

BELL SYSTEM PRACTICES
Station Installation and Maintenance

SECTION C42.102
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AT&T Co Standard

COIN COLLECTORS

MULTI-SLOT TYPES

DESCRIPTION AND OPERATION

1. GENERAL

1.01 This section gives general information pertaining to multi-slot coin collectors such as description, use, apparatus and operation. It is reissued to include the 181, 182 and 183 type (hand set) coin collectors.

2. DESCRIPTION

2.01 **General:** A coin collector is a machine arranged to collect charges for telephone calls. The multi-slot types described herein are arranged to collect nickels, dimes and quarters and a separate opening is provided in the coin gauge on top of the machine for the deposit of each of these coins. The coin collector consists of three substantial metal parts, the backplate and the upper and lower housings which are designed to lock together and protect the various internal parts.

2.02 **The Backplate** serves as a base for mounting the lower housing, a switchhook assembly and several other parts such as contact springs and screw terminals for making electrical connections between the apparatus parts employed in the coin collector. 181, 182 and 183 type hand set coin collectors include on the backplate the induction coil and talking condenser which are not present in earlier machines.

2.03 **The Lower Housing** is made of pressed or forged steel and is firmly attached to the lower part of the backplate. It forms a compartment in which a coin receptacle (with or without a locking type cover) is placed to receive coins that are collected. A forged steel door with a strong lock is provided for the coin compartment. A coin return chute is located in the left-hand side of the lower housing to return coins that are accidentally deposited in the wrong

coin chute or properly deposited coins that are refunded for operating reasons. In the case of **prepayment coin collectors** a coin hopper mechanism and associated relay are mounted on top of the lower housing to direct the coins into the coin receptacle or the return chute as required. In **postpayment manual coin collectors** a simple coin hopper, mounted in the same location, directs properly deposited coins into the coin receptacle. In **postpayment dial coin collectors** the coin hopper on top of the lower housing serves the same purpose as in the postpayment manual machine but is equipped with a trap and contact mechanism which opens and closes whenever a coin passes through on its way into the coin receptacle.

2.04 **The Upper Housing** encloses the coin chute which provides runways for nickels, dimes and quarters and gong signals for the operator to identify each of these coins as they are deposited. In the earlier type coin collectors the gong signals are picked up by the talking transmitter located on the front of the upper housing but in the hand set type coin collectors (where talking transmitter is part of the hand set) a separate transmitter is located inside of the upper housing to pick up the gong signals. This transmitter and the gongs are mounted on a bracket hinged in the top of the upper housing so that it can be swung outward to give ready access to the coin chute for maintenance purposes. With this gong and transmitter mounting arrangement much less chute noise is picked up by the transmitter and the coin signals are much clearer than in other coin collectors. For this reason it is generally the practice for the Traffic Department to be advised in advance of the initial installation of hand set coin collectors so the operators will recognize the change in signals. The installer should wherever practicable check the coin signals with an operator.

2.05 **New Hand Set Coin Collector** as mentioned in 2.02 includes the induction coil and talking condenser. It also includes the hand set, cords, apparatus blank and the dial if required and is, therefore, ready for connection to the line when equipped with a coin receptacle and door. Since the ringer for incoming calls is not included in the coin collector an external ringer must be provided. This signal may be connected to the telephone line at any point where it can be effectively heard, although in telephone booth installations it seems advisable to install the set containing the ringer and ringing condenser under the shelf in most cases.

2.06 The following diagrams give internal and external views of the hand set coin collector as well as some of the earlier type machines.

