

**BELL SYSTEM PRACTICES**  
**Station Installation and Maintenance**

**SECTION C42.102**  
**Issue 3, May, 1953**  
**AT&T Co Standard**

**COIN COLLECTORS**  
**MULTI-SLOT TYPES**  
**DESCRIPTION AND OPERATION**

<b>Contents</b>	<b>Page</b>
1. GENERAL .....	2
2. GENERAL DESCRIPTION .....	3
General .....	3
Explanation of Chart 1 .....	3
3. DESCRIPTION OF UPPER HOUSING .....	7
General .....	7
Coin Chutes .....	7
Gong Signal Assemblies .....	13
4. DESCRIPTION OF BACKPLATE ASSEMBLY ...	20
General .....	20
Lower Housing .....	20
The Backplate .....	26
5. OPERATION—PREPAYMENT .....	31
Coin Chute—10¢ Operation .....	31
Coin Chute—5¢ Operation .....	32
Hopper and Relay Operation .....	32
6. OPERATION—DIAL POSTPAYMENT .....	33
Coin Chute—10¢ Operation .....	33
Coin Chute—5¢ Operation .....	34
Coin Hopper .....	34
7. OPERATION—MANUAL POSTPAYMENT .....	34

## 1. GENERAL

1.01 This section contains general information pertaining to multi-slot coin collectors and is reissued to include apparatus designed for prepay or postpay service and five or ten-cent operation, receiver-transmitter types converted to handset types, and apparatus converted from five-cent to ten-cent operation.

1.02 The term "10¢ operation" is used, herein, to describe coin collectors requiring a minimum of two nickels or a dime to initiate or complete a connection.

1.03 The term "5¢ operation" is used, herein, to describe coin collectors requiring only one nickel to initiate or establish a connection.

1.04 The terms "prepay or prepayment" are used, herein, to describe coin collectors requiring a deposit of coins **before** dial tone can be received or an operator will answer. In a few localities, dial tone is obtained before the deposit of a coin, but local calls cannot be dialed before the coin deposit.

1.05 The terms "postpay or postpayment" are used, herein, to describe coin collectors by which the desired number may be dialed or given to the operator prior to a deposit. A deposit is required to complete the call **after** the connection has been indicated by a second dial tone or by the operator's request.

1.06 The term "receiver-transmitter" is used, herein, to describe apparatus having the talking transmitter mounted on the front of the upper housing and the receiver as a separate unit. See Fig. 1.

1.07 The term "handset" is used, herein, to describe apparatus having the receiver and talking transmitter mounted in a handle which is a unit separate from the upper housing. See Fig. 2.

1.08 This section cancels Section C42.136 covering the description and operation of the 191 and 193 handset coin collectors. The marginal arrows usually used to indicate changes within a practice have been omitted because of extensive changes in the scope and arrangement of this section.

## 2. GENERAL DESCRIPTION

### General

2.01 A coin collector is a station set arranged to collect charges for telephone calls. The multi-slot types, herein, and listed under supplies in Section C42.104, are arranged to collect nickels, dimes and quarters.

2.02 The coin collector consists of two substantial assembly details; the upper housing and the backplate assembly which lock together and protect the various internal parts, such as: the coin chute, gong signal assembly, hopper, and coin receptacle. A coin gauge is fastened to the top of the upper housing externally to provide the proper size entrance for the subscriber to insert nickels, dimes or quarters.

### Explanation of Chart 1

2.03 Chart 1 gives some of the basic characteristics and distinguishing features of the various coin collectors. The numbers 1 to 4 on the left margin divide the apparatus into four groups: The first group consists of coin collectors which exist and operate as originally manufactured. The second group consists of receiver-transmitter types which have been converted from 5¢ to 10¢ operation. The third group consists of collectors which have been converted from 5¢ operation receiver-transmitter types to 10¢ operation handset types. The fourth group consists of 5¢ coin collectors which have been converted from receiver-transmitter types to handset types.

2.04 Under the heading "Type Service", several codes are shown to be adaptable to more than one type of service. This means that for a particular coin collector, there is a choice of the type service for which it can be used, i.e., the 191-type, as indicated, may be used for manual **or** dial prepay service.

2.05 Under the sub-heading "Gong Signal Assembly", the 181, 182, 183, 191, 193, and 195-type coin collectors may be found with **any one** of the indicated gong signal assemblies which are described in Paragraphs 3.07 to 3.11.

2.06 Under the sub-heading "Terminations", for the 161, 162, and 163-type coin collectors the apparatus may exist in the field with **either** of the indicated terminations.

2.07 Under the sub-heading "Switchhook", for the 161, 162, and 163-type coin collectors the apparatus may exist in the field with **either** the shaft or the yoke-type switchhook.

CODE	TYPE SERVICE				STYLE	PRO- DUCED	UPPER HOUSING				BACK PLATE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
	FIVE CENT	TEN CENT	MANUAL PREPAYMENT	DIAL PREPAYMENT			MANUAL POSTPAYMENT	DIAL POSTPAYMENT	RECEIVER - TRANSMITTER	HANDSET	NEW	CONVERTED TO 10¢	CONVERTED TO HANDSET	TALK TRANS. & GONGS ON UP HSE. 1 SIG. TRANS. GONGS ON UP HSE.	1 SIG. TRANS. SWING	2 SIG. TRANS. SWING	2 SIG. TRANS. CHUTE MTG.	NON. POL. EL. MAG.	POL. EL. MAG.	COND. ON CHUTE	COND. UNDER RET. CHUTE	WOOD STRIP	SPRING PILE-UP	FEATURE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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CHART 1  
CHARACTERISTICS OF MULTI-SLOT COIN COLLECTORS

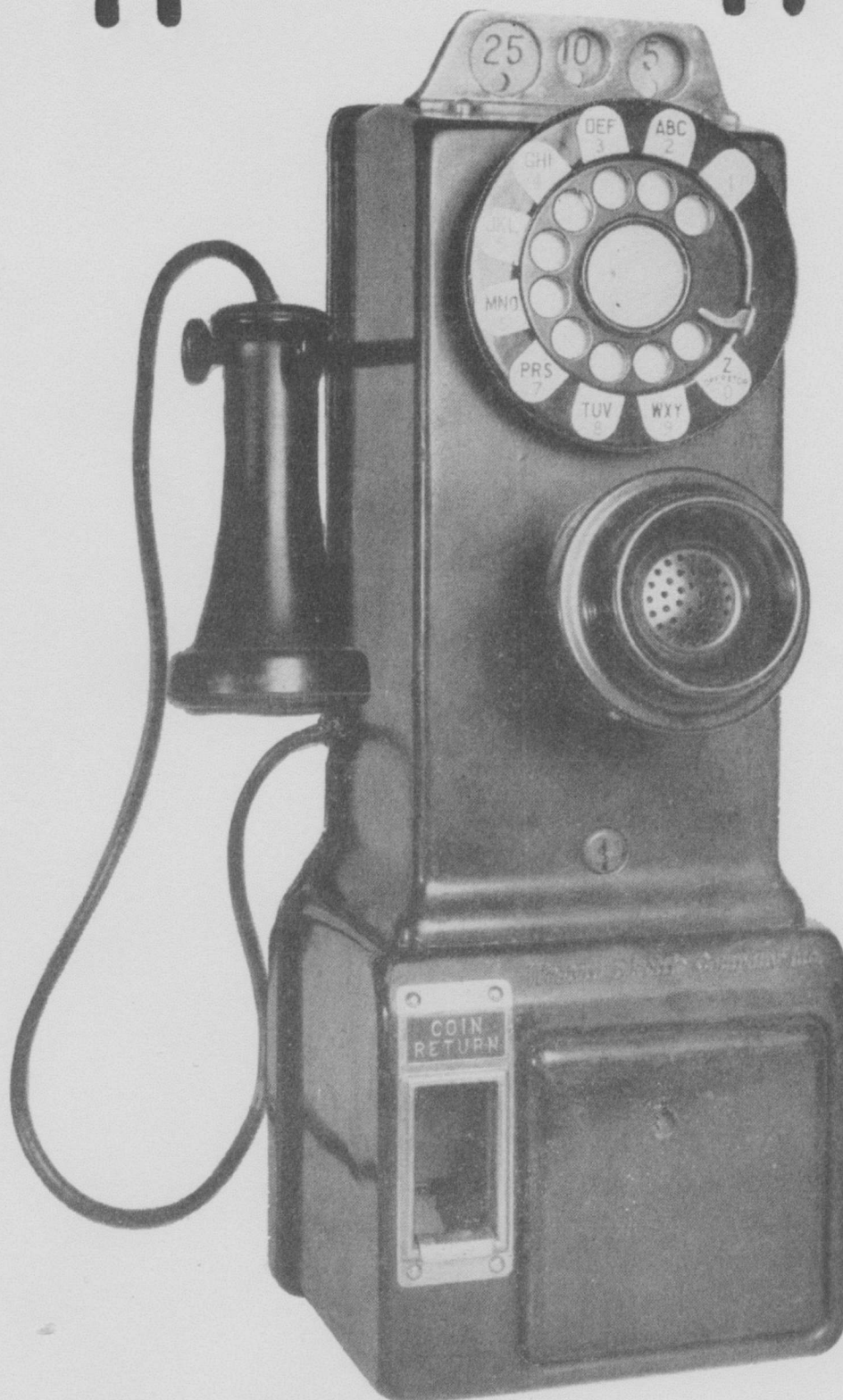


Fig. 1—Receiver-transmitter Coin Collector



Fig. 2—Handset Coin Collector

### 3. DESCRIPTION OF UPPER HOUSING

#### General

3.01 The upper housings of all multi-slot coin collectors include the following parts: The coin gauge, coin chute, upper part of the coin return chute, and the gong signal assembly.

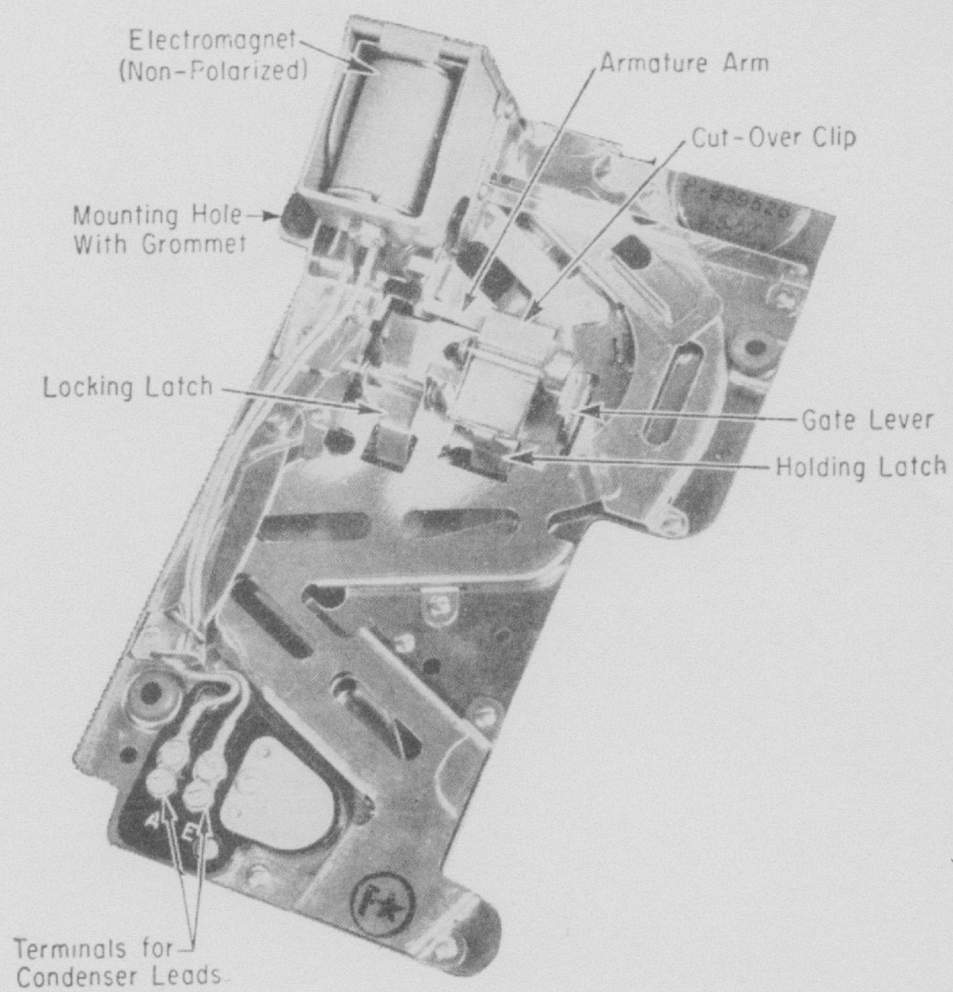
3.02 According to the type of service, dial or manual, a dial may or may not be mounted on the front of the upper housing.

