Nov. 26, 1963 W. L. GIBBS 3,112,366

SIGNALLING DEVICES FOR TELEPHONES

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FIG-1

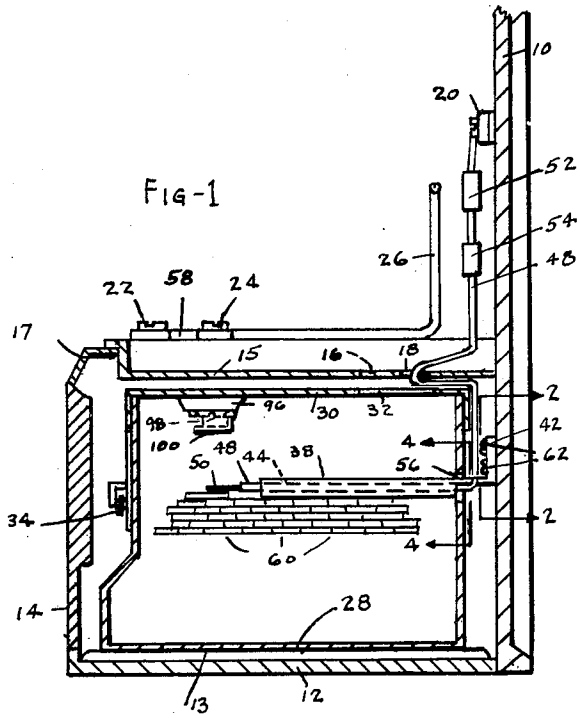


FIG-6

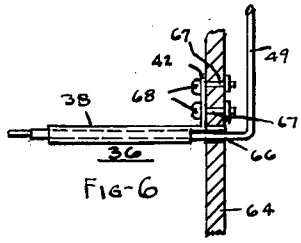


FIG-2

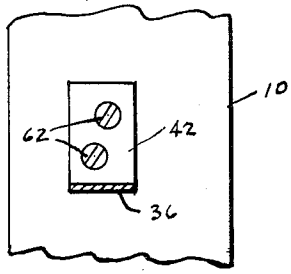


FIG-3

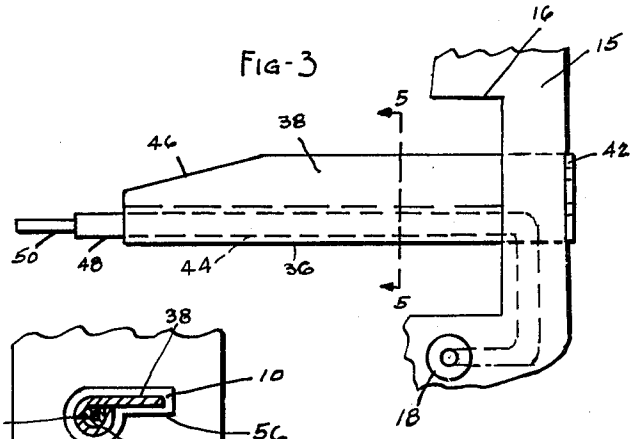


FIG-4

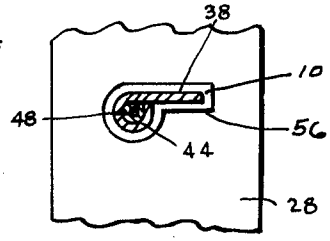
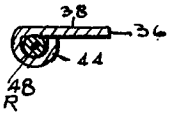


FIG-5



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SIGNALLING DEVICES FOR TELEPHONES

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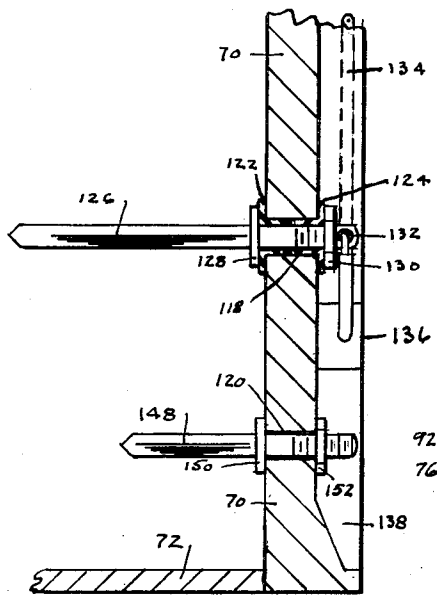


FIG-8

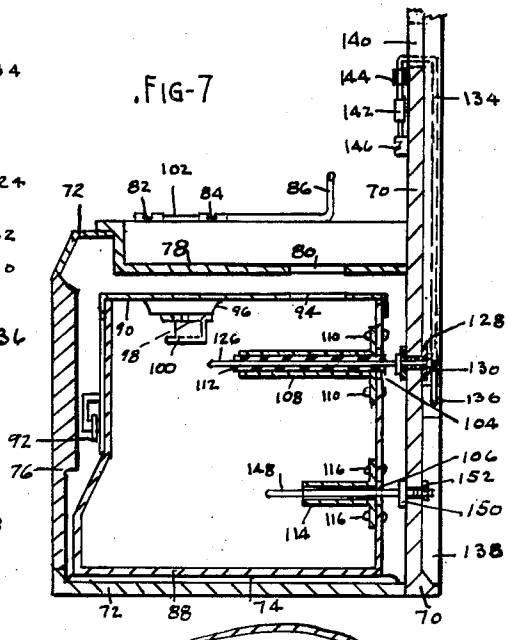


FIG-7

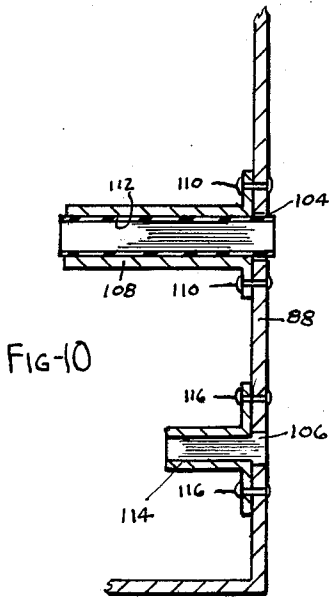


FIG-10

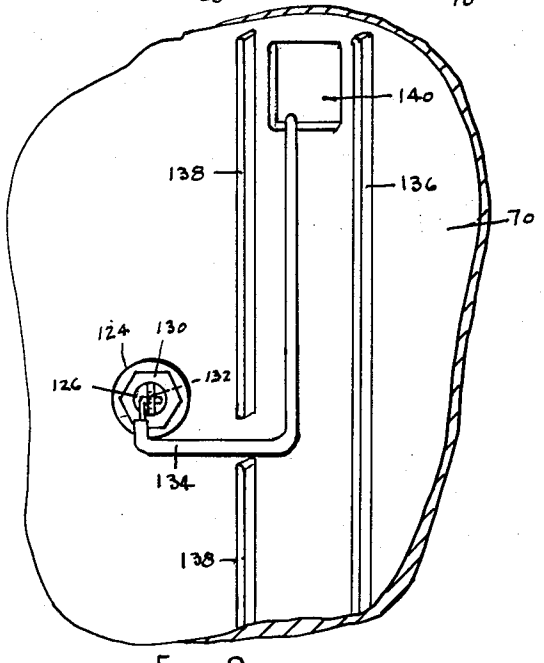


FIG-9

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SIGNALLING DEVICES FOR TELEPHONES

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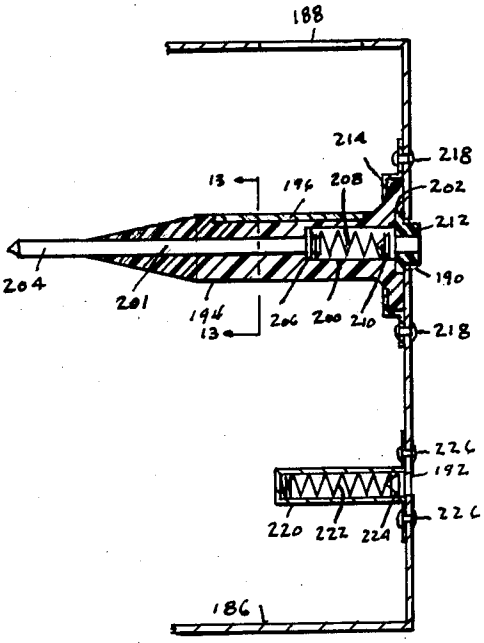


