manual Service

- No. 50-G-3 Pay Station (black) or No. 50-G-13 Pay Station (bronze)  
equipped with:
- No. 12-B lock (Bell) or
  - No. 10-L lock (Independent)
  - No. 50-C apparatus blank
  - No. 2-A coin receptacle (non-locking) or
  - No. 6001-A coin receptacle (self-locking) or
  - No. 6001-B coin receptacle (self-locking) (large capacity)





## No. 150-KJ Pay Station

### Manual Postpayment Service

The Gray No. 150-KJ Postpayment Multi-Coin Pay Station is designed to supply the demand for a pay station of the convertible type which will accommodate a handset. The coin signals are picked up by a separate transmitter mounted within the housing of the pay station on a resonator bracket.

The pay station is arranged for receiving the payment of the charge after the connection is established by the operator. No special central office switching equipment is required as the postpayment plan is used throughout. The circuit is anti-sidetone and requires the use of a desk set box with a three winding induction coil.

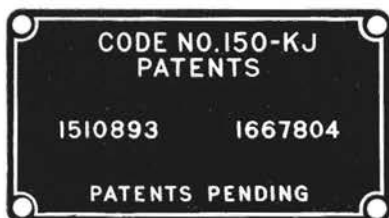
This station is readily convertible into a No. 150-GJ Prepayment Manual or Machine Switching Pay Station by the addition of a coin relay and the proper accessories. They afford large possibilities to those companies which now operate postpayment but will eventually change over to prepayment service.

**Gray**



### Method of Ordering

- No. 150-KJ-3 Pay Station (black) or No. 150-KJ-13 Pay Station (bronze) equipped with:  
 No. 12-B lock (Bell) or  
 No. 10-L lock (Independent)  
 No. 50-C apparatus blank assembly  
 No. 2-A coin receptacle (non-locking) or  
 No. 6001-A coin receptacle (self-locking) or  
 No. 6001-B coin receptacle (self-locking) (large capacity)  
 No. LD-72 signal transmitter (can be supplied if desired)





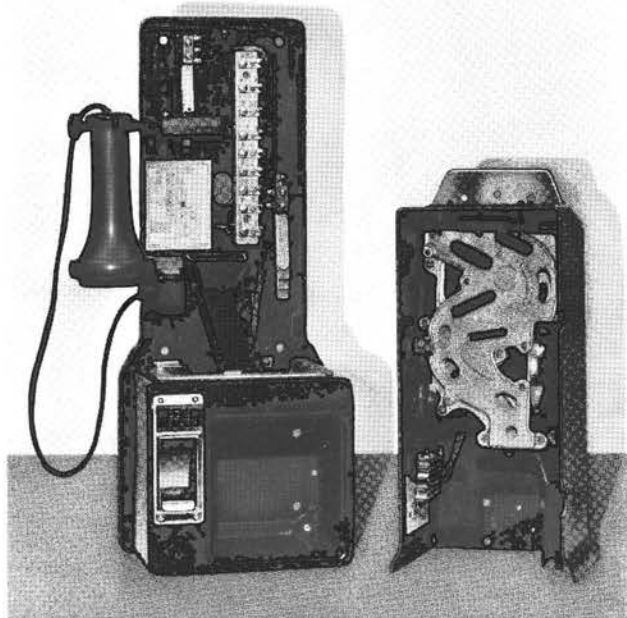
## No. 150-K Pay Station

### Manual Postpayment Service

The Gray No. 150-K Postpayment Multi-Coin Pay Station is arranged for receiving the payment of the charge after the connection is established by the operator. The standard transmitter and receiver are used, with an apparatus blank to cover the dial opening.

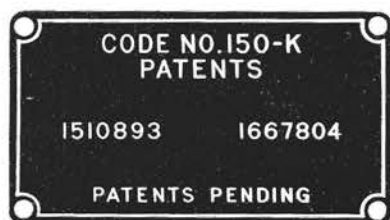
The circuit arrangement is anti-sidetone and requires the use of a desk set box with a three winding induction coil. No special central office equipment is required as the postpayment plan is used throughout. However, these stations are readily convertible into a No. 150-G Manual Prepayment or Machine Switching Pay Station by the addition of a coin relay and the proper accessories. They afford large possibilities to those companies which now operate postpayment but will eventually change over to prepayment service.

Gray



### Method of Ordering

- No. 150-K-3 Pay Station (black) or No. 150-K-13 Pay Station (bronze)  
 equipped with:  
 No. 12-B lock (Bell) or  
 No. 10-L lock (Independent)  
 No. 50-C apparatus blank assembly  
 No. 2-A coin receptacle (non-locking) or  
 No. 6001-A coin receptacle (self-locking)  
 No. 6001-B coin receptacle (self-locking) (large capacity)





## No. 50-K Pay Station

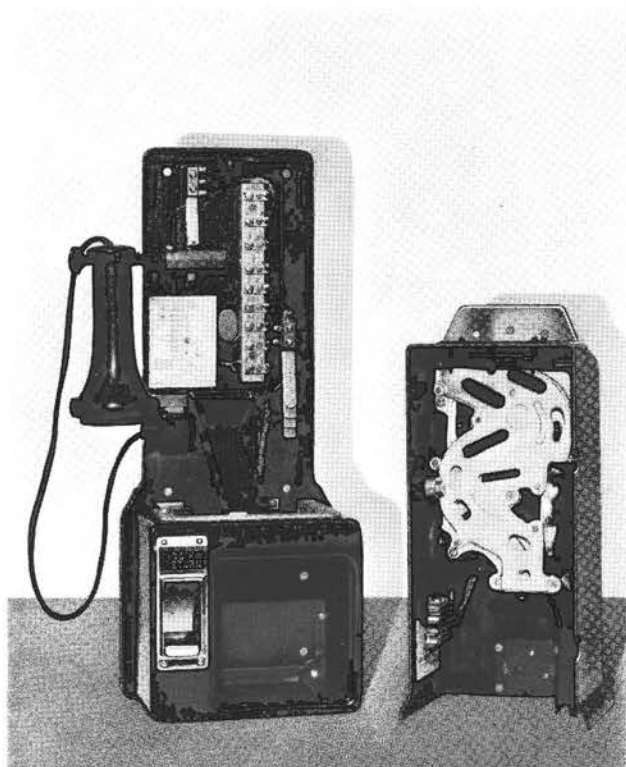
### Manual Postpayment Service

The Gray No. 50-K Postpayment Multi-Coin Pay Station is arranged for receiving the payment of the charge after the connection is established by the operator. The standard transmitter and receiver are used, with an apparatus blank to cover the dial opening.

The No. 50-K pay station is wired for use in conjunction with a desk set box with a two winding induction coil. Connections are provided for changing to a sidetone reduction circuit if desired.

No special central office equipment is required as the postpayment plan is used throughout. However, these stations are readily convertible into a No. 50-G Manual Prepayment or Machine Switching Pay Station by the addition of a coin relay and the proper accessories. They afford large possibilities to those companies which now operate postpayment but will eventually change over to prepayment service.

**Gray**



### Method of Ordering

No. 50-K-3 Pay Station (black) or No. 50-K-13 Pay Station (bronze)  
equipped with:

No. 12-B lock (Bell) or

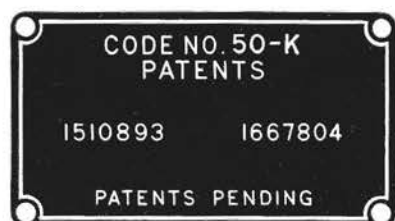
No. 10-L lock (Independent)

No. 50-C apparatus blank assembly

No. 2-A coin receptacle (non-locking) or

No. 6001-A coin receptacle (self-locking) or

No. 6001-B coin receptacle (self-locking) (large capacity)



# GENERAL DESCRIPTION

## Gray H and L Type Pay Stations

Postpayment Manual, Prepayment Manual and Prepayment Machine Switching Service—United States and Canadian Coinage.

OUR H and L SERIES OF PAY STATIONS are a universal type for use along the Canadian border or in metropolitan areas in Canada where the small five cent piece is no longer in general circulation. The coin chute is designed to accept the large Canadian nickel, dime and quarter, as well as the United States nickel, dime and quarter. This makes it particularly suited for service in border cities where both coinages are encountered. In all other respects the H and L models are identical with the corresponding G and K type pay stations. The present line includes prepayment models for manual or machine switching service, sidetone, sidetone reduction or anti-sidetone circuits, standard or handset instruments, and convertible models for those companies which operate postpayment but will eventually change over to prepayment service.

The Gray postpayment manual pay station may be connected into a manual office exchange without the addition of any special central office switching equipment. In operation the subscriber asks for the number desired, and when the operator has established the connection she requests the subscriber to deposit the proper charge.

The Gray prepayment pay station, when arranged for manual switching service, requires the deposit of a coin before a connection can be established to an operator. As the deposited coin travels along the runways it closes a switch which signals the operator that service is desired.



The deposited coin is held in suspension and is collected or refunded by the operator depending upon whether or not the called party is available. On long distance toll connections the operator calls for the deposit of the charge and as each coin is put into the slot a distinctive signal is sounded which is audible to the operator. The coins are held in a coin hopper which has a capacity of ten nickels, twenty dimes, or ten quarters, and may be deposited or refunded at will. This feature makes it possible to use the full prepayment plan on toll calls, thus saving the holding time on expensive long distance trunks while the operator is waiting for the coins to be deposited.

When used for machine switching service the pay station dial is inoperative until a coin is deposited. The deposited coin closes a switch which serves to unlock the dialing circuit so that a local call can be made. The deposited coin is held in suspension and, through a special chain of relays in the central office, it is automatically collected or refunded depending upon the completion or non-completion of the connection. On long distance toll connections the operator is dialed after the deposit of a coin, and the call is handled as in manual switching service.

These pay stations are designed for wall mounting but may be mounted in a corner by means of a No. 153-A corner bracket, or on a shelf by means of a No. 139-A shelf bracket. The upper housing, coin box and backplate are of heavy pressed steel and the cash compartment door is of hardened pressed steel to prevent burglary. A burglar alarm switch, which is operated by the cash compartment lock, may be arranged to operate an alarm bell or buzzer adjacent to the pay station. The cash compartment lock is a combination of pin tumbler and flat lever construction giving double security. For the Bell Companies this lock is coded No. 12-B and for the Independent Companies No. 10-L. The pay station is finished in standard black



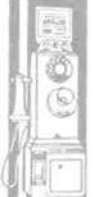
(code-3) or opalescent statuary bronze (code-13) except the coin gauge and the coin return escutcheon which are chromium plated. Overall dimensions: length, 18 $\frac{1}{4}$ " width, 7", depth, 6".

The type 50 pay stations are wired for use in conjunction with a desk set box with a two winding induction coil. The circuit is sidetone but connections are provided for changing to a sidetone reduction circuit if desired.

The type 150 pay stations have an anti-sidetone circuit and must be used with a desk set box with a three winding induction coil.

The hardened pressed steel cash compartment door is part of the standard equipment of each pay station, but the cash compartment lock, coin tray, and other accessories are not standard equipment and must be specified on the order.

The following items are not furnished by the Gray Company on H and L type pay stations, and where shown on the following pages are for purposes of illustration only: transmitter, receiver, receiver cord, handset, handset cord, dial, dial cord, extended dial number plate, extended dial number plate mounting, and desk set box. The coin signal transmitter for handset models can be furnished if desired. The transmitter swivel and dial mounting are suitable for equipment of the type used by the Bell Companies but can be adapted for other type equipment if specified.





## No. 150-HJ Pay Station

### Prepayment Machine Switching Service

The Gray No. 150-HJ Prepayment Multi-Coin Pay Station is a handset model with an anti-sidetone circuit. The handset has proven its superiority in obtaining high average transmission results, and in addition it has a particular advantage on a pay station because it eliminates the problem of mounting the coin collector at the optimum height for all subscribers, and enables the subscriber to stand or sit comfortably while telephoning without impairing transmission strength. The coin signals are picked up by a separate transmitter mounted within the housing of the pay station on a resonator bracket.

This pay station is designed for full prepayment service, has an anti-sidetone circuit which is adapted to the handset and requires the use of a desk set box with a three winding induction coil, and must be used with central office pay station switching equipment.

**Gray**



### Method of Ordering for Machine Switching Service

- No. 150-HJ-3 Pay Station (black) Machine Switching or No. 150-HJ-13 Pay Station (bronze) Machine Switching equipped with:
- No. 12-B lock (Bell) or
  - No. 10-L lock (Independent)
  - No. 50-C apparatus blank assembly
  - No. 2-A coin receptacle (non-locking) or
  - No. 6001-A coin receptacle (self-locking) or
  - No. 6001-B coin receptacle (self-locking) (large capacity)
  - No. LD-72 signal transmitter (can be supplied if desired)





## No. 150-HJ Pay Station

### Prepayment Manual Service

The Gray No. 150-HJ Prepayment Multi-Coin Pay Station is a handset model with an anti-sidetone circuit. The handset has proven its superiority in obtaining high average transmission results, and enables the subscriber to stand or sit comfortably while telephoning without impairing transmission strength. The coin signals are picked up by a separate transmitter mounted within the housing of the pay station on a resonator bracket.

This pay station is designed for full prepayment service, has an anti-sidetone circuit which is adapted to the handset and requires the use of a desk set box with a three winding induction coil, and must be used with central office pay station switching equipment.

It is to be noted that this pay station can be used for machine switching service at any time by adding a dial.

**Gray**

T E L E P H O N E

TCB Library - [www.telephonecollectors.info](http://www.telephonecollectors.info)



### Method of Ordering for Manual Service

No. 150-HJ-3 Manual Pay Station (black) or No. 150-HJ-13 Manual Pay Station (bronze) equipped with:

- No. 12-B lock (Bell) or
- No. 10-L lock (Independent)
- No. 50-C apparatus blank assembly
- No. 2-A coin receptacle (non-locking) or
- No. 6001-A coin receptacle (self-locking) or
- No. 6001-B coin receptacle (self-locking) (large capacity)
- No. LD-72 signal transmitter (can be supplied if desired)





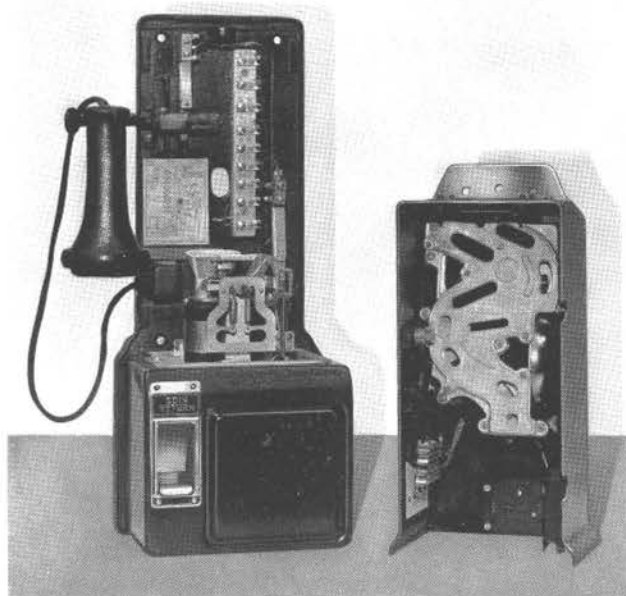
## No. 150-H Pay Station

### Prepayment Machine Switching Service

The Gray No. 150-H Prepayment Multi-Coin Pay Station is a semi-Canadian type, and, when arranged for machine switching service, it does not require the services of a central office operator on local connections, and provides for the prepayment of long distance connections before the line is built up. To make a local call the subscriber must deposit a coin which renders the dialing circuit operative. This coin is later collected, or is refunded automatically, depending upon the completion or non-completion of the call. Toll calls are handled, as in prepayment manual practice, by the central office operator. The standard transmitter, receiver and dial are used.

The circuit is anti-sidetone requiring the use of a desk set box with a three winding induction coil. This model can be used only in exchanges with central office pay station switching equipment.

Gray



### Method of Ordering for Machine Switching Service

- No. 150-H-3 Pay Station (black) or No. 150-H-13 Pay Station (bronze)  
equipped with:
- No. 12-B lock (Bell) or
  - No. 10-L lock (Independent)
  - No. 1-B card holder assembly
  - No. 2-A coin receptacle (non-locking) or
  - No. 6001-A coin receptacle (self-locking) or
  - No. 6001-B coin receptacle (self-locking) (large capacity)





## No. 150-H Pay Station

### Prepayment Manual Service

The Gray No. 150-H Prepayment Multi-Coin Pay Station, when arranged for manual service, requires the deposit of a coin before a connection can be established to an operator, and provides for prepayment of long distance connections before the line is built up. The standard transmitter and receiver are used, with an apparatus blank to cover the dial opening. The circuit is anti-sidetone, requiring the use of a desk set box with a three winding induction coil. This model can be used only in exchanges with central office pay station switching equipment.

It is to be noted that this pay station can be used for machine switching service at any time by adding a dial and substituting a No. 1-B card holder for the No. 50-C apparatus blank.





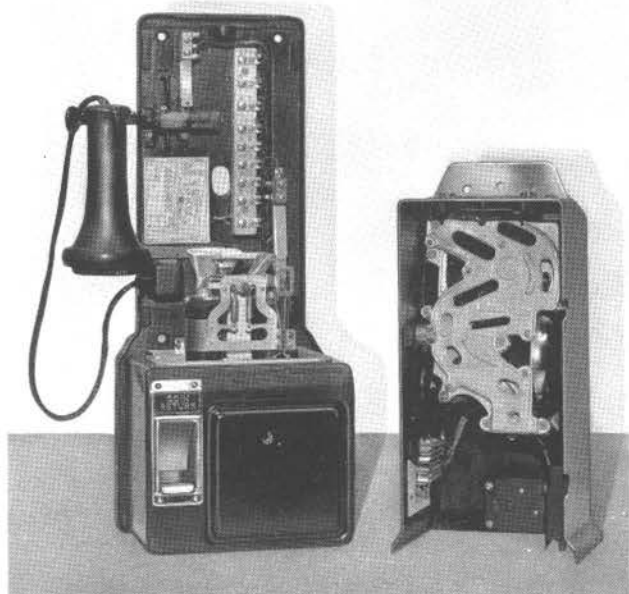
## No. 50-H Pay Station

### Prepayment Machine Switching Service

The Gray No. 50-H Prepayment Multi-Coin Pay Station is a semi-Canadian type. When arranged for machine switching service it does not require the services of a central office operator on local connections, and provides for the prepayment of long distance connections before the line is built up. To make a local call the subscriber must deposit a coin which renders the dialing circuit operative. The coin is later collected, or is refunded automatically, depending upon the completion or non-completion of the call. Toll calls are handled, as in prepayment manual practice, by the central office operator. The standard transmitter, receiver and dial are used.

The circuit is sidetone requiring the use of a desk set box with a two winding induction coil. Connections are provided for changing to a sidetone reduction circuit if desired. This model can be used only in exchanges with central office pay station switching equipment.

**Gray**



### Method of Ordering for Machine Switching Service

No. 50-H-3 Pay Station (black) or No. 50-H-13 Pay Station (bronze)  
equipped with:

- No. 12-B lock (Bell) or
- No. 10-L lock (Independent)
- No. 1-B card holder assembly
- No. 2-A coin receptacle (non-locking) or
- No. 6001-A coin receptacle (self-locking) or
- No. 6001-B coin receptacle (self-locking) (large capacity)



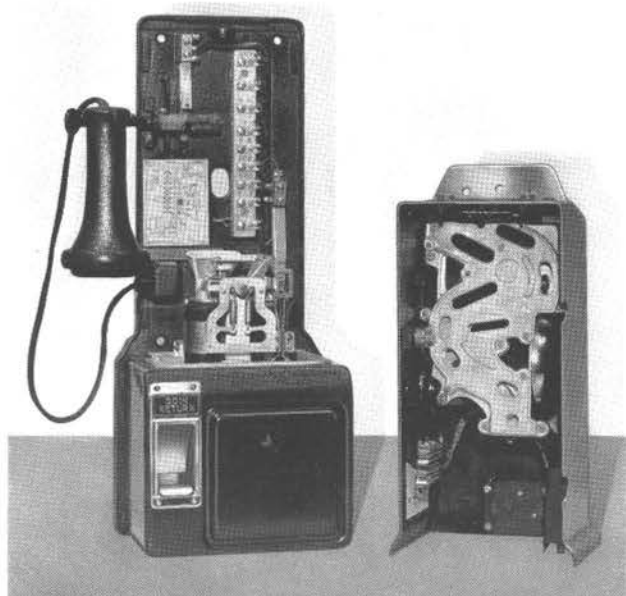


### No. 50-H Pay Station Prepayment Manual Service

The Gray No. 50-H Prepayment Multi-Coin Pay Station, arranged for manual service, requires the deposit of a coin before a connection can be established to an operator, and provides for prepayment of long distance connections before the line is built up. The standard transmitter and receiver are used, with an apparatus blank to cover the dial opening. The circuit is sidetone requiring the use of a desk set box with a two winding induction coil. Connections are provided for changing to a sidetone reduction circuit if desired. This model can be used only in exchanges with central office pay station switching equipment.

It is to be noted that this pay station can be used for machine switching service at any time by adding a dial and substituting a No. 1-B card holder for the No. 50-C apparatus blank.

**Gray**



### Method of Ordering for Manual Service

- No. 50-H-3 Pay Station (black) or No. 50-H-13 Pay Station (bronze)  
equipped with:  
No. 12-B lock (Bell) or  
No. 10-L lock (Independent)  
No. 50-C apparatus blank  
No. 2-A coin receptacle (non-locking) or  
No. 6001-A coin receptacle (self-locking) or  
No. 6001-B coin receptacle (self-locking) (large capacity)





## No. 150-LJ Pay Station

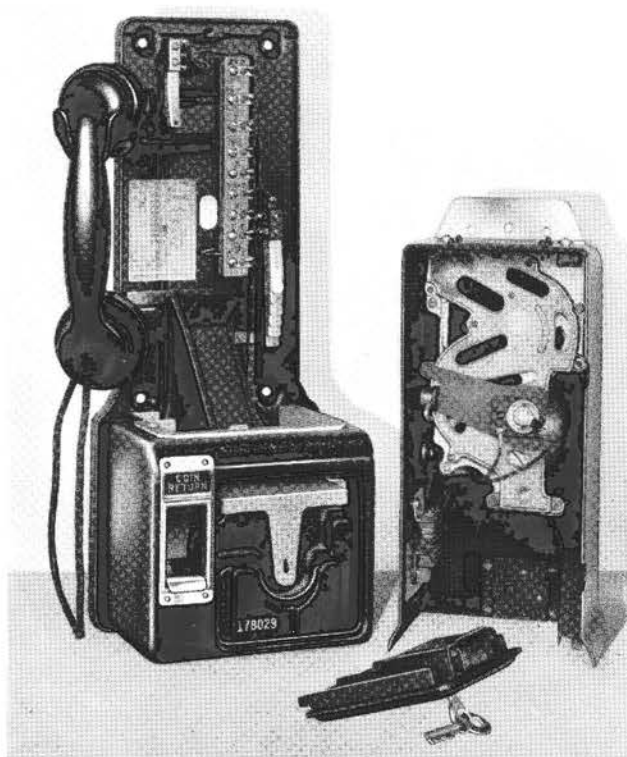
### Manual Postpayment Service

The Gray No. 150-LJ Postpayment Multi-Coin Pay Station is designed to supply the demand for a pay station of the convertible type which will accomodate a handset. The coin signals are picked up by a separate transmitter mounted within the housing of the pay station on a resonator bracket.

The pay station is arranged for receiving the payment of the charge after the connection is established by the operator. No special central office switching equipment is required as the postpayment plan is used throughout. The circuit is anti-sidetone and requires the use of a desk set box with a three winding induction coil.

This station is readily convertible into a No. 150-HJ Prepayment Manual or Machine Switching Pay Station by the addition of a coin relay and the proper accessories. They afford large possibilities to those companies which now operate postpayment, but will eventually change over to prepayment service.

Gray



### Method of Ordering

No. 150-LJ-3 Pay Station (black) or No. 150-LJ-13 Pay Station (bronze) equipped with:

No. 12-B lock (Bell) or

No. 10-L lock (Independent)

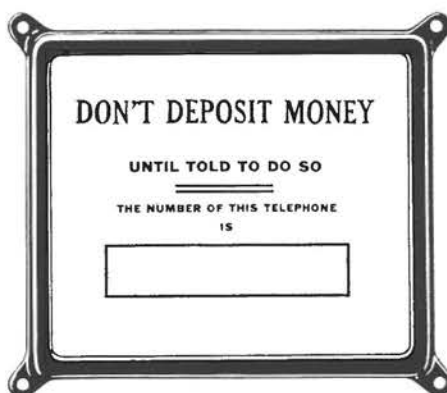
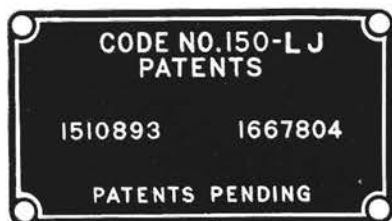
No. 50-C apparatus blank assembly

No. 2-A coin receptacle (non-locking) or

No. 6001-A coin receptacle (self-locking) or

No. 6001-B coin receptacle (self-locking) (large capacity)

No. LD-72 signal transmitter (can be supplied if desired)





## No. 150-L Pay Station

### Manual Postpayment Service

The Gray No. 150-L Postpayment Multi-Coin Pay Station is arranged for receiving the payment of the charge after the connection is established by the operator. The standard transmitter and receiver are used, with an apparatus blank to cover the dial opening.

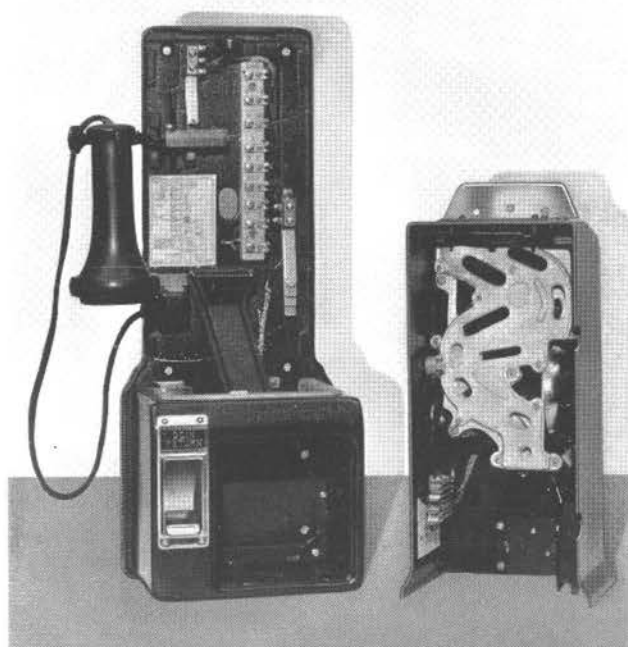
The circuit arrangement is anti-sidetone and requires the use of a desk set box with a three winding induction coil. No special central office equipment is required as the postpayment plan is used throughout. However, these stations are readily convertible into a No. 150-H Manual Prepayment or Machine Switching Pay Station by the addition of a coin relay and the proper accessories. They afford large possibilities to those companies which now operate postpayment, but will eventually change over to prepayment service.