3.03 In the case of the receiver-transmitter coin collectors the talking transmitter is mounted on the front of the upper housing.

#### Coin Chutes

3.04 The coin chute designed for 10¢ operation is made of stainless steel. It includes an electromagnet, condenser, gate, holding latch, and locking latch. The electromagnet is mounted on the chute at the entrance to the nickel channel and is connected with a 4 mf by-pass condenser in series with the transmission circuit. The condenser coded 452A or B, is mounted under the coin return chute in the upper housing, lead-wire end up, except where the coin collector is a receiver-transmitter type which has been **converted** to 10¢ operation. The gate is located on the rear of the coin chute, opposite to the holding and locking latches. See Figs. 3 and 4.

3.05 In the case of receiver-transmitter coin collectors which have been converted to 10¢ operation, the condenser is mounted on the front of the coin chute under a guide for the operating arm. See Fig. 5.



**Fig. 3—Coin Chute 10¢ Operation (Front)**

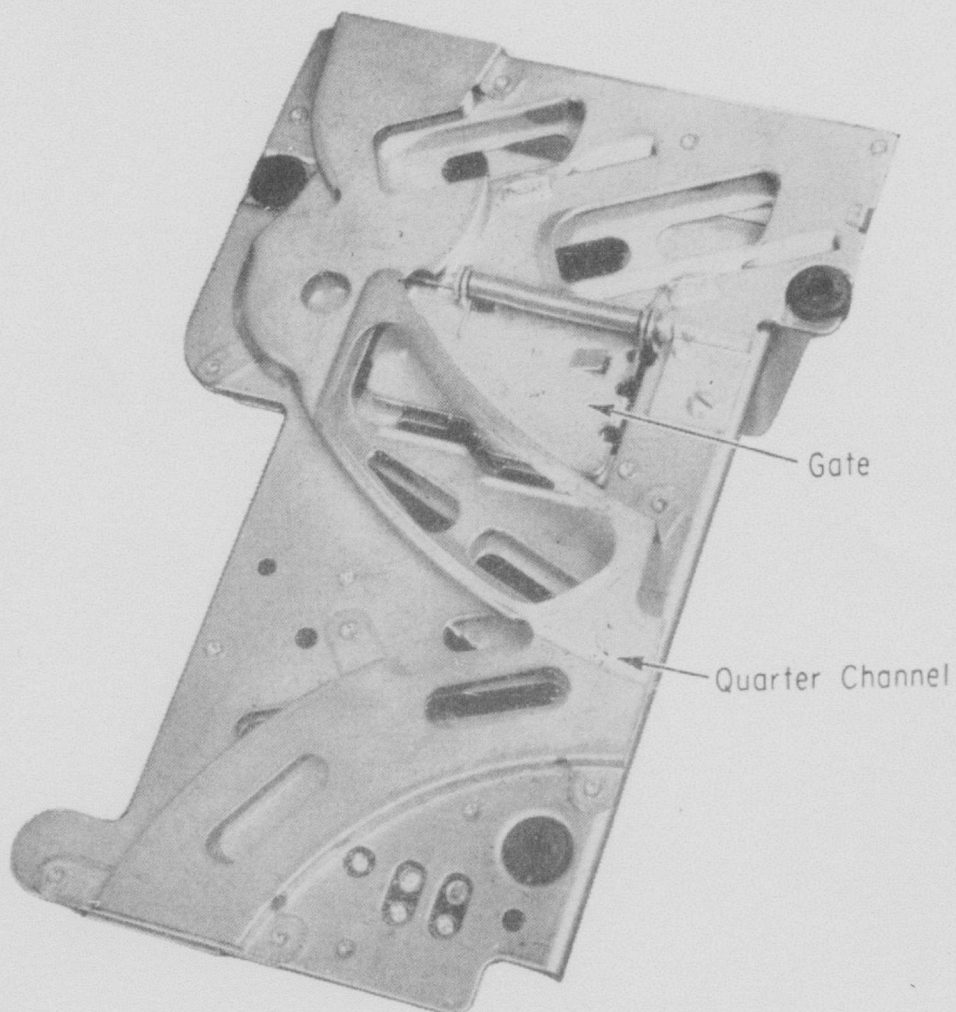
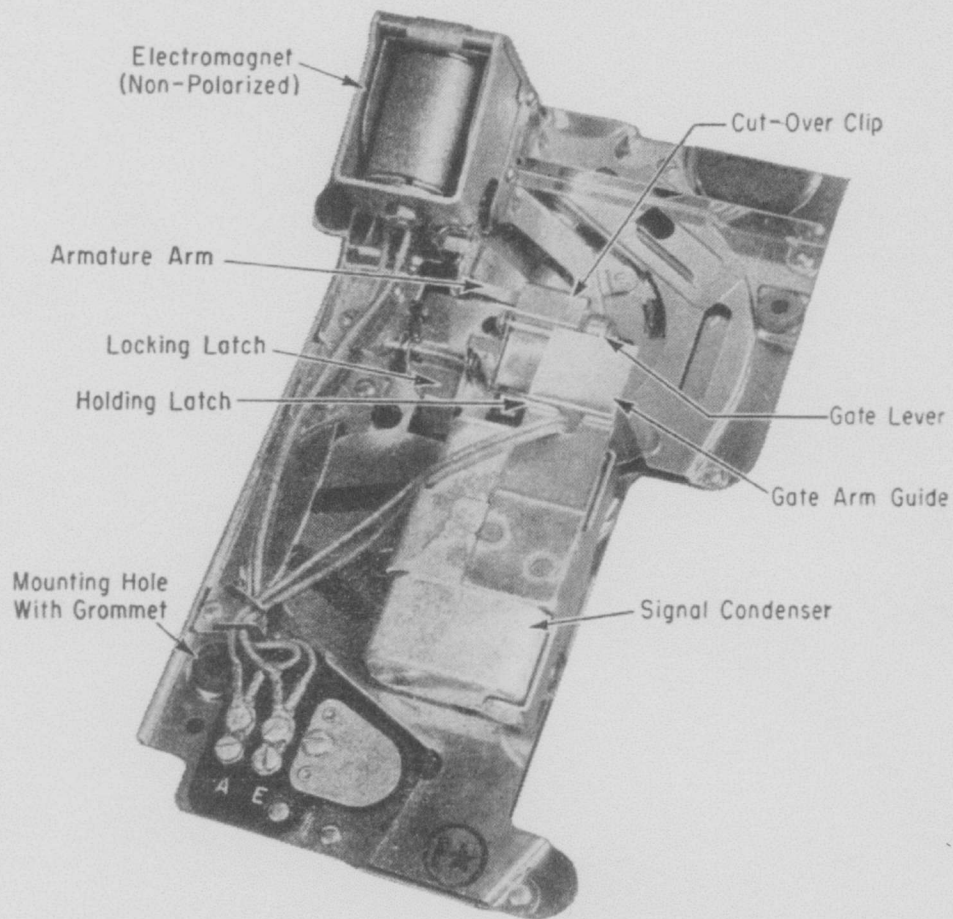


Fig. 4—Coin Chute 10¢ Operation (Rear)



**Fig. 5—Coin Chute 10¢ Operation (Condenser Mounted on Front)**

3.06 The coin chute designed for 5¢ operation is of simple construction and made of lead or steel. It provides channels for the proper direction of deposited coins to the coin signals and hopper. See Figs. 6 and 7. The coin chute designed for 10¢ operation may be used for 5¢ operation by use of a so-called cut-over clip.

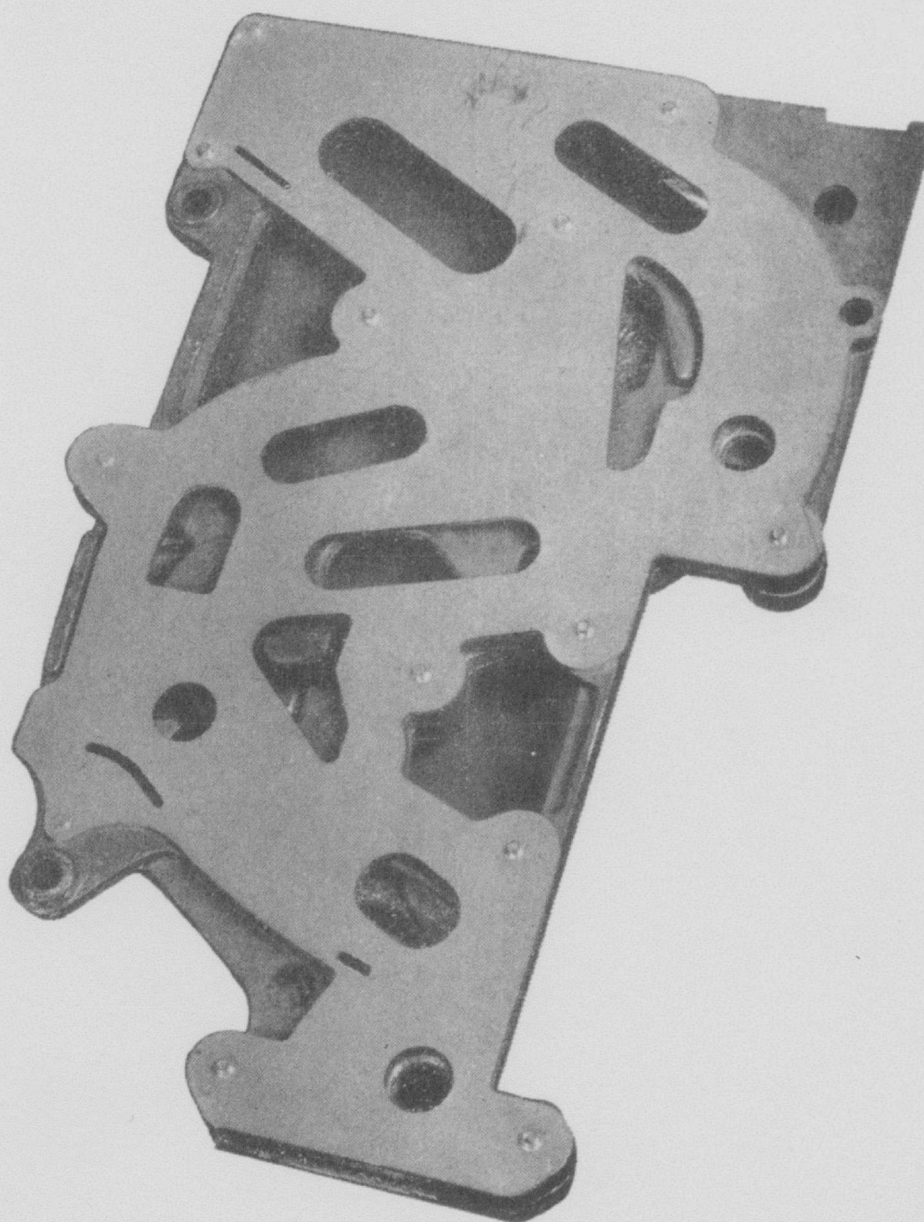


Fig. 6—Lead Coin Chute—5¢ Operation  
(Cover Plate Side)