FIG-11

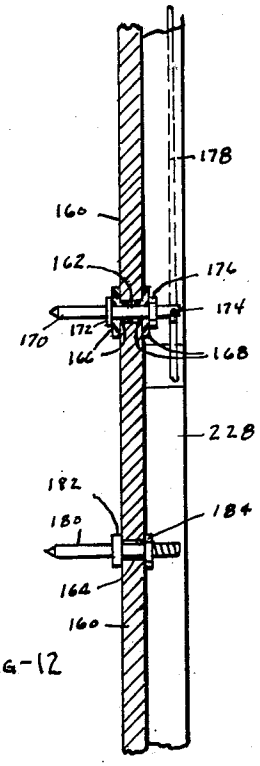


FIG-12

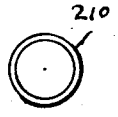


FIG-14

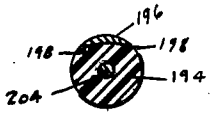


FIG-13

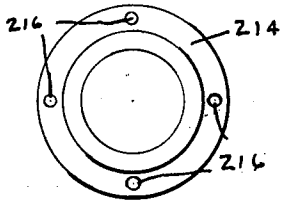


FIG-15



FIG-16

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3,112,366

SIGNALLING DEVICES FOR TELEPHONES

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Filed Sept. 4, 1959, Ser. No. 838,289
19 Claims. (Cl. 179—6.4)

This invention relates to improvements in signalling devices for telephones. More particularly, this invention relates to improvements in signalling devices for coin operated telephones.

It is therefore an object of the present invention to provide an improved signalling device for coin operated telephones.

Coin operated telephones are customarily provided with coin receptacle boxes; and those boxes are removable so they can be taken to a designated office of the telephone company where their contents can be removed, counted and accredited. Collectors employed by the telephone company make periodic visists to the various coin operated telephones of the company to remove the coin receptacle boxes and to replace those boxes with empty coin receptacle boxes. The visits which the collectors make to the various coin operated telephones of the company should be frequent enough to keep the coin receptacle boxes from becoming so full that they prevent the entry, into those boxes, of additionally inserted coins; because the prevention of such entry can cause additionally inserted coins to fill up the coin hopper and coin chute of the elephone and can cause grounding of the coin-collecting of coin-refunding relay. On the other hand, the visits which the collectors make to the various coin operated telephones of the company should not be so frequent that only limited numbers of coins are found in the various coin receptacle boxes.

Heretofore it has been the practice of telephone companies to establish schedules which the collectors follow in visiting the various coin operated telephones of the company; and those schedules have been planned so the collectors would remove the various coin receptacle boxes at times when they were substantially filled but when they were not filled to overflowing. Unfortunately, the rate of use of coin operated telephones in different locations can vary widely, and furthermore the rate of use of a coin operated telephone in any given location can also vary widely. While it might seem possible to predict, with a good deal of accuracy, the extent and degree to which a coin operated telephone in any specific location would be used, it is actually impractical to do so. Not only are there unpredictable variations in the use of such a coin operated telephone for the purpose of making local calls, but there are unpredictable variations in the use of such coin operated telephone for the purpose of making long distance calls. As a result, even with the best statistical methods, it is impossible to establish schedules that will assure removal of the coin receptacle boxes before they are completely filled but that will avoid removal of such boxes when they contain only a few coins.

The need of avoiding the overflowing of the coin receptacle box of a coin operated telephone is acute, because overflowing can cause grounding of the coin-collecting or coin-refunding relay of that telephone. Any such grounding will render the coin operated telephone temporarily inoperable, and it can render a number of coin operated telephones in the same control bank temporarily inoperable. Moreover, any such grounding will require a service call plus an unscheduled visit by a collector; the service call being necessary to ascertain the source of the grounding, and the unscheduled visit by the collector being necessary because the service men are usually not authorized to remove and replace the coin receptacle boxes. The costs of service calls of this sort, and the

costs of the ensuing unscheduled visits by the collectors, could be avoided if a device could be supplied which would indicate to the central office of the telephone company when the coins in the coin receptacle box of a coin operated telephone reached a predetermined level. Such a device would avoid needless visits by a collector, because the collector would not visit that coin operated telephone until after the device indicated that the coins in the box of that telephone had reached the predetermined level; and such a device would avoid needless service calls by service men because the device would provide an indication at the central office of the telephone company that would enable a collector to remove the coin receptacle box before it became filled to overflowing. The present invention provides such a device; and it is therefore an object of the present invention to provide a device that can be used with a coin operated telephone to indicate, at the central office of a telephone company, when the coins in the coin receptacle box of that telephone reach a predetermined level.

The problem posed by the overflowing of coins in coin operated telephones is serious, because from about twenty-five to thirty percent of the service calls made by a telephone company in one large city have been found to be due to such overflowing. Such service calls are actually needless, and they needlessly increase the operating costs of the service department of the company. All such needless costs are obviated by the use of the device provided by the present invention.

The device provided by the present invention includes an electrical conductor which is mounted within the coin receptacle box of the coin operated telephone; and that conductor will be contacted by one or more of the coins in the coin receptacle box when the coins in that box rise to a predetermined level. That conductor will be connected to the central office of the telephone company; and the engagement of the coins with that conductor will change the electrical status of the coin operated telephone. That change in electrical status can be detected at the central office by the making of the standard and usual line insulation test—a test that is usually made, on a periodic basis, by most telephone companies to determine the presence of impending breakdowns in line insulation. That test is made manually or automatically, as the equipment in the central office of the telephone company dictates; and it is only necessary to make the line insulation tests on the various coin operated telephones once each day to determine which of the coin operated telephones have coin receptacle boxes which require replacement. In this simple and easy way, the present invention provides positive and prompt information as to the location of any coin operated telephone which has a coin receptacle box needing emptying. It is therefore an object of the present invention to mount a conductor, within the coin receptacle box of a coin operated telephone, which can be contacted by the coins within that coin receptacle box, after predetermined quantities of coins have been introduced into that coin-receptacle box, to change the electrical status of that coin operated telephone.

The conductor is mounted in the coin receptacle box in such a way that a substantial quantity of coins must be introduced into the box before that conductor can be contacted by the coins. In one preferred embodiment of the present invention, the conductor is mounted so the coins will not contact it until approximately eighty percent of the usable space within the coin receptacle box has been filled with coins. As a result, the coin receptacle box will have a substantial quantity of coins in it when the collector removes it and replaces it with an empty coin receptacle box.

The conductor is disposed within the coin receptacle box so it is spaced inwardly from the sides of that box. Such an arrangement is desirable because a conductor that would be set immediately adjacent one side of the coin receptacle box could have coins pile up adjacent it and indicate that the box was ready to be replaced although that box actually did not require replacement. By mounting the conductor so it is spaced inwardly from the sides of the coin receptacle box, the present invention avoids premature indications of the need of replacing the coin receptacle box. It is therefore an object of the present invention to mount a conductor within a coin receptacle box so it is spaced inwardly from the sides of that box.

The conductor is spaced inwardly from the walls of the coin receptacle box by a support, and that support protects the insulated portion of the conductor from abrasion and wear by coins entering that box. That support also serves to deflect coins away from the horizontal center of that coin receptacle box. The coins that enter the coin receptacle box of a coin operated telephone are introduced into that box by a chute, and they tend to pile up directly under that chute. As a result, those coins tend to assume a pyramidal configuration, and the top of the resulting pyramid can approach the top of the coin receptacle box even though the level of the coins adjacent the sides of the box is quite low. This tendency of the coins to form a pyramid is objectionable, and the present invention obviates this tendency because the support for the conductor serves to deflect the entering coins toward the sides of the coin receptacle box. As a result, the coins introduced into the coin receptacle box will fill all of the lower areas of the coin receptacle box. It is therefore an object of the present invention to provide a support which serves to deflect the entering coins toward the sides of the coin receptacle box.