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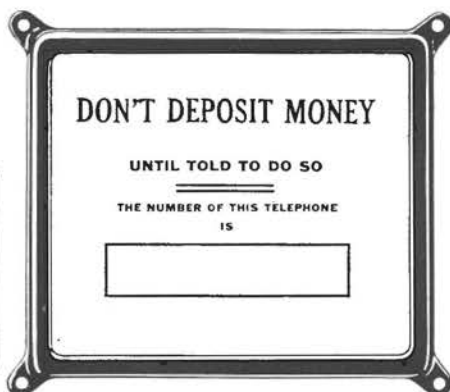
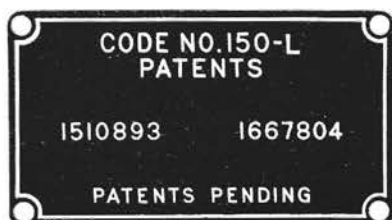
y



### Method of Ordering

No. 150-L-3 Pay Station (black) or No. 150-L-13 Pay Station (bronze)  
equipped with:

- No. 12-B lock (Bell) or
- No. 10-L lock (Independent)
- No. 50-C apparatus blank assembly
- No. 2-A coin receptacle (non-locking) or
- No. 6001-A coin receptacle (self-locking) or
- No. 6001-B coin receptacle (self-locking) (large capacity)



P A Y S T A T I O N S





## No. 50-L Pay Station

### Manual Postpayment Service

The Gray No. 50-L Postpayment Multi-Coin Pay Station is arranged for receiving the payment of the charge after the connection is established by the operator. The standard transmitter and receiver are used, with an apparatus blank to cover the dial opening.

The No. 50-L pay station is wired for use in conjunction with a desk set box with a two winding induction coil. Connections are provided for changing to a sidetone reduction circuit if desired.

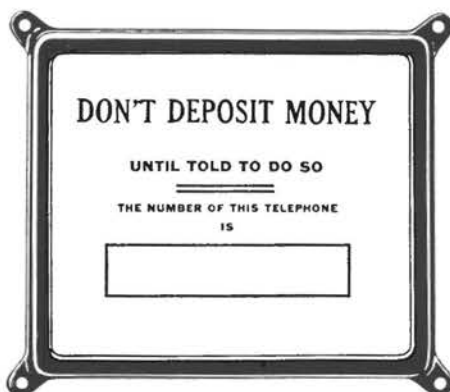
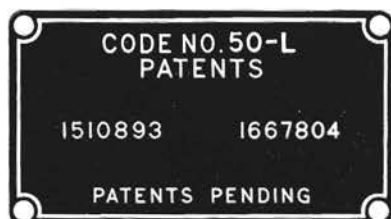
No special central office equipment is required, as the postpayment plan is used throughout. However, these stations are readily convertible into a No. 50-H Manual Prepayment or Machine Switching Pay Station by the addition of a coin relay and the proper accessories. They afford large possibilities to those companies which now operate postpayment, but will eventually change over to prepayment service.

Gray



### Method of Ordering

- No. 50-L-3 Pay Station (black) or No. 50-L-13 Pay station (bronze)  
 equipped with:  
 No. 12-B lock (Bell) or  
 No. 10-L lock (Independent)  
 No. 50-C apparatus blank assembly  
 No. 2-A coin receptacle (non-locking) or  
 No. 6001-A coin receptacle (self-locking) or  
 No. 6001-B coin receptacle (self-locking) (large capacity)



# GENERAL DESCRIPTION

## Gray E, M and 76-S Pay Stations

Postpayment Manual, Prepayment Manual and Prepayment Machine Switching Service—Canadian Coinage  
Including Small Five Cent Piece.

OUR 50-E, 50-M and 76-S PAY STATIONS are equipped with a specially constructed coin chute which will accept the large and small Canadian five cent pieces, but reject slugs of intermediate size. The chute also takes Canadian dimes and quarters. The coin relay is modified to operate properly with the small five cent coin. The particular field for these pay stations is in those areas where the small five cent piece is still in general circulation and must be contended with.

The Gray postpayment manual pay stations may be connected into a manual office exchange without the addition of any special central office switching equipment. In operation the subscriber asks for the number desired, and when the operator has established the connection she requests the subscriber to deposit the proper charge.

The Gray prepayment pay station, when arranged for manual switching service, requires the deposit of a coin before a connection can be established to an operator. As the deposited coin travels along the runways it closes a switch which signals the operator that service is desired. The deposited coin is held in suspension and is collected or refunded by the operator depending upon whether or not the called party is available. On long distance toll connections the operator calls for the deposit of the charge and, as each coin is put into the slot, a distinctive signal is sounded which is audible to the operator. The coins are held in a coin hopper which has a capacity of ten nickels,



twenty dimes, or ten quarters, and may be deposited or refunded at will. This feature makes it possible to use the full prepayment plan on toll calls, thus saving the holding time on expensive long distance trunks while the operator is waiting for the coins to be deposited.

When used for machine switching service the pay station dial is inoperative until a coin is deposited. The deposited coin closes a switch which serves to unlock the dialing circuit so that a local call can be made. The deposited coin is held in suspension and, through a special chain of relays in the central office, is automatically collected or refunded depending upon the completion or non-completion of the connection. On long distance toll connections the operator is dialed after the deposit of a coin, and the call is handled as in manual switching service.

These pay stations are designed for wall mounting but may be mounted in a corner by means of a No. 153-A corner bracket, or on a shelf by means of a No. 139-A shelf bracket. The upper housing, coin box and back plate are of heavy pressed steel, and the cash compartment door is of hardened pressed steel to prevent burglary. A burglar alarm switch, which is operated by the cash compartment lock, may be arranged to operate an alarm bell or buzzer adjacent to the pay station. The cash compartment lock is a combination of pin tumbler and flat lever construction giving double security. For the Bell Companies this lock is coded No. 12-B and for the Independent Companies No. 10-L. The pay station is finished in standard black (code-3) or opalescent statuary bronze (code-13) except the coin gauge and the coin return escutcheon which are chromium plated. Overall dimensions: length 18 $\frac{1}{4}$ , width, 7, depth, 6".

The type 50 and 76-S pay stations are wired for use in conjunction with a desk set box with a two winding induction coil. The circuit is sidetone but connections



are provided for changing to a sidetone reduction circuit if desired.

The hardened pressed steel cash compartment door is part of the standard equipment of each pay station, but the cash compartment lock, coin tray, and other accessories are not standard equipment and must be specified on the order.

The following items are not furnished by the Gray Company, and where shown on the following pages are for purposes of illustration only: transmitter, receiver, receiver cord, dial, dial cord, extended dial number plate, extended dial number plate mounting and desk set box. The transmitter swivel and dial mounting are suitable for equipment of the type used by the Bell Companies but can be adapted for other type equipment if specified.





## No. 50-E Pay Station

### Prepayment Machine Switching Service

The Gray No. 50-E Prepayment Multi-Coin Pay Station is a Canadian type. When arranged for machine switching service it does not require the services of a central office operator on local connections, and provides for the prepayment of long distance connections before the line is built up. To make a local call the subscriber must deposit a coin which renders the dialing circuit operative. This coin is later collected, or is refunded automatically, depending upon the completion or non-completion of the call. Toll calls are handled, as in prepayment manual practice, by the central office operator. The standard transmitter, receiver and dial are used.

The circuit is sidetone requiring the use of a desk set box with a two winding induction coil. Connections are provided for changing to a sidetone reduction circuit if desired. This model can be used only in exchanges with central office pay station switching equipment.

**Gray**



### Method of Ordering for Machine Switching Service

- No. 50-E-3 Pay Station (black) or No. 50-E-13 Pay Station (bronze)  
equipped with:
- No. 12-B lock (Bell) or
  - No. 10-L lock (Independent)
  - No. 1-B card holder assembly
  - No. 2-A coin receptacle (non-locking) or
  - No. 6001-A coin receptacle (self-locking) or
  - No. 6001-B coin receptacle (self-locking) (large capacity)





## No. 50-E Pay Station

### Prepayment Manual Service

The Gray No. 50-E Prepayment Multi-Coin Pay Station is a Canadian type. When arranged for manual service it requires the deposit of a coin before a connection can be established to an operator, and provides for prepayment of long distance connections before the line is built up. The standard transmitter and receiver are used, with an apparatus blank to cover the dial opening. The circuit is sidetone requiring the use of a desk set box with a two winding induction coil. Connections are provided for changing to a sidetone reduction circuit if desired. This model can be used only in exchanges with central office pay station switching equipment.

It is to be noted that this pay station can be used for machine switching service at any time by adding a dial and substituting a No. 1-B card holder for the No. 50-C apparatus blank.

**Gray**

T E L E P H O N E



### Method of Ordering for Manual Service

- No. 50-E-3 Pay Station (black) or No. 50-E-13 Pay Station (bronze)  
equipped with:  
No. 12-B lock (Bell) or  
No. 10-L lock (Independent)  
No. 50-C apparatus blank assembly  
No. 2-A coin receptacle (non-locking) or  
No. 6001-A coin receptacle (self-locking) or  
No. 6001-B coin receptacle (self-locking) (large capacity)





## No. 50-M Pay Station

### Manual Postpayment Service

The Gray No. 50-M Postpayment Multi-Coin Pay Station is a Canadian type so arranged that the payment of the charge is made after the connection is established by the operator. The standard transmitter and receiver are used, with an apparatus blank to cover the dial opening.

The No. 50-M pay station is wired for use in conjunction with a desk set box with a two winding induction coil. Connections are provided for changing to a sidetone reduction circuit if desired.

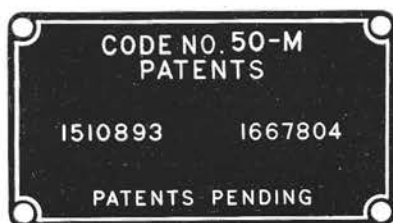
No special central office equipment is required, as the postpayment plan is used throughout. However, these stations are readily convertible into a No. 50-E Manual Prepayment or Machine Switching Pay Station by the addition of a coin relay and the proper accessories. They afford large possibilities to those companies which now operate postpayment, but will eventually change over to prepayment service.





### Method of Ordering

- No. 50-M-3 Pay Station (black) or No. 50-M-13 Pay Station (bronze)  
 equipped with:  
 No. 12-B lock (Bell) or  
 No. 10-L lock (Independent)  
 No. 50-C apparatus blank assembly  
 No. 2-A coin receptacle (non-locking) or  
 No. 6001-A coin receptacle (self-locking) or  
 No. 6001-B coin receptacle (self-locking) (large capacity)





## No. 76-S Pay Station

### Canadian Prepayment Machine Switching Service

The Gray No. 76-S Prepayment Multi-Coin Pay Station is designed for machine switching service in Canada, and is provided with a bracket which mounts the dial below the transmitter at an angle with the case. The direction card is mounted directly on the case above the transmitter and is part of the standard equipment. This pay station does not require the services of a central office operator on local connections, and provides for the prepayment of long distance connections before the line is built up. The standard transmitter, receiver and dial are used.

The circuit is sidetone, requiring the use of a desk set box with a two winding induction coil. Connections are provided for changing to a sidetone reduction circuit if desired. This model can be used only in exchanges with central office pay station switching equipment.

Gray



### Method of Ordering

No. 76-S Pay Station equipped with:

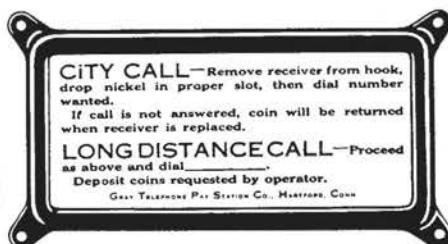
No. 12-B lock (Bell) or

No. 10-L lock (Independent)

No. 2-A coin receptacle (non-locking) or

No. 6001-A coin receptacle (self-locking) or

No. 6001-B coin receptacle (self-locking) (large capacity)



# GENERAL DESCRIPTION

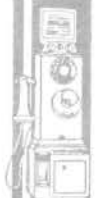
## Gray 34-A8, 34-A9, 75-A and 75-C Pay Stations

Prepayment Machine Switching Service—United States Coinage.

OUR 34-A8, 34-A9, 75-A and 75-C PAY STATIONS are designed for prepayment machine switching service and are adapted for use in Strowger dial exchanges. This group of pay stations is equipped with an extra leaf in the ground spring assembly, or coin relay line switch, which is used to shunt the dial impulse springs until a coin is deposited. When used with central office pay station repeaters that do not require the shunted dial control the shunting spring may be disconnected.

In operation the pay station dial is normally inoperative until a coin is deposited. The deposited coin closes a switch which serves to unlock the dialing circuit so that a local call can be made. The deposited coin is held in suspension and, through a special chain of relays in the central office, is automatically collected or refunded depending upon the completion or non-completion of the connection.

To make a long distance call the subscriber dials the long distance operator and gives her the order. The operator calls for the deposit of the charge and, as each coin is put into the slot, a distinctive signal is sounded which is audible to the operator. The coins are held in a coin hopper which has a capacity of ten nickels, twenty dimes, or ten quarters, and may be deposited or refunded at will. This feature makes it possible to use the full prepayment plan on toll calls, thus saving the holding time on expensive long distance trunks while the operator is waiting for the coins to be deposited.



These pay stations are designed for wall mounting but may be mounted in a corner by means of a No. 153-A corner bracket, or on a shelf by means of a No. 139-A shelf bracket. The upper housing, coin box and backplate are of heavy pressed steel, and the cash compartment door is of hardened pressed steel to prevent burglary. A burglar alarm switch, which is operated by the cash compartment lock, may be arranged to operate an alarm bell or buzzer adjacent to the pay station. The cash compartment lock is a combination of pin tumbler and flat lever construction giving double security. For the Bell Companies this lock is coded No. 12-B and for the Independent Companies No. 10-L. The pay station is finished in standard black except the coin gauge and the coin return escutcheon which are chromium plated. Overall dimensions: length, 18 $\frac{1}{4}$ ", width, 7", depth, 6".

The No. 34-A9 pay station is a handset type and has a mounting for an extended dial number plate. The handset has proven its superiority in obtaining high average transmission results, and in addition it has a particular advantage on a pay station because it eliminates the problem of mounting the coin collector at the optimum height for all subscribers, and enables the subscriber to stand or sit comfortably while telephoning without impairing transmission strength. The coin signals are picked up by a separate transmitter mounted within the housing of the pay station on a resonator bracket.

The No. 34-A8 pay station is similar to the No. 34-A9 but is designed for standard instruments. The No. 75-A and No. 75-C likewise take standard instruments but they will not accommodate the extended dial number plate, and the transmitter is mounted above the dial on a combination mounting bracket.

The No. 34-A8, No. 34-A9 and No. 75-C pay stations have an anti-sidetone circuit requiring the use of a desk set box with a three winding induction coil, while the

circuit of the No. 75-A is sidetone requiring the use of a desk set box with a two winding induction coil.

The hardened pressed steel cash compartment door is part of the standard equipment of each pay station, but the cash compartment lock, coin tray, and other accessories are not standard equipment and must be specified on the order.

The following items are not furnished by the Gray Company, and where shown on the following pages are for purposes of illustration only: transmitter, transmitter swivel, receiver, receiver cord, handset, handset cord, dial, dial cord, extended dial number plate and desk set box. The extended dial number plate mounting is part of the standard equipment on the No. 34-A8 and No. 34-A9 pay stations. The transmitter swivel mounting is drilled for a transmitter swivel of the concealed hinge pin type as manufactured by the Automatic Electric Company.





## No. 34-A9 Pay Station

### Prepayment Machine Switching Service

The Gray No. 34-A9 Prepayment Multi-Coin Pay Station is a handset model with an anti-sidetone circuit. The handset has proven its superiority in obtaining high average transmission results, and in addition it has a particular advantage on a pay station because it eliminates the problem of mounting the coin collector at the optimum height for all subscribers, and enables the subscriber to stand or sit comfortably while telephoning without impairing transmission strength. The coin signals are picked up by a separate transmitter mounted within the housing of the pay station on a resonator bracket.

This pay station is designed for full prepayment service. It has an anti-sidetone circuit which is adapted to the handset and requires the use of a desk set box with a three winding induction coil, and must be used with central office pay station switching equipment. An extended dial number plate mounting is standard equipment on this model.

Gray

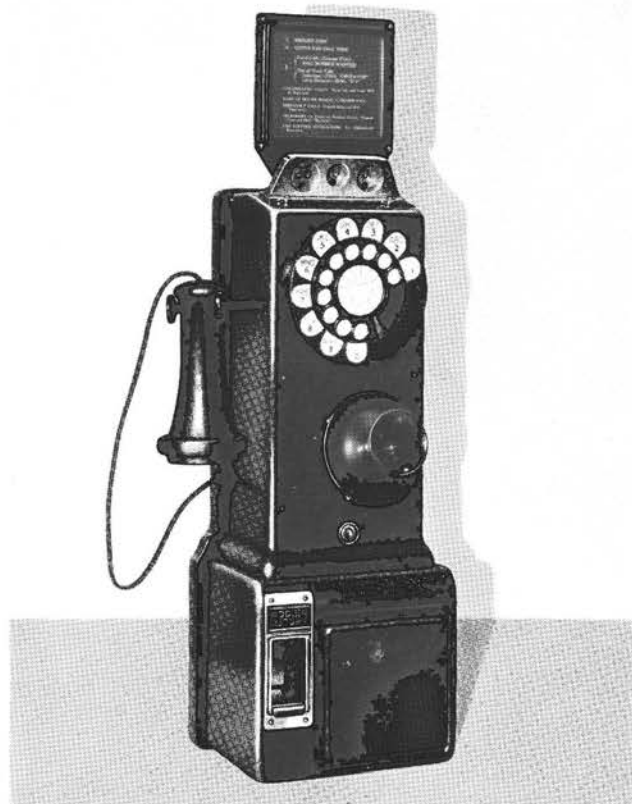
T E L E P H O N E



### Method of Ordering

- No. 34-A9 Pay Station equipped with:  
 No. 12-B lock (Bell) or  
 No. 10-L lock (Independent)  
 No. 50-C apparatus blank assembly  
 No. 2-A coin receptacle (non-locking) or  
 No. 6001-A coin receptacle (self-locking) or  
 No. 6001-B coin receptacle (self-locking) (large capacity)  
 No. LD-72 signal transmitter (can be supplied if desired)





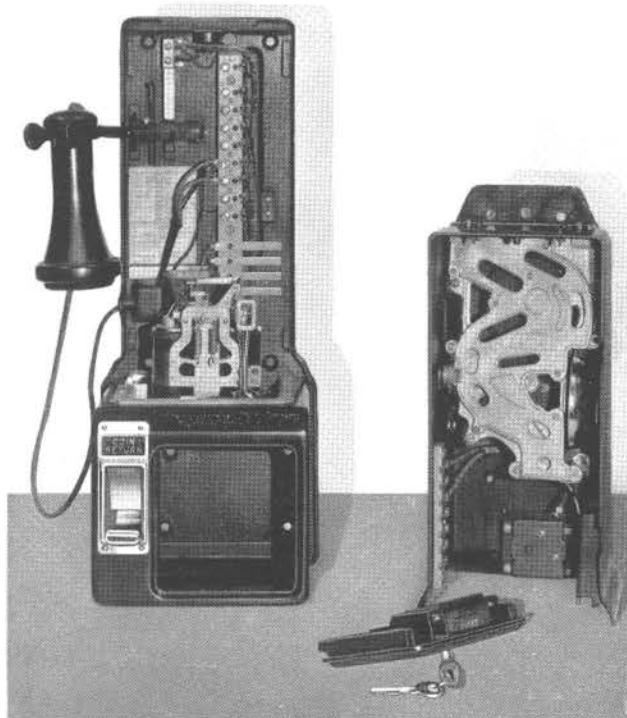
## No. 34-A8 Pay Station

### Prepayment Machine Switching Service

The Gray No. 34-A8 Prepayment Multi-Coin Pay Station, when arranged for machine switching service, does not require the services of a central office operator on local connections, and provides for the prepayment of long distance connections before the line is built up. A standard transmitter with a concealed hinge pin swivel, a receiver and a dial with an extended dial number plate are used.

The circuit is anti-sidetone requiring the use of a desk set box with a three winding induction coil. This model can be used only in exchanges with central office pay station switching equipment, and is adapted for use with repeaters that require a shunted dial control as well as with those which do not. An extended dial number plate mounting is part of the standard equipment. This model can be changed into a No. 34-A9 handset type by adding the proper accessories.

Gray



### Method of Ordering for Machine Switching Service

No. 34-A8 Pay Station equipped with:

No. 12-B lock (Bell) or

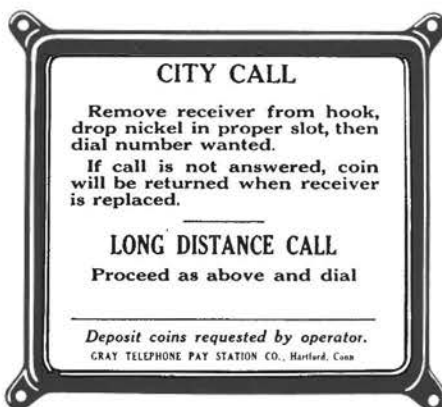
No. 10-L lock (Independent)

No. 1-B card holder assembly

No. 2-A coin receptacle (non-locking) or

No. 6001-A coin receptacle (self-locking) or

No. 6001-B coin receptacle (self-locking) (large capacity)





## No. 75-C Pay Station

### Prepayment Machine Switching Service

The Gray No. 75-C Prepayment Multi-Coin Pay Station is designed for machine switching service and is provided with a bracket to mount the dial, and the concealed hinge pin type of transmitter swivel manufactured by the Automatic Electric Company. The dial is mounted on the bracket below the transmitter and extends out from the case at an angle. The direction card is fastened directly to the case above the transmitter and is part of the standard equipment. This type of pay station does not require the services of a central office operator on local connections, and provides for the prepayment of long distance connections before the line is built up.

The circuit arrangement of the No. 75-C pay station is anti-sidetone and requires the use of a desk set box with a three winding induction coil.

**Gray**

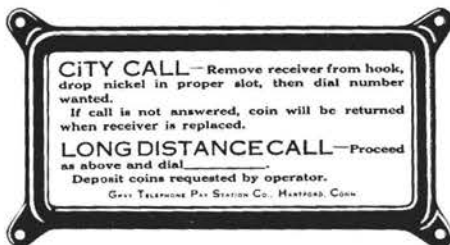
T E L E P H O N E

TCI Library - [www.telephonecollectors.info](http://www.telephonecollectors.info)



## Method of Ordering

- No. 75-C Pay Station equipped with:  
 No. 12-B lock (Bell) or  
 No. 10-L lock (Independent)  
 No. 2-A coin receptacle (non-locking) or  
 No. 6001-A coin receptacle (self-locking) or  
 No. 6001-B coin receptacle (self-locking) (large capacity)





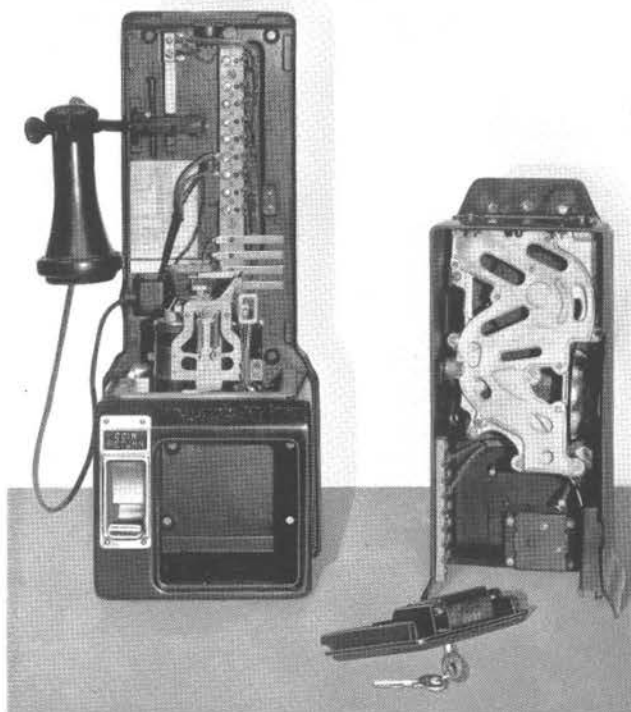
## No. 75-A Pay Station

### Prepayment Machine Switching Service

The Gray No. 75-A Prepayment Multi-Coin Pay Station is designed for machine switching service, and it is provided with a bracket for mounting a dial and concealed hinge pin type of transmitter swivel. The dial is mounted on the bracket below the transmitter and extends out from the case at an angle. The direction card is fastened directly to the case above the transmitter and is part of the standard equipment. This type of pay station does not require the services of a central office operator on local connections, and provides for the prepayment of long distance connections before the line is built up.

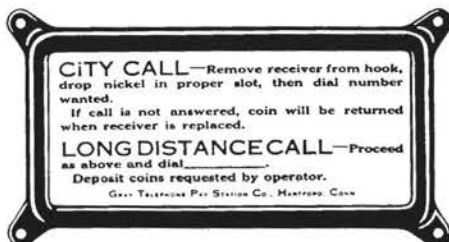
The circuit of the No. 75-A pay station is sidetone and it is wired for use in conjunction with a desk set box with a two winding induction coil. In this respect only does it differ from the No. 75-C.

**Gray**



### Method of Ordering

- No. 75-A Pay Station equipped with:
- No. 12-B lock (Bell) or
- No. 10-L lock (Independent)
- No. 2-A coin receptacle (non-locking) or
- No. 6001-A coin receptacle (self-locking) or
- No. 6001-B coin receptacle (self-locking) (large capacity)



# GENERAL DESCRIPTION

## Gray 34-A 10, 34-A 11 and 750 Pay Stations

Postpayment Machine Switching Service—United States Coinage.

OUR 34-A 10, 34-A 11 and 750 MACHINE SWITCHING PAY STATIONS are of a special type designed to permit local pay station service without the aid of an operator and without special central office equipment. They are particularly suited for automatic pay station service in small Strowger dial exchanges, where it is not desirable or practical to provide special toll switching equipment and high voltage batteries. The only central office requirement is that the reverse battery method of supervision be used which is conventional with Strowger installations.

The arrangement of the coin unit is such that the calling party is free to dial without depositing a coin, and can hear the called party answer, but cannot carry on a conversation until a coin is deposited. A low resistance shunt prevents the calling party from defeating the purpose of the pay station by using the receiver as a transmitter.

A coin is not required to call Information, Long Distance, Fire, Police or any line on which it is desired to give free service. The connections on free lines are arranged so that the current supply to the calling subscriber's line is not reversed.