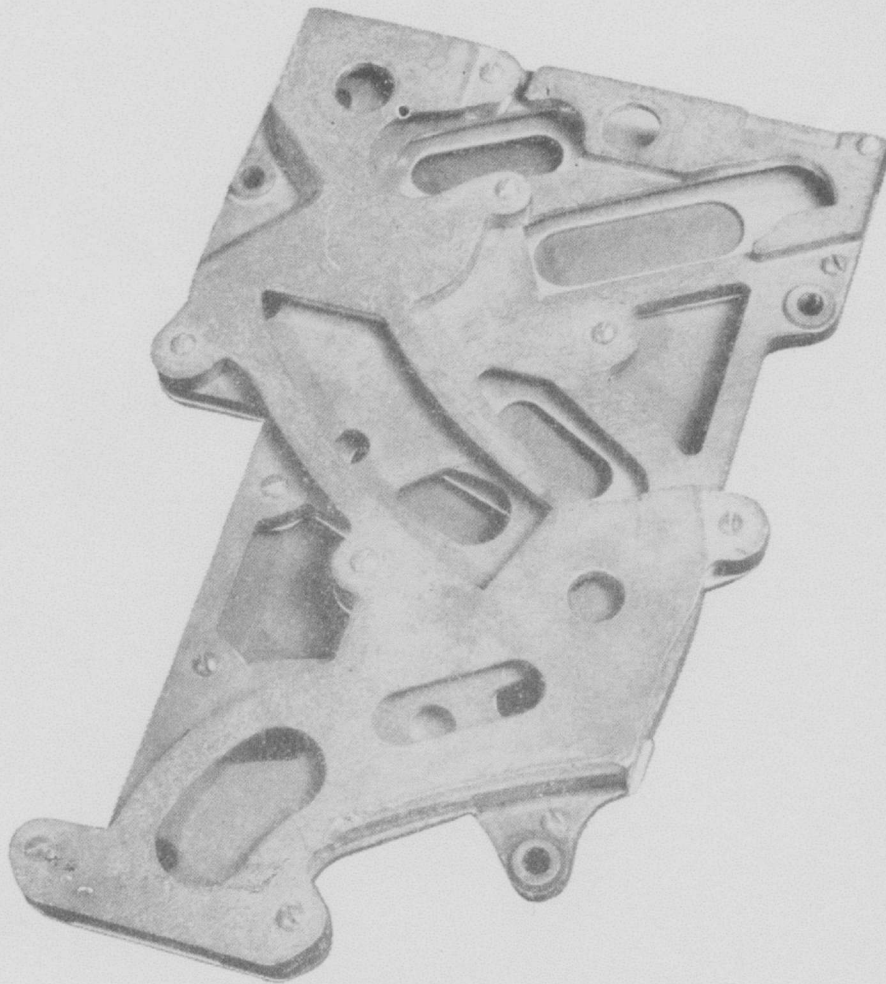


Fig. 7—Lead Coin Chute—5¢ Operation  
(Quarter Channel Side)

### **Gong Signal Assemblies**

3.07 The function of any gong signal assembly is to provide the operator with identifiable coin signals. The following paragraphs describe five gong signal arrangements.

3.08 The chute mounted gong signal assembly consists of two signal gongs and two signal transmitters. One transmitter is mounted near the cathedral gong, the other inside the solid gong. The entire assembly mounts on the coin chute. See Fig. 8.

3.09 The swing type gong signal assembly is arranged in two ways. One arrangement consists of the assembly described in Paragraph 3.08 mounted on a bracket suspended from the inner top of the upper housing. See Fig. 9. The other arrangement differs in that it has only a single signal transmitter between the two gong signals. See Fig. 10. Both arrangements swing out and hook in a horizontal position to provide easy access for maintenance. See Fig. 11. Any one of the three gong signal assemblies described in this paragraph and Paragraph 3.07 may be found in the handset coin collectors (not including those coin collectors converted to handset types). See Chart 1.

3.10 The gong signal assembly which has the signal gongs mounted on the upper housing and a single signal transmitter within the solid gong is associated with coin collectors converted to the handset type. See Fig. 12 and Chart 1.

3.11 The receiver-transmitter type coin collectors use the talking transmitter to pick up the gong signals, therefore, the signal gongs mounted on the upper housing have no separate associated signal transmitters. See Fig. 13 and Chart 1.

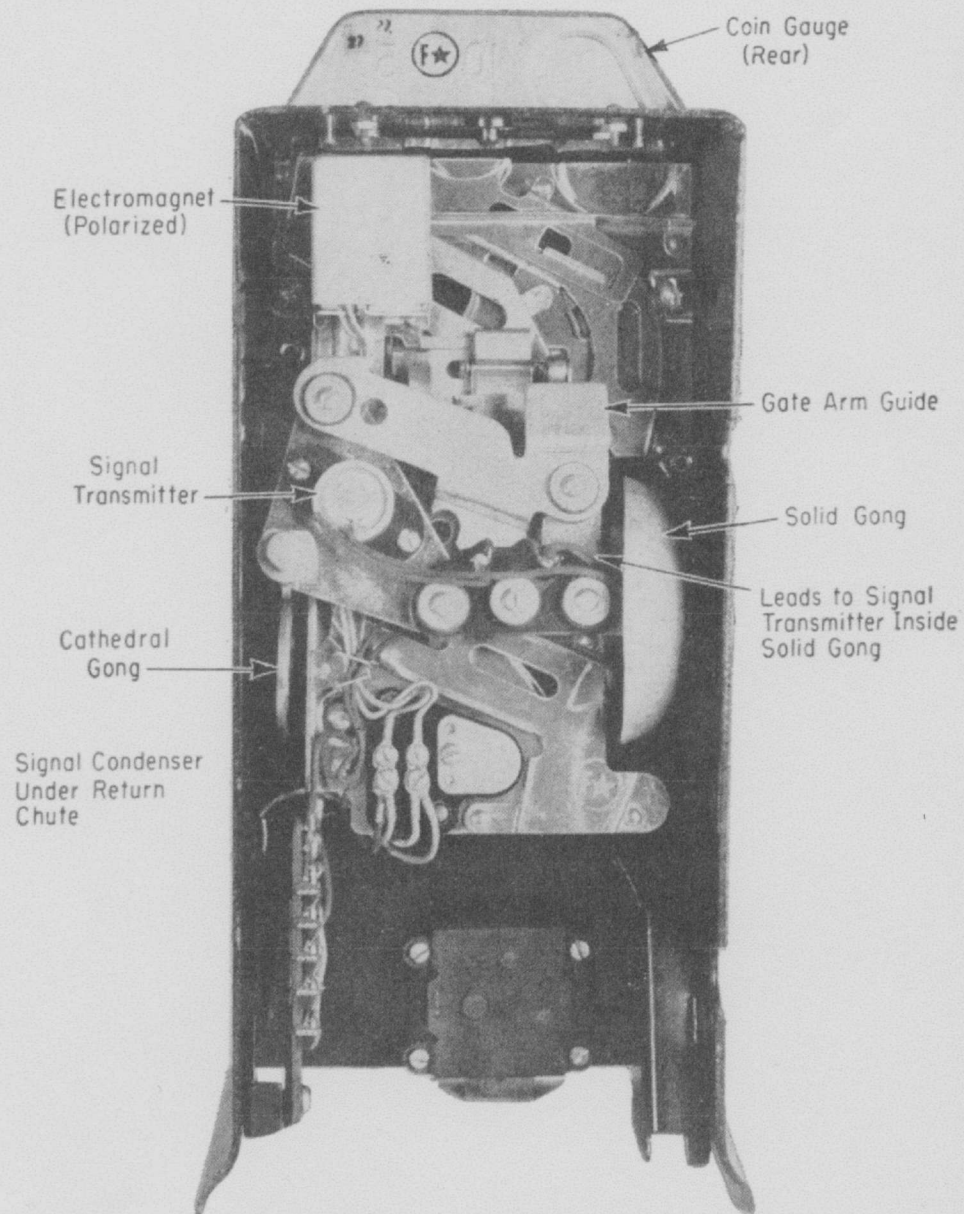


Fig. 8—Chute Mounted Gong Signal Assembly  
(Mounted in an Upper Housing)