The coin receptacle box must have an opening in one wall thereof to enable that wall to telescope over the conductor and its support. However, that opening can not be as large as a dime; because, if it were, dimes could pass outwardly through that opening after the coin receptacle box was removed from the telephone. The present invention provides a conductor and a support therefor which are so small that the complementary opening in the coin receptacle box can be small enough to prevent the passage of a dime through it. It is therefore an object of the present invention to provide a device which is small enough so an opening, smaller than a dime, can be provided in one wall of a coin receptacle box to accommodate and telescope over that device.

Other and further objects and advantages of the present invention should become apparent from an examination of the drawing and accompanying description.

In the drawing and accompanying descriptions some preferred embodiments of the present invention are shown and described but it is to be understood that the drawing and accompanying description are for the purpose of illustration only and do not limit the invention and that the invention will be defined by the appended claims.

In the drawing, FIG. 1 is a vertical section through part of a coin operated telephone that has been equipped with one embodiment of the device provided by the present invention,

FIG. 2 is a sectional view, on a larger scale, through the combined support and deflector shown in the telephone of FIG. 1, and it is taken along the plane indicated by the line 2—2 in FIG. 1,

FIG. 3 is a partially broken, plan view, on the scale of FIG. 2, of some components of the coin operated telephone shown in FIG. 1,

FIG. 4 is a sectional view, on the scale of FIG. 2, through the combined support and deflector shown in the telephone of FIG. 1, and it is taken along the plane indicated by the line 4—4 in FIG. 1,

FIG. 5 is a sectional view, along the plane indicated by line 5—5 in FIG. 3, through the combined support and deflector of FIG. 3,

FIG. 6 is a vertical section through part of another telephone,

FIG. 7 is a vertical section through part of still another telephone,

FIG. 8 is a vertical section, on a larger scale, of the backbase and projecting conductors of FIG. 7,

FIG. 9 is a rear view, on the scale of FIG. 8, of part of the backbase of the telephone of FIG. 7,

FIG. 10 is a vertical section, on a larger scale, of the rear wall of the coin receptacle box of FIG. 7,

FIG. 11 is a vertical section of another coin receptacle box,

FIG. 12 is a vertical section through the backbase of the telephone with which the coin receptacle box of FIG. 11 is used,

FIG. 13 is a sectional view, on a larger scale, along the plane indicated by the line 13—13 in FIG. 11,

FIG. 14 is an enlarged rear elevational view of a metal cone used in the telephone of FIG. 11,

FIG. 15 is a front elevational view, on a larger scale, of a retainer used in the telephone of FIG. 11, and

FIG. 16 is a rear elevational view of an insulating washer used in the telephone of FIG. 11.

Referring to the drawing in detail, the numeral **10** denotes the metal backbase or backboard of a coin operated telephone of standard and usual design and construction. That backbase has a housing **12** secured to it by screws, not shown, and that housing has an opening at the front thereof. A removable closure **14** is provided for the opening at the front of housing **12**, and that closure is provided with a suitable lock, not shown, that prevents access to that housing by unauthorized persons. The housing **12** has a large opening **17** in the top thereof, and that opening accommodates a mechanism base **15**. An opening **16** is provided in the mechanism base **15**, and that opening is in register with the outlet end of a chute through which coins introduced into the coin operated telephone pass. That chute acts to direct those coins toward an opening in the top of the coin receptacle box disposed within the housing **12**. A second opening **18** provided in the mechanism base **15**, and that opening is located adjacent one side of the opening **16**, as shown particularly by FIG. 3.

The numeral **20** denotes a terminal lug that is mounted on, but is insulated from the backbase **10**; and that terminal is customarily known in the telephony art as terminal lug Y. That terminal lug is on the ring or battery side of the line which is connected to the central office of the telephone company. The numeral **22** denotes a screw that is customarily provided in coin operated telephones; and that screw is one of the screws that customarily secures the mechanism base **15** to the housing **12**. The numeral **24** denotes a binding screw which is mounted on the coin-collecting or coin-refunding relay, not shown, supported by the mechanism base **15** of the coin operated telephone.

In many coin operated telephones the backbases are not especially designed to be grounded; and FIG. 1 shows, in part, such a coin operated telephone. However, certain of the functional components of coin operated telephones are grounded; and the numeral **26** denotes the ground wire of the telephone circuit, and that wire extends to the binding screw **24**. Further, as pointed out hereinafter in detail, the backbase of the coin operated telephone of FIG. 1 will be grounded when the signalling device of the present invention is incorporated within that telephone.

The numeral **28** generally denotes the coin receptacle box used with the coin operated telephone that is shown, in part, by FIG. 1. That coin receptacle box is dimensioned to fit within the housing **12**; and its bottom rests upon spaced bosses **13** that are provided on the floor of

the interior of the housing 12. The coin receptacle box 28 is of standard and usual design, and it is provided with a cover 30 of standard and usual design. That cover has an opening 32 therein, and that opening will be alined with the opening 16 in the mechanism base 15 whenever the coin receptacle box 28 is fully seated within that housing. A seal 34 is provided for the coin receptacle box 28, and that seal prevents accidental opening of the cover of that coin receptacle box. The coin receptacle box 28 is also provided with a closure, not shown, for the opening 32 in the cover thereof, and with a locking arrangement for that closure. A housing 96 is provided at the under face of the cover 30, and that housing largely encloses a rotatable member 98 of the locking arrangement for the closure for opening 32. That closure and the rest of that locking arrangement have not been shown because they are of standard and usual design and are not a part of the present invention. In fact all of the various elements, of the coin operated telephone, that have been discussed hereinbefore in this detailed description of the drawing, are of standard and usual construction and are not part of the present invention.

The numeral 36 generally denotes a combined support and deflector that is provided by the present invention. That combined support and deflector has a coin-deflecting surface 38, and that surface is generally rectangular in plan. An ear 42 is provided at one end of that coin-deflecting surface, and that ear projects vertically upwardly from that surface. One of the long sides of the coin-deflecting surface 38 is bent downwardly and then inwardly and upwardly to form a tubular recess 44. The forward edge of the opposite side of the coin-deflecting surface is cut away at 46 to provide a tapered leading edge for the combined support and deflector 36.

A tubular recess 44 accommodates an insulated conductor 48, and one end of that insulated conductor projects outwardly beyond the leading edge of the coin-deflecting surface 38. That outwardly projecting end is denoted by the numeral 50; and that end is freed of insulation and is provided with a thin coating of solder or other corrosion-resistant material. The bared end 50 of the insulated conductor 48 is spaced a short distance beyond the tapered leading edge of the coin-deflecting surface 38, as shown particularly by FIGS. 1 and 3. As a result, the insulated conductor 48 and the combined support and deflector 36 are normally electrically isolated from each other.

The other end of the insulated conductor 48 extends rearwardly from the recess 44 of the combined support and deflector 36 and then extends through the opening 18 in the mechanism base 15. That other end also is free of insulation, and it is connected to one of the leads of a resistor 52 by a splicing sleeve 54. That resistor can be one of the inexpensive carbon resistors used in radio and television work; and that resistor will preferably have a resistance of one hundred thousand ohms. The other lead of the resistor 52 is suitably secured to the terminal lug 20.