For toll service the subscriber dials long distance and gives the operator the order. When the connection is established the operator calls for the deposit of the charge, which she checks by the distinctive audible gong signals sounded by the coins as they are deposited. There is no



suspension device in this type pay station so the coins cannot be refunded but pass directly into the coin box. The coin return pocket is provided only for refunding coins which are deposited in the wrong slot, such as a dime deposited in the nickel or quarter slots.

These pay stations are designed for wall mounting but may be mounted in a corner by means of a No. 153-A corner bracket, or on a shelf by means of a No. 139-A shelf bracket. The upper housing, coin box and backplate are of heavy pressed steel, and the cash compartment door is of hardened pressed steel to prevent burglary. A burglar alarm switch, which is operated by the cash compartment lock, may be arranged to operate an alarm bell or buzzer adjacent to the pay station. The cash compartment lock is a combination of pin tumbler and flat lever construction giving double security. For the Bell Companies this lock is coded No. 12-B and for the Independent Companies No. 10-L. This pay station is finished standard in attractive pale gold bronze lacquer, except for the coin gauge and coin return escutcheon which are chromium plated. Overall dimensions: length, 18 $\frac{1}{4}$ "; width, 7"; depth, 6".

The No. 34-A11 pay station is a handset type and has a mounting for an extended dial number plate. The handset has proven its superiority in obtaining high average transmission results, and in addition it has a particular advantage on a pay station because it eliminates the problem of mounting the pay station at the optimum height for all subscribers, and enables the subscriber to stand or sit comfortably while telephoning without impairing transmission strength. The coin signals are picked up by a separate transmitter mounted within the housing of the pay station on a resonator bracket.

The No. 34-A10 pay station is similar to the No. 34-A11 but is designed for standard instruments. The No. 750 likewise takes standard instruments but it will not accommodate the extended dial number plate, and the



transmitter is mounted above the dial on a combination mounting bracket.

The No. 34-A10 and No. 34-A11 pay stations have an anti-sidetone circuit requiring the use of a desk set box with a three winding induction coil, while the circuit of the No. 750 is sidetone requiring the use of a desk set box with a two winding induction coil.

The hardened pressed steel cash compartment door is part of the standard equipment of each pay station, but the cash compartment lock, coin tray, and other accessories are not standard equipment and must be specified on the order.

The following items are not furnished by the Gray Company, and where shown on the following pages are for purpose of illustration only: transmitter, transmitter swivel, receiver, receiver cord, handset, handset cord, dial, dial cord, extended dial number plate and desk set box. The extended dial number plate mounting is part of the standard equipment on the No. 34-A10 and No. 34-A11 pay stations. The transmitter swivel mounting is drilled for a transmitter swivel of the concealed hinge pin type as manufactured by the Automatic Electric Company.





## No. 34-A11 Pay Station

### Postpayment Machine Switching Service

The Gray No. 34-A11 Postpayment Multi-Coin Pay Station is a handset model for use in small exchanges where it is not practical to install special pay station control equipment. The handset has proven its superiority in obtaining high average transmission results, and in addition it has a particular advantage on a pay station because it eliminates the problem of mounting the coin collector at the optimum height for all subscribers, and enables the subscriber to stand or sit comfortably while telephoning without impairing transmission strength. The coin signals are picked up by a separate transmitter mounted within the housing of the pay station on a resonator bracket.

This pay station has an anti-sidetone circuit which is adapted to the handset and requires the use of a desk set box with a three winding induction coil. An extended dial number plate mounting is standard equipment on this model.





### Method of Ordering

No. 34-A11 Pay Station equipped with:

No. 12-B lock (Bell) or

No. 10-L lock (Independent)

No. 50-C apparatus blank

No. 2-A coin receptacle (non-locking) or

No. 6001-A coin receptacle (self-locking) or

No. 6001-B coin receptacle (self-locking) (large capacity)

No. LD-72 signal transmitter (can be supplied if desired)





## No. 34-A10 Pay Station

### Postpayment Machine Switching Service

The Gray No. 34-A10 Postpayment Multi-Coin Pay Station is adapted to a standard transmitter with concealed hinge pin swivel, a receiver and a dial with an extended dial number plate. It has a great advantage for small exchanges in that no special central office pay station switching equipment is required. The only central office requirement is that the reverse battery method of supervision be used which is conventional with Strowger-Automatic installations. The circuit is anti-sidetone requiring the use of a desk set box with a three winding induction coil. An extended dial number plate mounting is part of the standard equipment.

This model can be changed into a No. 34-A11 handset type by substituting the proper accessories and adding a coin signal transmitter with mounting bracket assembly.

Gray



### Method of Ordering

- No. 34-A10 Pay Station equipped with:
- No. 12-B lock (Bell) or
  - No. 10-L lock (Independent)
  - No. 1-B card holder assembly
  - No. 2-A coin receptacle (non-locking) or
  - No. 6001-A coin receptacle (self-locking) or
  - No. 6001-B coin receptacle (self-locking) (large capacity)





## No. 750 Pay Station

### Postpayment Machine Switching Service

The Gray No. 750 Postpayment Multi-Coin Pay Station is designed for machine switching service, and is provided with a bracket to mount the dial and the concealed hinge pin type of transmitter swivel manufactured by the Automatic Electric Company. The dial is mounted on the bracket below the transmitter and extends out from the case at an angle. The direction card is fastened directly to the case above the transmitter and is part of the standard equipment. This type of pay station does not require the services of a central office operator on local connections and provides for long distance connections on a manual postpayment basis.

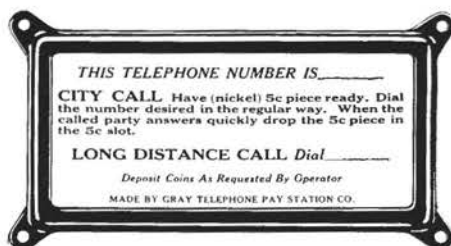
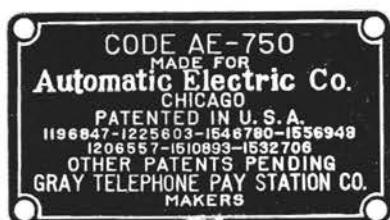
The circuit arrangement of the No. 750 pay station is anti-sidetone and requires the use of a desk set box with a three winding induction coil.

Gray



### Method of Ordering

- No. 750 Pay Station equipped with:  
 No. 12-B lock (Bell) or  
 No. 10-L lock (Independent)  
 No. 2-A coin receptacle (non-locking) or  
 No. 6001-A coin receptacle (self-locking) or  
 No. 6001-B coin receptacle (self-locking) (large capacity)





No. 12-B Lock  
Front and Sectional Views

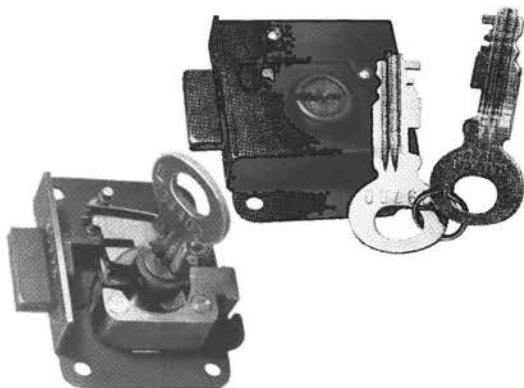
## Gray Coin Box Locks

The No. 12-B lock was originally designed by us to meet the requirements of the American Telephone & Telegraph Company, in order to insure proper protection to the contents of the telephone pay stations on their associated companies' lines. It was approved after 60 of these locks were in test service for several months in New York City in competition with an equal number of locks furnished by the leading lock makers in this country. There are at the present time hundreds of thousands of these locks in service, giving entire satisfaction.

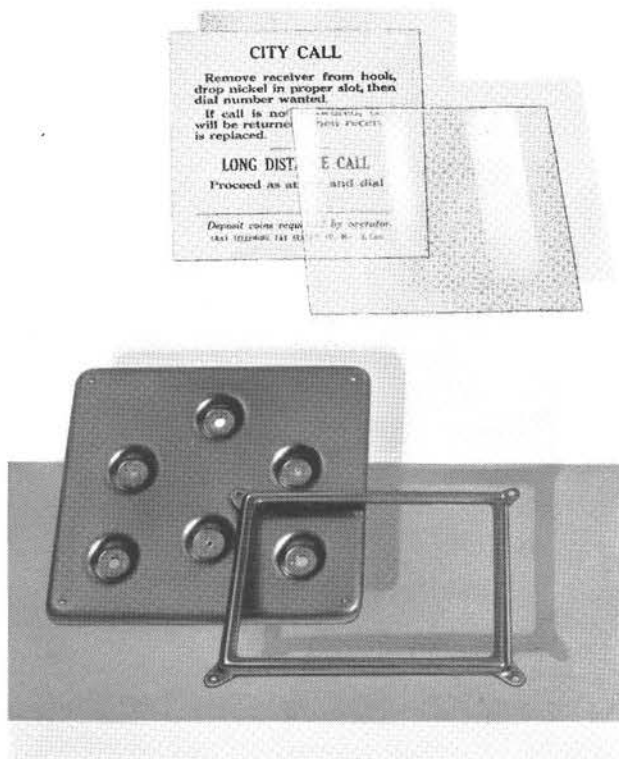
It is fundamentally different from any lock heretofore produced, as it comprises a combination of the paracentric ball bearing pin tumbler and flat lever construction, all in one unit. The front of the lock is made of hardened steel to prevent drilling by burglars, which was a common practice on the old style locks having brass centers. This type of lock offers a tremendous number of different changes, as well as the utmost protection.

The No. 10-L lock is constructed after the same design as the No. 12-B, but it is arranged so that the keys will not interchange. This lock is intended for use by the independent companies.

No. 10-L Lock  
Exterior and Interior  
Views



Gray



## No. 50-C Apparatus Blank Assembly

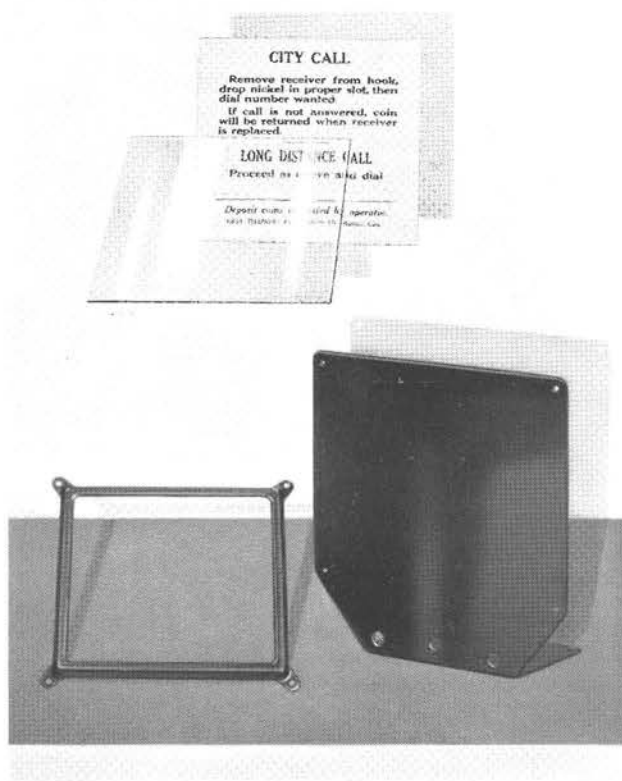
Consisting of the following parts:

- 1 Number 50-C Apparatus Blank Plate
- 1 Number 50-C Direction Card Frame
- 1 Number 50-C Direction Card Glass
- 4 Card Frame Mounting Screws

The No. 50-C Apparatus Blank Assembly is used to cover the dial opening and mount the direction card on manual type pay stations, and to cover the transmitter bracket holes and mount the direction card on the hand-set types. The dial mounting screws or transmitter bracket mounting screws serve to fasten it to the front of the pay station cover.

The appartaus blank and card frame are made of pressed steel, finished in standard black japan or to match the pay station.





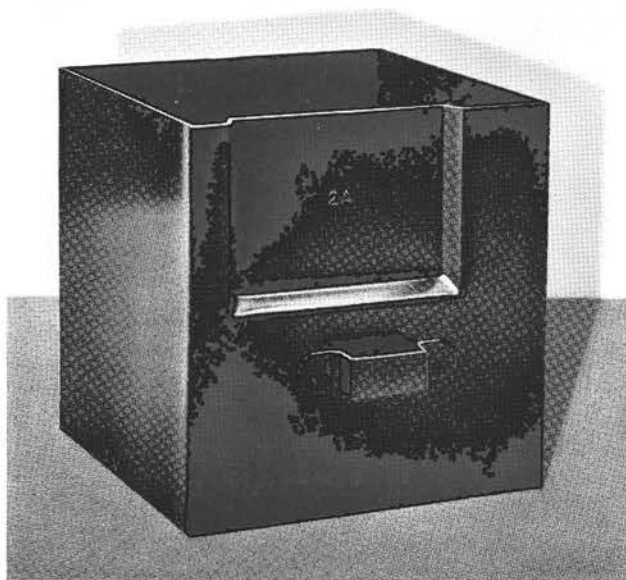
## No. 1-B Card Holder Assembly

Consisting of the following parts:

- 1 Number 1-B Card Holder Bracket
- 1 Number 50-C Direction Card Frame
- 1 Number 50-C Direction Card Glass
- 4 Card Frame Mounting Screws
- 4 Slotless Mounting Screws, Nuts and Lock Washers

The No. 1-B Card Holder Assembly is used to mount the direction card on those models having no space for the card on the front of the pay station. It is fastened to the top of the cover by the four slotless screws which hold the patent plate.

The card holder and card frame are made of pressed steel finished in standard black japan or to match the pay station.



## No. 2-A Coin Receptacle

The No. 2-A Coin Receptacle is a large capacity open type coin tray for the collection of coins in Gray Pay Stations. This type coin receptacle is non-locking and cannot be used with a cover. In small towns where the full advantages of the self locking receptacle cannot be realized, this may be the most economical type to use.

The usual collection procedure with this type of receptacle is as follows: The telephone company's collector makes his collections on a schedule known to the subscriber on whose premises the pay station is installed. The subscriber is present when the money is collected and counts it along with the collector, thus making sure of the amount due him or the amount owed the company. At the same time the subscriber's count is a check on the collector and a protection to the telephone company.

The No. 2-A coin receptacle is made of heavy gauge pressed steel finished in black japan. A small handle on the front of the tray facilitates removal from the pay station.



# The Gray Self-Locking Coin Receptacle

## General Description

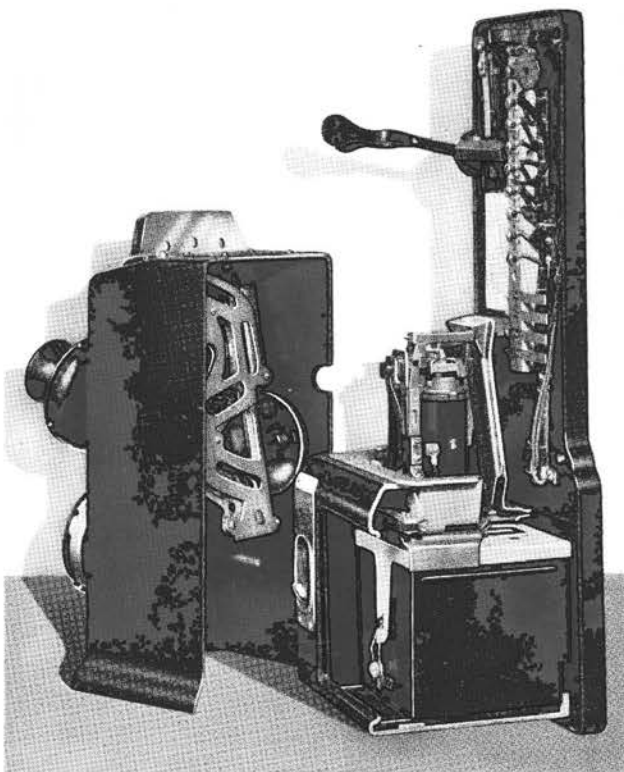
When the use of the pay station had advanced to the point where the business of collections had assumed major proportions, the Gray Company had the answer to the problems presented in the form of the self-locking or sealed coin receptacle. The time saving features of this device have saved the telephone companies untold sums by improving the efficiency of their collections. Aside from this advantage it offers absolute protection to the subscriber, the collector and the company.

The self-locking coin receptacle consists of a coin box, a cover equipped with a self-locking device, and a rail. The rail is fastened to the top of the cash compartment with three screws. A slot formed in the side of the rail receives a lever projecting from one side of the receptacle cover. As the receptacle is inserted into the cash compartment, this lever withdraws a shutter from over the coin opening in the cover and swings out into a notch in the rail. This notch restrains the lever so that the receptacle cannot be removed without closing the shutter. The latching mechanism locks the shutter in the closed position until released from the inside of the cover.

This coin receptacle makes possible a system of collection in which the collector neither sees nor handles any money. His duties consist of removing one sealed coin receptacle from a pay station and replacing it with an empty one. The filled receptacles are taken to the telephone company office where the seals are broken and the contents counted by machine. The number of the coin tray, the number of coins of each denomination and the amount collected are recorded, and from these records the revenue accounting center computes the amount of commission due each subscriber.

Before the receptacle is used again the latch in the cover is reset by turning a slotted hub on the under side of the cover. This may be conveniently done with a screw driver. The cover is sealed onto the body with a





No. 6001-A Coin Receptacle  
Installed in No. 750 Pay Station Shown in Sectional View

wire drawn through the hasp and secured with a lead seal.

When the self-locking coin receptacle was first introduced it was feared that subscribers would object to the removal of the money from their premises without checking the amount collected by an actual count. However, these fears proved groundless and the subscribers are glad to be relieved of the bothersome and time consuming job of counting quantities of small change. Also interruptions to service and delays to prospective patrons during collection periods are reduced to a minimum.





## No. 6001-A Coin Receptacle

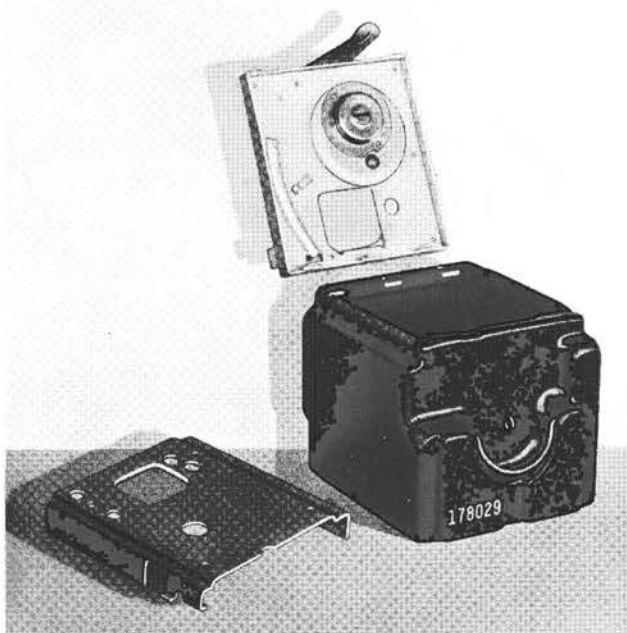
Consisting of the following parts:

- 1 Number 1-A Coin Receptacle
- 1 Number 1-C Coin Receptacle Cover
- 1 Number 1-A Coin Receptacle Rail with screws

The No. 6001-A Coin Receptacle is of the self-locking type which has solved the problem of speedy, efficient collections from pay stations. The more than a hundred thousand in service today have well demonstrated their worth and reliability.

The coin receptacle proper is made of pressed steel finished in black japan. A serial number filled with white paint is stamped on the front of each tray for the purpose of identification.

The coin receptacle cover and rail are constructed of pressed steel, plated with zinc to prevent rusting. The cover is provided with a hasp which snaps over the staple on the coin receptacle body so the cover may be conveniently secured with a lead seal.



## No. 6001-B Coin Receptacle

Consisting of the following parts:

- 1 Number 1-B Coin Receptacle
- 1 Number 1-C Coin Receptacle Cover
- 1 Number 1-A Coin Receptacle Rail with screws

The No. 6001-B Coin Receptacle is our latest design of self-locking coin tray. The box is expanded at every possible point to obtain the maximum coin capacity. A wire handle permits easy removal from the pay station.

The coin receptacle body is constructed of pressed steel, electrically welded and finished in black japan. A serial number filled with white paint is stamped on the front of each tray for the purpose of identification.

The cover and rail used with the No. 6001-B coin receptacle are the same as those used with the No. 6001-A. A staple on the tray engages a slot in the cover hasp so that the cover may be secured in place with a lead seal.

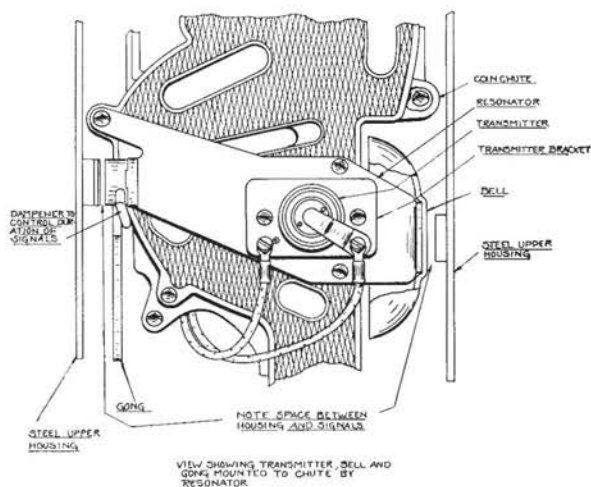


## Resonator Bracket Assembly With No. LD-72 Signal Transmitter

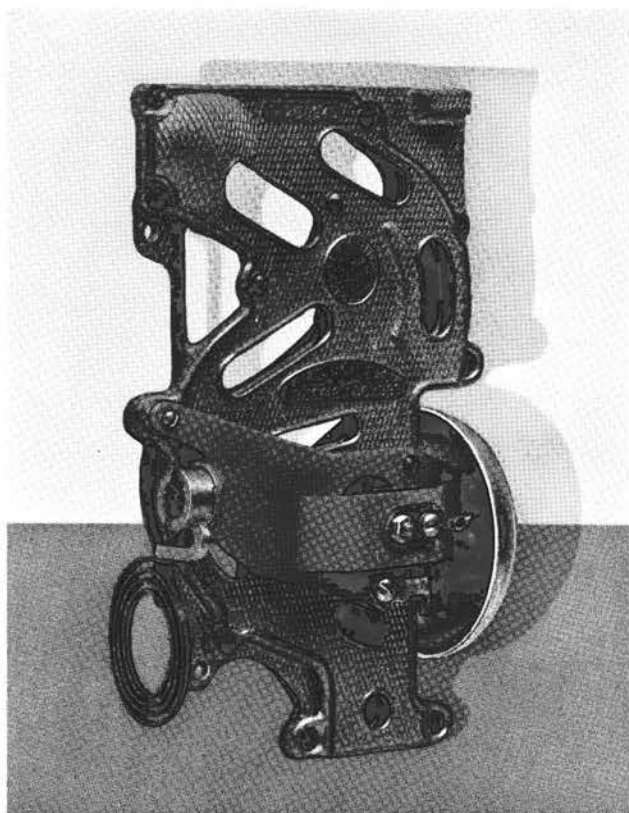
For Handset Models Only

The handset removed the speech transmitter from its usual position on the front of the pay station in resonant connection with the coin signal gongs, and made necessary a separate signal transmitter. In the Gray handset models this transmitter is conveniently located on a resonator bracket fastened to the back of the lead coin chute. This bracket also carries the bronze gong and the cathedral gong which is equipped with an adjustable aluminum dampener to prevent excessive carry. The efficiency of the resonant connection with this arrangement is such that the transmitter may be shunted by a resistor to reduce the effective resistance of the transmitter circuit.

The location of the resonator bracket on the comparatively "dead" or non-resonant lead chute prevents the transmission of extraneous noises, such as tapping on the housing. However, sufficient chute noise, caused by the traverse of the chute by the coin, is picked up in addition to the gong vibrations to give the characteristic signal associated with the deposit of a coin.



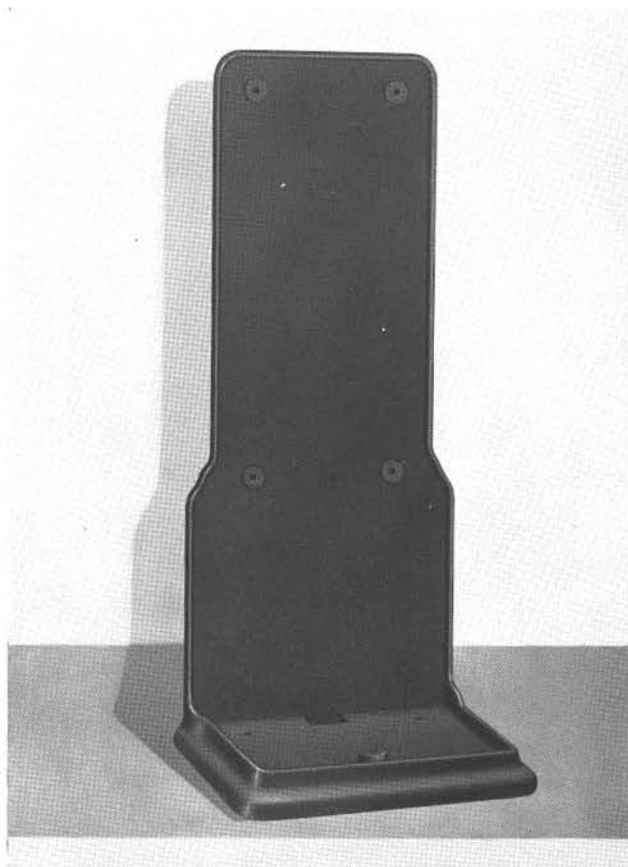
Gray



Resonator Bracket Assembly with Signal Transmitter  
 Patent No. 1,998,410 April 16, 1935

Our standard handset pay stations are not equipped with a signal transmitter unless specified on the order. The transmitter used for this purpose is coded No. LD-72 and is particularly adapted for handset service. An adjustable dampening spring permits control of the sensitiveness of the transmitter which is shunted by a small resistor, included with the assembly. Pay stations equipped with transmitters are carefully tested and adjusted for proper signal transmission under operating conditions.