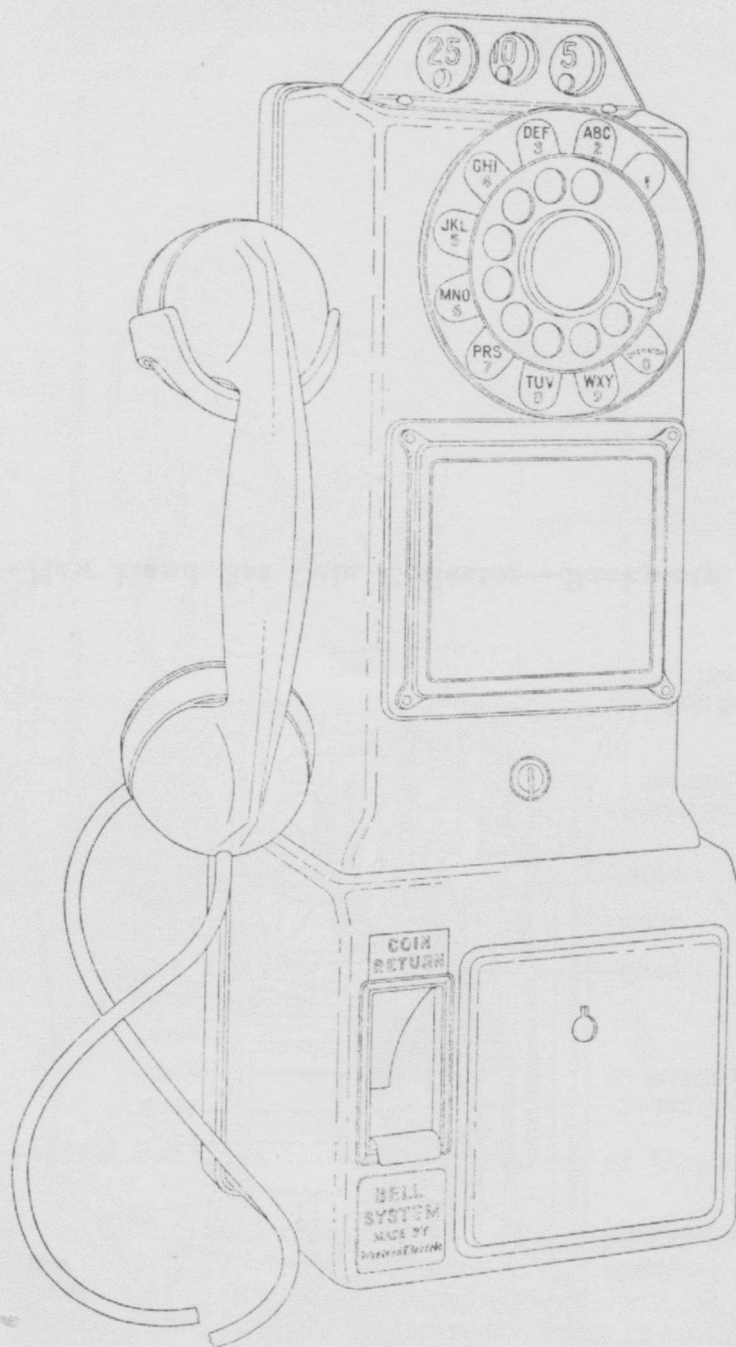


Fig. 1—Hand Set Coin Collector

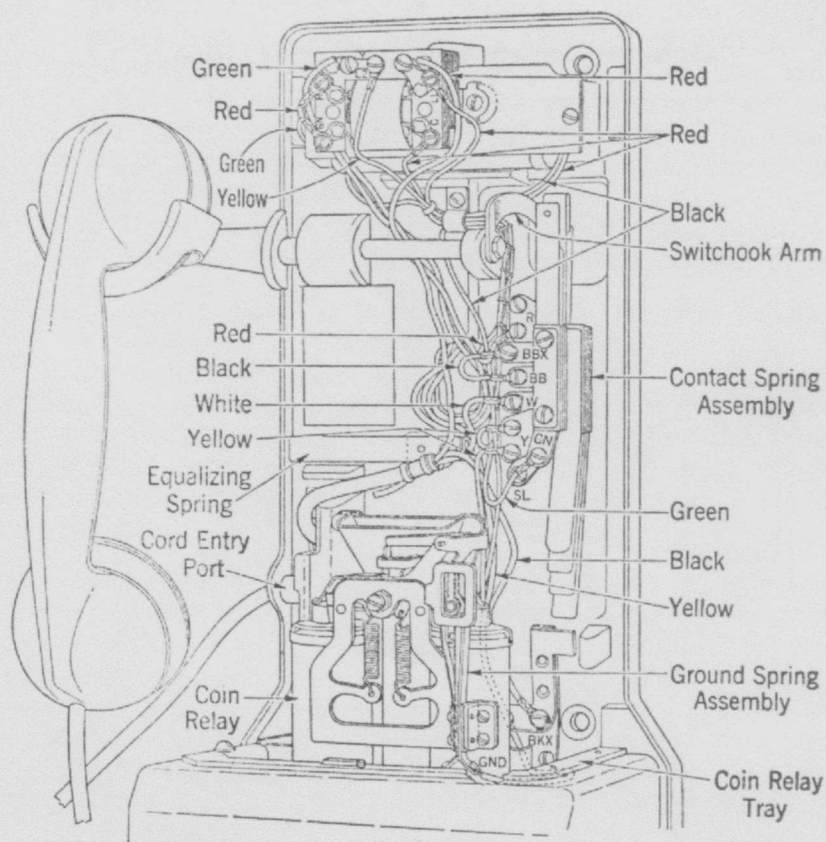


Fig. 2—New Hand Set Coin Collector—Backplate Assembly

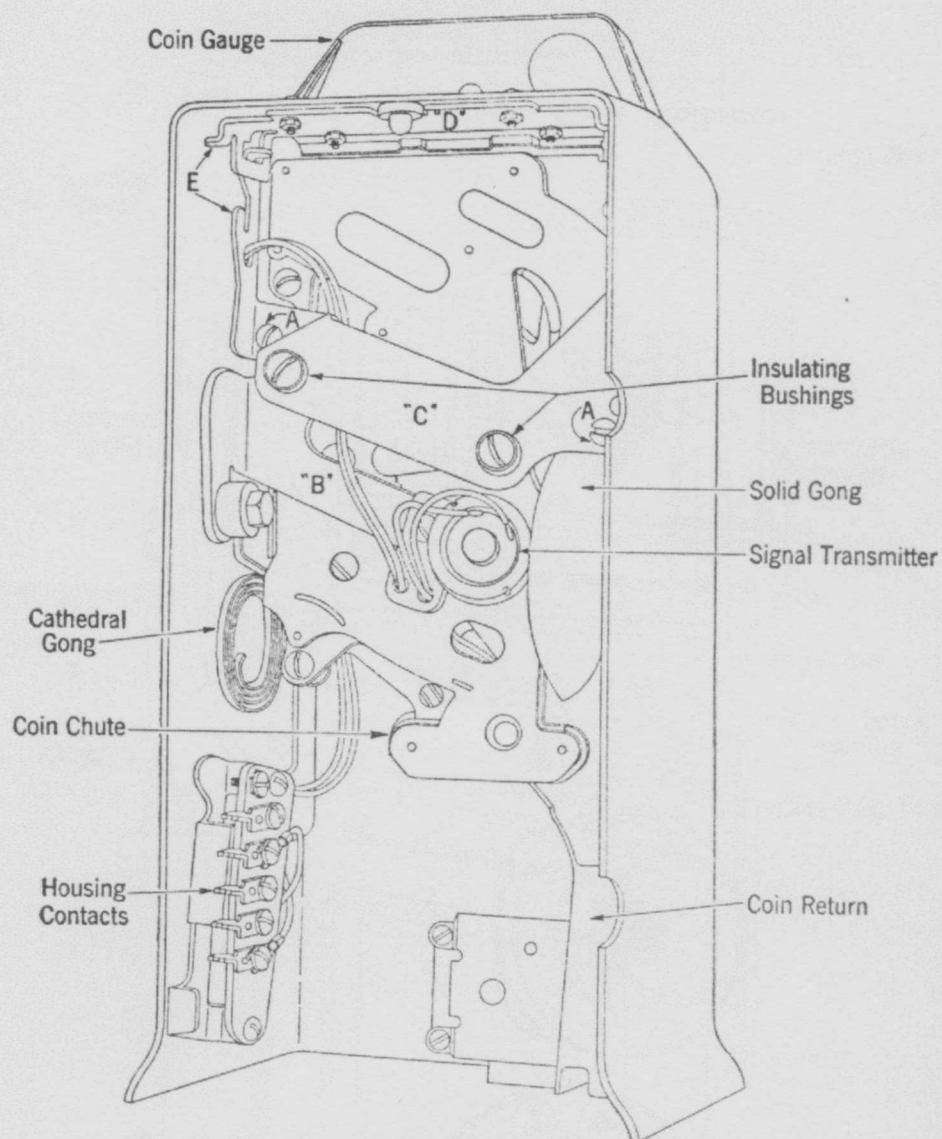


Fig. 3—Hand Set Coin Collector—Interior of Upper Housing

Note: The signal transmitter and gongs are attached to bracket "B" which is attached to bracket "C" with bolts and insulating bushings to prevent signal transmitter from picking up noise of coins running through coin chute. If screws "A" are removed the bracket arrangement supporting the gongs and transmitter may be swung upward and supported by lugs "E" to gain access to the coin chute for maintenance purposes.