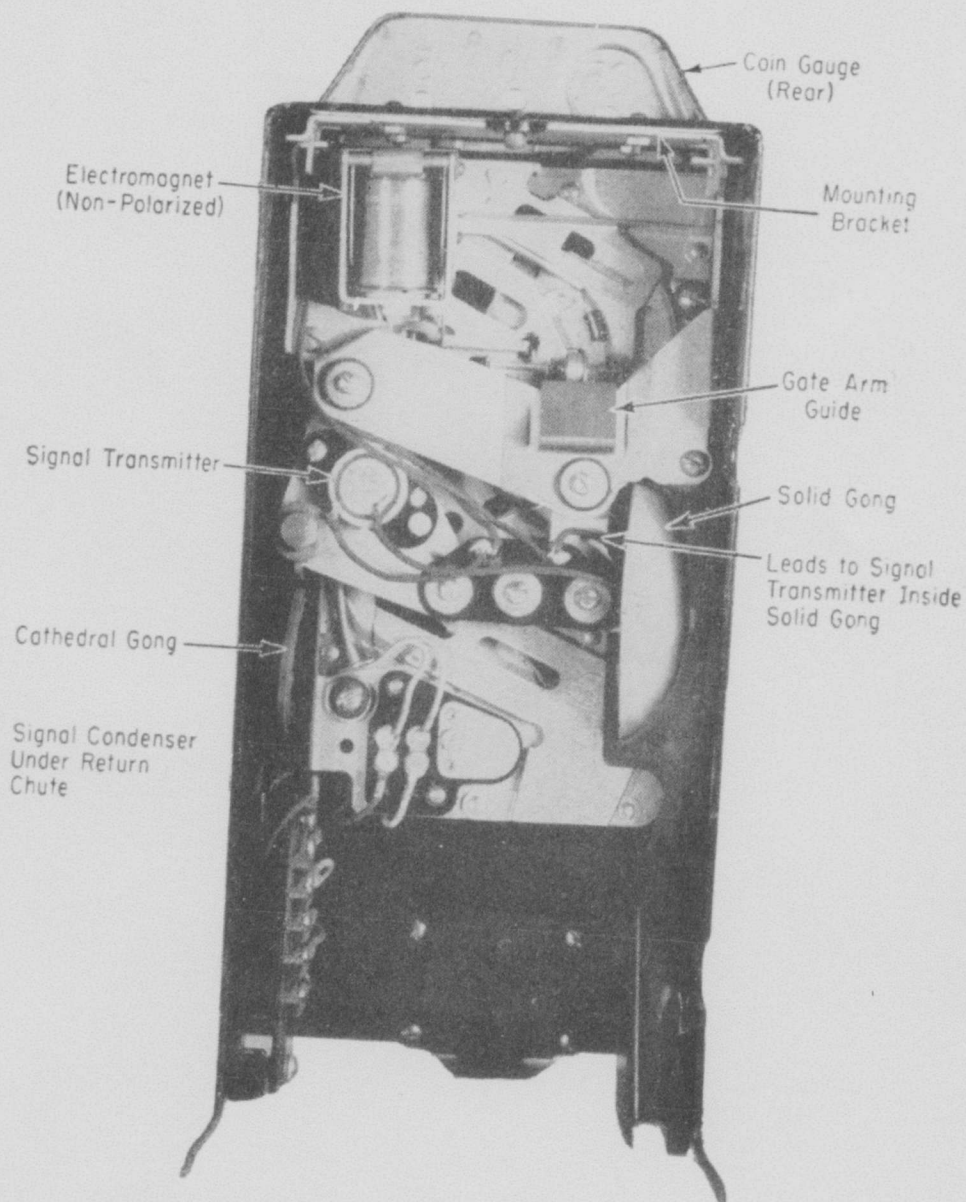
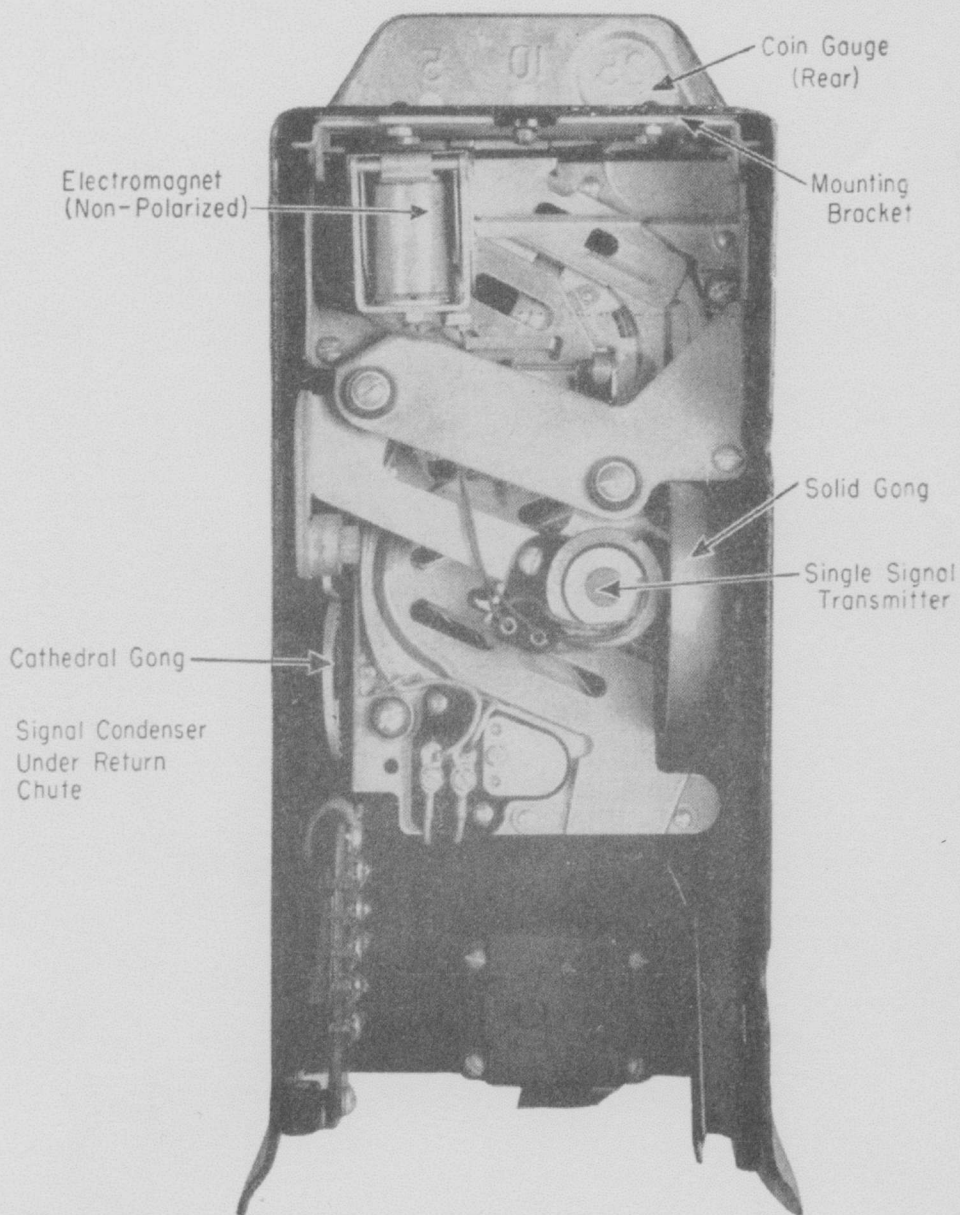


Fig. 9—Swing Type Gong Signal Assembly—Two Signal Transmitters (Mounted in an Upper Housing)



**Fig. 10—Swing Type Gong Signal Assembly—One Signal Transmitter (In Operating Position)**

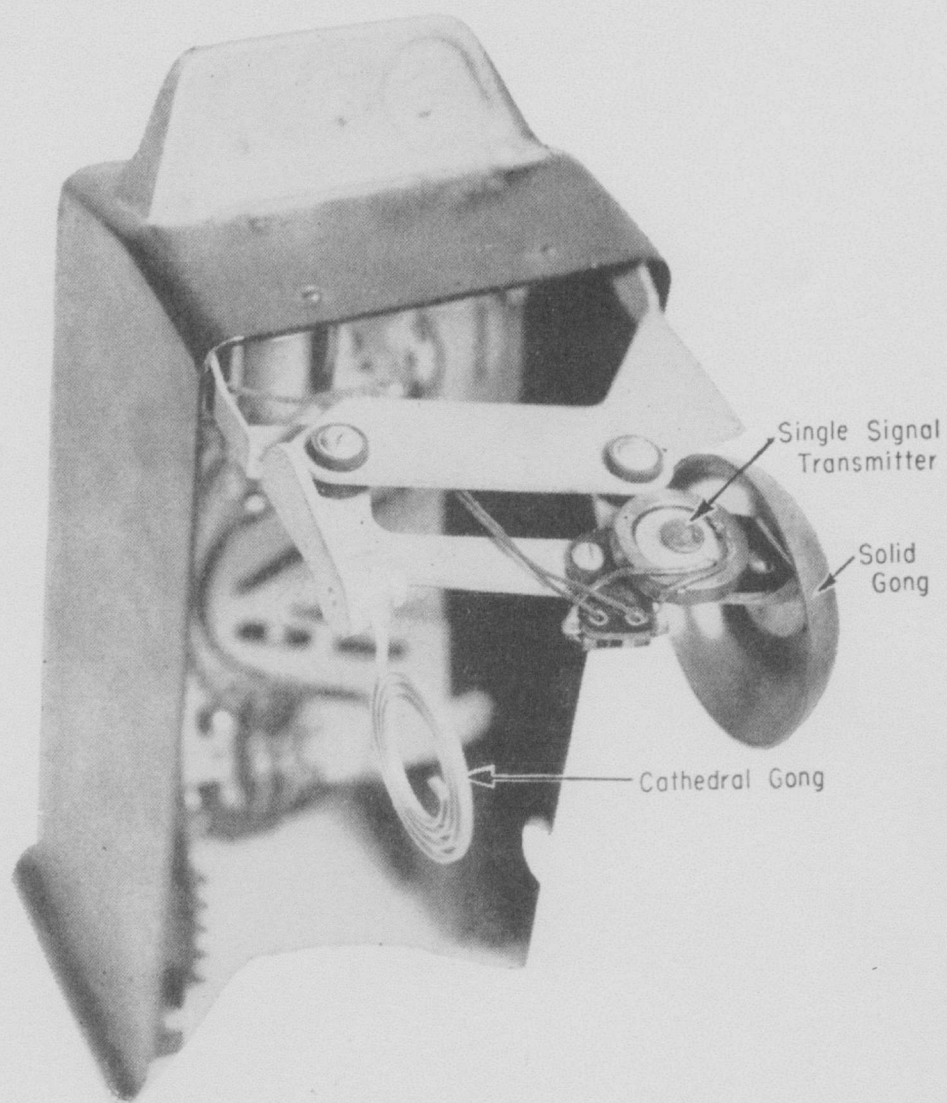


Fig. 11—Swing Type Gong Signal Assembly—One Signal Transmitter (Swung Out in a Horizontal Position)