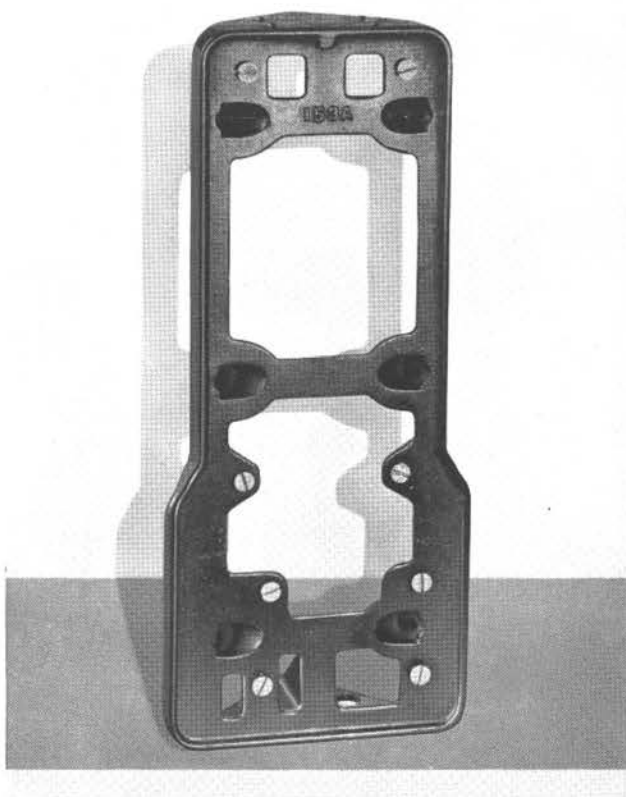




### No. 139-A Shelf Bracket

The No. 139-A Shelf Bracket is used to mount any of the illustrated standard Gray Pay Stations on a horizontal surface such as a shelf or counter. The bracket is of gray cast iron attractively designed and finished in black japan to match the pay station. An opening is provided in the bottom of the bracket so that the wires may be run concealed to the desk set box located below the shelf or in some other convenient place.

Galvanized screws for mounting the pay station to the shelf bracket are included with the bracket.



### No. 153-A Corner Bracket

The No. 153-A corner bracket is used to mount any of the illustrated standard Gray Pay Stations in the corner of a telephone booth or other constricted space. A pay station so mounted is more accessible than one mounted on the wall of the booth and is particularly advantageous where dial service is rendered.

The bracket is sturdily made of gray cast iron and is finished in black japan to match the pay station. Provision is made for the wires leading to the desk set box.

Galvanized screws for mounting the pay station to the corner bracket are included with the bracket.



## Joint Manufacture

For some years we joined with the Western Electric Company in producing our prepayment type pay stations.



This arrangement, however, did not prove entirely satisfactory as it involved a tremendous amount of unnecessary handling and added transportation charges. Furthermore, that portion not made by us carried a large overhead and an extra profit which was reflected in the prices paid by the operating telephone companies. Changes and improvements could not be readily inaugurated, so this arrangement was discontinued.

## Complete Pay Station Made in Our Factory

With the arrangement now in force, we are making all parts of the pay station in our own plant. This allows us to eliminate all unnecessary expense, and to be in a position to immediately incorporate improvements as they are developed. The manufacture of the complete pay station in our own shop involves but a single profit, and by reducing prices, we are passing on the savings to the operating companies.



## Introduction to Special Features

On the following pages we show some of the distinguishing features and late improvements in Gray Telephone Pay Stations. We wish to call particular attention to those changes which have resulted in improved resistance to burglary and fraudulent operation.

In recent years there has been a large increase in the number of perforated slugs collected by the telephone pay stations, and in fact by all coin-in-the-slot devices. This has been occasioned by the widespread use of gambling machines or so-called "slot" machines. The perforated slugs used in these devices are of the same dimensions as standard coins and it was only after considerable research and experimentation that our improved coin chute was evolved to reject the slugs and retain the standard coins. This chute also embodies string traps which make it virtually impossible to beat the machine by the use of a coin or slug on a string.

To better protect the contents of the cash drawer, the front wall of the cash compartment has been increased in thickness to give it greater strength around the door where burglary is likely to be attempted. In combination with the hardened pressed steel cash compartment door, and the lock with a hardened center, this cash compartment offers the utmost protection.

There has been a gradual replacement of cast iron pay station parts with steel parts until today we have an all steel structure of great strength and rigidity but with a considerable reduction in weight. The last of the cast iron parts, the backplate, has been replaced by a welded pressed steel plate, with superior resistance to fracture.

We wish to emphasize that our pay stations are undergoing constant improvement and perfection in every phase and detail of their construction.





Front View of Cash Compartment Door Mounting a No. 12-B  
Lock  
Patent No. 1,510,893

## Gray Cash Compartment Door

The Gray hardened steel cash compartment door is unsurpassed for strength and resistance to burglary. The front, bracket and reinforcing side pieces are electrically welded together into a single unit of great rigidity. After assembly and hardening, each door is rigorously inspected and gauged, and undergoes a tensile test to check the strength of the welds. During this test the welds are subjected to a tension of 400 pounds each, which is far in excess of anything that they would be subjected to in service.



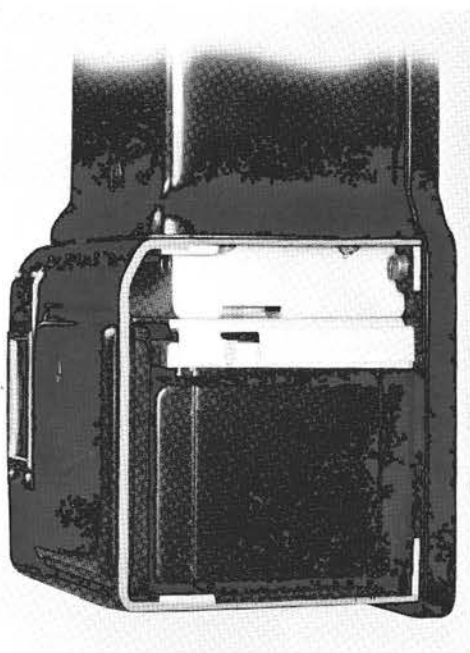


Rear View of Cash Compartment Door Mounting a No. 12-B  
Lock

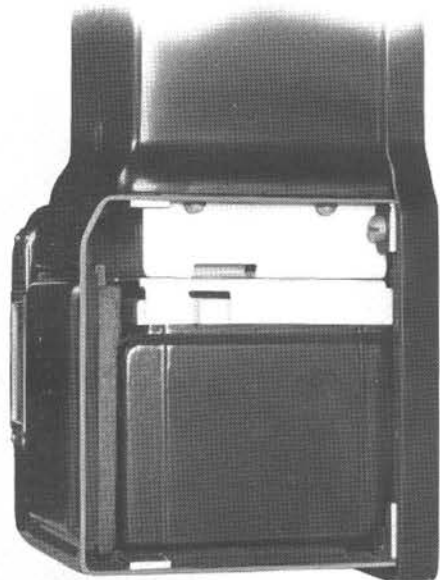
Our cash compartment door is made to mount our No. 12-B and No. 10-L locks. These locks have a hardened steel center cap to prevent drilling of the lock. The possibility of drilling or driving out the lock center is also minimized by the hardened steel bracket supporting the lock and by the design of the keyhole. This keyhole is not made round, in conventional fashion, but is opened up only in the arc through which the key is rotated. As a result, two projections are left extending over the lock center to prevent the use of a drill or drift.

Please note that our cash compartment door is included as part of the standard equipment of the pay station, but the lock must be ordered separately.





Heavy Coin Box Front in Section  
Patent No. 1,994,452 March 12, 1935



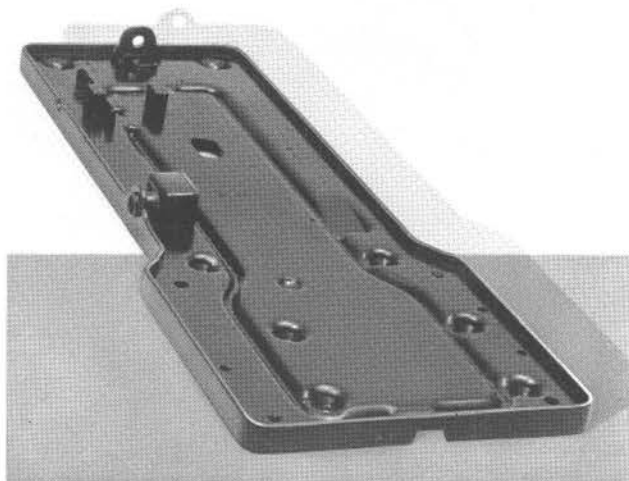
Old Coin Box Front in Section

## Heavy Coin Box Front

One of the improvements made in the new series of Gray pay stations is an increase in the thickness of the front section of the coin box. The door opening of the coin box is profiled to insure an accurate fit with the door, and this operation on the old style coin boxes weakened the points where strength was needed to resist burglary. The new front is heavy enough to permit the necessary removal of stock without impairing its strength or the security which it affords.

In keeping with our past policy, these new coin boxes are interchangeable with the old type now in service. The same dimensions are maintained on the door opening to permit the use of any style coin box door.





## The Gray Steel Backplate

The advantages of steel construction over cast iron are many and obvious, and in many cases the only obstacles to the adoption of steel have been the increased cost and difficulties of fabrication. By the proper application of modern fabricating methods we have succeeded in supplanting the last of the cast iron pay station parts, the backplate, with an improved pressed steel counterpart at no additional cost to our customers.

Our new backplate presents an improved appearance, and, in spite of a considerable reduction in weight, it has greater strength and resistance to fracture than the old cast iron type. It offers a new obstacle to anyone attempting to rob the cash drawer by breaking through the back of the compartment or prying the pay station from the wall. Lugs on the body of the backplate mate with corresponding lugs on the steel housing and restrict any vertical movement between the two. It is impossible to remove the upper housing by prying it up and slipping the lock bolt over its strike and, thus, tampering with the coin unit is prevented.



## The Gray Coin Chute

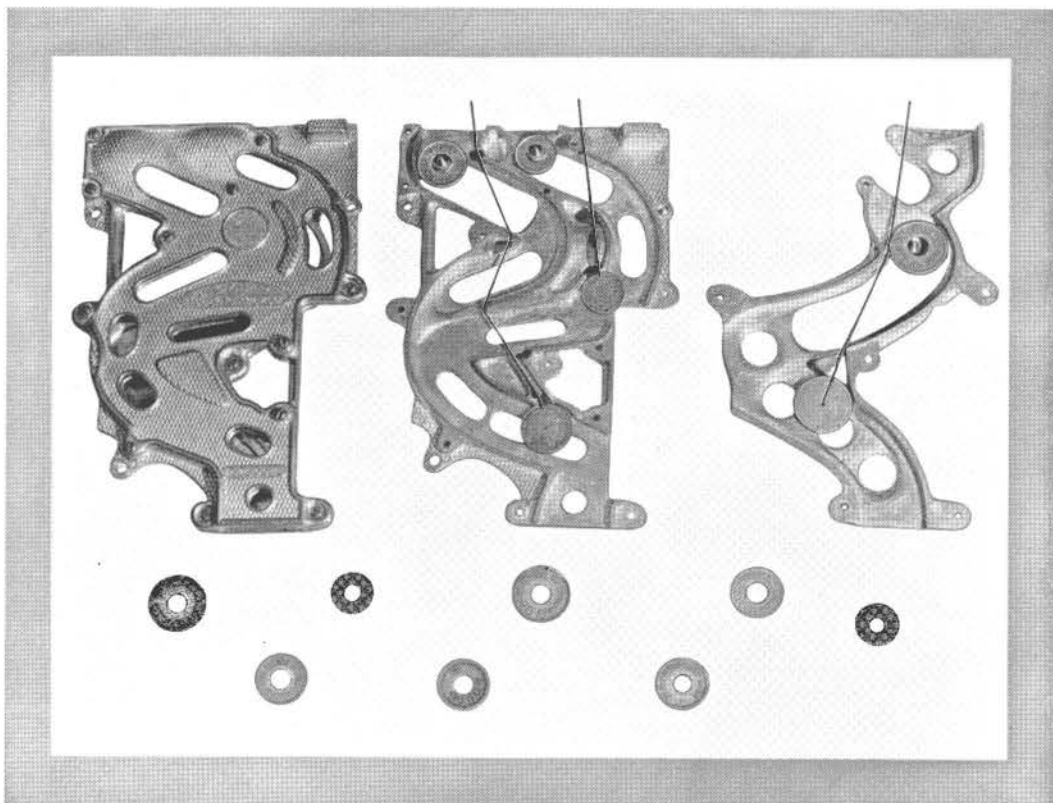
The Gray coin chute of today utilizes the same basic principles applied so successfully in the early pay station models, but in a vastly refined and improved form. The coin chute has the double function of guiding the coins in such a manner as to sound the signals properly, and of protecting the pay station against the fraudulent use of slugs and suspended coins. It is in this latter field that the greatest advances have been made.

One of the most serious problems in pay station operation in recent years has been the increasing use of perforated slugs to defraud the telephone companies. The widespread distribution of gambling slot machines, which commonly pay the player in some sort of token, has resulted in the general circulation of perforated slugs of the same diameter and thickness as standard United States coins. The old style coin chute, which rejects slugs only on a basis of diameter by tipping them out through a "weeding-out" trap, affords no protection against these new slugs, so that it became necessary to install an additional trap of a radically different type.

The new Gray perforated slug rejector employs no moving parts and is simple and effective in its operation. A coin or slug is caused to travel over a hardened steel pin in such a manner that the coin is retained in the chute, while the slug is tripped out through an opening in the chute runway. This rejection device is used in all three slots in our new coin chute.

The string traps, used to prevent the withdrawal of coins suspended on strings, have been improved to the point where they are practically unbeatable. These traps are so designed that the breaking of the string on a sus-



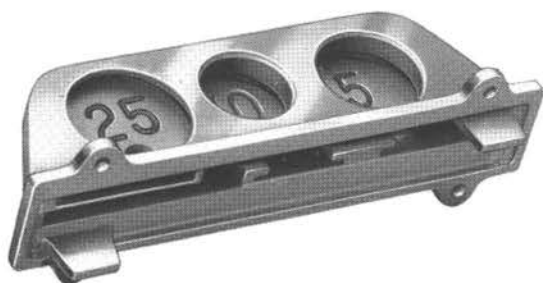


Disassembled View of New Coin Chute Showing Perforated Slug Rejectors and String Traps.  
 Patent 1,966,413 July 10, 1934  
 1,967,993 July 24, 1934

pendent coin will not cause it to wedge in the chute and put it out of order, but permits the coin with the broken string attached to pass out of the chute.

In cases where a considerable number of perforated slugs are being received, we recommend that the old type coin chute be replaced by the new which is interchangeable, and has an additional advantage in that it has provision for mounting the resonator bracket which is required for use with the handset.





New One Piece Die Cast Coin Gauge

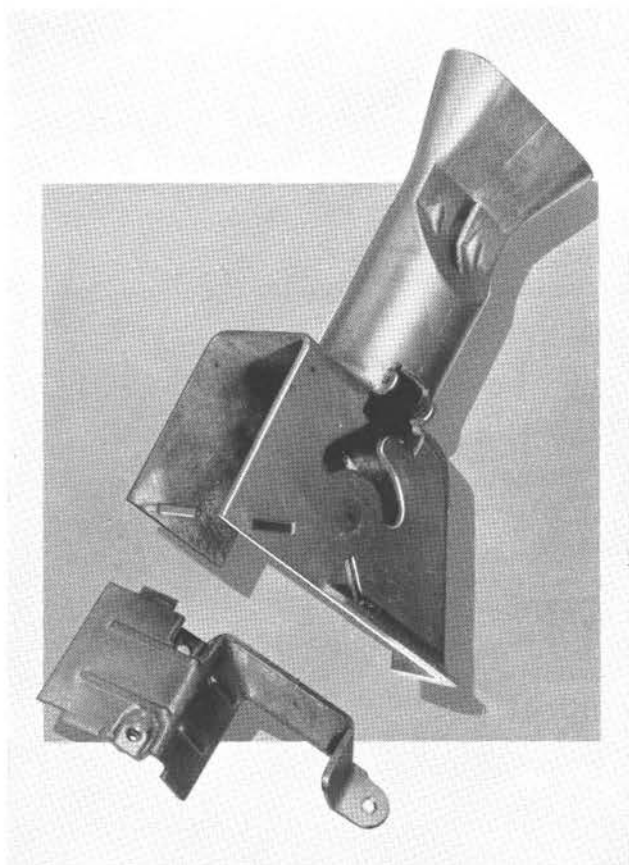
## Die Cast Coin Gauge

The cast bronze coin gauge, formerly used on our pay stations, required accurate machining of all surfaces to insure that the maximum opening would not exceed that required to accept uncirculated United States coins. The coin gauge was made in two parts which were riveted together after machining, and of course this arrangement was subject to all the ills associated with this type of construction.

Our new coin gauge is made of a die cast material which is harder and has far greater resistance to wear than our old type. This coin gauge is cast complete in one piece so there is no seam to open up, nor rivets to loosen. The size of the openings is determined by the dimensions of the dies, so that every coin gauge is exactly alike and all are of a uniformly high quality.



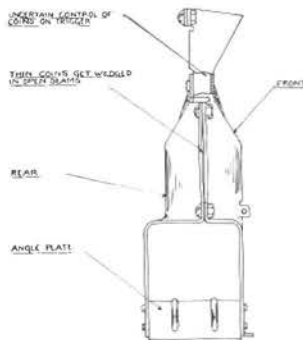
Disassembled Coin Gauge of Old Type



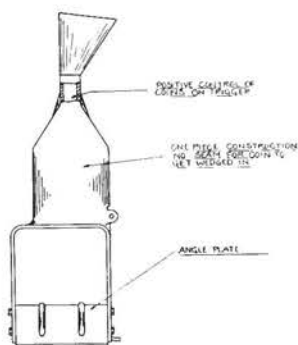
## Die Cast Coin Hopper

The coin hopper is a very important part of the mechanism unit as it does the actual handling of the coins, and upon it depends the proper operation of the coin relay. To obtain a hopper of uniform dimensions and great

rigidity with a smooth, seamless, coin channel in which thin coins cannot become lodged, as they have in the past, we have turned to the new, stronger die casting alloys. This construction results in a rigid hopper with a smooth interior which offers no impediments to the coins traveling through it.

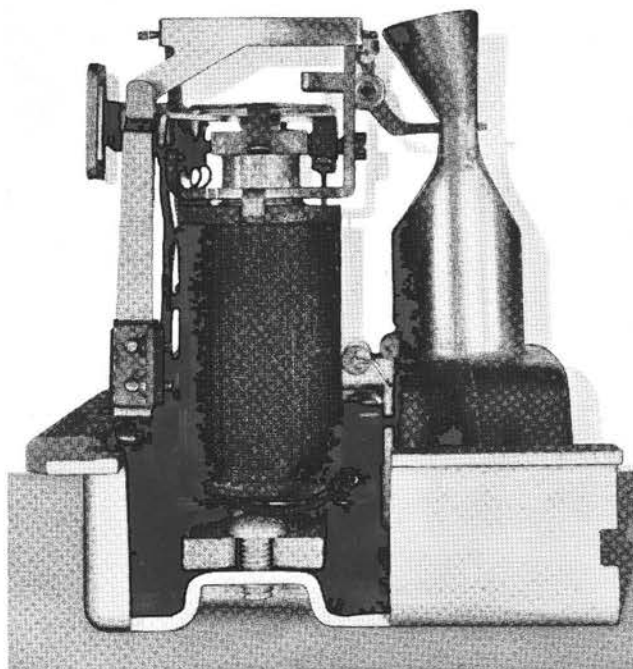


Old Type Coin Hopper



New Type Coin Hopper

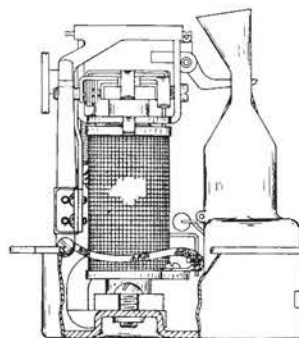




Cutaway View of New Style Drawn Steel Mechanism Base

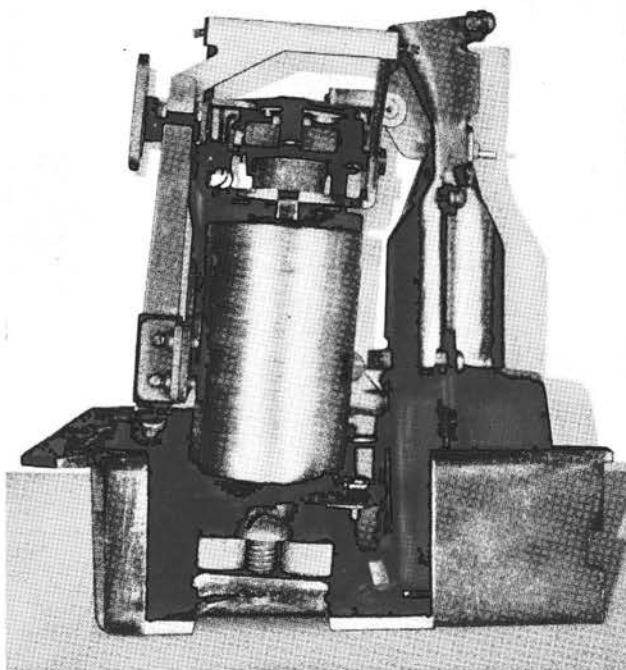
## Seamless Mechanism Base

Our new seamless drawn steel mechanism base is extremely rigid and capable of withstanding the rough treatment which pay stations receive in shipment. The old style mechanism base supported the coin relay on two lugs, or ears, which were bent up from the bottom of the mechanism base. Frequently this bending operation caused the metal to crack at the corners and so weakened the ears that they would be distorted in shipment and throw the coin relay out of alignment. In some cases the coin relay was



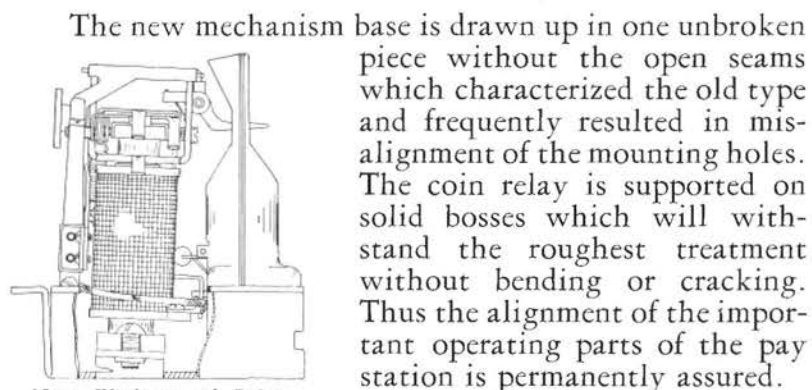
Alignment is Maintained Under Severe Conditions

Gray



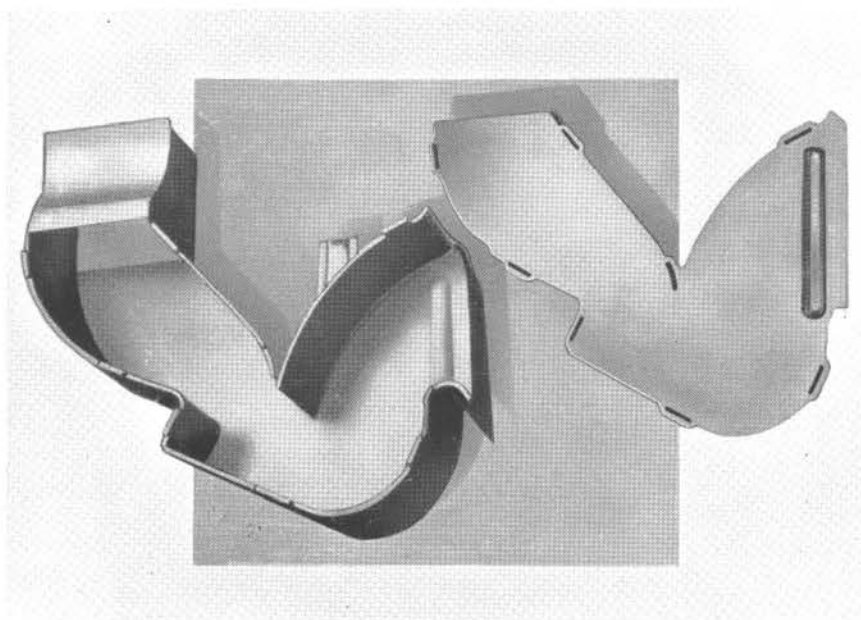
Cutaway View of Old Style Mechanism Base Showing Results of Rough Handling

tilted so much that it would not register properly with the coin hopper assembly and the whole unit was put out of order.



Note Weakness of Relay Support

The new mechanism base is drawn up in one unbroken piece without the open seams which characterized the old type and frequently resulted in misalignment of the mounting holes. The coin relay is supported on solid bosses which will withstand the roughest treatment without bending or cracking. Thus the alignment of the important operating parts of the pay station is permanently assured.

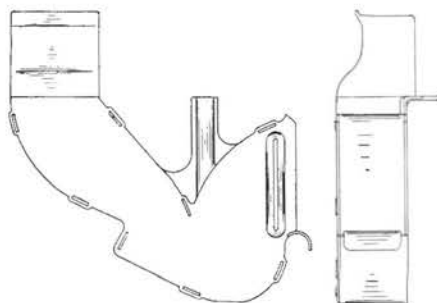


## Two Piece Coin Return Chute

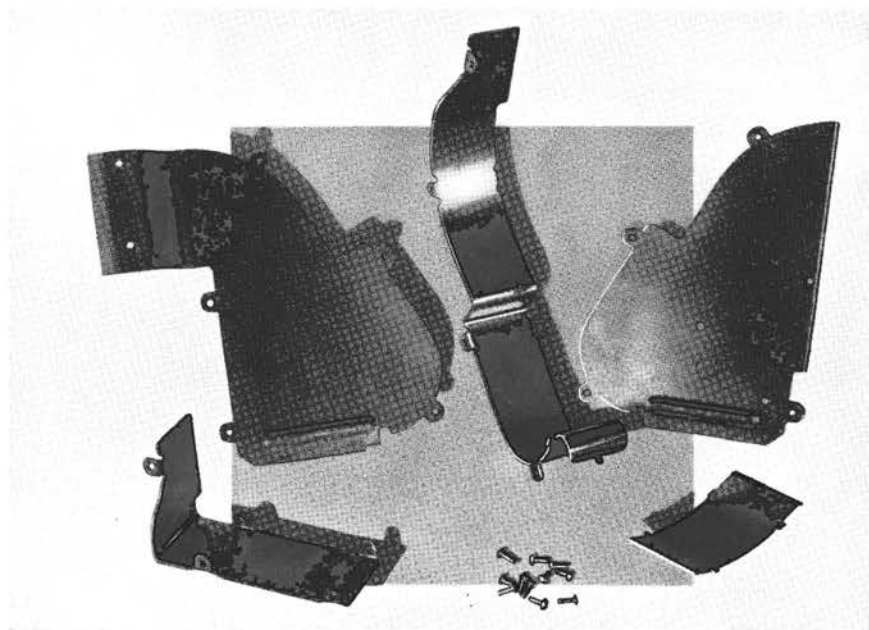
In the past, our coin return chute, which conveys the returned coins from the coin hopper to the subscriber, has been an assembly of five nickel silver stampings fastened together with a number of rivets. To improve the efficiency of manufacture and, at the same time, to obtain a better product we have adopted a new two piece die cast construction which is stronger, more rigid and more serviceable than the old type.