Self-tapping screws 62 extend through openings, not shown, in the ear 42 of the combined support and deflector 36 to seat in openings in the backbase 10 of the coin operated telephone. Those screws perform the dual function of mechanically securing the combined deflector and support 36 to the backbase 10 and of electrically connecting that combined support and deflector to that backbase. The portion of the conductor 48 which extends upwardly from the rearwardly directed end of the tubular recess 44 is shown in FIG. 1 as being disposed forwardly of the screws 62 and of the ear 42. This was done to keep that conductor from obscuring the showing of the ear 42 and of the screws 62; but actually, that portion of that conductor closely abuts the backbase 10. The true position of that portion of that conductor is indicated by the larger scale plan view of FIG. 3.

The conductor 48 will be stiff, and it will be bent to closely abut the front face of the backbase 10 and to closely abut the under face of the mechanism base 15. As a result, the insulation on that conductor will not be abraded or worn by the coin receptacle boxes as they are inserted into, and withdrawn from, the housing 12.

In mounting the combined support and deflector 36, and in mounting the insulated conductor 48 associated with that combined support and deflector, the closure 14 and the coin receptacle box 28 are removed, and two small holes are drilled in the backbase 10. This is easily done by placing a steel template against the backbase 10 and using that template to demark the location of the two small holes. After those holes have been drilled, one end of the insulated conductor 48 is passed upwardly through the opening 18 in the mechanism base; and thereupon that end of that conductor and one of the leads of the resistor 52 will be electrically interconnected by crimping a splicing sleeve 54 onto them. The other end of the insulated conductor 48 is then telescoped forwardly through the tubular recess 44 of the combined support and deflector 36 until that other end projects a short distance beyond the forward end of the coin-deflecting surface 38. The insulated conductor 48 telescopes through the tubular recess 44 quite readily, but it fits that recess snugly enough to prevent accidental separation of that conductor from that recess.

Once the conductor 48 has been assembled with the recess 44 of the combined deflector and support 36, the two openings in the ear 42 can be set in register with the two drilled openings in the backbase 10. Thereafter the two self-tapping screws 62 will be passed through the openings in the ear 42 and will be seated in the two drilled openings in the backbase 10. Those self-tapping screws will not only mechanically secure the combined support and deflector 36 to the backbase 10, but they will also electrically connect that support and deflector to that backbase. The upper lead of the resistor 52 will then be bent into the form of a hook and secured to the terminal 20. The conductor 48 will then be bent until it closely abuts the front face of backbase 10 and closely abuts the under face of the mechanism base 15.

The numeral 56 denotes an opening which is provided in the rear wall of the coin receptacle box 28. That opening is circular in part, and it is rectangular in part, as shown particularly by FIG. 4. That opening is given that configuration because such a configuration is complementary to the cross section of the combined support and deflector 36. If the combined support and deflector 36 were to be given a different cross section, the opening 56 would, of course, be given a configuration which was complementary to that different cross section. The opening 56 is so located in the rear wall of the coin receptacle box 28 that it will be squarely in register with the combined support and deflector 36 whenever the bottom of the coin receptacle box 28 is resting upon the bosses 13 at the bottom of the interior of the housing 12. The tapered leading edge of the coin-deflecting surface 38 of the combined support and deflector 36 will enable that combined support and deflector to guide the coin receptacle box 28 as it is moved into position within the housing 12.

The opening 56 is made small enough to keep a dime from passing through; and, consequently, none of the coins in the coin receptacle box 28 can become lost by passing through that opening. The opening 56 is also made small enough to make it difficult for a screw driver, a stiff wire, or any other object to be passed through that opening and used to turn the rotatable member 98 of the locking arrangement for the closure for the opening 32. While that rotatable member has a slot to receive the blade of a turning key, a screw driver or the like, and while that rotatable member is readily turned when the cover 30 is removed to provide full access to that rotatable member, it would be exceedingly difficult

to insert a screw driver, a stiff wire, or any other object through the opening 56 and turn the rotatable member 98. To make any such insertion and turning even more difficult, a protective barrier 100 is soldered, riveted or otherwise secured to the housing 96. That barrier is closed on three sides and on the bottom to positively preclude any turning of the rotatable member 98 by an object inserted through the opening 56.

The numeral 58 denotes a wire which will be held by the screws 22 and 24 and which will electrically interconnect those screws. Since the screw 24 receives and holds one end of the grounding conductor 26, the wire 58 is able to act as a ground for the screw 22. That screw is seated in the housing 12, and, consequently, the wire 58 acts to ground the backbase 10 and the housing 12. This is important where the coin operated telephone is of the type that has an ungrounded backbase, because that backbase must be grounded to enable the combined support and deflector 36 to be grounded.

In the operation of the coin operated telephone that is shown, in part, in FIG. 1, coins will pass downwardly through the opening 16 in the mechanism base 15 and enter the opening 32 in the coin receptacle box 28. Those coins will strike the coin-deflecting surface 38 and rebound toward the sides of the coin receptacle box 28; and as a result the coins will pile up rather evenly in that coin receptacle box. Eventually, the level of the coins in the coin receptacle box will rise to the level at which one or more coins 60 will complete a circuit between the bare end 50 of the conductor 48 and the grounded combined support and deflector 36; and that circuit will interconnect the terminal lug 20 and the grounded conductor 26. Where this happens, the resistance of the resistor 52 will be interposed between the terminal lug 20 and the grounded conductor 26; and that resistance is readily detectable at the central office of the telephone company by means of the standard and usual line insulation test. The resistor 52 has an ohmic value that is high enough to avoid direct grounding of terminal lug 20, and hence the coin operated telephone is perfectly usable; but that ohmic value is low enough to provide an indication that is readily detectable at the central office of the telephone company.

Referring to FIG. 6, the numeral 64 denotes the backbase of another coin operated telephone and that backbase has an opening 66 through it. In addition, that backbase has two smaller openings 67 through it. The openings 67 generally correspond to the openings, not shown, in the backbase 10 which accommodate the fasteners 62. However, instead of receiving self-tapping screws 62, as do the openings in the backbase 10, the openings 67 receive the bolts of bolt and nut combination 68. Those bolts extend through openings in the ear 42 of a combined support and deflector 36, and they fixedly secure that combined support and deflector to the backbase 64.

The opening 66 in the backbase 64 is in register with the tubular recess in the combined support and deflector 36, and that opening accommodates the rearwardly extending portion of the conductor 49 that is held within that tubular recess. That rearwardly extending portion is bent upwardly and extends along the rear face of the backbase 64. The leading edge of that conductor projects forwardly from the combined support and deflector, and that leading edge is stripped of insulation and is coated with tin or some other corrosion-resistant material. The conductor 49 is similar to the conductor 48; but instead of being bent upwardly to extend along the front face of the backbase, the conductor 49 extends through the opening 66 and then is bent upwardly to extend along the rear face of the backbase.

FIG. 6 differs principally from FIG. 1 in the manner of mounting the combined support and deflector 36 and in the location of the conductor 49. Where there is sufficient room between the rear of the coin receptacle box 28 and the front face of the backbase to accommodate the conductor 48, the arrangement shown in FIG. 1 will be used. However, where there is not sufficient room to accommodate the conductor 48, the opening 66 will be drilled in the backbase 64 and the conductor 49 will be passed through that opening and then extended upwardly to an opening, not shown, in the backbase 64 that accommodates the various conductors of the telephone line.

Referring to FIGS. 7–10, the numeral 70 denotes yet another backbase of a coin operated telephone; and a housing 72 is suitably secured to that backbase by fasteners, not shown. The housing 72 has an opening at the front thereof; and a removable closure 76 is provided for that opening. That closure is provided with a suitable lock, not shown, that precludes access to that housing by unauthorized persons. The housing 72 has a large opening in the top thereof, and that opening accommodates a mechanism base 78. That mechanism base has an opening 80 through it, and that opening is located adjacent the bottom of the coin chute of the coin operated telephone. The opening 80 of the mechanism base 78 is identical to the opening 16 in the mechanism base 15. The mechanism base 78 has an opening identical to the opening 18 in the mechanism base 15, but that opening does not perform any particular function in the coin operated telephone of FIGS. 7–10.