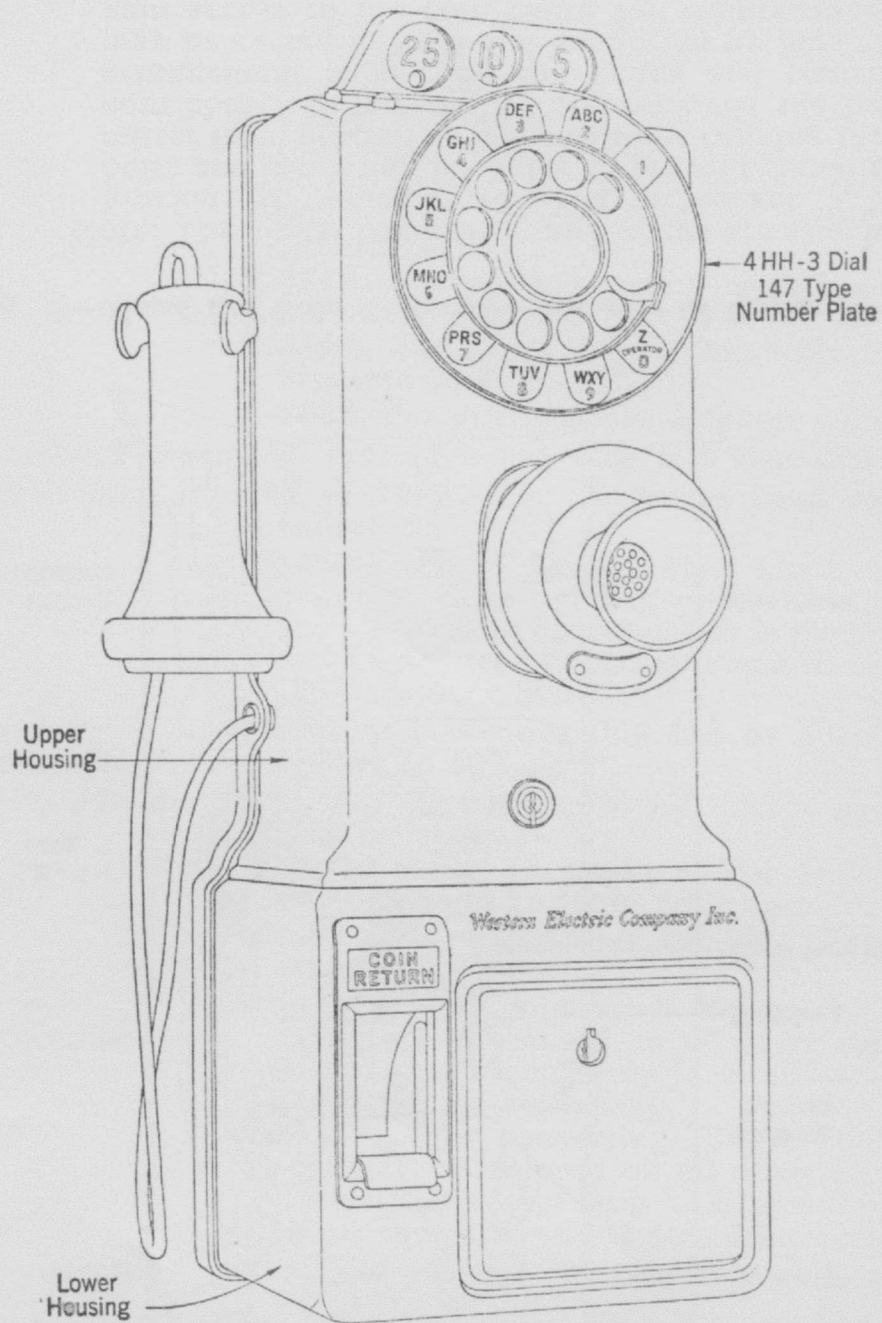


Fig. 4—Earlier Type Coin Collector

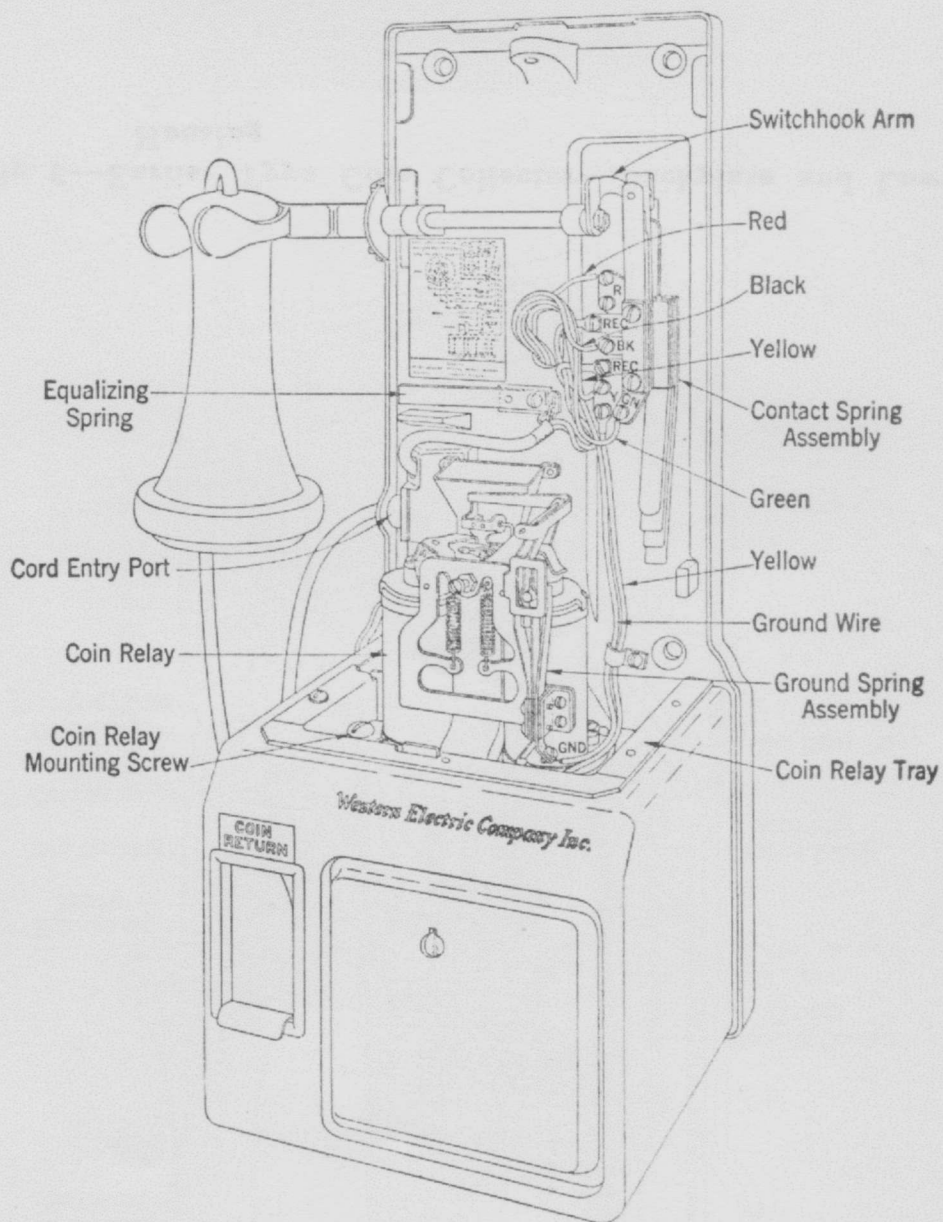


Fig. 5—Earlier Type Coin Collector—Backplate and Lower Housing

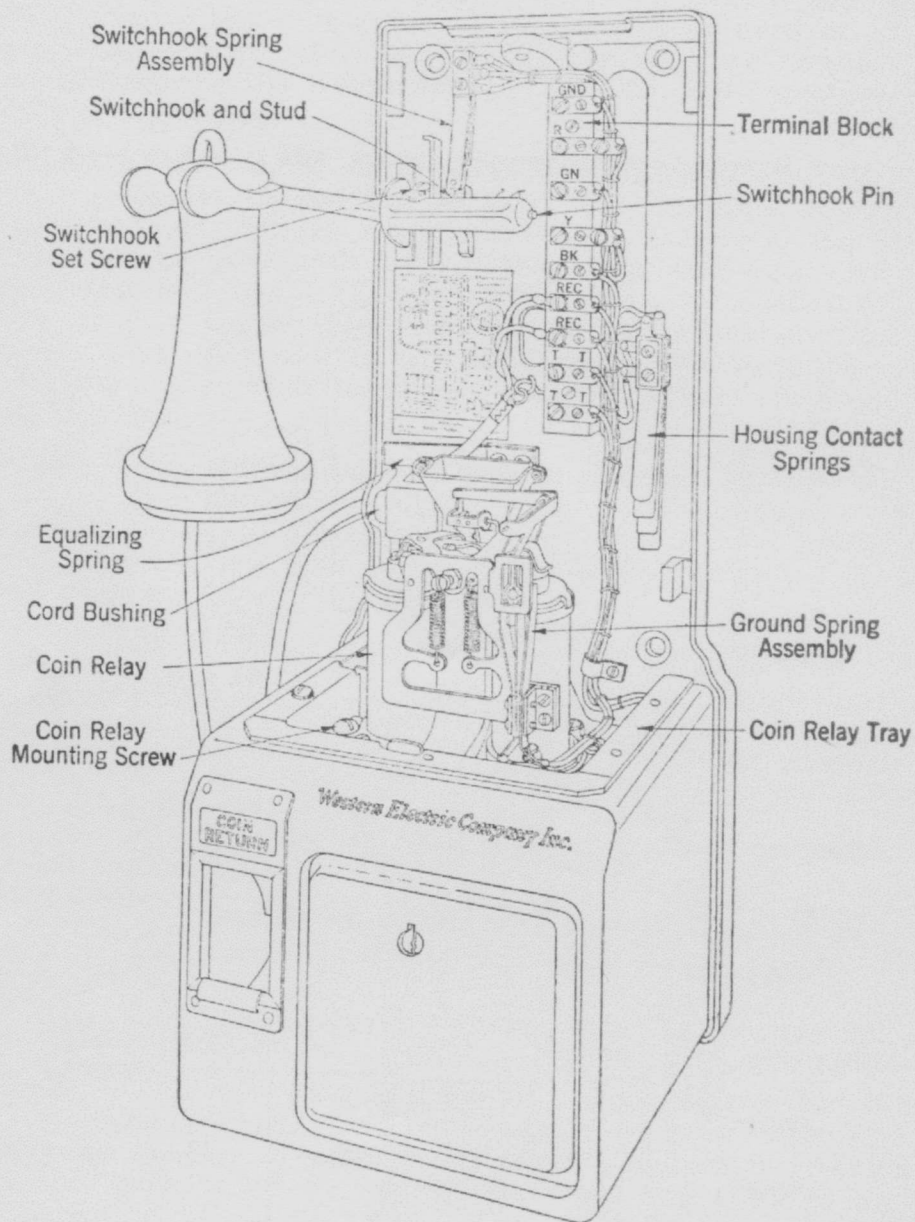


Fig. 6—Earlier Type Coin Collector—Backplate and Lower Housing

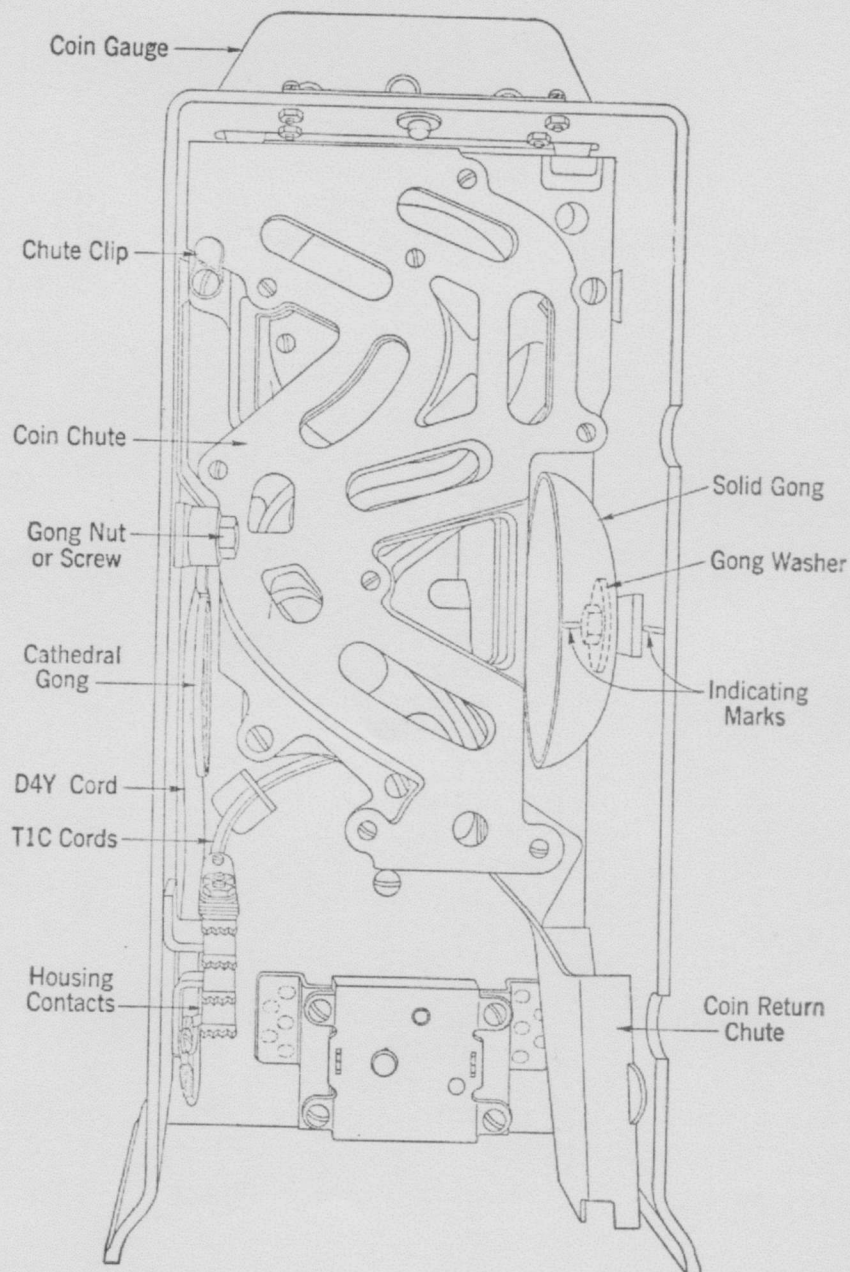


Fig. 7—Earlier Type Coin Collector—Interior of Upper Housing

2.07 All of the coin collectors described herein will accept United States nickels, dimes and quarters. Some will also accept Canadian coins of the same denominations except for a small five cent piece in use in Canada.

3. USE

3.01 **Prepayment Multi-Slot Coin Collectors** are intended for use on individual lines and employ individual line subscriber sets except for the 181 type hand set coin collector which requires only an extension ringer set, 584DE or DF Subscriber Set or the equivalent. Table 1 lists the coin collectors for prepayment manual or dial service.

Table 1

Code No.	Finish	Service	Coins Accepted
50G	Black	Manual or Dial	U. S. only