Trouble has been experienced in recent years with

Die Cast Coin Return Chute  
After Assembly



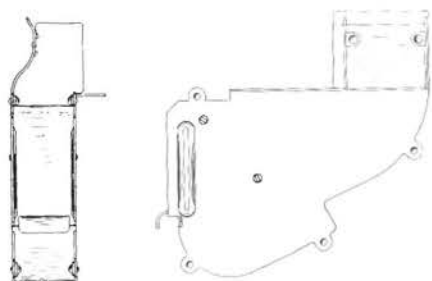
**Gray**



Disassembled Old Style Coin Return Chute

unscrupulous persons who have made a practice of stuffing pay station coin return chutes with paper, and later pulling out the paper with the retained coins. The shape of the coin passageway on the new die cast coin return chute has been redesigned to do away with the natural pocket in the old type which served to retain the paper stuffed into it.

As may be seen from the illustration, any paper lodging in the coin passageway in the redesigned chute will be carried out along with the coins into the coin return pocket in full view of the subscriber.



Assembled Coin Return Chute  
of Old Type



## Announcement

We are showing the views on the following pages to give those of our customers who have never visited our factory some idea of the modern equipment used by us in the manufacture and testing of our pay stations.

Our tool department is equipped with the latest type machinery necessary to make the tools, jigs and intricate dies required to insure interchangeability of parts and fidelity to design. Wherever practical, operations are carried on automatically to reduce to a minimum those errors due to the human element. Each piece is carefully inspected and checked after each step in its manufacture.

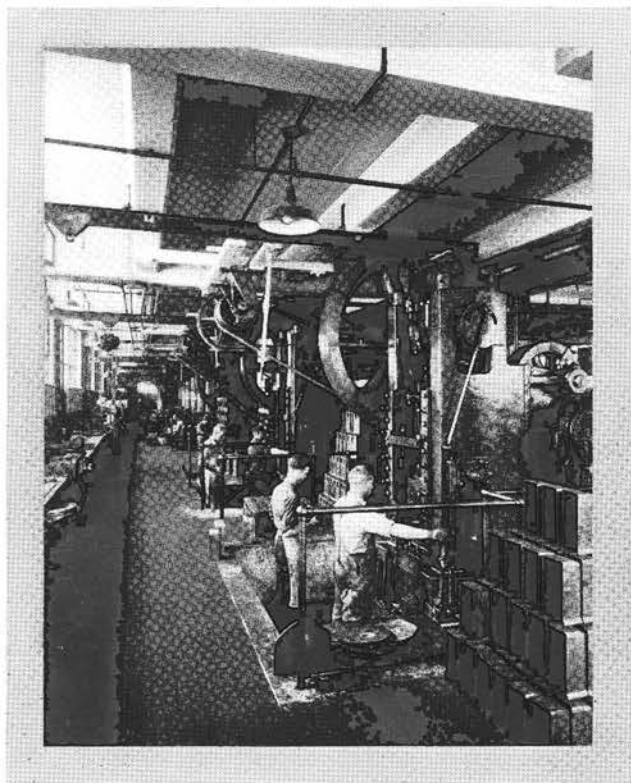
Our press department is fully equipped with presses of all sizes, from the small punch presses, used to make lock parts, to the giant drawing presses, used to make the one piece steel housing. Our diversified equipment permits the use of the proper machine for each job.

With that pioneering spirit which has characterized our company since its inception, we are constantly seeking new and better ways of doing things, and new and better materials for use in our pay stations. Die casting has been used by us for many years and, with the advent of the new, stronger alloys for die casting purposes, we are expanding more and more into this field.

Our testing laboratory is well equipped to make all the tests and adjustments necessary to insure proper operation in service. Practically all of our testing equipment is specially designed and built by us to meet our exacting requirements.

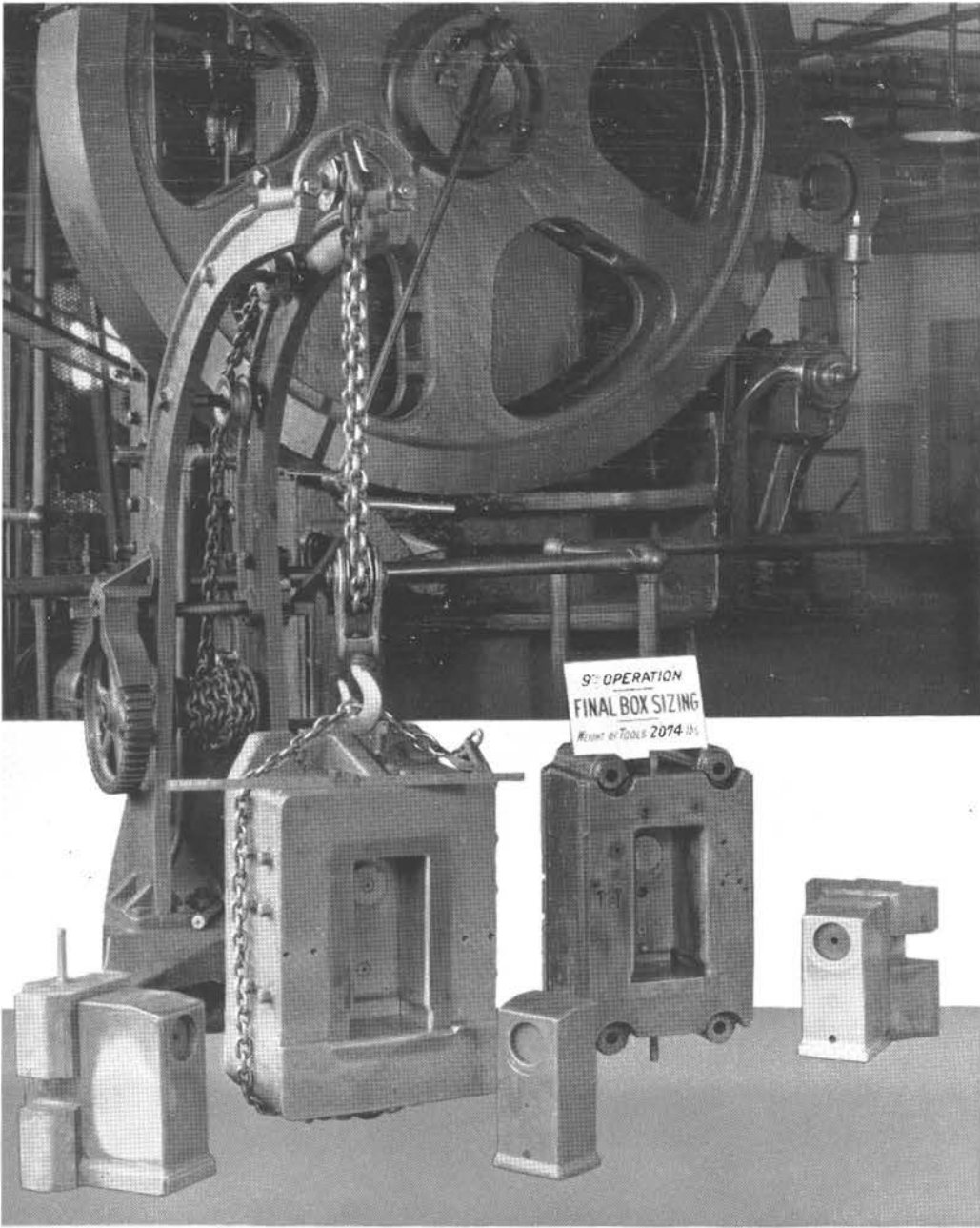
A trip through our modern, well illuminated plant will be a revelation to anyone not familiar with up-to-date manufacturing procedure.



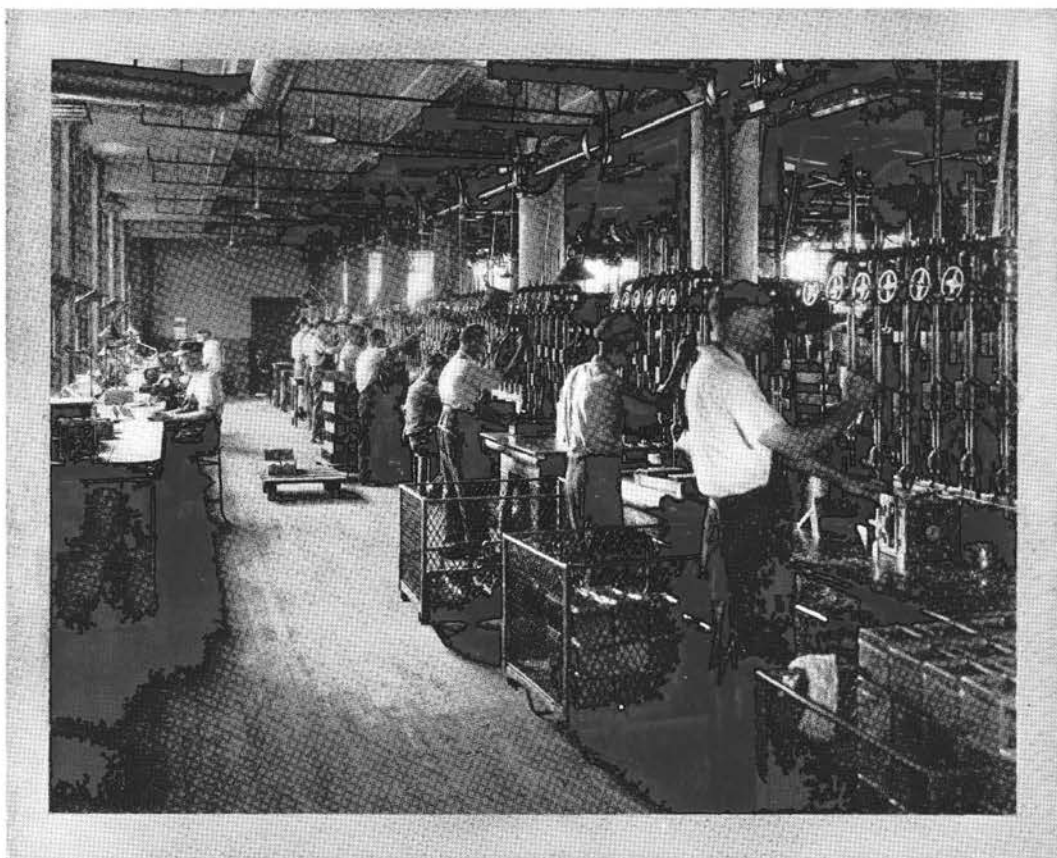


Battery of 300 Ton Presses Drawing  
One Piece Steel Housing

The drawing of our steel housing from a sheet of flat stock requires presses of long stroke and great power. We are equipped with presses of the proper capacity in sufficient numbers to make possible an efficient production schedule.



Drawing Dies and Press for Making One Piece Steel Housing Requiring Nine Different Operations. The Total Weight of the Tools Is Over Seven Tons



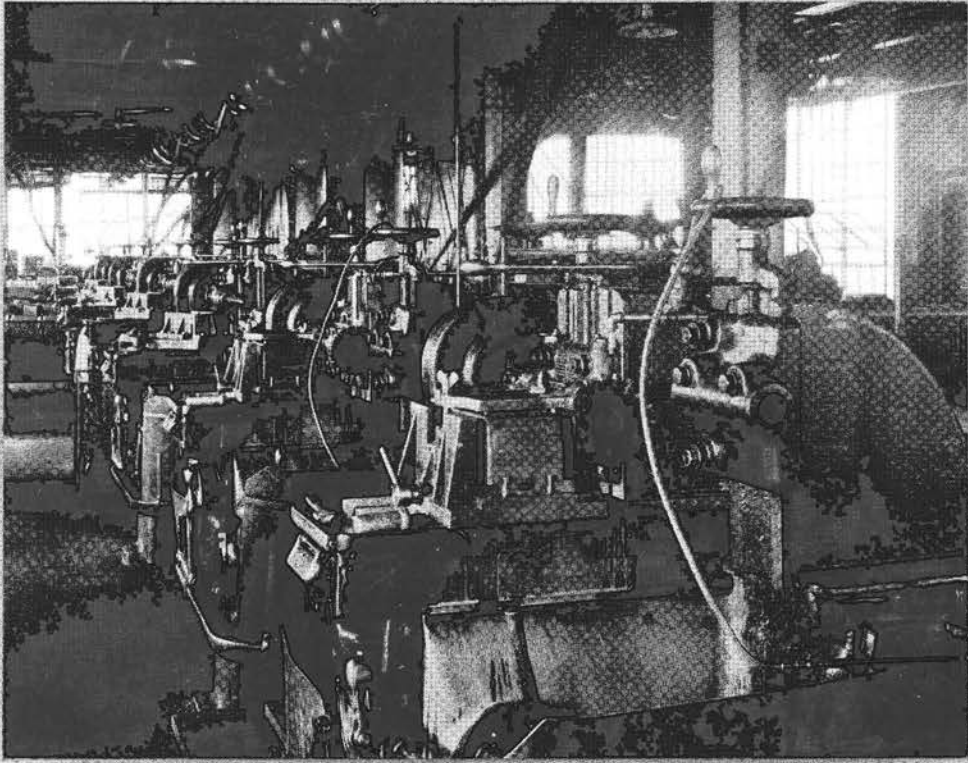
Row of Multiple Spindle, High Speed Ball Bearing Drill  
Presses in Our Machine Department

Excellent lighting and working conditions combined with modern equipment enable us to maintain the uniformly high quality with which our name has been associated for nearly half a century.

**Gray**

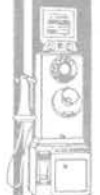
T E L E P H O N E

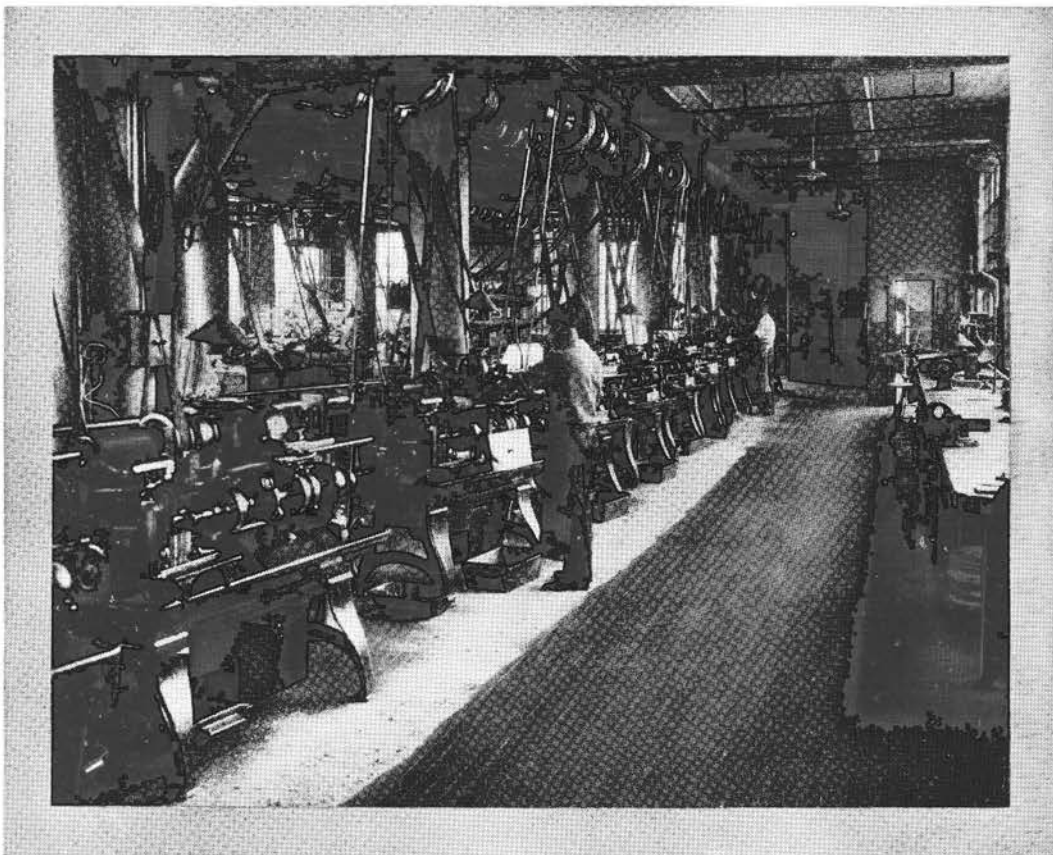
TCI Library - [www.telephonecollectors.info](http://www.telephonecollectors.info)



Group of Automatic Milling Machines Used to  
Accurately Machine Parts for Gray Pay Stations

These automatic milling machines remove stock rapidly and produce a finished surface of great accuracy. The speed of the work is automatically controlled to give the proper cutter feed.





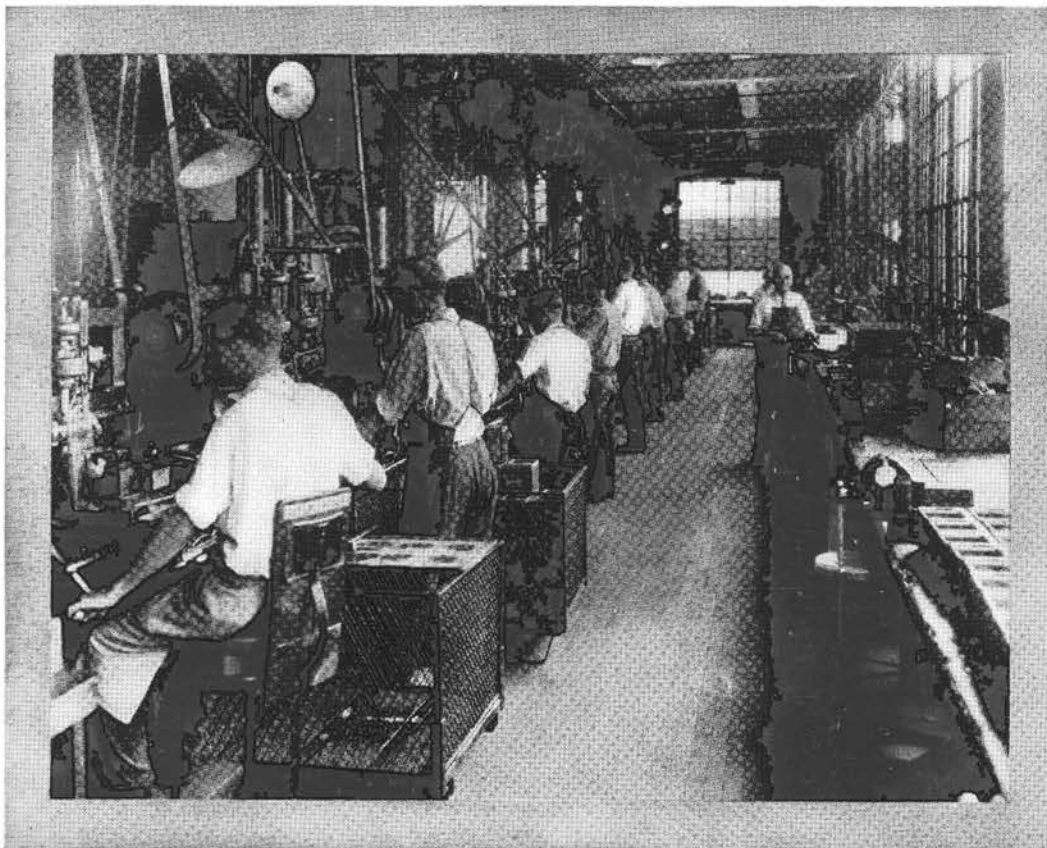
Battery of Automatic Screw Machines Making Parts for  
Gray Pay Stations

On these machines of various  
sizes and types, we make with speed  
and accuracy all turned parts which  
go into our pay stations and locks.

**Gray**

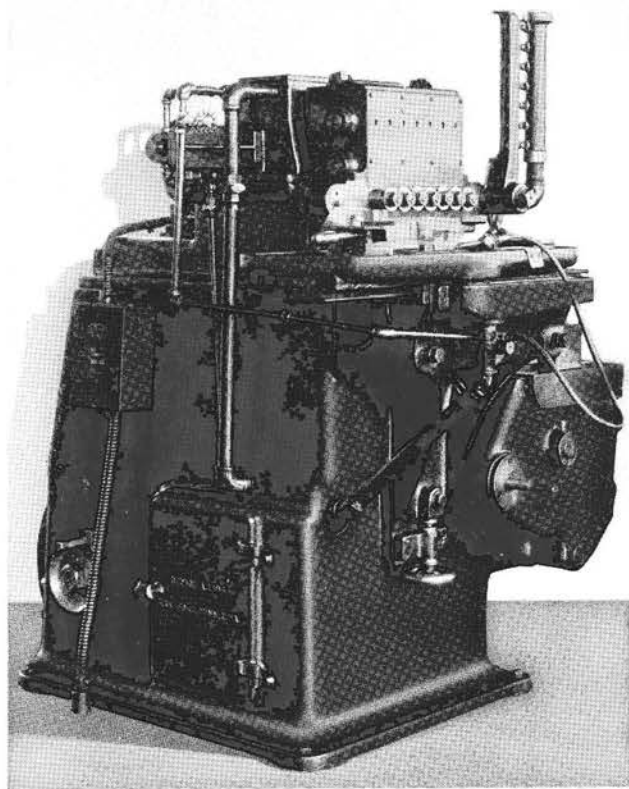
T E L E P H O N E

142  
TCL Library - [www.telephonecollectors.info](http://www.telephonecollectors.info)



Line of Profiling Machines Trimming Component Parts  
to Close Limits, to Insure Proper Fit  
and Interchangeability

All parts are gauged after profiling to make sure that they are up to standard and will interchange with like parts.

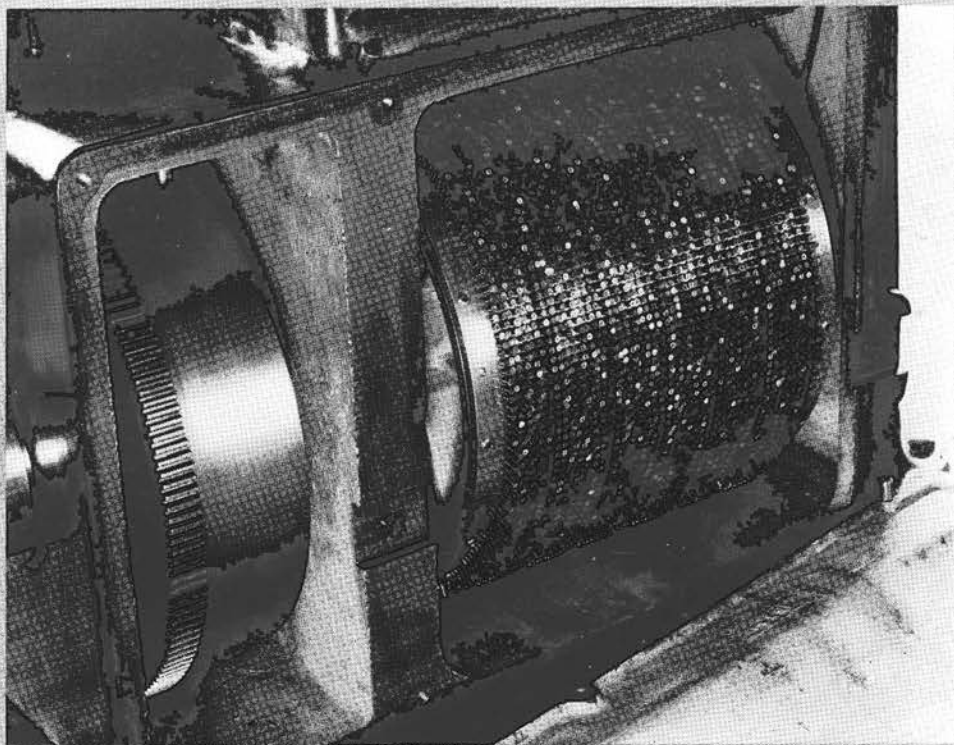


## The Long Key Cutting Machine

In developing our locks, which have something over a million different changes, the matter of properly cutting keys to accommodate this great number of different combinations, and also be in a position to furnish duplicate keys from time to time, presented a problem.

Upon investigating, we found that the leading lock makers in the country cut their keys on hand milling machines by using special arbors with a number of different cutters representing the various levers in the lock. A seven lever lock required an arbor with seven cutters of different diameter to correspond with the steps in the key. To attempt to follow this practice with our type lock having, as it does, so many different changes, would necessitate a prohibitive number of arbors and cutters.

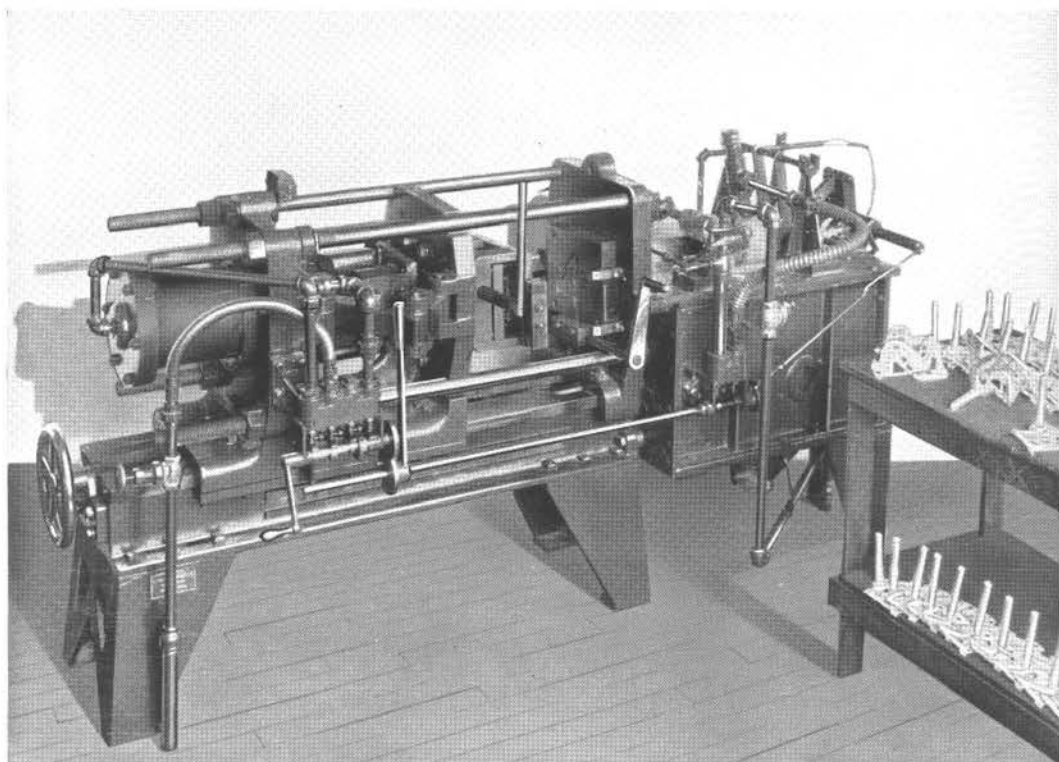
Gray



Rear View of Key Cutting Machine with Cover Removed Showing the Generator Drum from Which Thousands of Different Combinations Are Cut

This proposition was entirely out of the question and, as a result, we produced our key cutting machine. With our machine 12 keys per minute are cut with an accuracy within .001". The serial numbers of the keys are simply used as a means of identification. To illustrate this fact, we find when we complete the first half millionth lock carrying the serial number 500,000 the actual combination generated in our key cutting machine showed the number 1,346,572.