A screw 82 helps secure the mechanism base 78 to the housing 72. A binding screw 84 is provided on the coin-collecting or coin-refunding relay, not shown, that is supported by the mechanism base 78. A grounding conductor 86 is connected to the binding screw 84, and that conductor extends to the grounding terminal, not shown, of the coin operated telephone.

The numeral 88 denotes a coin receptacle box that can be disposed within the housing 72; and that coin receptacle box will rest upon and be supported by bosses 74 on the upper face of the bottom of the housing 72. That coin receptacle box has a cover 90 and that cover is normally held closed by a seal 92. An opening 94 is provided in the cover 90, and that opening is below and in register with the opening 80 in the mechanism base 78. The cover 90 is provided with a closure, not shown, for the opening 94, and it is provided with a suitable locking arrangement for that closure. A housing 96, for part of that locking arrangement, is shown in FIG. 7, and that housing supports a rotatable member 98. That rotatable member is provided with a slot into which a suitable re-setting tool can be inserted to re-set the locking arrangement.

The numeral 100 denotes a barrier which is secured to the housing 96, and that barrier underlies and protects the rotatable member 98. That barrier is closed on three sides and on the bottom, and it obviates a straight line path between the rotatable member 98 and the openings 104 and 106 in the rear wall of the coin receptacle box 88. The barrier 100 is identical to the barrier 100 in FIG. 1.

A grounding wire 102 extends between the screw 82 and the binding screw 84. That conductor is comparable to the ground conductor 58 in FIG. 1; and it connects the housing 72, and thus the backbase 70, to the grounding conductor 86.

The numeral 108 denotes a flanged sleeve of some sturdy material such as metal. The flange on that sleeve has openings which are alined with corresponding openings which are alined with corresponding openings in the rear wall of the coin receptacle box 88; and the alined openings accommodate fasteners 110, such as rivets or the like. Those fasteners fixedly hold the sleeve 108 adjacent, and in register with, the opening 104 in the rear wall of the coin receptacle box 88. An insulating lining 112 is pressed within the flanged sleeve 108, and that lining projects forwardly beyond the leading edge of the

sleeve 108 and projects rearwardly beyond the rear face of the rear wall of the coin receptacle box 88.

The numeral 114 denotes a flanged sleeve of a study material such as metal. The flange of that sleeve has openings which are in register with corresponding openings in the rear wall of the coin receptacle box 88. Those alined openings accommodate fasteners 116, such as rivets or the like; and those fasteners fixedly hold the sleeve 114 adjacent, and in register with, the opening 106 in the rear wall of the coin receptacle box 88.

The numeral 118 denotes an opening in the backbase 70. The numeral 120 denotes a second opening in that backbase, and the opening 120 is disposed below, but in vertical registry with, the opening 118. A flanged sleeve 122 of insulation is telescoped into the opening 118 from the front face of the backbase 70, and a generally similar flanged sleeve 124 of insulation is telescoped into that opening from the rear face of that backbase. The confronting inner ends of the sleves 122 and 124 will preferably be spaced a short distance apart so the flanges of the flanged sleeves 122 and 124 can bear solidly against the front and rear faces, respectively, of the backbase 70.

The numeral 126 denotes a cylindrical pin which has a conical leading edge and which has threads at its trailing edge. That cylindrical pin must be made of a material that is electrically conductive, and it is preferably made from a material such as brass, Phosphor bronze or the like. A washer 128 is pressed onto the pin 126, and the engagement between that washer and that pin is so intimate that the washer is fixedly and permanently secured in position on that pin. An opening 132 is provided in the rear portion of the pin 126.

The diameter of the pin 126 is slightly smaller than the inner diameters of the flanged sleeves 122 and 124, but the outer diameter of the washer 128 is larger than the inner diameter of the flanged sleeve 122. As a result, when the trailing edge of the pin 126 is passed through the flanged sleeves 122 and 124, the washer 128 will abut and be held by the flanged sleeve 122. At such time, a nut 130 can be threaded onto the threaded trailing edge of the pin 126 and can be tightened against the sleeve 124. In this way, the pin 126 is held fixed relative to the backbase 70 while being insulated from that backbase.

The numeral 134 denotes a conductor that has had its lower end stripped of insulation and then passed through the opening 132 in the rear of the pin 126. That lower end can be soldered or brazed to the pin 126 to assure a good electrical connection between that pin and that conductor. The conductor 134 inclines downwardly as shown by FIG. 9, to pass through a gap between two sections of an interrupted rib 138 which projects rearwardly from the rear face of the backbase 70. That conductor is then bent to extend upwardly through a channel defined by the interrupted rib 138 and by a continuous rib 136 which projects rearwardly from the rear face of the backbase 70. The conductor 134 extends upwardly to, and passes forwardly through, an opening 140 in the backbase 70, and then it inclines downwardly toward the Y terminal 146 of the coin operated telephone. A resistor 142 is connected to the downwardly inclined upper end of the conductor 134 by a splicing sleeve 144. The resistor 142, the splicing sleeve 144 and the Y-terminal 146 are identical to the splicing sleeve 54, the resistor 52 and the Y-terminal 20 of FIG. 1. The conductor 134, the splicing sleeve 144, the resistor 142 and the Y-terminal 146 connect the conductor 126 to the ring or battery side of the telephone line.

The numeral 148 denotes a cylindrical pin which has a conical leading edge and which has a threaded trailing edge. That pin has a washer 150 pressed onto it, and the engagement between that washer and that pin is so intimate that the washer is permanently fixed on that pin. The diameter of the pin 148 is small enough so the rear thereof can be passed through the opening 120 in the backbase 70. A nut 142 is threaded onto the threaded trailing edge of the pin 148, and that nut fixedly secures that pin to the backbase 70. The pin 148 is of metal, and it will be held in electrically conducting engagement with the backbase 70. Since the backbase 70 is grounded, by means of the housing 72 and the conductor 102, the pin 148 also is grounded.

The sleeves 108 and 114 on the rear wall of the coin receptacle box 80 are mounted and dimensioned so they are in register with, and can telescope over, the conductors 126 and 148. The sleeve 114 may or may not come into electrical engagement with the conductor 148, but the sleeve 108 will be unable to come into electrical engagement with the conductor 126 because of the lining 112 of insulation. The conical leading edges of the conductors 126 and 148 will help guide the sleeves 108 and 114 as they telescope over the conductors 126 and 148. The sleeve 108 and its lining 112 will constitute a combined support and deflector that performs the functions of the combined support and deflector 36.

As coins enter the coin receptacle box 88 through the opening 94, those coins will strike the sleeve 108 and be deflected toward the sides of that coin receptacle box. As further coins enter through the opening 94, the level of the coins in the coin receptacle box will eventually rise to the point where one or more coins will continuously lie in engagement with the conductor 148. At such time, the coins within the coin receptacle box 88 will be grounded. As still further coins enter the coin receptacle box 88, the level of the coins will eventually rise until one or more coins continuously lies in engagement with the conductor 126. At such time, the piled up coins within the coin receptacle box 88 will complete a circuit which extends from the grounding conductor 86, past the binding screw 84, through the grounding conductor 102, past the screw 82, through the housing 72, through the backbase 70, through the conductor 148, through the piled up coins, through the conductor 126, through the conductor 134, then through the splicing sleeve 144, and then through the resistor 142 to the Y-terminal 146. That circuit will place the resistor 142 between the battery side and the grounded side of the telephone line; and the presence of that resistor can be detected at the central office of the company by making the usual line insulation test.

The principal advantage of the construction of FIGS. 7–10 over the construction of FIG. 6 is that the sleeves 108 and 114 render it virtually impossible for anyone to pass an implement into the coin receptacle box 88 and rotate the rotatable member 98. While there is little or no likelihood that a person could pass an instrument through the opening 56 in the rear of the coin receptacle box 28 and rotate the rotatable member 98, because the barrier 100 encloses the bottom and three sides of that member, the sleeves 108 and 114 make it highly improbable that an instrument could be passed through the rear wall of the coin receptacle box and used to rotate the member 98.