50H	Black	Manual or Dial	U. S. and Can.
150G-3	Black	Manual or Dial	U. S. only
150G-13	†Ox. Br.	Manual or Dial	U. S. only
150H-3	Black	Manual or Dial	U. S. and Can.
150H-13	†Ox. Br.	Manual or Dial	U. S. and Can.
161A-3	Black	Manual or Dial	U. S. only
161A-13	†Ox. Br.	Manual or Dial	U. S. only
161B-3	Black	Manual or Dial	U. S. and Can.
161B-13	†Ox. Br.	Manual or Dial	U. S. and Can.
161C-3	Black	Manual or Dial	U. S. only
161C-13	†Ox. Br.	Manual or Dial	U. S. only
161D-3	Black	Manual or Dial	U. S. and Can.
161D-13	†Ox. Br.	Manual or Dial	U. S. and Can.
D-98548	Black	Manual or Dial	U. S. only
D-99788	Black	Manual or Dial	U. S. and Can.
181C-3	Black	Manual	U. S. only
181C-13	†Ox. Br.	Manual	U. S. only
181D-3	Black	Manual	U. S. and Can.
181D-13	†Ox. Br.	Manual	U. S. and Can.
181E-3	Black	*Dial	U. S. only
181E-13	†Ox. Br.	*Dial	U. S. only
181F-3	Black	*Dial	U. S. and Can.
181F-13	†Ox. Br.	*Dial	U. S. and Can.
181G-3	Black	**Dial	U. S. only
181G-13	†Ox. Br.	**Dial	U. S. only
181H-3	Black	**Dial	U. S. and Can.
181H-13	†Ox. Br.	**Dial	U. S. and Can.

*Dial with 147A Number Plate

**Dial with 147B Number Plate

†Oxidized bronze finish

3.02 **Postpayment manual coin collectors** may be used on individual or party lines in conjunction with the subscriber set normally used for non-coin stations on similar lines. 182 type hand set coin collectors require only an extension ringer set. Table 2 lists the coin collectors used for manual postpayment service.

Table 2

Code No.	Finish	Coins Accepted
50K	Black	U. S. only
50L	Black	U. S. and Canadian
150K-3	Black	U. S. only
150K-13	Oxidized Bronze	U. S. only
150L-3	Black	U. S. and Canadian
150L-13	Oxidized Bronze	U. S. and Canadian
162A-3	Black	U. S. only
162A-13	Oxidized Bronze	U. S. only
162B-3	Black	U. S. and Canadian
162B-13	Oxidized Bronze	U. S. and Canadian
162C-3	Black	U. S. only
162C-13	Oxidized Bronze	U. S. only
162D-3	Black	U. S. and Canadian
162D-13	Oxidized Bronze	U. S. and Canadian
182C-3	*Black	U. S. only
182D-3	*Black	U. S. and Canadian

*If coin collector in oxidized bronze finish is required it will be made up on special order.