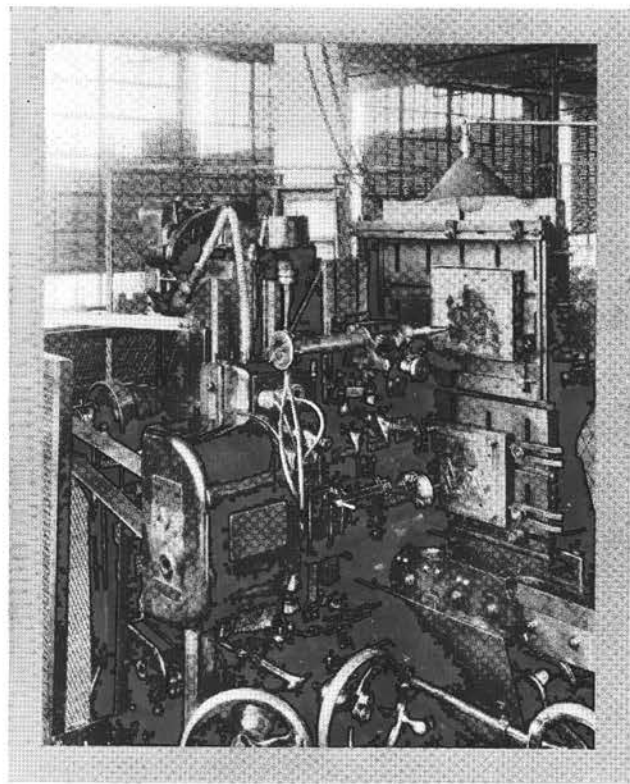
With this machine there is no difficulty in supplying duplicate keys from time to time, and in place of having cutters to conform to the different depths, the cutters in our machine are all of one diameter, and they are automatically positioned for cutter depths by the generating drum mounted within the key cutting machine.



### Die Caster Making Coin Chutes from Dies Shown on Following Page

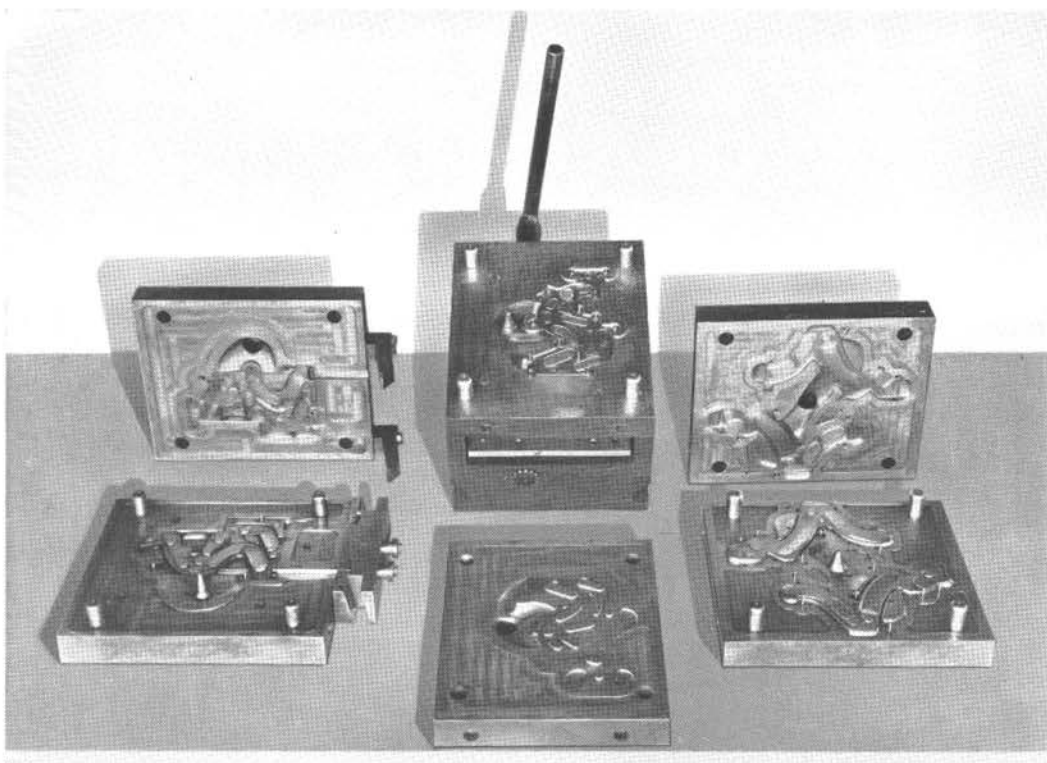
Our die caster is especially designed for our requirements in manufacturing pay station parts. The closing of the dies and operation of the casting spout is controlled by compressed air at a pressure of 150 pounds per square inch, while the molten metal is forced into the dies under a pressure of 300 pounds per square inch. The metal in the melting pot is electrically heated and maintained at the proper temperature for casting by an automatic thermostatic control.

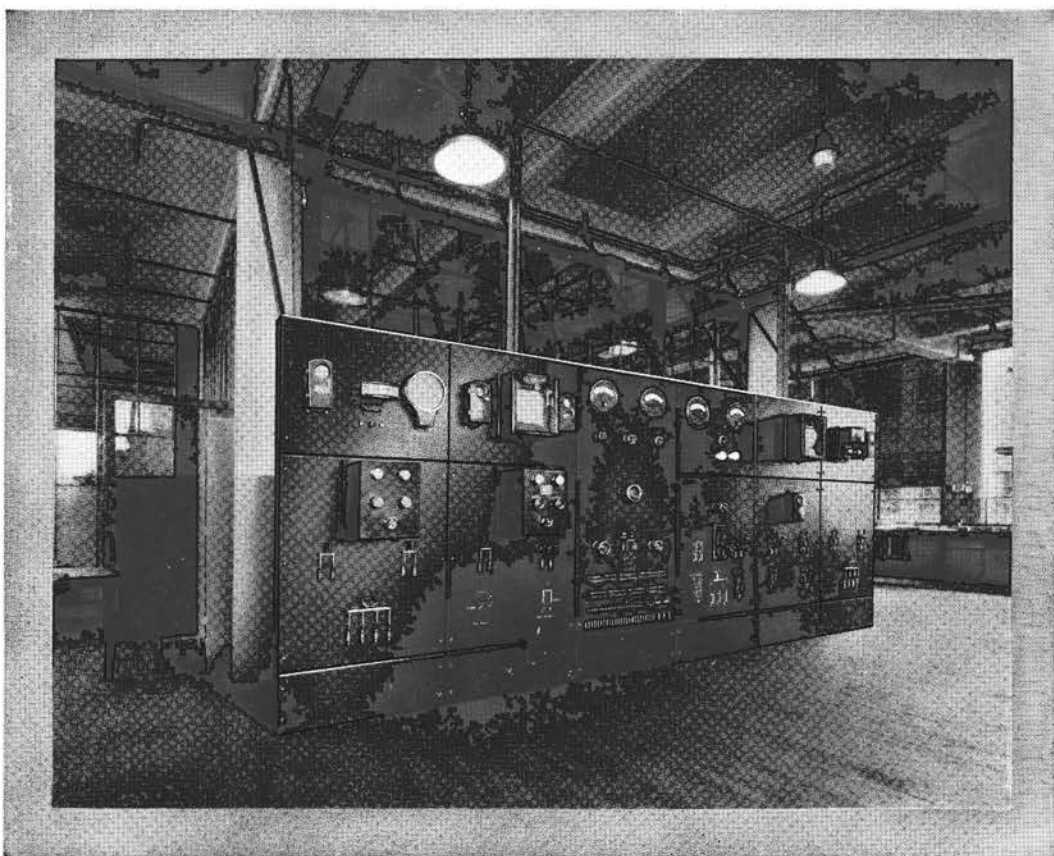
Gray



Left:—  
Automatic Die Cutter Reproducing  
Coin Chute Die from Model

Below:—  
Steel Dies for Die Casting Lead  
Coin Chute



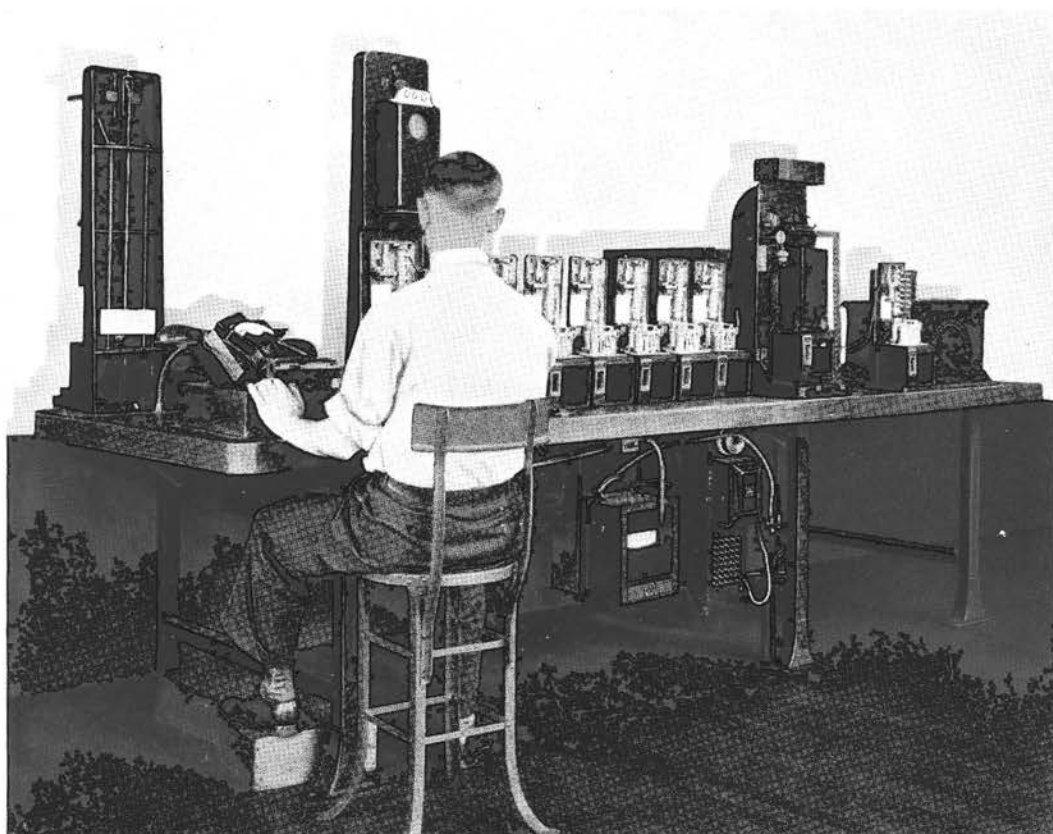


## Main Control Board

This switchboard supplies the testing laboratory and the machine shop with the various direct current voltages required, and is the control point for all electrical heating equipment. Charging facilities are provided for a seventy-eight cell chloride accumulator battery which furnishes the steady voltage necessary for our exacting test work. Two motor generator sets provide the direct current used in the machine shop for such equipment as magnetic chucks.

From this board all heating processes are controlled, and the temperature recorded or indicated. Automatic electrical time switches insure accurate control of the heating period.

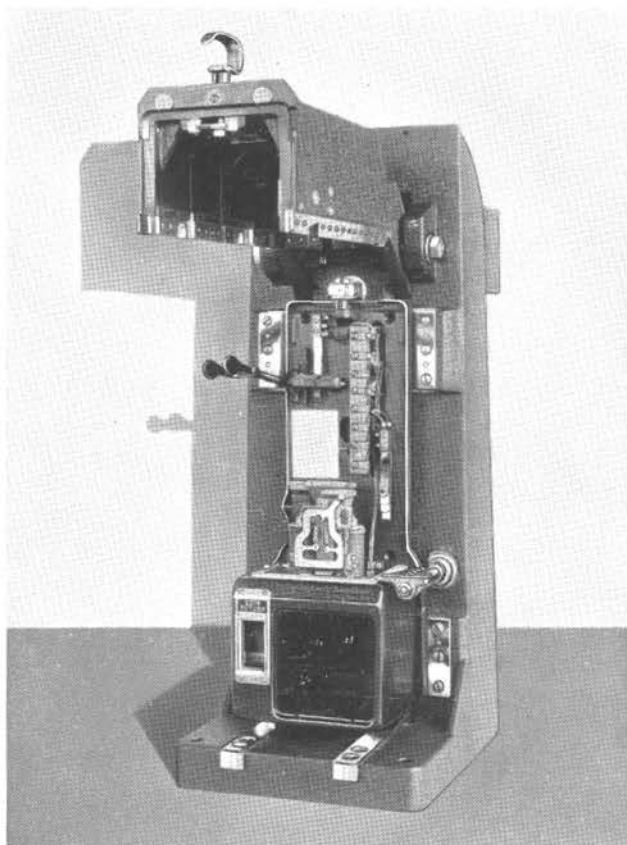
Gray



### Check Inspecting Gray Pay Station Lower Housing Assemblies in Our Well Equipped Testing Laboratory

Our coin relays are given an operation test under much more severe conditions than would be encountered in actual service. Each unit is carefully check-inspected and gauged before shipment. Wherever practical our test voltages are maintained automatically to insure duplicate testing conditions for every relay.

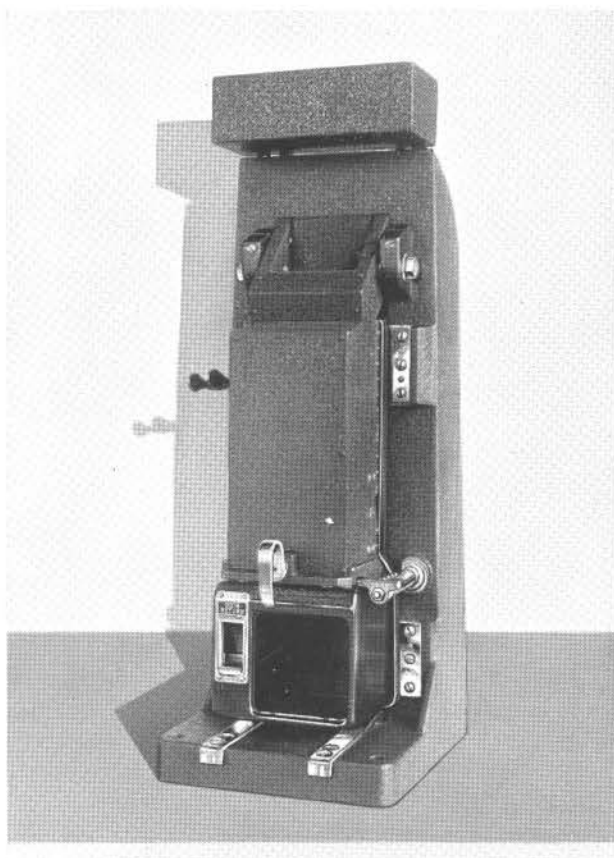




Lower Half Assembly Gauge with Cover Opened and Pay Station in Position for Gauging

### Gauging Fixture for Pay Station Lower Half Assembly

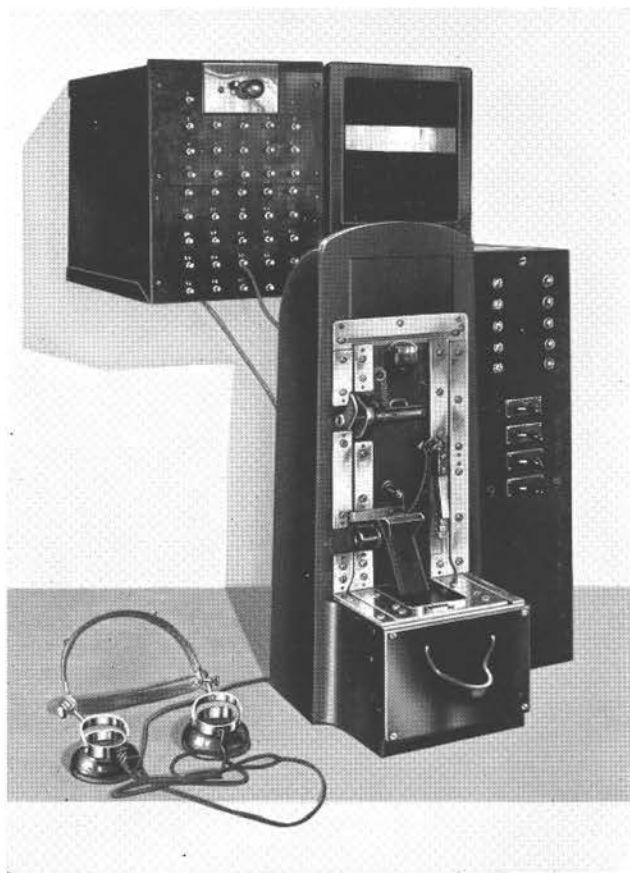
This production gauging fixture was built by us for the purpose of checking our lower half assemblies to insure interchangeability. All of the dimensions affecting interchangeability are accurately and rapidly checked in a very simple manner.



Lower Half Assembly Gauge with Cover Closed

The pay station lower half assembly is placed in the fixture and located by a pin which enters the locking pin hole and a finger which registers with the mechanism base. The cover of the gauge is now lowered and, if all dimensions are within the allowed limits, the lock bolt will engage the lock strike. Lower half assemblies on which the cover will not close, and lock, are known to be defective.

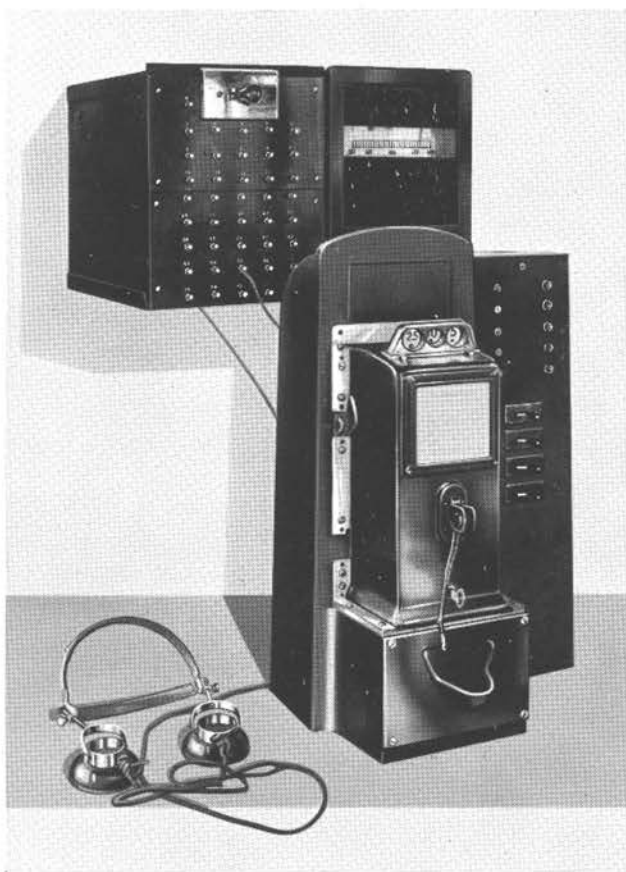




Upper Housing Gauge and Electrical Test Fixture with Pay  
Station Housing Removed

### Upper Housing Gauge and Electrical Test Fixture

This fixture is the counterpart to the lower half assembly gauging fixture and insures uniform upper housings of guaranteed interchangeability. This is very necessary as the housings and lower halves are made in separate departments and are not put together until time for shipment. The dimensions to be gauged are satisfactory if the housing under test can be locked into place on the fixture.

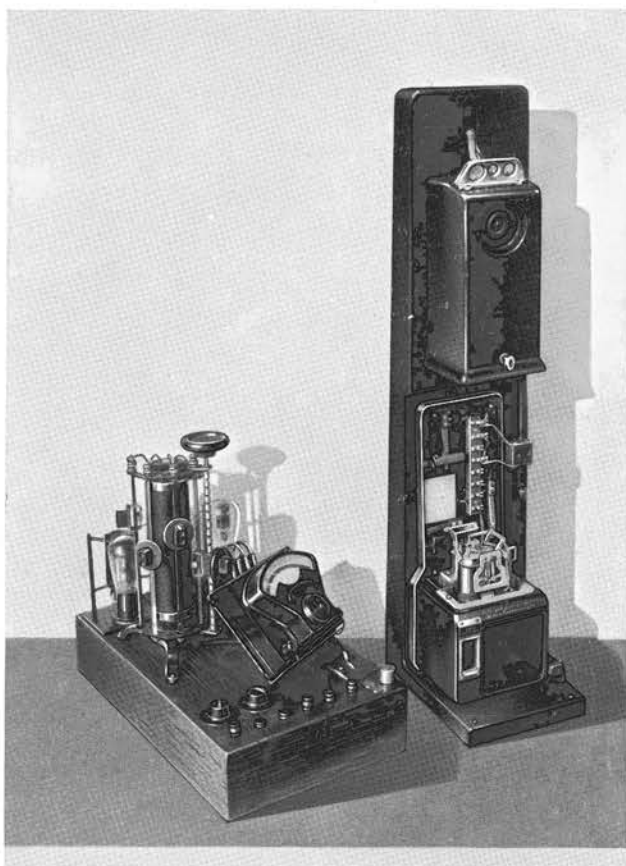


Upper Housing Gauge and Electrical Test Fixture with Pay  
Station Housing in Place

A breakdown and continuity test of the electrical connections is made automatically.

The proper operation of the pay station coin signal gongs is very important as the operator must depend upon the transmitted signals to check the amount deposited. We make our signal transmission tests under more severe conditions than will ever be encountered in service to make sure that the signals are clear and readily distinguishable.



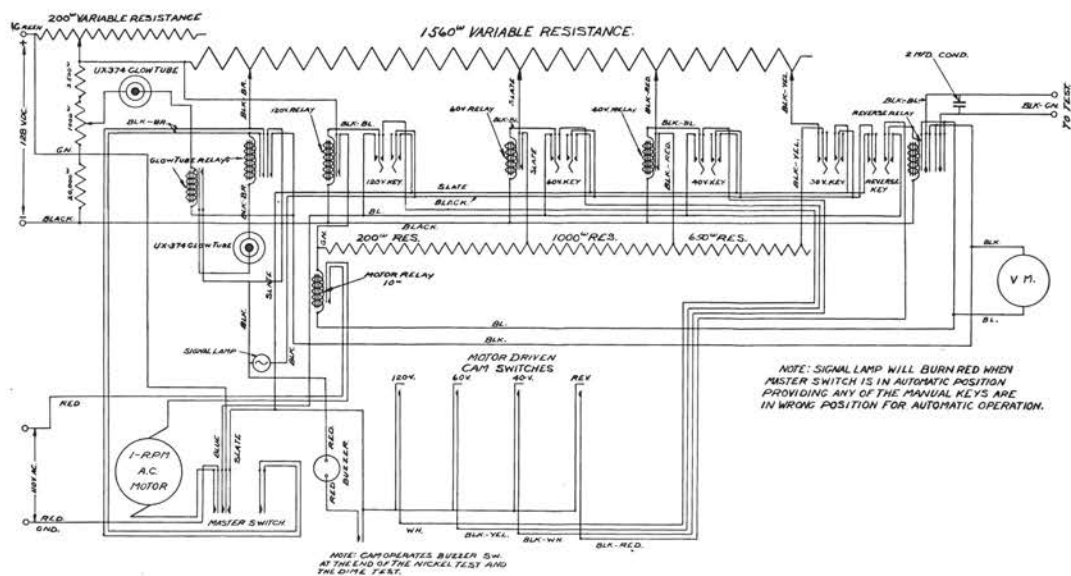


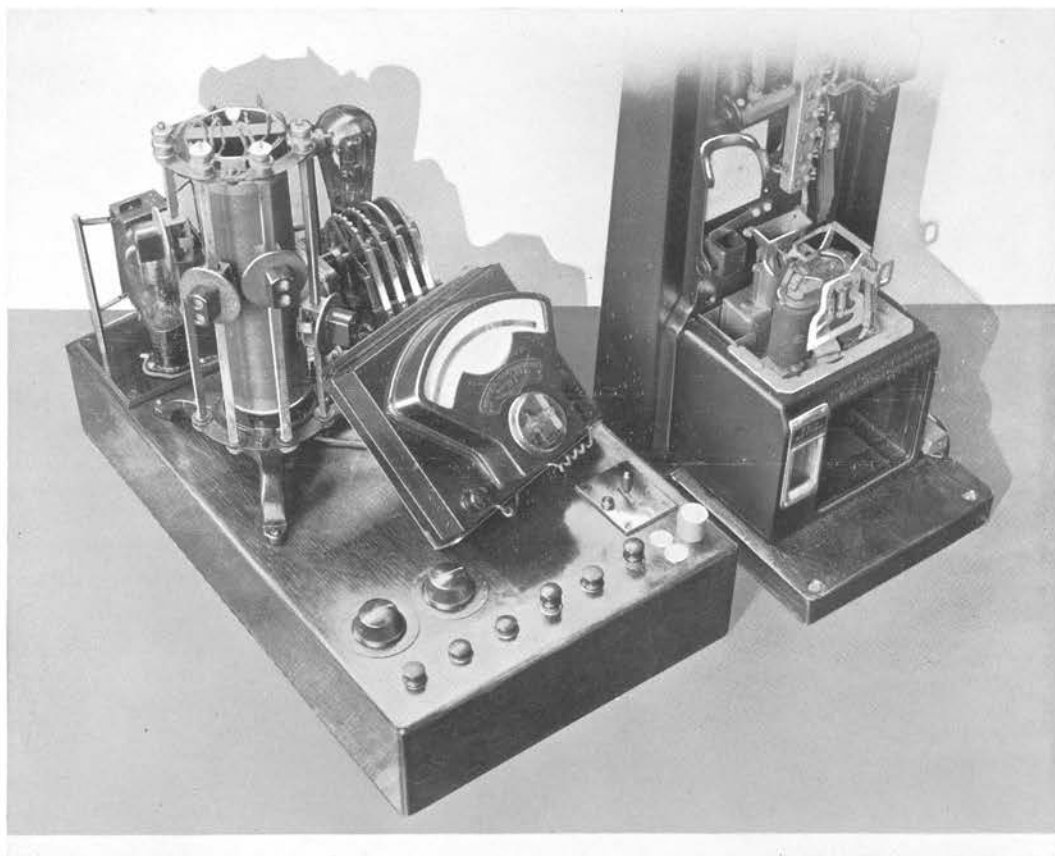
Left:—

Coin Relay Test Set with Alternative Manual Switching Control. Glow Tubes Maintain a Constant Check on the Operating Voltage and Timed Cam Switches Give Positive Control of the Operating Period