Referring to FIG. 12, the numeral 160 denotes the backbase of still another coin operated telephone; and that backbase has openings 162 and 164 through it. The opening 164 is below, but in vertical alinement with, the opening 162. Shouldered sleeve 166 of insulation is telescoped into the opening 162 from the front of the backbase 70, and a similar shouldered sleeve 168 of insulation is telescoped into that opening from the rear of that backbase.

A cylindrical pin 170, which has a conical leading edge and which has a threaded trailing edge, is equipped with a washer 172. That washer is fixed solidly in position on the pin 170, and it will abut the front of the threaded sleeve 166 when the rear of the pin 170 is telescoped through the flanged sleeves 166 and 168. A nut 176 is threaded onto the threaded trailing edge of the pin 170 to fixedly secure that pin to the backbase 160. The flanged sleeves 166 and 168 help support the pin 170 but electrically insulate it from the backbase 160.

A conductor 178 has one end thereof bared, and that

bared end extends through an opening 174 in the rear of the pin 170; and that bared end is suitably secured within that opening by solder, brazing or the like. That conductor is bent downwardly to pass through the gap in the interrupted rib 228 which projects rearwardly from the rear face of the backbase 160. That conductor then passes upwardly through the channel defined by that interrupted rib and an adjacent uninterrupted rib and passes through an opening, not shown, comparable to the opening 140 shown in FIG. 9. The other end of that conductor will be suitable connected to the Y-terminal, not shown, of the coin operated telephone by a splicing sleeve and by a resistor, not shown.

The numeral 180 denotes a cylindrical pin which has a conical leading edge and a threaded trailing edge. A washer 182 is pressed on, and is fixedly secured to, the pin 180. The rear portion of the pin 180 is telescoped through the opening 164 in the backbase 160, and a nut 184 is threaded onto the threaded trailing edge of that pin to fixedly hold that pin in assembled relation with the backbase 160. The pins 170 and 180 are generally comparable to the pins 126 and 148 of FIGS. 7 and 8, but they are smaller in diameter and they are shorter in length.

The numeral 186 denotes the coin receptacle box which is used with the housing, not shown, that is secured to the backbase 160. An opening 188 is provided in the cover of that coin receptacle box, and that opening permits coins to enter that box. A standard and usual closure and locking arrangement, not shown, will be provided for the opening 188. An opening 190 is provided in the rear wall of the coin receptacle box 186, and a second opening 192 is also provided in that rear wall. The opening 192 is disposed below the level of the opening 190.

A flanged sleeve 194 is provided with a frusto-conical leading edge and with a flange at its trailing edge. An arcuate plate 196 of metal is embedded within the flanged sleeve 194, and it constitutes the upper surface of that flanged sleeve. That imbedded metal plate 196 has prongs 198 which serve to anchor that metal plate within the sleeve 194. Preferably the sleeve 194 will be molded from a hard plastic material such as nylon or the like; and the metal plate 196 will constitute a rebounding surface that will be struck by coins entering the coin receptacle box 186 through the opening 188.

The sleeve 194 has a short cylindrical recess 200 in the rear thereof and that recess is contiguous with a central passage 201 which extends through that sleeve. A second and very much shorter recess 202 is provided at the rear face of the sleeve 194, and that recess has a larger diameter than the recess 200. The central passage 201 and the recesses 200 and 202 are all concentric.

The numeral 204 denotes a cylindrical conductor which has a conical leading edge and which has a washer 206 pressed onto it adjacent the training edge thereof. The engagement between the washer 206 and the conductor 204 is sufficiently intimate to lock that washer in position on that conductor. The diameter of the conductor 204 is large enough to provide a press fit between that conductor and the central passage 201 through the sleeve 194. As a result, when the conductor 204 has been pressed forwardly through the recesses 202 and 200 and through the central passage 201 until the washer 206 abuts the left-hand end of the recess 200, that conductor will remain in assembled relation with the sleeve 194.

The numeral 208 denotes a helical compression spring which is dimensioned to telescope over the trailing edge of the pin 204 and to telescope freely within the recess 200. A conical member 210 of metal has its apex telescoped partially within the right-hand end of the spring 208, and it has a diameter that is larger than the outer diameter of the spring 208. As a result, the conical member 210 centers itself relative to the helical compression spring 208 and can be used to apply compressive forces to the helical compression spring 208. A flanged washer 212 is seated within the recess 202, and the inner diameter of that sleeve is smaller than the diameter of the conical member 210. Consequently, when that flanged washer is fixedly secured within the recess 202, as by cementing or the like, that flanged washer will prevent accidental separation of the helical compression spring 208 and the conical member 210 from the sleeve 194. The flange on the flanged washer 212 is annular in configuration; and it is smaller than, and projects through, the opening 190 in the rear wall of the coin receptacle box 186.

The sleeve 194 is set in register with the opening 190, and a retaining collar 214 is telescoped over that sleeve and used to hold that sleeve in assembled relation with the rear wall of the coin receptacle box 186. That retaining collar has a number of openings 216 through it, and those openings can be set in register with corresponding openings in the rear wall of the coin receptacle box 186. Fasteners 218, such as rivets or the like, pass through the openings 216 and through the corresponding openings in the rear wall of the coin receptacle box 186 to fixedly maintain the collar 214 and the sleeve 194 in assembled relation with the rear wall of the coin receptacle box 186.

The numeral 220 denotes a hollow cylinder which has a closed leading edge and which has an open trailing edge and which has an outwardly directed flange adjacent that open trailing edge. A helical compression spring 222 is telescoped within the hollow cylinder 220, and a conical member 224 has its apex extending into the right-hand end of that helical compression spring. Openings are provided in the flange of the hollow cylinder 220 and corresponding openings are provided in the rear wall of the coin receptacle box 186. Fasteners 226, such as rivets or the like, extend through the alined openings in the flange and in the rear wall of the coin receptacle box 186 and premanently secure the cylinder 220 to that rear wall. The diameter of the opening 192 in the rear wall of the coin receptacle box is smaller than the diameter of the conical member 224, and hence the conical member 224 will be confined within the cylinder 220. That conical member will normally be pressed against the inner face of the rear wall of the coin receptacle box 186 by the spring 222.

The conical leading edges of the pins 170 and 180 act to guide the movement of the coin receptacle box 186 into position within the housing, not shown, secured to the backbase 160. The conical leading edge of the pin 170 will pass through the flanged washer 212 and engage the conical member 210 and cause that conical member to compress the helical compression spring 208. Simultaneously the conical leading edge of the pin 180 will pass through the opening 190 in the rear wall of the coin receptacle box 186 and engage the conical member 224 and cause it to compress the helical compression spring 222. The helical compression springs 208 and 222 will serve as conductors and will electrically connect the pin 170 with the conductor 204 while connecting the pin 180 with the cylinder 220. As a result, when coins pile up within the coin receptacle box 186 to the point where coins lie continuously in engagement with the cylinder 220 and other coins lie continuously in engagement with the conductor 204, those coins will complete the circuit between the conductor 204 and the cylinder 220 and thereby complete the circuit between the conductor 178 and the grounded backbase 160. The principal advantage of the construction shown in FIGS. 11–16 over the construction shown in FIGS. 7–10 is that the openings 190 and 192 in the rear wall of the coin receptacle box 186 are completely obstructed. Hence, no instrument or tool could be passed through those openings and used to re-set the locking attachment for the closure for opening 188. The sleeve 194 and its embedded metal plate 196 constitute a combined support and deflector that performs the functions of the combined support and deflector 36.

If desired, the coin receptacle box 186 could itself be

used as the grounding conductor for the coins. This could easily be done by mounting a leaf or helical compression spring on the backbase 160 so its free end engaged the coin receptacle box; and that spring would serve to interconnect that backbase and that coin receptacle box. The surface engaged by the free end of the coin receptacle box should be free of paint or other insulating material and part of the inner surface of that coin receptacle box also should be free of paint or other insulating material. In that way, a low resistance connection could be completed between the backbase 160 and the coins within the coin receptacle box 186.