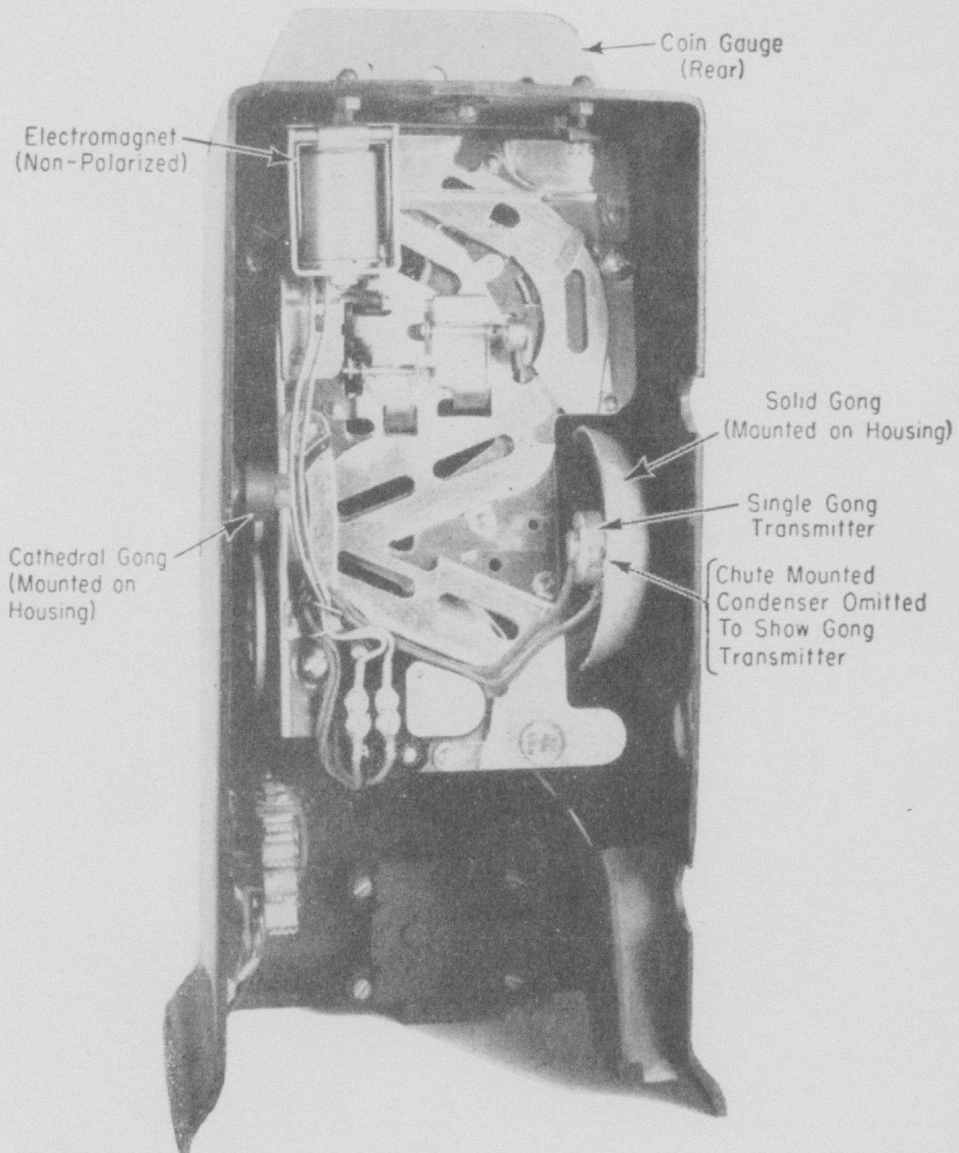


Fig. 12—Housing Mounted Gong Signal Assembly—One Signal Transmitter

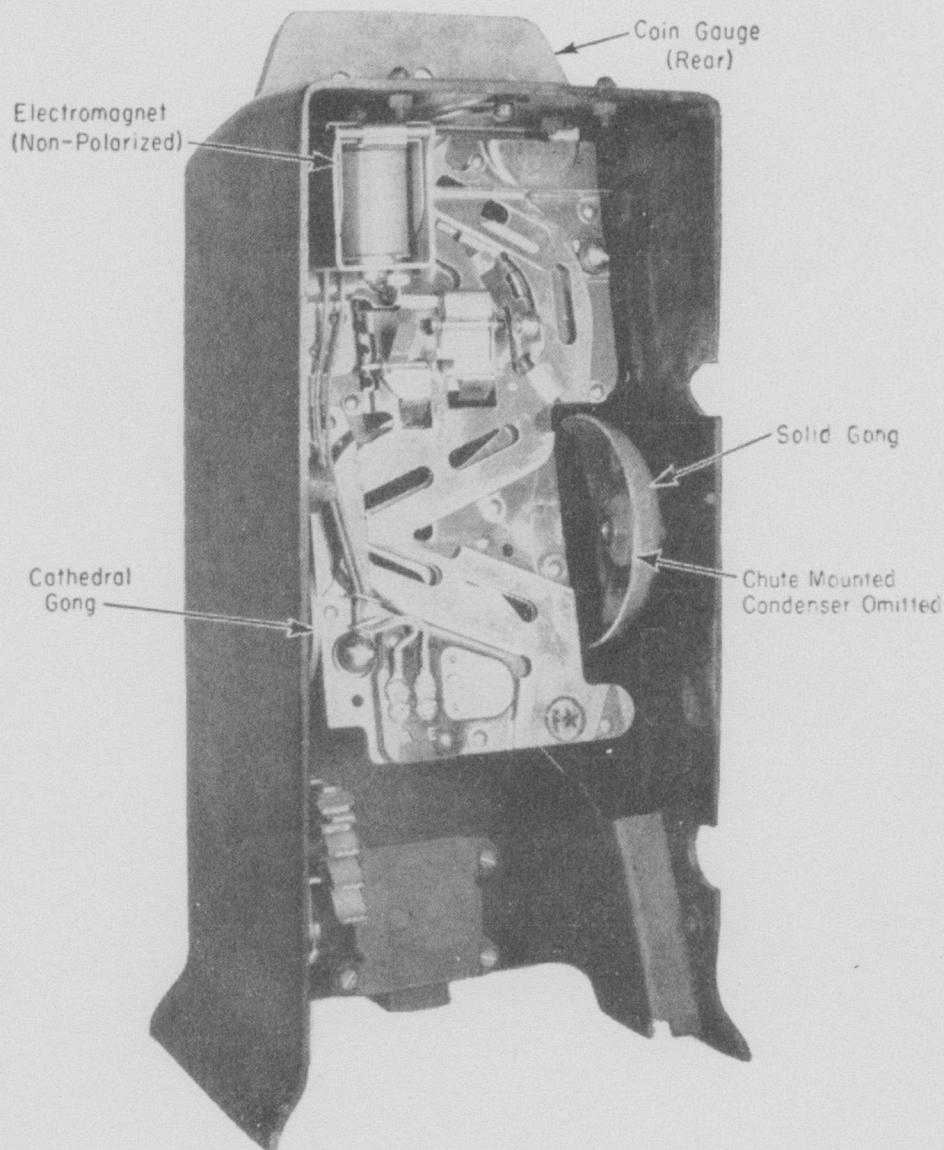


Fig. 13—Housing Mounted Gong Signals (Talking Transmitter on the Upper Housing)

#### **4. DESCRIPTION OF BACKPLATE ASSEMBLY**

##### **General**

4.01 The backplate assembly is a unit which provides a mounting place for the various connecting and operating parts of the coin collector. For the purpose of description, the backplate assembly is considered divided into two sections; the lower housing and the backplate.

##### **Lower Housing**

4.02 The lower housing forms a compartment into which a coin receptacle is placed to receive collected coins. A steel door with an individual lock is provided for the compartment.

4.03 The lower part of the coin return chute is located in the lower housing to the left of the coin receptacle compartment. An opening in the front of the lower housing gives access to the returned coins. The 195-type coin collector differs from all others in that the opening to the return chute is equipped with a pull bucket. See Figs. 14 and 15.

4.04 A coin relay and a coin hopper are mounted together on the tray at the top of the lower housing when the apparatus is arranged for prepayment dial or manual service. The relay and hopper function together to connect the set to the line and collect or return deposited coins. See Figs. 16 and 17.

4.05 A coin hopper equipped with spring contacts, a varistor, and resistance is mounted on the tray at the top of the lower housing when the apparatus is arranged for postpayment dial service. The function of the hopper and contacts is to establish the connection and collect coins. See Fig. 18.

4.06 A simple hopper is mounted on the tray at the top of the lower housing when the apparatus is arranged for postpayment manual service. The function of the hopper is to direct collected coins to the coin receptacle. See Fig. 19.

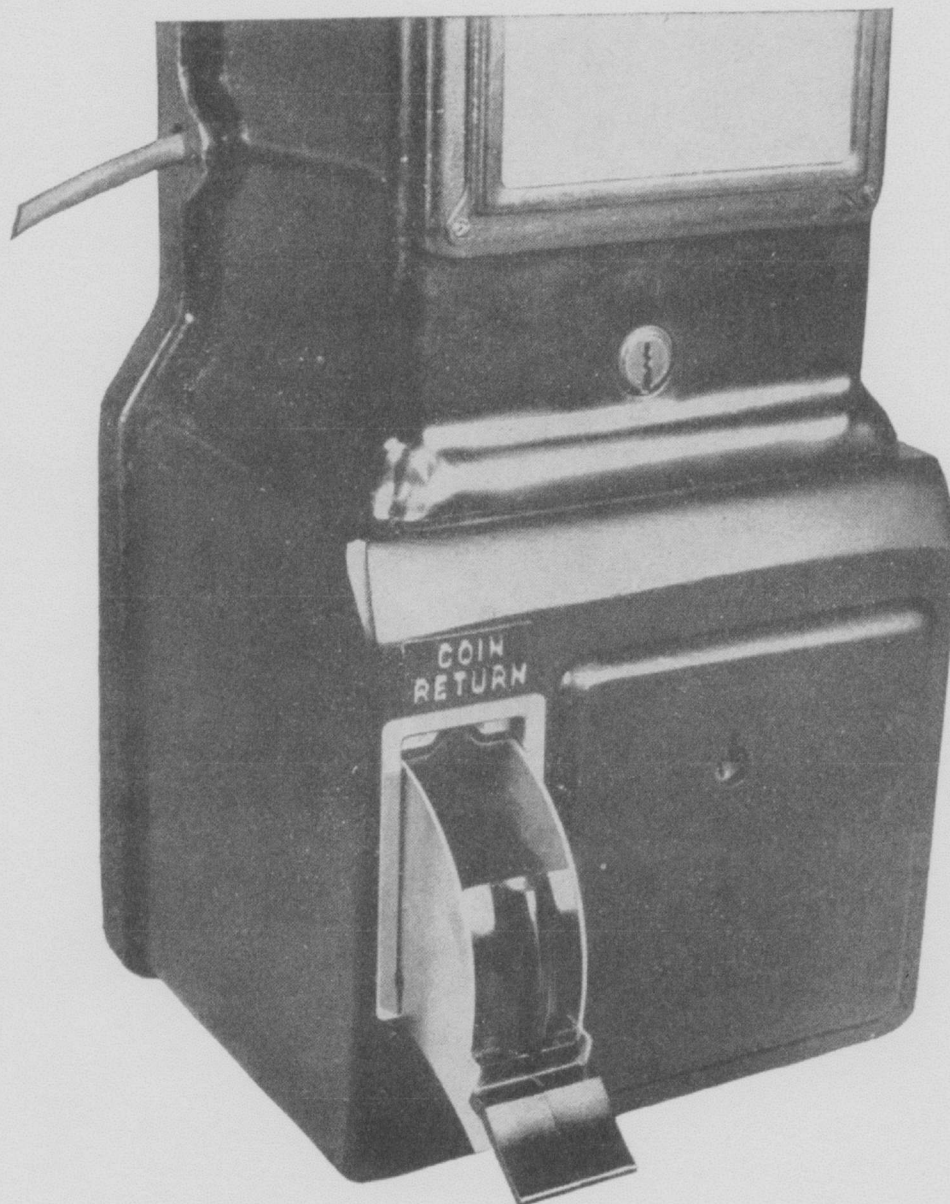


Fig. 14—Pull Bucket Return Chute (Open)

C42.102

Page 21

COIN COLLECTORS  
MULTI-SLOT TYPES  
DESCRIPTION AND OPERATION

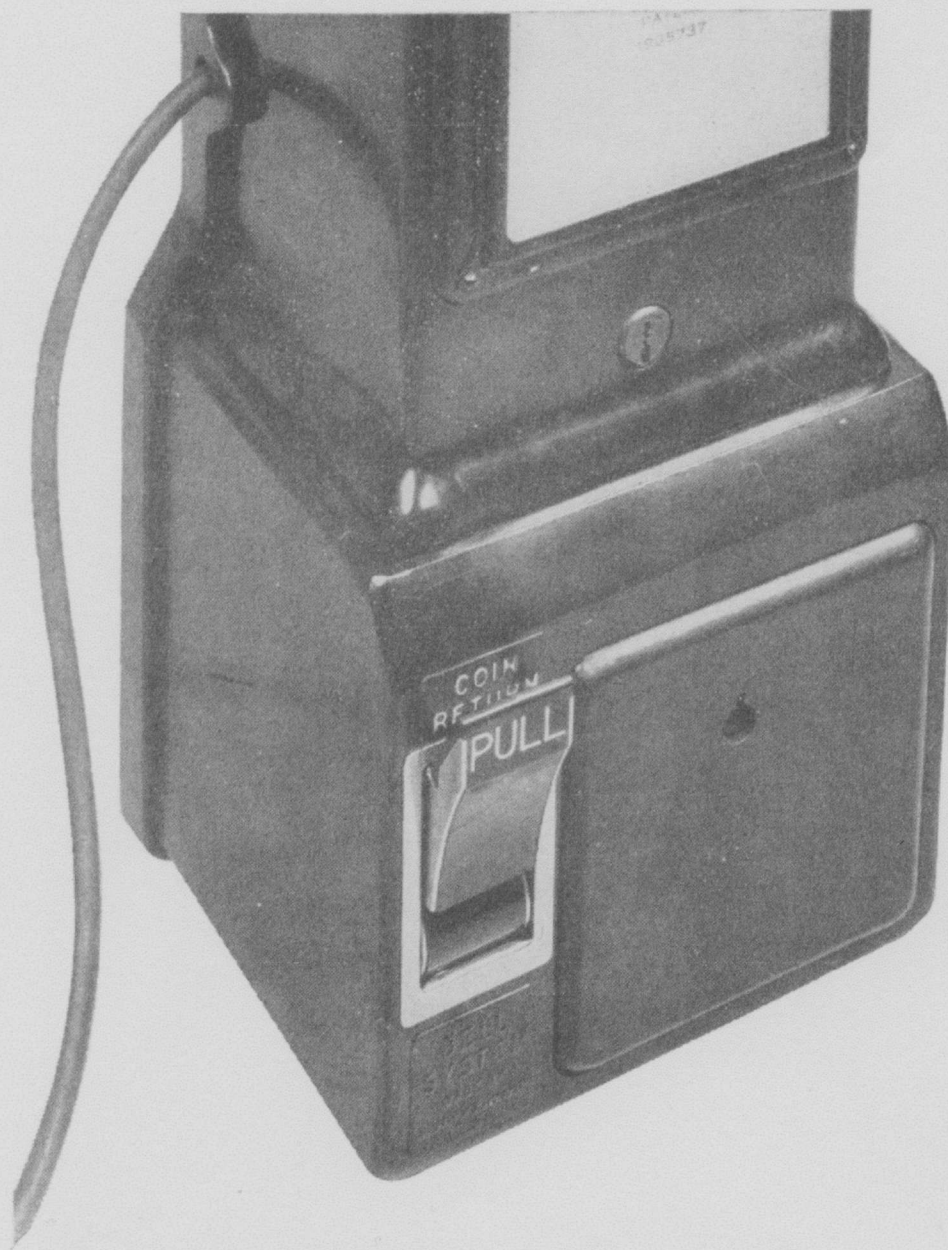


Fig. 15—Pull Bucket Return Chute (Closed)