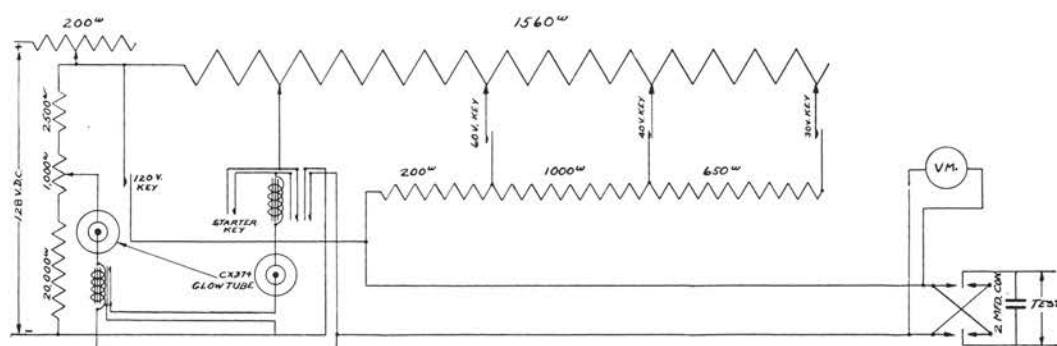
Below:—

Circuit for Automatic Coin Relay Test Set



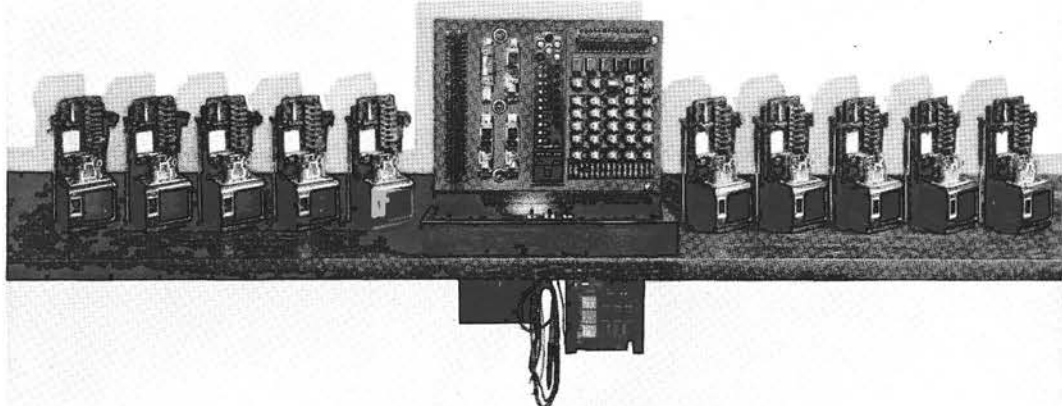


Close-Up of Automatic Coin Relay Test Set with Alternative Manual Switching Control



Circuit for Manual Switching Coin Relay Test Set with Automatic Voltage Check

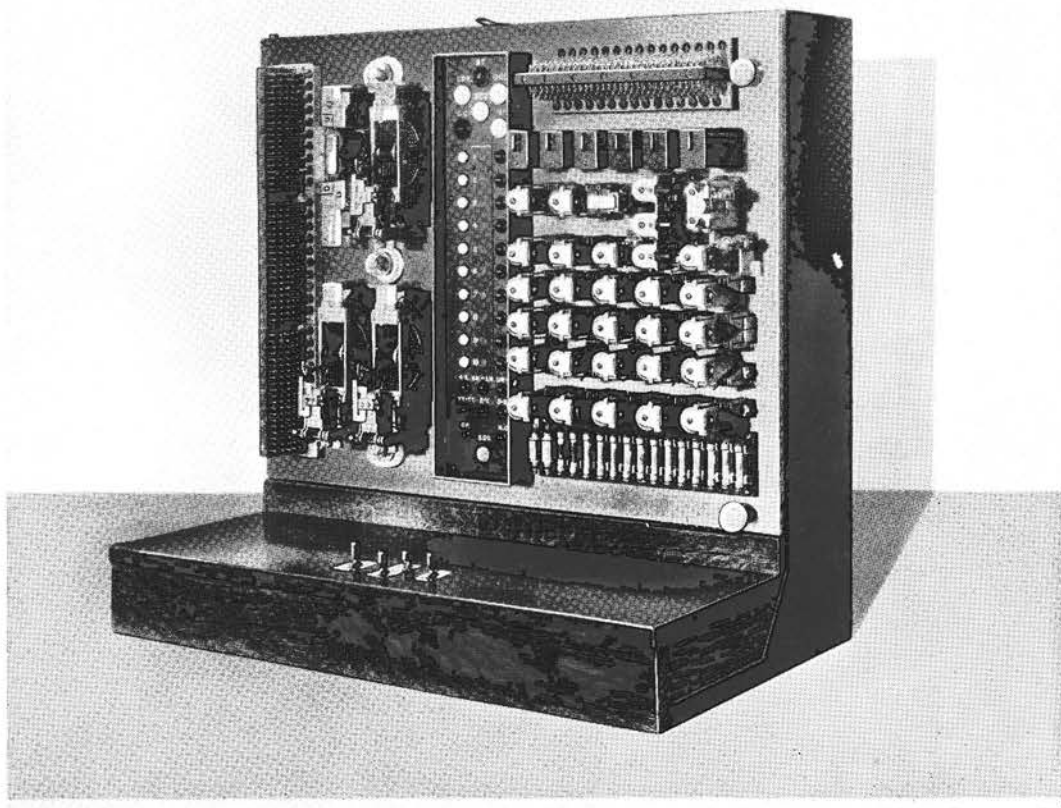




### Automatic Lower Housing Electrical Continuity and Breakdown Test Fixture

The electrical continuity and breakdown tests on pay station lower housing assemblies formerly were made with hand picks connected to a buzzer or ringer. This method was slow and subject to errors due to the human element. Therefore, we designed and built a multiple automatic electrical test fixture which tests ten machines in a fraction of the time required with hand picks, and with greater accuracy and certainty.

The operating relays and testing equipment are mounted on a vertical panel which is hinged to permit ready access to the wiring. A glass case covers the front of the panel to protect the relays and keep out dust and dirt. The manual control keys, located on the wooden base in front of the relay panel, are used to start the test and to check the 500 volt relay adjustment. Ten brackets



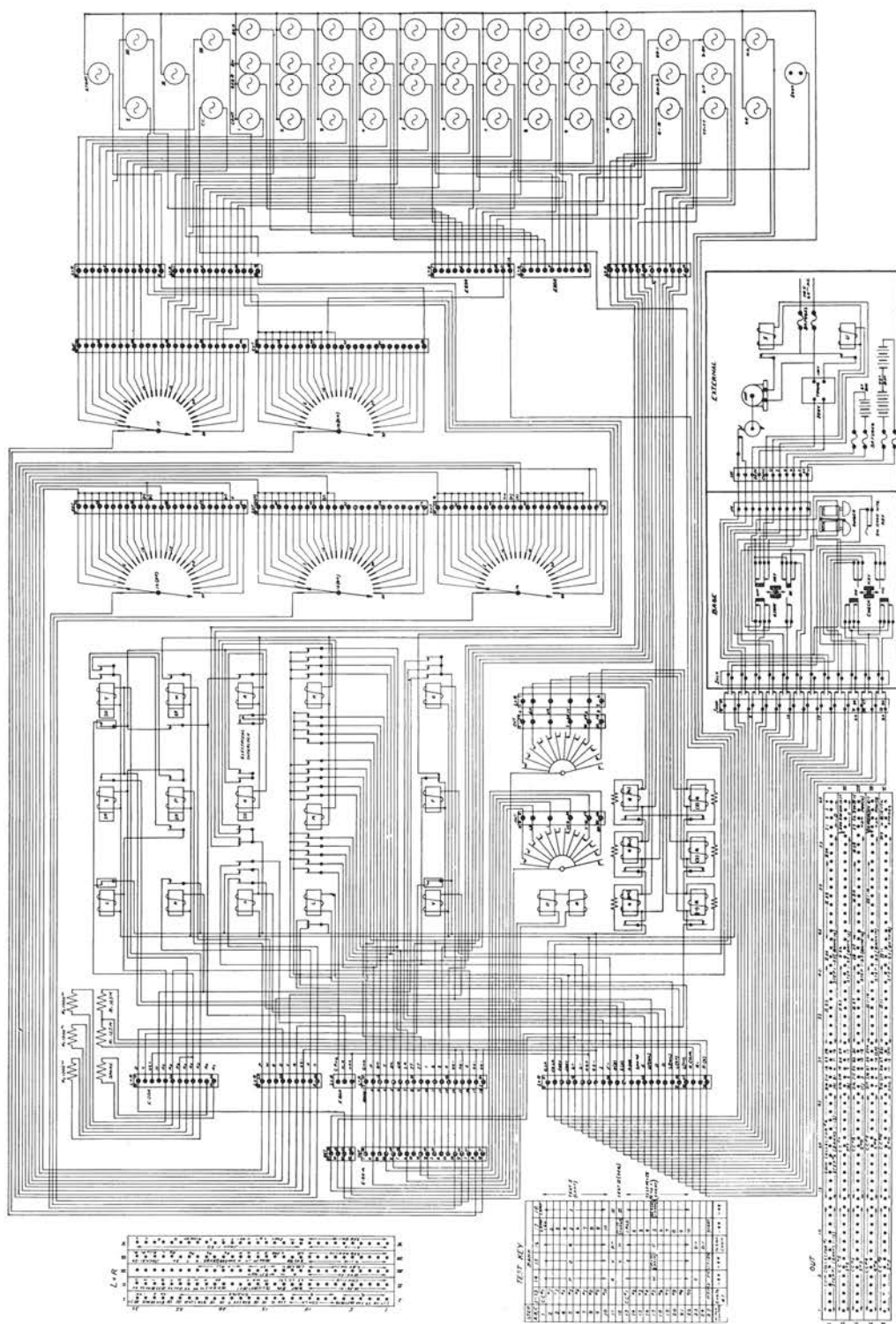
Control Panel of Automatic Electrical Test Fixture

with contact fingers make the electrical connections to the pay stations.

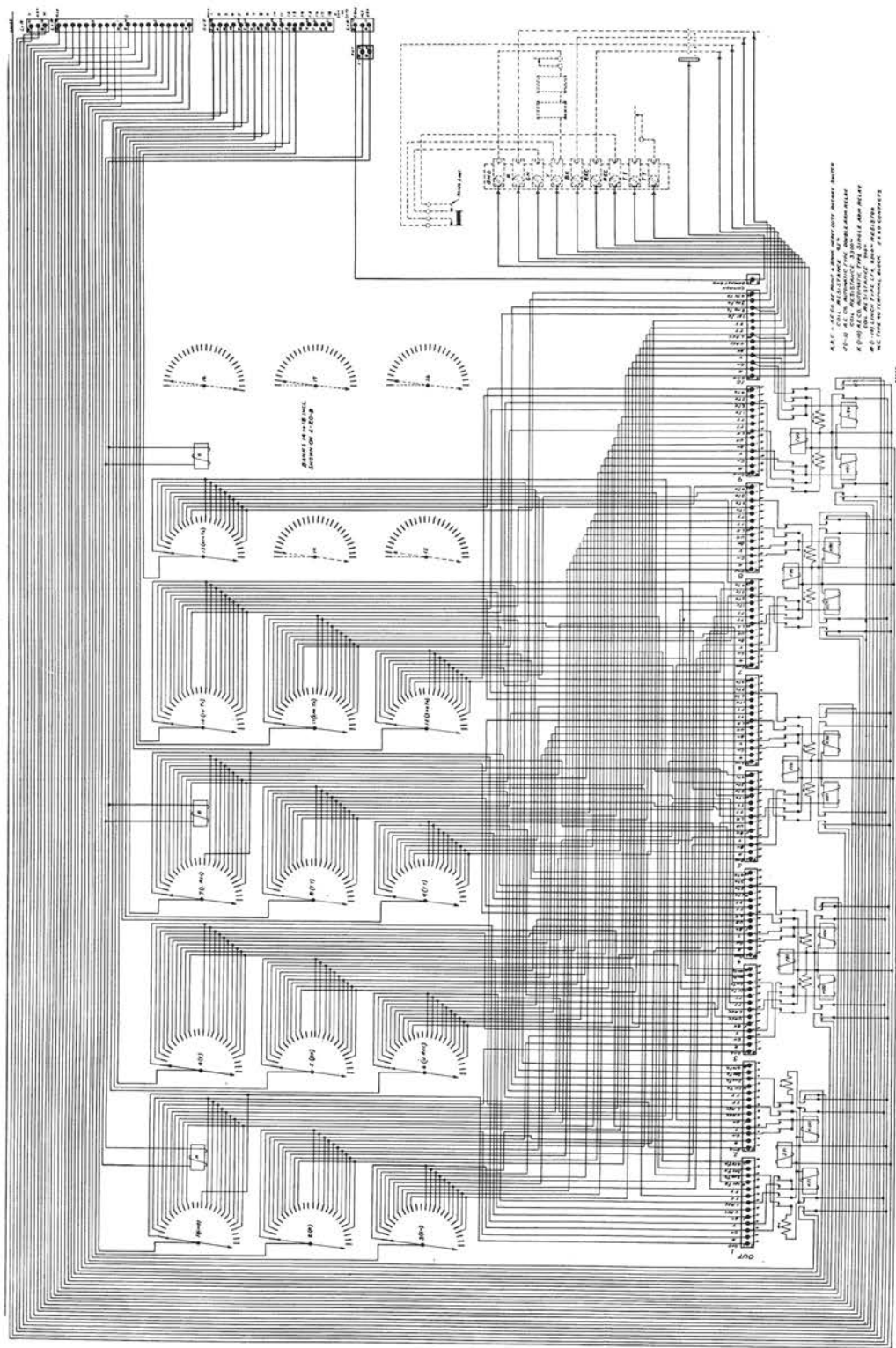
To test a group of ten machines the operator mounts them in the brackets and pushes the start key. The fixture first tests each pay station for continuity and cross connection, colored lamps indicating at all times the machine under test and the test being conducted. A defect will stop the testing operation, and the defective circuit is indicated by colored lamps.

An automatic switchhook lowering device depresses all of the switchhooks and, at the same time, a check is made on the sequence in which the hookswitch contacts break. Ground and short circuit tests are then made on each pay station, after which the switchhooks are raised. The completion of the test is indicated by a green lamp.



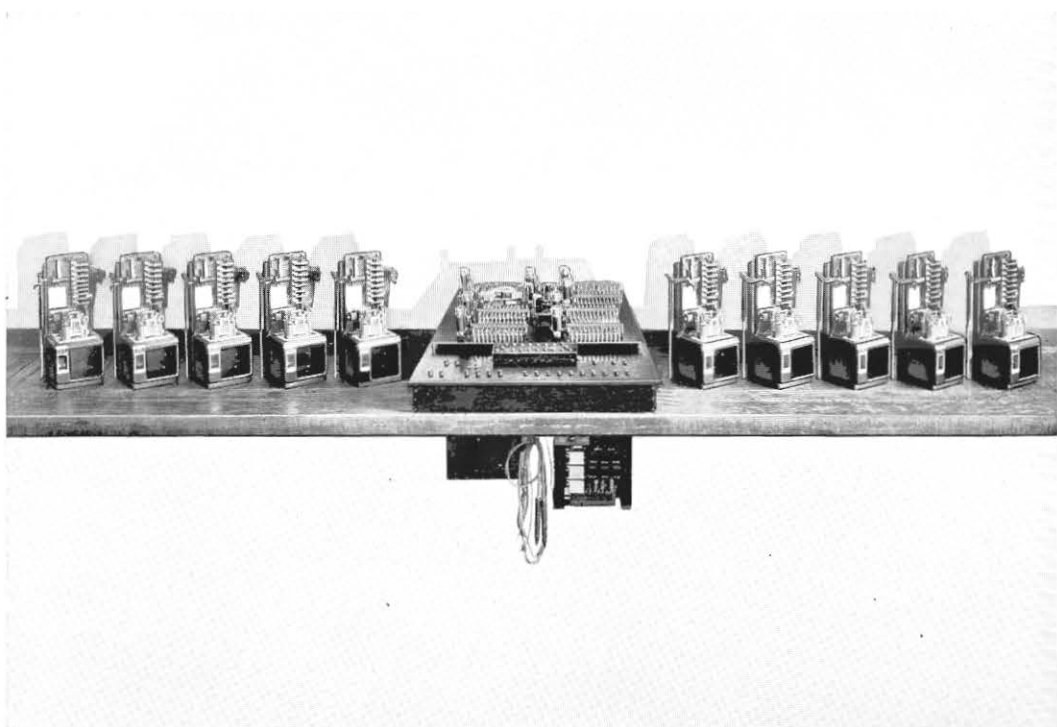


Electrical Test Fixture Control Circuits



Electrical Test Fixture Selector Circuits

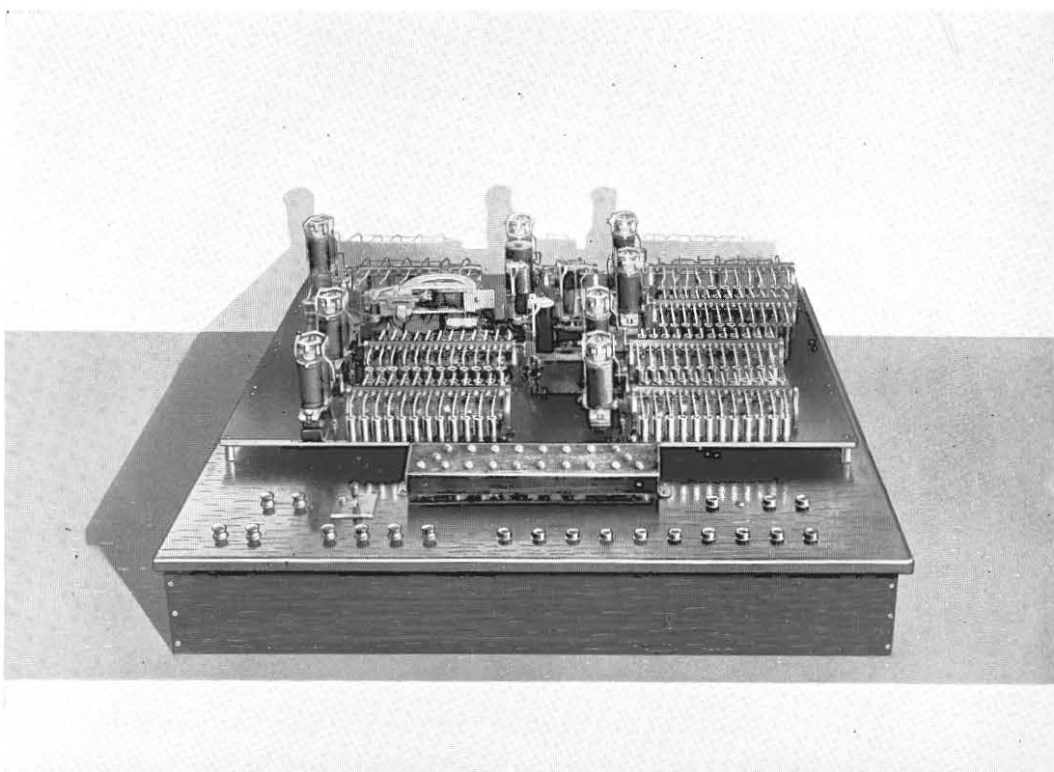




### Automatic Lower Housing Assembly Electrical Continuity and Breakdown Test Fixture with Alternative Manual Control

The electrical test fixture used for No. 50 type pay stations differs in construction from that shown on the preceding pages in the type of switching equipment used to apply the testing voltages to the pay stations, and in the operating control which is alternatively manual or automatic. The mounting brackets and switchhook lowering device are of the same construction.

To operate this device manually, the master switch is placed in the "manual" position. A key corresponding to the test to be applied is now operated and acts, through a special mercury cup type relay, to apply the desired

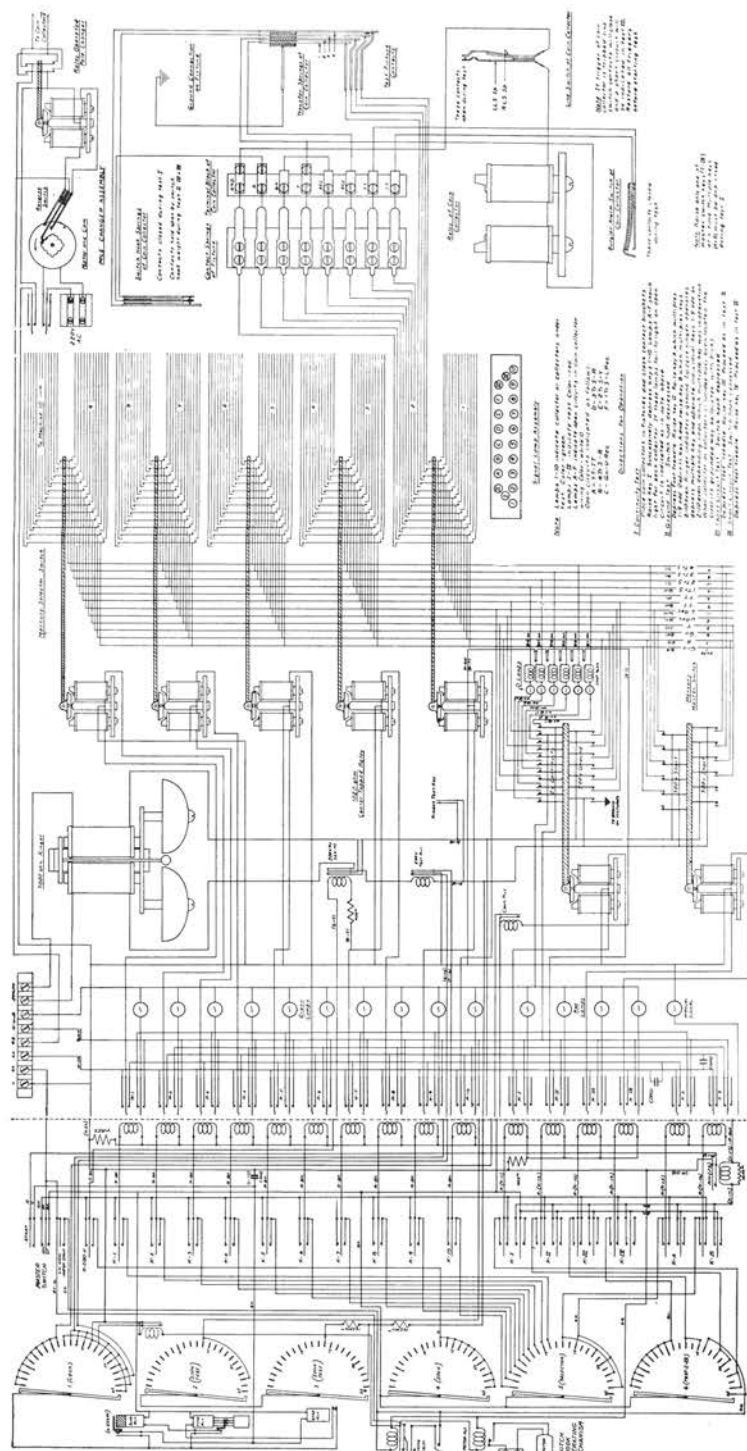


Switching Panel and Keyboard of Electrical Test Fixture Showing Mercury Selector Switches

voltage to the master cable. A key, corresponding to the pay station to be tested, is operated to extend the circuit from the master cable to the machine under test. If the test applied is a breakdown test a 500 volt ringer will indicate any defects. The continuity of the circuits in the pay station is indicated by a bank of low voltage lamps which is connected in series with the respective circuits.

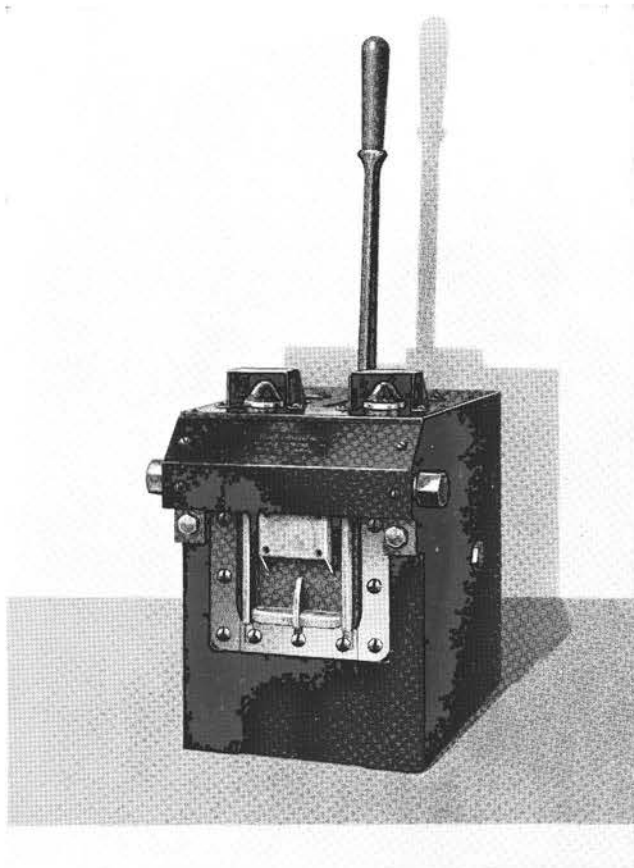
For automatic operation the master switch is set at the "automatic" position and the start key operated. If there are no defects, the ten pay stations in the brackets will be tested in a period of fifteen seconds. As there are nineteen circuit tests made on each of ten pay stations, this fixture makes over twelve tests per second. This high rate is possible only because several tests are made at one time.





Circuit for Mercury Switch Type Electrical Test Fixture





### Cash Compartment Door Gauge and Tensile Test Fixture

The cash compartment door on our pay stations is of hardened welded steel. To insure maximum resistance to burglarizing, it is essential that the welds be sound and that the door fit tightly enough to prevent the insertion of a prying tool.

A testing fixture is used which applies a force of three hundred and ninety pounds on the lock bracket welds and indicates in thousandths the height of each side of the locking bracket.

To make the test the cash compartment door is inserted into the bracket and the operating lever is pulled forward. Two weights are released which apply a force of one hundred and ninety-five pounds to each side of the door bracket. Another system of levers moves a pair of indicators which show, in thousandths, the height of the bracket at the two points where pressure is applied.