The particular configurations of the combined support and deflector shown in the drawing are desirable, but other configurations could be used. However, such other configurations also should dispose the exposed ends of the conductors inwardly from the walls of the coin receptacle boxes and also should space those exposed ends away from the inlet openings of those boxes. In that way, those other configurations also will be able to avoid premature indications of the need of replacing the coin receptacle boxes.

Whereas the drawing and accompanying description have shown and described several preferred embodiments of the present invention it should be apparent to those skilled in the art that various changes may be made in the form of the invention without affecting the scope thereof.

What I claim is:

1. In a coin operated telephone which has a terminal connectable to the battery side of the telephone line, which has a grounded terminal, and which has a removable coin receptacle box, the improvement which comprises a conductor the projects forwardly from a point adjacent the backbase of said coin operated telephone, and extends through the central area of said coin receptacle box and extends towards the front wall of said coin receptacle box, a resistor that is connected between said conductor and one of said terminals and a second conductor that extends forwardly from a point adjacent said backbase of said coin operated telephone and extends through said central area of said coin receptacle box and extends toward said front wall of said coin receptacle box, and an electrical connection between said backbase and the other of said terminals, said conductors normally being electrically isolated but being adapted to be connected together by piled up coins in said coin receptacle box to connect the first said terminal to said grounded terminal through said piled up coins and said resistor, said second conductor surrounding the first said conductor and serving to help support the first said conductor but permitting one end of the first said conductor to project beyond it, the first said conductor being insulated but having the insulation removed from said one end thereof, said second conductor being below but adjacent the coin entrance of said coin receptacle box to intercept and deflect coins entering said coin receptacle box through said coin entrance.

2. In a coin operated telephone which has a terminal connectable to the battery side of the telephone line, which has a grounded terminal, and which has a removable coin receptacle box, the improvement which comprises a conductor that projects forwardly from a point adjacent the backbase of said coin operated telephone and extends through the central area of said coin receptacle box and extends toward the front wall of said coin receptacle box, a resistor that is connected between said conductor and one of said terminals, and a second conductor that extends forwardly from a point adjacent said backbase of said coin operated telephone and extends through said central area of said coin receptacle box and extends toward said front wall of said coin receptacle box, and an electrical connection between said backbase and the other of said terminals, said conductors normally being electrically isolated but being adapted to be connected together by piled up coins in said coin receptacle box to connect the first said terminal to said grounded terminal through said piled up coins and said resistor, said second conductor having a coin intercepting and deflecting surface and having a tubular recess, said coin intercepting and deflecting surface receiving and deflecting coins that enter said coin receptacle box, the first said conductor being disposed within and having one end thereof projecting beyond said tubular recess whereby the first and conductor is in part supported by said second conductor, the first said conductor being insulated but said one end thereof being free of insulation, the first said conductor projecting through an opening in said rear wall of said coin receptacle box that is smaller than a dime.

3. In a coin operated telephone which has a terminal connectable to the battery side of the telephone line, which has a grounded terminal, and which has a removable coin receptacle box, the improvement which comprises a conductor that projects forwardly from the backbase of said coin operated telephone, said conductor telescoping through the rear wall of said coin receptacle box, a resistor that is connected between said conductor and one of said terminals, and a second conductor that is mounted on said backbase of said coin operated telephone, said second conductor telescoping through said rear wall of said coin receptacle box, and an electrical connection between said backbase and the other of said terminals, said conductors normally being electrically isolated but being adapted to be connected together by piled up coins in said coin receptacle box to connect the first said terminal to said grounded terminal through said piled up coins and said resistor, said second conductor surrounding the first said conductor, said second conductor protecting the insulation on the first said conductor from abrasion and wear.

4. In a coin operated telephone which has a terminal connectable to the battery side of the telephone line, which has a grounded terminal, and which has a removable coin receptacle box, the improvement which comprises a conductor that is mounted within and that is movable with said coin receptacle box and that is engageable by coins which enter and accumulate within said coin receptacle box, said conductor being physically spaced from and being electrically isolated from the walls and bottom of said coin receptacle box, a second conductor that also is engageable by coins which enter and accumulate within said coin receptacle box, one of said conductors being connectable to one of said terminals by a resistor and by a stationary conductive member whenever said coin receptacle box is assembled with said coin operated telephone, the other of said conductors being connectable to the other of said terminals by a second stationary conductive member whenever said coin receptacle box is assembled with said coin operated telephone, said conductors normally being electrically isolated from each other but being adapted to be interconnected by entering and accumulating coins as said entering and accumulating coins pile up in said coin receptacle box, said conductors coacting with said entering and accumulating coins to connect said terminals together through the medium of said resistor.

5. In a coin operated telephone which has a terminal connectable to the battery side of the telephone line, which has a grounded terminal, and which has a removable coin receptacle box, the improvement which comprises a conductor that projects forwardly from a point adjacent the backbase of said coin operated telephone and extends through the central area of said coin receptacle box and extends toward the front wall of said coin receptacle box, a resistor that is connected between said conductor and one of said terminals, and a second conductor that extends forwardly from a point adjacent said backbase of said coin operated telephone and extends through said central area of said coin receptacle box and extends toward said front wall of said coin receptacle box, and an electrical connection between said backbase and the

other of said terminals, said conductors normally being electrically isolated but being adapted to be connected together by piled up coins in said coin receptacle box to connect the first said terminal to said grounded terminal through said piled up coins and said resistor, the first said conductor being electrically insulated from said backbase.

6. In a coin operated telephone which has a terminal connectable to the battery side of the telephone line, which has a grounded terminal, and which has a removable coin receptacle box, the improvement which comprises a conductor that projects forwardly from a point adjacent the backbase of said coin operated telephone and extends through the central area of said coin receptacle box and extends toward the front wall of said coin receptacle box, a resistor that is connected between said conductor and one of said terminals, and a second conductor that extends forwardly from a point adjacent said backbase of said coin operated telephone and extends through said central area of said coin receptacle box and extends toward said front wall of said coin receptacle box, and an electrical connection between said backbase and the other of said terminals, said conductors normally being electrically isolated, means including the relative positions of said conductors for connecting the first said terminal to said grounded terminal through said piled up coins and said resistor.

7. In a coin operated telephone which has a terminal connectable to the battery side of the telephone line, which has a grounded terminal, and which has a removable coin receptacle box, the improvement which comprises a conductor that projects forwardly from a point adjacent the backbase of said coin operated telephone and extends through the central area of said coin receptacle box and extends toward the front wall of said coin receptacle box, a resistor that is connected between said conductor and one of said terminals, a second conductor that extends forwardly from a point adjacent said backbase of said coin operated telephone and extends through said central area of said coin receptacle box and extends toward said front wall of said coin receptacle box, and an electrical connection between said backbase and the other of said terminals, said conductors normally being electrically isolated but being adapted to be connected together by piled up coins in said coin receptacle box to connect the first said terminal to said grounded terminal through said piled up coins and said resistor, and a sleeve within said coin receptacle box that receives the first said conductor, and an insulated lining for said sleeve.

8. In a coin operated telephone which has a terminal connectable to the battery side of the telephone line, which has a grounded terminal, and which has a removable coin receptacle box, the improvement which comprises a conductor that projects forwardly from the backbase of said coin operated telephone, said conductor telescoping through the rear wall of said coin receptacle box, a resistor that is connected between said conductor and the first said terminal, a second conductor that is mounted on said backbase of said coin operated telephone, said second conductor telescoping through said rear wall of said coin receptacle box, an electrical connection between said backbase and said grounded terminal, and a locking attachment for the closure for the coin entrance of said coin receptacle box, said conductors normally being electrically isolated but being adapted to be connected together by piled up coins in said coin receptacle box to connect the first said terminal to said grounded terminal through said piled up coins and said resistor, the first said and said second conductors extending through and being supported by said backbase, and sleeves that are carried by and disposed within said coin receptacle box, said sleeves minimizing the possibility of inserting an instrument through the rear wall of said coin receptacle box to re-set said locking attachment for the closure for the coin entrance of said coin receptacle box.