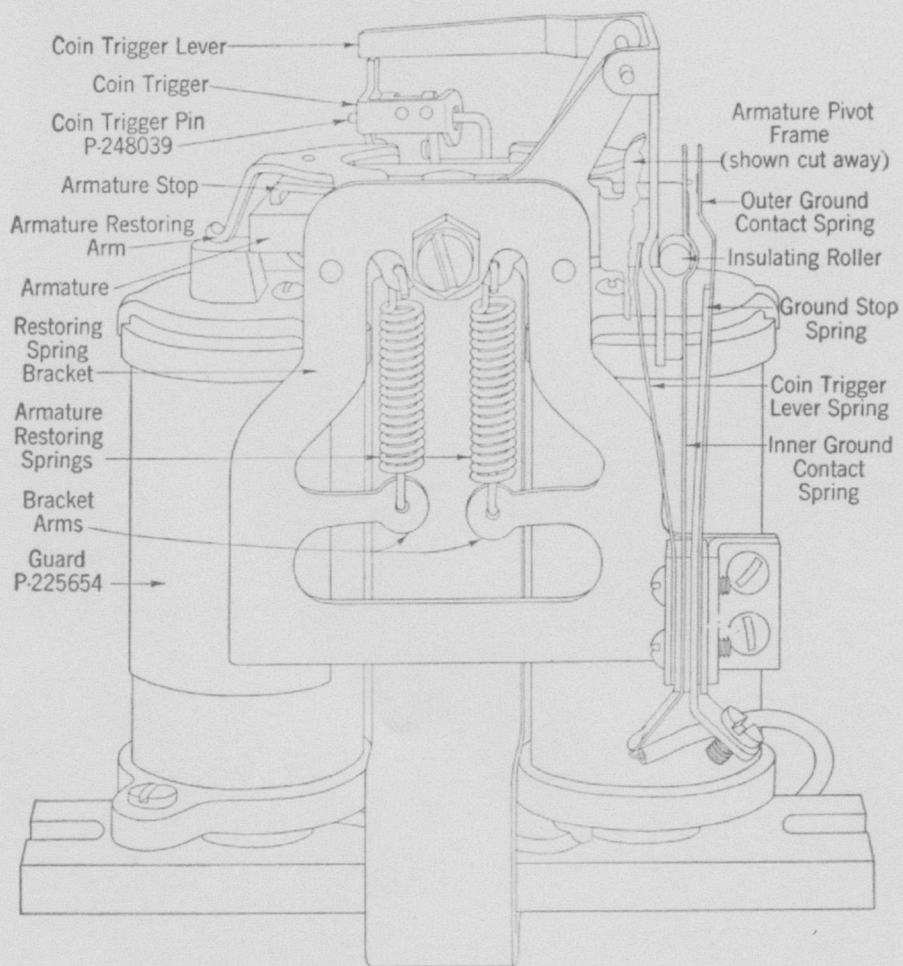


Fig. 16—Coin Relay—Prepayment Service

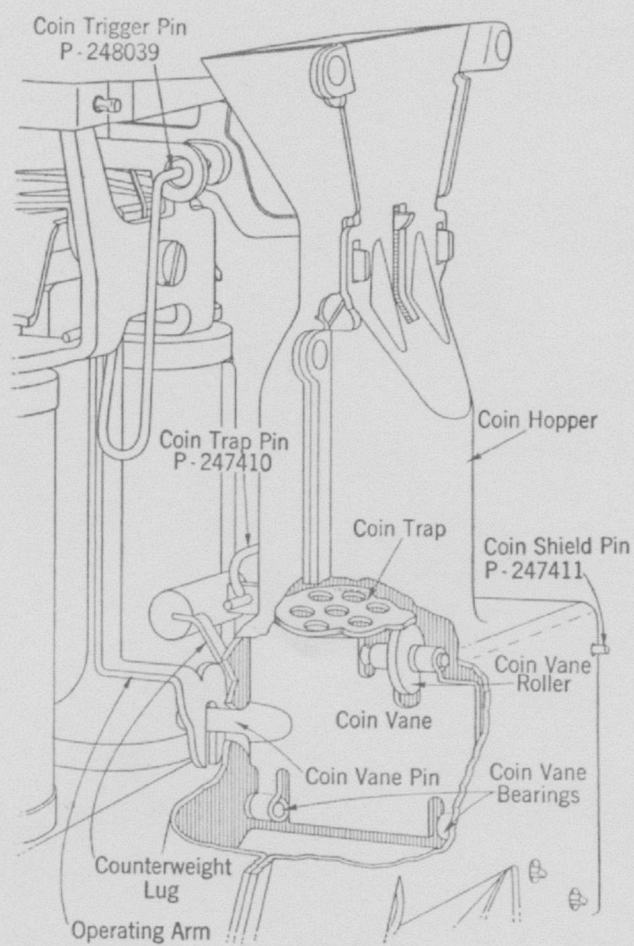


Fig. 17—Coin Hopper—Prepayment Service

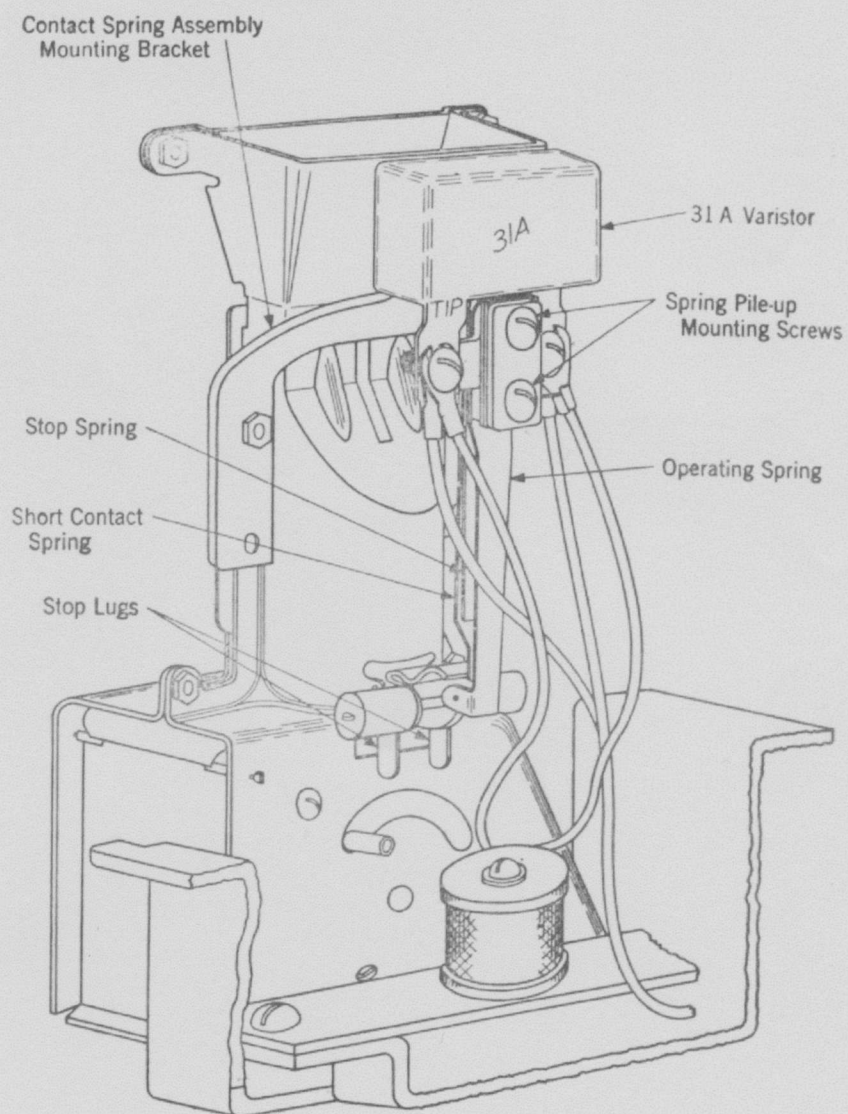
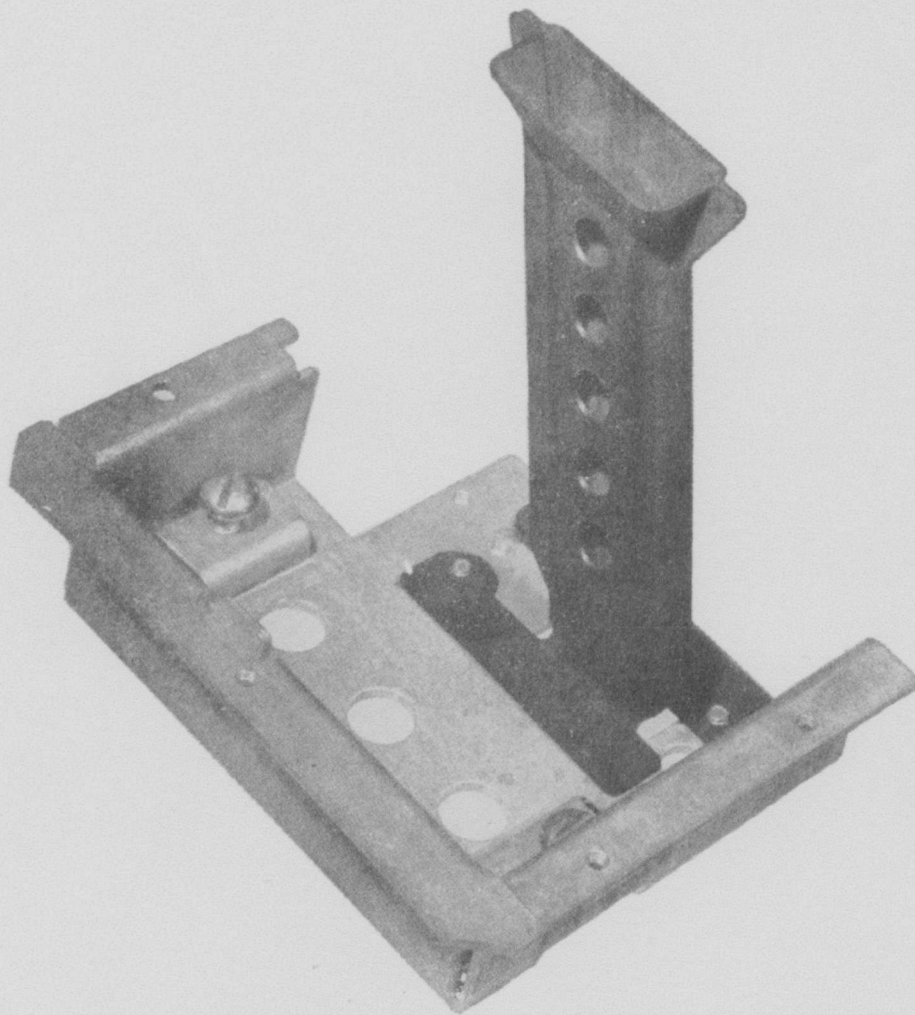


Fig. 18—Coin Hopper—Postpayment Dial



**Fig. 19—Coin Hopper—Postpayment Manual**

#### **The Backplate**

4.07 The backplate of all coin collectors provides a mounting for the switchhook with its associated springs and the terminals used for circuit connections.

4.08 The backplate of the handset coin collectors (not including those converted to the handset types) differs in that it includes an induction coil mounted over a talking condenser.