## OUR POLICY

Through nearly a half-century the Gray Telephone Pay Station Company has maintained its position as a recognized leader in its field by the constant application of its resources—both to the careful manufacture of its product and to its constant improvement.

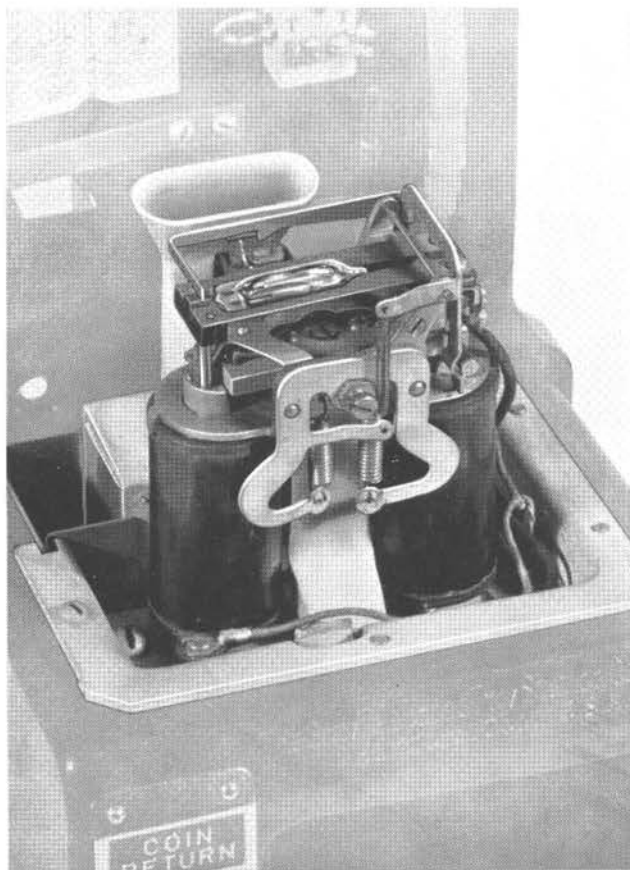
Our policy will always be the anticipation of the needs in telephone toll apparatus and a practical solution to the need, combined with a strict adherence to the principles of equity and exact justice upon which this business was established. The success of our company marks the success of this policy.

Gray

TELEPHONE

PAY STATIONS

Tomorrow



Mercury Tube Coin Relay Switch  
 Patents No. 1,984,976 Dec. 18, 1934, No. 2,003,946 June 4, 1935

## A Forecast of The Future

The present arrangement of switching on our coin collector relays, while a practical one, has proven a source of potential trouble to users. The device now in use depends upon a pair of palladium tipped nickel silver leaf springs for this purpose. There is a tendency under this arrangement for the contact surface to become burned or pitted, and for the springs to become maladjusted; any one of these occurrences serves, of course, to impair the machine's usefulness. To the end of lengthening the life and increasing the effectiveness of our pay station relays, we have turned to the modern efficient mercury switch.

This switch consists of a glass tube containing a small quantity of mercury and an inert gas. Two contacts



Mercury Tube Installed in Pay Station

sealed into one end of the tube serve to carry the electrical connections into the pool of mercury. Strips of spring phosphor bronze are used to suspend the mercury tube on our relay in an approximately horizontal position so that the mercury flows away from the contact points. When a coin is deposited it passes through the coin chute, tripping a trigger and releasing a switch lever which presses down on the ends of the phosphor bronze springs and tilts the mercury tube, causing the mercury to bridge the contacts. The mercury switch is connected into the circuit in a manner similar to that used with the conventional leaf springs, and it serves to ground one side of the line through the coin relay coils.

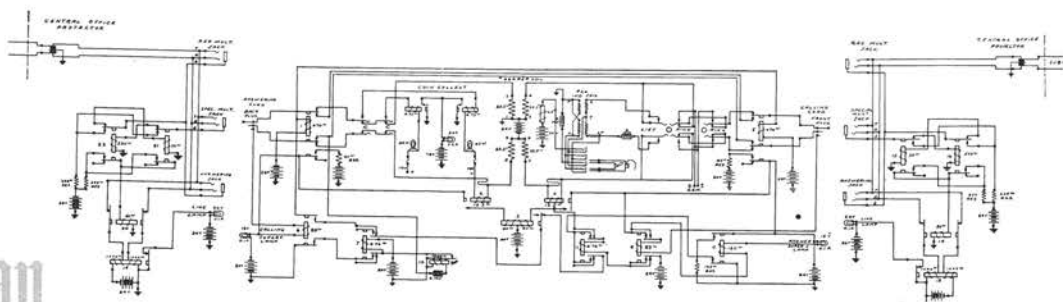
With manual switching this operates a relay at the central office and lights a lamp before the operator, indicating that service is desired. With machine switching the grounding of the line serves to render the dialing circuit operative. In either case the suspended coin or coins are collected or refunded through the operation of the



The Long Writograph—Public Pay Station Type

polarized magnet controlled from the central office, and the operation of this magnet raises the switch lever and restores the trigger to normal.

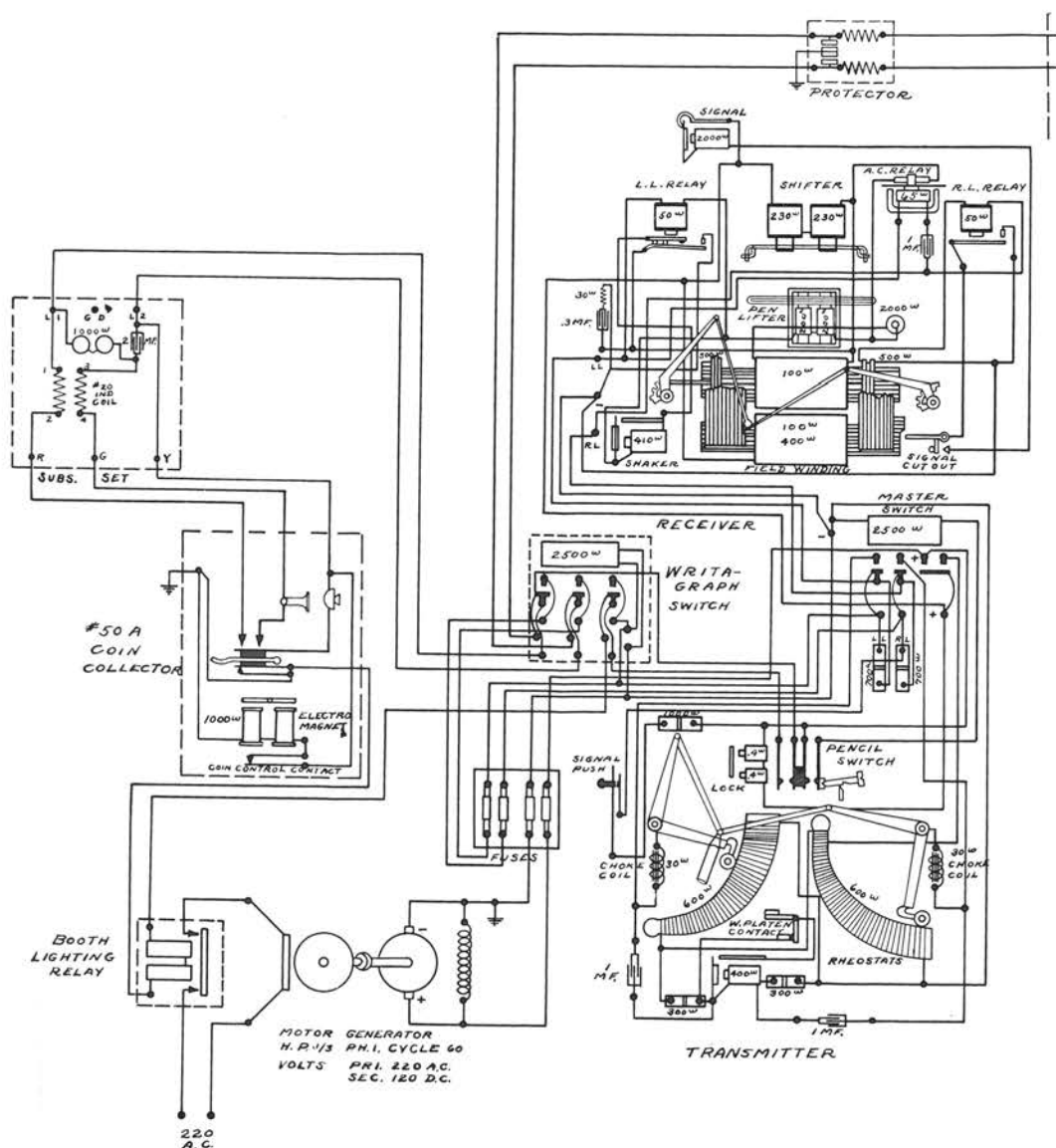
To prevent the mercury switch from breaking the circuit to the coin relay at this time, a small piece of magnetic iron is attached to an insulating member at the end of the phosphor bronze support springs, and this iron piece is attracted to an extension of the core of one of the relay coils holding the switch in the operated position as long as the coin relay is energized. As soon as the central office switch is released, the mercury switch at the pay station will return to the horizontal position in readiness for the next call.



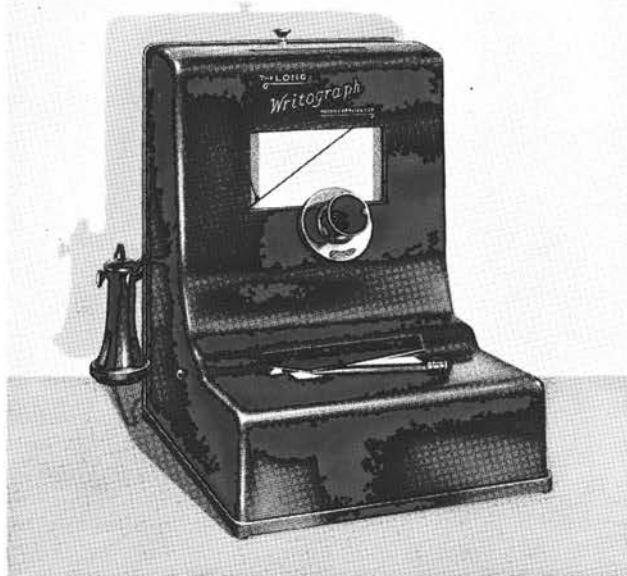
Central Office Circuit

The work at our plant is not confined strictly to telephone pay stations, but includes the development of other types of toll apparatus for the transmission of intelligence. One such device, on which we are working, is a combination of the conventional pay station with a device for sending the written word over the wires. This device, known as "The Long Writograph," and its system of operation is covered by United States patents.

The conventional teletype service furnished by the telephone companies, which connects business offices of large corporations, is satisfactory for sending typewritten messages where the identity of the sender is known to the receiver of the message. This system, however, is not



Circuit for Writograph with Pay Station



The Long Writograph — Subscriber Type

adapted for universal service, as there is no positive means whereby the receiver of the message may identify the sender.

With the new Writograph the message is not typed, but is written out in long hand, and the signature of the sending party is just as authentic as it would be on a letter sent through the mail. The value of this feature can be realized on such transactions as the placing of an order with a stock broker where the signature of the customer is necessary in order to protect the interests of both the broker and the customer.

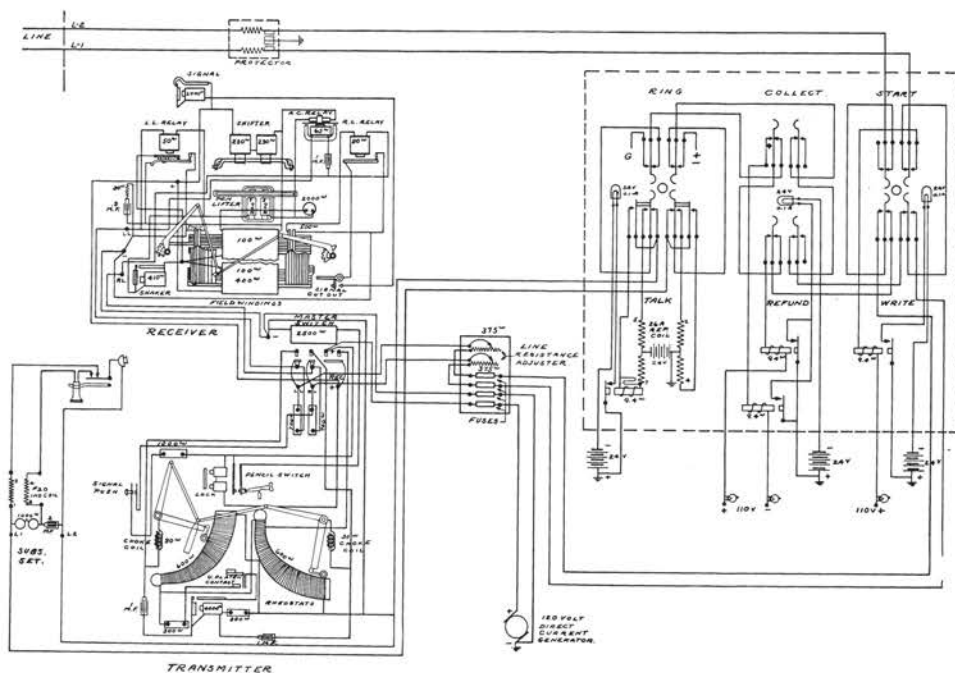
Another type of service in which the Writograph will be of great value is the transmission of telegrams to the telegraph company. At the present time it is possible to send telegrams from a pay station telephone, but the telegraph company has no proof of the authenticity of the message. In order to send a telegram over the Writograph, the sender will enter the nearest pay station booth equipped with a Writograph and initiate a call in the usual manner by depositing a coin in the pay station. When the operator answers, the calling party will designate the company to which he desires to be connected, and the operator will

establish this connection and refund the deposited coin.

The operator at the telegraph company's office will then take the order of the calling party and tell him to write his message on the Writograph. The calling party will write his message on a metal platten, and this message will be written in ink on a roll of paper at both the transmitting and receiving ends. This message may be torn off by the calling party and placed on file. The telegraph company's operator will now determine the charge for the telegram and request the calling party to deposit the proper coins in the pay station.

The deposit of these coins is indicated by means of audible signals and the coins are caused to pass to the coin box through the operation of a collect key by the telegraph company's operator. The calling subscriber disconnects in the usual manner by replacing his receiver on the hook. The collection of the toll from these stations will be handled by the telephone company and pro-rated to the respective telegraph companies.

This system of operation will do away with many branch telegraph company employees and make service available at many locations where it is not now feasible to establish a branch office. The Writograph may be used on any telephone system without changes at the central office, and the establishment of such service will result in increased business for both the telegraph companies and the telephone companies, and be to their mutual benefit.



Telegraph Office Circuit

SUBJECT: Catalogue of Gray Pay Station Apparatus

AMERICAN TELEPHONE AND TELEGRAPH COMPANY.

15 DEY STREET.

JOHN J. CARTY,  
Chief Engineer

NEW YORK, January 10, 1912.

December 29--41894-131C-131E.

Mr. Charles Soby, Secretary and Treasurer,  
The Gray Telephone Pay Station Company,,  
Hartford, Connecticut.

Dear Sir:-

I was interested to learn from your letter of December 29th that you are about to issue a new catalogue of Gray pay station apparatus and I shall be very glad to receive copies of this publication. The only multi-coin box that has been definitely approved by this Department is the new prepayment No. 50-A type to which you refer specifically, and a letter standardizing this piece of apparatus was sent to the associate companies a few days ago.

Under these conditions I see no objection to your stating in your catalogue, if you so desire, that this particular coin box was designed to meet the requirements of the American Telephone & Telegraph Company and that it has been standardized by them for use where a prepayment multi-coin box should be employed.

Yours truly,

KWW-BMW

*J. J. Carty* Chief Engineer.

The Gray Prepayment Multi-Coin Manual Pay Station  
Has Been Standardized by the American Telephone and  
Telegraph Company Since 1912.

**Gray**

T E L E P H O N E

EARLY ADDRESS "AUTOLCO"  
LONDON 1922

ADDRESS ALL COMMUNICATIONS TO THE COMPANY  
**AUTOMATIC ELECTRIC COMPANY**

ENGINEERING DEPARTMENT

CHICAGO

May 22nd, 1923.

T. G. MARTIN

CHIEF ENGINEER

FRED L. BAER

ASSISTANT CHIEF ENGINEER

IN REPLY REFER TO  
TGM/CHB

Mr. Geo. A. Long, Secretary,  
The Gray Telephone Pay Station Co.,  
Hartford, Conn.

Dear Sir:-

Your type No. 75-A multi-coin collector for American coins and the type No. 76 for Canadian coins are approved for use with Strowger Automatic Telephone Exchanges made by the Automatic Electric Company, provided the central office is equipped with the apparatus which we have designed to handle this service.

No difficulty was encountered in adapting the Gray paystation to the conditions of automatic exchange service, neither was there any trouble in providing the automatic central office equipment to operate the coin collector.

We are pleased at the satisfaction which our customers have expressed over the operation of these paystations in the hands of the public, and believe that we are justified in our selection.

We desire to thank you for the cooperation which you gave in adapting your apparatus to our needs.

Yours very truly,

*T. G. Martin*  
CHIEF ENGINEER.

The Gray Prepayment and Postpayment Multi-Coin Machine Switching Pay Stations Are Approved by the Automatic Electric Company for Use with Strowger Automatic Telephone Exchanges.

## Ordering Information

Gray Telephone Pay Stations may be ordered from the agents listed on the following pages, from any reputable telephone supply house or direct from our factory. As we do not supply telephone dials, transmitters, receivers, handsets, desk set boxes or the associated cords, with the exception of the transmitter cords, it is essential that the make and type of equipment to be used with the pay station be specified on the order. Close attention to these details will facilitate the accurate fulfillment of orders and will eliminate a considerable amount of correspondence.

We are equipped to make repairs or alterations of any kind, and will gladly submit quotations. When ordering repair parts, please give the complete identification of the part and the number of the pay station on which it is to be used. Also give the number appearing on the selvage edge of the lock when ordering replacement keys.

The cash compartment door is part of the standard equipment of each pay station, but the door lock, coin tray and card holding device are accessory equipment and must be specified. If a cash compartment door lock is ordered, please specify if it is to be shipped with the pay station, shipped separately, or attached to the door and shipped in a separate container.

We are prepared to furnish anything required in the way of size, form or number of slots for telephone pay station service, either for domestic or foreign use. We invite your inquiries.

Gray

Sales Agents and Distributors



**American Automatic  
Electric Sales Company**

1033 West Van Buren Street, Chicago

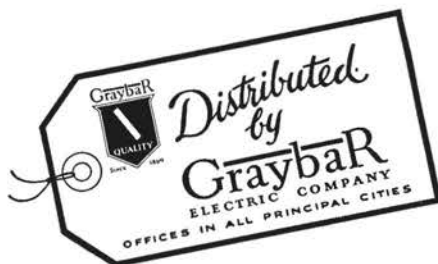
General Sales Agents in U. S. and Possessions for  
AUTOMATIC ELECTRIC COMPANY, CHICAGO  
AMERICAN ELECTRIC COMPANY, CHICAGO  
And Other Companies

Sales and Service Offices:  
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LOS ANGELES, NEW YORK, PHILADELPHIA,  
PITTSBURGH and WASHINGTON

Exclusive Export Distributors  
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1027 West Van Buren Street, Chicago, U. S. A.  
AUTOMATIC ELECTRIC SALES COMPANY, S. A.  
22 Rue de Verger, Antwerp, Belgium



## Sales Agents and Distributors



### *Graybar Offices in the Following Principal Cities*

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Asheville, N. C.	Mt. Vernon, N. Y.
Atlanta, Ga.	Nashville, Tenn.
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Beaumont, Texas	New Haven, Conn.
Birmingham, Ala.	New Orleans, La.
Boston, Mass.	New York, N. Y.
Brooklyn, N. Y.	Norfolk, Va.
Buffalo, N. Y.	Oakland, Calif.
Charlotte, N. C.	Oklahoma City, Okla.
Chicago, Ill.	Omaha, Neb.
Cincinnati, Ohio	Philadelphia, Pa.
Cleveland, Ohio	Phoenix, Ariz.
Columbus, Ohio	Pittsburgh, Pa.
Dallas, Texas	Portland, Ore.
Davenport, Iowa	Providence, R. I.
Dayton, Ohio	Reading, Pa.
Denver, Colo.	Richmond, Va.
Detroit, Mich.	Roanoke, Va.
Duluth, Minn.	Rochester, N. Y.
Durham, N. C.	St. Louis, Mo.
Flint, Mich.	St. Paul, Minn.
Fort Worth, Texas	Salt Lake City, Utah
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Grand Rapids, Mich.	San Francisco, Calif.
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Harrisburg, Pa.	Seattle, Wash.
Hartford, Conn.	Spokane, Wash.
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Jacksonville, Fla.	Tampa, Fla.
Kansas City, Mo.	Toledo, Ohio
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Los Angeles, Calif.	Worcester, Mass.
Memphis, Tenn.	Youngstown, Ohio
Miami, Fla.	

Gray

## Sales Agents and Foreign Distributors

# *International Standard Electric Corporation*

67 Broad Street  
New York, U. S. A.

Cable Address  
"MICROPHONE" NEW YORK

### *Associated, Allied or Affiliated Companies*

#### **ARGENTINA**

Cia Standard Electric Argentina, Casilla de  
Correo 49 (Street Address, Defensa 143),  
**Buenos Aires**

#### **AUSTRALIA**

Standard Telephones and Cables (Austral-  
asia) Ltd., 71 York Street (P.O. Box 525-B),  
**Sydney, N.S.W.**

#### **AUSTRIA**

United Telephone and Telegraph Works,  
Ltd., Dresdner Strasse No. 75,  
**Vienna, XX/2**

#### **BELGIUM**

Bell Telephone Manufacturing Co., 4 Rue  
Boudewyns, P.O. Box 526, **Antwerp**

#### **BRAZIL**

International Standard Electric Corp.,  
Caixa Postal 430 (Street Address, Rua  
Visconde de Inhauma, 64), **Rio de Janeiro**

#### **CHINA**

China Electric Co., Ltd., 240 Kiangse Road  
P.O. Box 289, **Shanghai**

#### **CZECHOSLOVAKIA**

Standard Electric Doms a Spolecnost,  
Samova, U 1, 664, **Prague**

#### **DENMARK**

Standard Electric A/S., Gyldenlovesgade 1,  
**Copenhagen, V.**

#### **EGYPT**

Standard Telephones and Cables, Ltd.,  
Cozzika Buildings Sharia Soliman Pasha,  
**Cairo**

#### **FRANCE**

Le Material Telephonique, 46-47 Quai de  
Boulogne, **Boulogne-Billancourt (Seine)**

#### **GERMANY**

Standard Elektrizitäts Gesellschaft A/G.,  
Genest Strasse 5, **Berlin-Schöneberg**

#### **GREAT BRITAIN**

Standard Telephones and Cables, Ltd.,  
Connaught House, 63 Aldwych,  
**London, W. C. 2**

#### **HOLLAND**

Bell Telephone Manufacturing Co., Schelde-  
straat 160-162, **The Hague**

#### **HUNGARY**

Standard Electric Co., Ltd.,  
Ujpest 4, n. **Budapest**

#### **INDIA**

Standard Telephones and Cables Ltd., Block  
C2, Clive Buildings, 8 Clive Street,  
**Calcutta**

#### **ITALY**

Standard Elettrica Italiana, Via Vittoria  
Colonna No. 9, **Milan, 125**

#### **JAPAN**

Nippon Electric Co., Ltd., 2 Mita Shiko-  
kumachi, Shiba-Ku, **Tokyo**

#### **JAVA**

Bell Telephone Manufacturing Co., Bureau  
in Nederlandsch Oost Indie Riouwstraat, 85,  
**Bandoeng**

#### **NEW ZEALAND**

Standard Telephones and Cables (Austral-  
asia) Ltd., 24-26 Ballance Street, P.O. Box  
638, **Wellington**

#### **NORWAY**

Standard Electric Aktieselskap, Hovind,  
Ostre Akre, **Oslo**

#### **POLAND**

Standard Electric Co. W. Polsce, Sp. Z.O.O.  
Wspolna 53, **Warsaw**

#### **PORTUGAL**

Standard Electrica, S.A. Praca Dos Restaura-  
dores 47-1, **Lisbon**

#### **RUMANIA**

Standard Electric Romana, S.A. 37 Calea  
Victoriei, **Bucharest, 1**

#### **SOUTH AFRICA**

Standard Telephones and Cables, Ltd.,  
Locarno House, Loveday Street (P.O. Box  
1571), **Johannesburg**

#### **SPAIN**

Standard Electrica, S/A., Calle Ramirez  
de Prado (Post Office Box 7040), **Madrid**

#### **STRAIGHTS SETTLEMENTS**

Standard Telephones and Cables, Ltd., 57  
Robinson Road (P.O. Box 553), **Singapore**

#### **SWITZERLAND**

Bell Telephone Manufacturing Co., 10  
Bubenberplatz, **Berne**



Sales Agents and Distributors

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MANUFACTURERS OF  
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PARATUS FOR COMPLETE TELEPHONE  
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WIRE • AND ALL OTHER PLANT AND  
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Chicago, Kansas City, San Francisco, Los Angeles, St. Paul

Gray

T E L E P H O N E

TCI Library - [www.telephonecollectors.info](http://www.telephonecollectors.info)

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### *Northern Electric Company* LIMITED

Head Office, 1261 Shearer Street, Montreal

#### *Distributing Houses*

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Saint John, 41 Dock Street.  
Quebec, 423 St. Paul Street.  
Montreal, 1600 Notre Dame St., West.  
Ottawa, 61 Queen St., East.  
Toronto, 131 Simcoe Street.  
Hamilton, 43 King William Street.  
New Liskeard, 171-172 Whitewood Ave.

London, 196 King Street.  
Sudbury, 96-98 Cedar Street.  
Windsor, Caron Ave. & Wyandotte Street.  
Winnipeg, 65 Rorie Street.  
Regina, 2300 Dewdney Avenue.  
Calgary, 102 Eleventh Avenue.  
Edmonton, 10215-102nd Street.  
Vancouver, 150 Robson Street.

Sales Agents and Distributors

# Stromberg-Carlson Telephone Manufacturing Co.

Manufacturers of  
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CABLES & SUPPLIES  
RADIO APPARATUS

GENERAL OFFICE AND FACTORY  
100 Carlson Road  
Telephone Culver 260  
ROCHESTER, NEW YORK

BRANCH SALES OFFICES  
564-70 West Adams Street  
Telephone State 4236  
CHICAGO, ILLINOIS

2017 Grand Avenue  
Telephone Harrison 6618  
KANSAS CITY, MISSOURI

Gray

## Foreign Sales Agents

We have Resident Agents in all parts of

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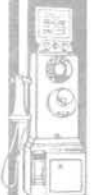
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