9. In a coin operated telephone which has a terminal connectable to the battery side of the telephone line, which has a grounded terminal, and which has a removable receptacle box, the improvement which comprises a conductor that projects forwardly from a point adjacent the backbase of said coin operated telephone and extends through the central area of said coin receptacle box and extends toward the front wall of said coin receptacle box, a resistor that is connected between said conductor and one of said terminals, and a second conductor that extends forwardly from a point adjacent said backbase of said coin operated telephone and extends through said central area of said coin receptacle box and extends toward said front wall of said coin receptacle box, and an electrical connection between said backbase and the other of said terminals, said conductors normally being electrically isolated but being adapted to be connected together by piled up coins in said coin receptacle box to connect the first said terminal to said grounded terminal through said piled up coins and said resistor, the first said conductor having its free end spaced inwardly from the sides of said coin receptacle box and spaced away from the coin entrance of said coin receptacle box.

10. In a coin operated telephone which has a terminal connectable to the battery side of the telephone line, which has a grounded terminal, and which has a removable coin receptacle box, the improvement which comprises a conductor that projects forwardly from a point adjacent the backbase of said coin operated telephone and extends through the central area of said coin receptacle box and extends toward the front wall of said coin receptacle box, a resistor that is connected between said conductor and one of said terminals, and a second conductor that extends forwardly from a point adjacent said backbase of said coin operated telephone and extends through said central area of said coin receptacle box and extends toward said front wall of said coin receptacle box, and an eletcrical connection between said backbase and the other of said terminals, said conductors normally being electrically isolated but being adapted to be connected together by piled up coins in said coin receptacle box to connect the first said terminal to said grounded terminal through said piled up coins and said resistor, one of said conductors acting as a deflector to intercept and deflect coins introduced into said coin receptacle box, the forward ends of said conductors being spaced from the bottom and from all of the walls of said coin receptacle box.

11. In a coin operated telephone which has a terminal connectable to the battery side of the telephone line, which has a grounded terminal, and which has a removable coin receptacle box, the improvement which comprises a conductor that projects forwardly from the backbase of said coin operated telephone, said conductor telescoping through the rear wall of said coin receptacle box, a resistor that is connected between said conductor and the first said terminal, and a second conductor that is mounted on said back base of said coin operated telephone, said second conductor telescoping through said rear wall of said coin receptacle box, and an electrical connection between said backbase and said grounded terminal, said conductors normally being electrically isolated but being adapted to be connected together by piled up coins in said coin receptacle box to connect the first said terminal to said grounded terminal through said piled up coins and said resistor, and a third conductor that is disposed within said coin receptacle box and that is connected to the first said conductor whenever said coin receptacle box is in position within said coin operated telephone.

12. In a coin operated telephone which has a terminal connectable to the battery side of the telephone line, which has a grounded terminal, and which has a removable coin receptacle box, the improvement which comprises a conductor that projects forwardly from the backbase of said coin operated telephone, said conductor telescoping through the rear wall of said coin receptacle box,

a resistor that is connected between said conductor and the first said terminal, and a second conductor that is mounted on said backbase of said coin operated telephone, said second conductor telescoping through said rear wall of said coin receptacle box, and an electrical connection between said backbase and said grounded terminal, said conductors normally being electrically isolated but being adapted to be connected together by piled up coins in said coin receptacle box to connect the first said terminal to and grounded terminal through said piled up coins and said resistor, and a third conductor that is is disposed within said coin receptacle box and that is connected to the first said conductor by a conducting spring whenever said coin receptacle box is in position within said coin operated telephone, said third conductor and said spring being supported by a member of insulating material that has a metal rebounding surface thereon in register with the coin entrance of said coin receptacle box.

13. An indicating device that can be used with a coin operated telephone to indicate when the accumulated coins in said coin operated telephone should be removed and that comprises a conductor that can be mounted so it can be engaged by the coins accumulated within said coin operated telephone, a resistor that can connect said conductor to one side of the telephone line, and a second conductor that can be connected to the other side of said telephone line, said conductors normally being electrically isolated but being adapted to be connected together by accumulated coins in said coin operated telephone to connect said one side of said telephone line to said other side of said telephone line through said resistor and said accumulated coins.

14. An indicating device that can be used with a coin operated telephone to indicate when the accumulated coins in said coin operated telephone should be removed and that comprises a conductor that can be mounted so it can be engaged by the coins accumulated wtihin said coin operated telephone, a resistor that can connect said conductor to one side of the telephone line, and a second conductor that can be connected to the other side of said telephone line, said conductors normally being electrically isolated but being adapted to be connected together by accumulated coins in said coin operated telephone to connect said one side of said telephone line to said other side of said telephone line through said resistor and said accumulated coins, the first said conductor being electrically insulated from the coin receptacle box of said coin operated telephone and projecting through an opening in a wall of said coin receptacle box.

15. An indicating device that can be used with a coin operated telephone to indicate when the accumulated coins in said coin operated telephone should be removed and that comprises a conductor that can be mounted so it can be engaged by the coins accumulated within said coin operated telephone, a resistor that can connect said conductor to one side of the telephone line, and a second conductor that can be connected to the other side of said telephone line, said conductors normally being electrically isolated but being adapted to be connected together by accumulated coins in said coin operated telephone to connect said one side of said telephone line to said other side of said telephone line through said resistor and said accumulated coins, and a combined support and deflector that is adjacent the first said conductor and that intercepts and deflects coins entering the coin receptacle box of said coin operated telephone.

16. An indicating device that can be used with a coin operated telephone to indicate when the accumulated coins in said coin operated telephone should be removed and that comprises a conductor that can be mounted so it can be engaged by the coins accumulated within said coin operated telephone, a resistor that can connect said conductor to one side of the telephone line, and a second conductor that can be connected to the other side of said telephone line, said conductors normally being electrically isolated but being adapted to be connected together by accumulated coins in said coin operated telephone to connect said battery side of said telephone line to said grounded side of said telephone line through said resistor and said accumulated coins, said second conductor being supported by the coin receptacle box of said coin operated telephone and projecting through an opening in a wall of said coin receptacle box.

17. In a coin operated telephone which has a terminal connectable to the battery side of the telephone line, which has a grounded terminal, and which has a removable coin receptacle box, the improvement which comprises a deflector that is mounted so it can be engaged by coins entering said coin receptacle box, and that can deflect said coins away from the coin entrance of said coin receptacle box, a conductor, a resistor that is connected between said conductor and one of said terminals, and a second conductor that is connected to the other of said terminals, said deflector having a recess therein that accommodates the first said conductor, said conductors normally being electrically isolated but being adapted to be connected together by piled up coins in said coin receptacle box to connect the first said terminal to said grounded terminal through said piled up coins and said resistor.

18. In a coin operated telephone which has a terminal connectable to the battery side of the telephone line and which has a grounded terminal, the improvement which comprises a conductor that is mounted so it can be engaged by the coins that accumulate within said coin operated telephone, a resistor that is connected between said conductor and one of said terminals, and a second conductor that is connected to the other of said terminals and that can be engaged by said accumulated coins, said conductors normally being electrically isolated but being adapted to be connected together by said accumulated coins to connect the first said terminal to said grounded terminal through said accumulated coins and said resistor.

19. In a coin operated telephone which has a terminal connectable to the battery side of the telephone line and which has a grounded terminal, the improvement which comprises a conductor that is fixedly and permanently mounted within the coin receptacle box of said coin operated telephone so it can be engaged by the coins that accumulate within said coin receptacle box of said coin operated telephone, a second conductor that is exposed to and that can be engaged by said accumulated coins, one of said conductors being connectable to one of said terminals by a resistor, the other of said conductors being connectable to the other of said terminals, said conductors normally being electrically isolated but being adapted to be connected together by said accumulated coins to connect the first said terminal to said grounded terminal through said accumulated coins and said resistor.

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