3.03 **Postpayment Dial Coin Collectors** may be used on individual lines or party lines as covered in a separate section in Division C60.

Table 3

Code No.	Finish	Coins Accepted
150U	Black	U. S. only
150W	Black	U. S. and Canadian
163A	Black	U. S. only
163B	Black	U. S. and Canadian
163C	Black	U. S. only
163D	Black	U. S. and Canadian
183E-3	*†Black	U. S. only
183F-3	*†Black	U. S. and Canadian
183G-3	*‡Black	U. S. only
183H-3	*‡Black	U. S. and Canadian

*If coin collector in oxidized bronze finish is required it will be made up on special order.

†Dial with 147A Number Plate ‡Dial with 147B Number Plate

3.04 Any of the coin collectors listed except the 181, 182 and 183 type coin collectors may be used at sidetone stations. If other than the 50 type is used no connection is made between the subscriber set and the BK terminal in the coin collector.

3.05 Any of the coin collectors listed in the foregoing tables except the 50 type may be used at anti-sidetone stations. Where stock conditions require it the 50 type may also be used with anti-sidetone subscriber sets by strapping the BK and L2Y terminals in the subscriber set. The use of this arrangement is limited to individual line main stations as only one talking set (no extension stations) and one low or two high impedance ringing bridges are permissible on the line.

3.06 When **local battery talking common battery signaling** is required one of the earlier anti-sidetone type coin collectors should be rewired for use with a local battery subscriber set as covered in the sections in Division C60 covering coin collector connections.

3.07 **At magneto stations** the postpayment coin collectors listed in Table 2 except the 182 type may be used either on an individual line or party line basis. The subscriber set should be the same as is used for other stations on the same type of line. Sidetone subscriber sets must be used with the 50 type coin collectors and either sidetone or anti-sidetone subscriber sets may be used with the other coin collectors listed in Table 2.

3.08 The details regarding the connections for all of the coin collectors described herein are given in Division C60.

4. APPARATUS

4.01 The following is a list of the apparatus that is associated with or forms a part of coin collectors and may be needed in connection with installation and maintenance work and for conversions from one code to another.

Apparatus
Blank:

50C Type. Used to cover dial hole on coin collectors arranged to mount dials when these are used at manual stations. Includes instruction card frame and glass or P-243343 card holder assembly. Also used on dial hand set coin collectors to hold instruction card.

Card Holder:	1B. A bracket for mounting instruction card on top of upper housing of dial coin collectors. Includes instruction card frame and glass or card holder assembly P-243343. Not needed on hand set coin collectors. ←
Card Holder Assembly:	P-243343. A piece of cardboard with a cellulose acetate cover used in 50C apparatus blank or 1B card holder instead of glass.
Coin Hopper Assembly:	P-248478. Hopper, trap shield and vane for converting from postpayment to prepayment coin collectors and for replacements.
Coin Relay:	P-145749. For converting coin collectors from postpayment to prepayment operation and for replacements.
Coin Shield:	P-296792. Part of prepayment coin hopper assembly. ←
Coin Trap:	P-136084. Part of prepayment coin hopper assembly.
Coin Vane:	P-111875. Part of prepayment coin hopper assembly. Can be replaced only in assembly P-248478.
Cords:	R2BU. Rubber jacketed cord for 144 Receiver. ↗ R2DY. Rubber jacketed cord for 706A Receiver. H3S. Rubber jacketed cord for F1B-3 Hand Set. T1C. Transmitter cord. Two required. D4Y. Dial cord. M1W 12-1/2". Hand set coin collectors only. M1W 14". Hand set coin collectors only. ↗
Dial:	4HH or 5HH. Used with 147 type number plate and 56A dial adapter.
Dial Adapter:	56A. For mounting dial and 147 type number plate on coin collector.
Guard:	P-225654. Used to protect left-hand coil of all coin relays except those with a smooth gray outer serving on the coils.
Hand Set:	E1E-3 or F1B-3. For D-98548 or D-99788 hand set coin collectors. F1B-3. For all other hand set coin collectors. ←
Instruction Cards:	E-350A. Used at coin collectors where dial tone is received before coin is deposited. E-350B. Used at coin collectors where coin must be deposited before dial tone is heard.

- E-351A.** For manual prepayment coin collectors in areas having dial service where coin is returned when receiver is hung up on an incompletd call.
- E-352A.** For manual prepayment coin collectors where coin is not returned when receiver is hung up on an incompletd call.
- E-353A.** For manual common battery coin collectors.
- E-354A.** For postpayment coin collectors on individual magneto lines.
- E-355A.** For postpayment coin collectors on magneto party lines.
- E-2025.** For postpayment dial coin collectors.
- Number Plates:** **147 Type.** For use with HH type dials.
- Receivers:** **144 or 706A.** For all except hand set coin collectors.
- Sign:** **KS-7991 Out of Service Sign.** Used on coin gauge to close openings when coin collector is not ready for service or is temporarily out of service. Replaces Form E-158 and 126A Number Plate.
- Spring Assembly:** **D-22990.** For converting 50A or F coin collectors to 50G or H.
- Transmitters:** **323, 337 or 635A.** For all except hand set coin collectors.
- D-95310 Gong Transmitter.** For D-98548 or D-99788 hand set coin collectors.
- 636A.** Gong transmitter for all other hand set coin collectors.
- Upper Housing:** **P-243236.** For converting 50A to 50G coin collectors. Also used on all other coin collectors that accept only U. S. coins, except hand set coin collectors.
- P-243571.** For converting 50F to 50H coin collectors. Also used on all other coin collectors that accept both U. S. and Canadian coins, except hand set coin collectors.
- Varistor:** **31A.** For 163 and 183 type coin collectors.