4.09 Figs. 20 through 23 show several backplate arrangements of coin collectors. To determine the make-up of the backplate for a particular code, use Chart 1. Fig. 24

shows the spring assisted switchhook assembly used with the lightweight handset (G-type).

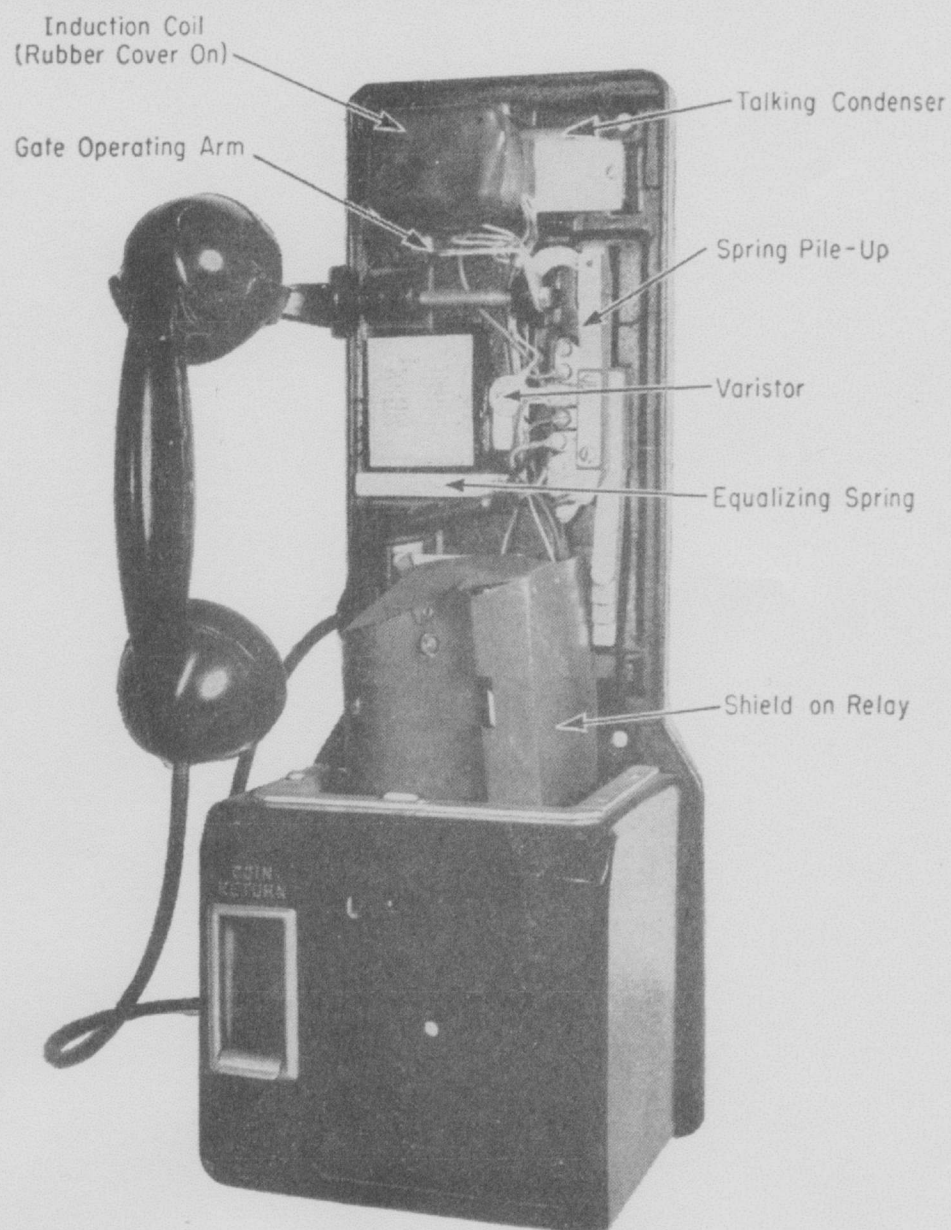


Fig. 20—Backplate for Handset Coin Collector (10¢ Operation—Rubber Cover on Induction Coil)

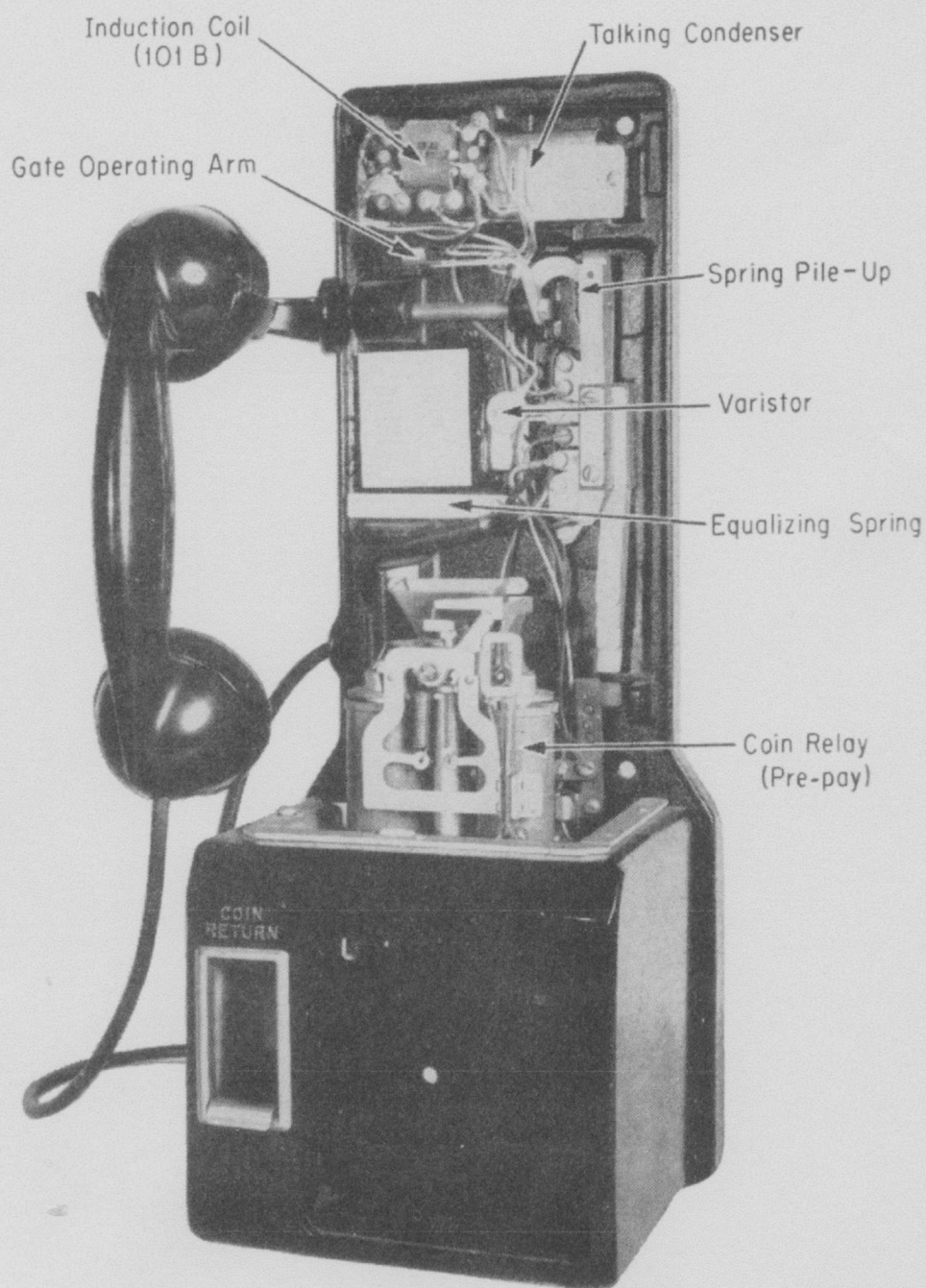


Fig. 21—Backplate for Handset Coin Collector (10¢ Operation—  
Rubber Cover off Induction Coil)