5. OPERATION

5.01 The coin chute carries the coin from the coin gauge past the signal gongs to the coin hopper. A nickel strikes the solid gong once, and a dime strikes it twice. A quarter strikes the cathedral gong once. Slugs or coins not

of proper size fall out of the coin chute, before reaching the signal gongs and drop into the coin return chute.

Prepayment Service

5.02 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 Fig. 8. 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 and has nearly restored.

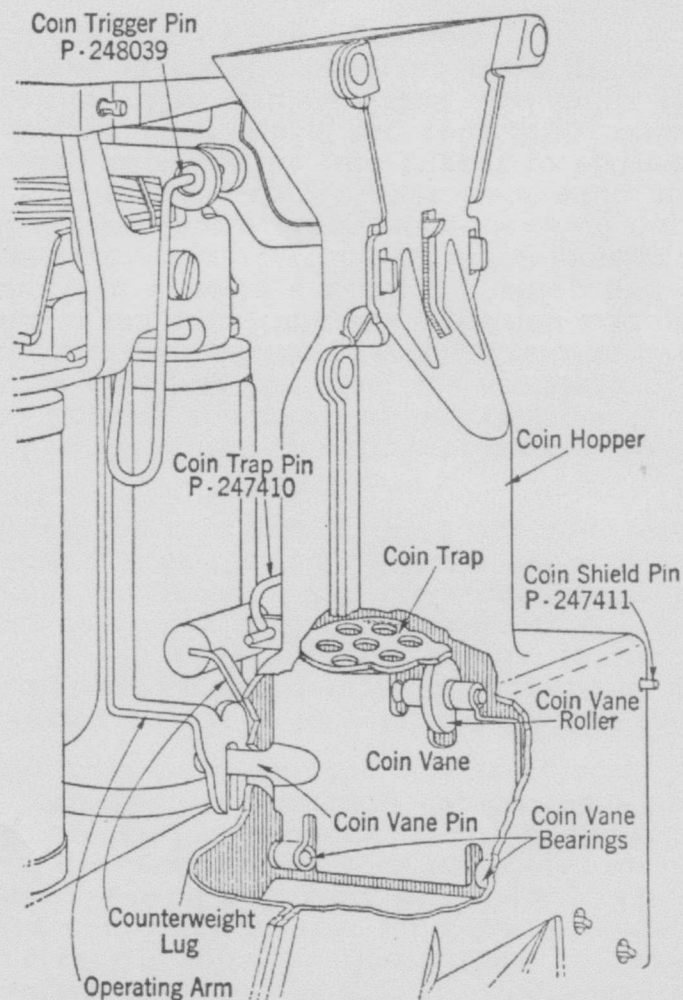


Fig. 8

5.03 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 line. This operates the coin relay so that the relay armature is drawn toward the right-hand 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.

5.04 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 line. This operates the coin relay so that the armature is drawn toward the left-hand 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.

5.05 When the collect or return voltage is removed from the line and the coin trap has returned to its normal position after dropping the coin, the armature of the relay aided by the armature restoring springs, returns to its normal position and at the same time, the operating arm of the relay restores the coin vane to a vertical position 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 insulated stud also holds the ground contact springs in contact until the relay has almost completely returned to its normal position.

5.06 The description given in the preceding paragraphs is based on 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 of this arrangement is employed. In these cases it will be necessary to make some wiring changes to reverse the coin relay. To reverse the coin relay connect the yellow wire to the right-hand relay coil and the black wire to the left-hand relay coil. 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 given above will be correct for this latter arrangement if in paragraphs 5.03 and 5.04 the words positive and negative are substituted one for the other wherever they appear.

Postpayment Manual Service

5.07 Coins of proper size strike the signals in the upper housing as covered in 5.01 and then pass into a coin hopper which directs them into the coin receptacle as mentioned in 2.03. Coins should not, of course, be deposited until called for by the operator.

Postpayment Dial Service

5.08 Coins strike the signal gongs and pass into the hopper as in the case of postpayment manual service but in passing through the hopper the coins operate a device similar to the coin trap used in prepayment coin collectors which in turn operates a pair of contacts which are attached to the hopper.

5.09 For this type of service the patron dials the desired number before depositing a coin. When the called party answers the dial central office equipment automatically splits the connection and sends back dial tone to the calling party. The calling party then deposits a coin which operates the contacts referred to in 5.08. The operation of these contacts places a 4450-ohm resistance in series with the line for about one-tenth of a second. This causes the dial central office equipment to complete the connection and remove the 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.