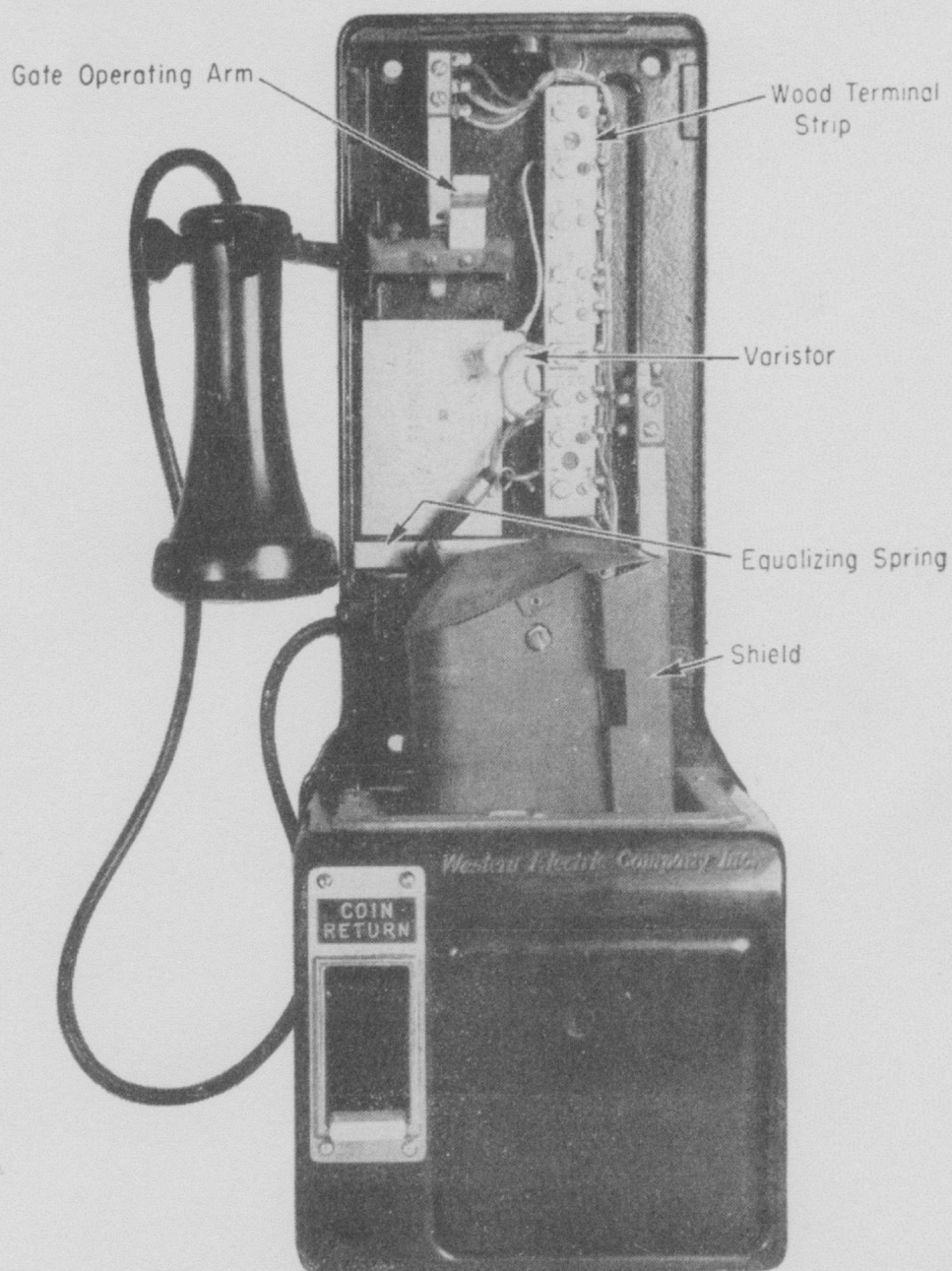


Fig. 22—Typical Backplate—Coin Collector Converted to 10¢ Operation

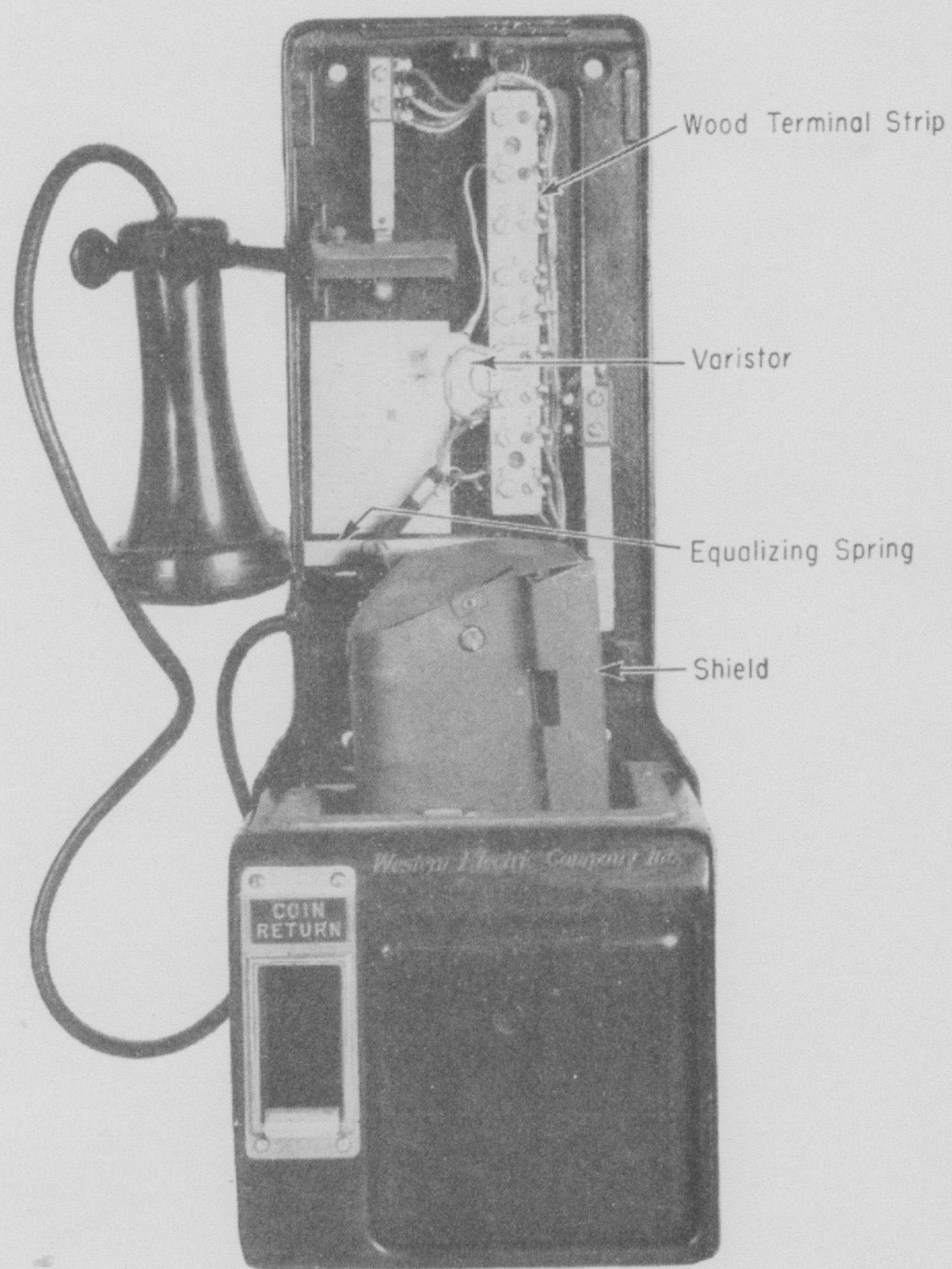
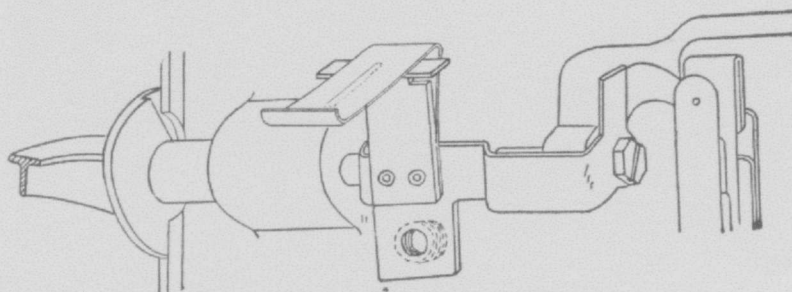


Fig. 23—Typical Backplate—Coin Collector (5¢ Operation)



**Fig. 24—Spring Assisted Switchhook Assembly**

## **5. OPERATION—PREPAYMENT**

### **Coin Chute—10¢ Operation**

5.01 When the handset or receiver is off the switchhook and the electromagnet is in its unoperated position, the first nickel deposited is caught and held by the holding latch. The second nickel deposited strikes the first nickel and is routed to the locking latch. See Figs. 3 and 4. The locking latch is released by the second nickel, thereby releasing the holding latch. The first nickel, now released from the holding latch, follows the second nickel, both in succession strike the solid gong as they traverse the remaining distance of the coin channel and drop into the coin hopper.

5.02 If the handset or receiver is not removed from the switchhook when nickels are deposited, the nickels will be rejected from the gate which is held open by the gate operating arm on the switchhook assembly. Rejected nickels drop into the coin return chute.

5.03 Dimes and quarters traverse their respective channels freely when the handset or receiver is off the hook. The dimes are routed to strike the solid gong twice and the quarters are routed to strike the cathedral gong once. When the handset or receiver is on the hook, dimes will follow the channel to the coin hopper but quarters will be caught by the gate and held until the handset or receiver is removed from the hook.

5.04 After the initial deposit has passed into the coin hopper and the central office battery and ground have been connected to the entire circuit, the electromagnet is energized. When this electromagnet is in the operated position,

an arm attached to the electromagnet armature projects into the 5¢ channel above the holding latch thus causing nickels to by-pass this latch and traverse the remainder of the channel and proceed directly to the coin hopper. When the call is completed and central office ground is removed from the coin collector talking circuit, the electromagnet is deenergized and the arm is removed from the 5¢ channel thus resetting the collector for its next call. This function is important in that it allows single nickels to be deposited for toll call or overtime charges. By holding the electromagnet armature operated with a cut-over clip, the coin chute can be used for 5¢ operation.

#### **Coin Chute—5¢ Operation**

5.05 The coin chute designed for 5¢ operation serves simply as a path to guide the nickels, dimes, and quarters to the proper gong signals and to the coin hopper.

#### **Hopper and Relay Operation**

5.06 When a coin drops into the coin hopper, it trips the coin trigger and comes to rest on the coin trap where it is held until the coin relay is operated. See Figs. 15 and 16. The tripping of the coin trigger permits the coin trigger lever to fall and the coin trigger lever spring then pushes the coin trigger lever against the inner ground contact spring causing this spring to make contact with the outer ground contact spring. This contact closes a circuit from the tip side of the line through the coin relay to ground and is maintained until the armature of the coin relay has operated. The ground contact springs open during the restoral of the armature.

5.07 When a coin is to be collected, the dial central office equipment or the operator (by depressing a "collect" key) connects 110 volts positive battery to the circuit. This operates the coin relay so that the relay armature is drawn toward the right pole piece of the relay. The coin vane pivoted directly beneath the coin trap is at the same time deflected to the left by the operating arm of the relay and the coin trap then swings downward due to the weight of the coin and the coin drops into the coin receptacle.

5.08 When a coin is to be returned, the dial central office equipment or the operator (by depressing a "return" key) connects 110 volts negative battery to the circuit. This operates the coin relay so that the armature is drawn toward the left pole piece of the relay and, at the same time, the operating arm of the relay deflects the coin vane to the right allowing the coin trap to drop the coin into the coin return chute in the lower housing.

5.09 When the collect or return voltage is removed from the circuit, the armature restoring springs return the armature to its normal position. At the same time, the operating arm of the relay restores the coin vane to a vertical position under the restored coin trap and resets the coin trigger lever. The resetting of the coin trigger lever is accomplished by means of an insulated stud on the operating arm. This stud lifts the coin trigger lever while the relay is being operated, allowing the coin trigger to restore and hold the coin trigger lever when the coin relay returns to its normal position. The ground contact springs open while the relay is restoring.

5.10 The description of the operations given in the preceding paragraphs is based upon the assumption that 110 volts positive battery will be used to collect coins and 110 volts negative battery will be used to return coins. This is generally the case but in some central office districts the reverse arrangement is employed. In these cases, it will be necessary to make some wiring changes to reverse the relay. With this change, the coin collector will "collect" when 110 volts negative battery is applied to the tip side of the line and "return" when 110 volts positive battery is applied. The description of the operations in Paragraphs 5.08 and 5.09 will be correct for this latter arrangement if the words "positive" and "negative" are substituted one for the other whenever they appear.

## **6. OPERATION—DIAL POSTPAYMENT**

### **Coin Chute—10¢ Operation**

6.01 The coin chute used for 10¢ operation in postpayment dial service is similar to the coin chute used for 10¢ operation in prepayment dial service. The structures are almost the same except that by virtue of the circuit characteristics of community dial offices, a polarized instead of a non-polarized electromagnet is employed.

6.02 With the handset on the switchhook of the postpayment dial coin collector, the electromagnet may be in either position, i.e., with its armature arm in or out of the 5¢ channel, since it remains in the position in which it was last operated. When the handset is lifted from the switchhook, the current flow is in a direction to move the electromagnet armature arm into the 5¢ channel if it is not already there.

6.03 On a local call, when the party answers, a central office battery reversal moves the arm out of the 5¢ channel making it necessary to deposit two nickels to operate the coin mechanism of the coin collector. A dime or quarter

will also operate the coin passing contact. Since there are no overtime charges for local calls in community dial areas, it is not necessary to revert to 5¢ operation after the initial deposit.

6.04 When a call is made through an operator, there is no battery reversal and the arm remains in the 5¢ channel so that the deposit of any of the proper coins, including single nickels, can be made at the operator's request.

6.05 The operation of the latches, gate and gong signals of the coin chute used for 10¢ operation in postpayment dial service is the same as that for the coin chute used for 10¢ operation in prepayment dial service.

#### **Coin Chute—5¢ Operation**

6.06 The coin chute used for 5¢ operation in postpayment dial service serves simply as a guide to direct the proper coins to the proper gong signals and then into the coin hopper.

#### **Coin Hopper**

6.07 On local postpay calls, when the called party answers, the dial central office equipment automatically splits the connection and sends dial tone to the calling party. The calling party then deposits a coin which operates a pair of contacts that are attached to the coin hopper. See Fig. 18. The operation of these contacts places a 4450-ohm resistance in series with the line for about 1/10 of a second. This causes the dial central office equipment to complete the split connection and remove dial tone. A 31A varistor is used in parallel with the 4450-ohm resistance to reduce the intensity of clicks resulting from opening and closing of these contacts.

### **7. OPERATION—MANUAL POSTPAYMENT**

7.01 Since all deposits are made at the request of the operator before she completes the connection, the chute used for 5¢ operation is all that is necessary for either the 5¢ or 10¢ area. The operation of the 5¢ chute is described in Paragraph 6.06.

7.02 When the operator requests a deposit in postpayment manual service, there is no necessity for a refund of that deposit since the completion of the call is already ascertained. All that is necessary is to direct the coins from the coin chute to the coin receptacle. Fig. 19 shows the simple coin hopper used for this purpose. The holes in the side are to aid the repairman in clearing coin jams.