Nov. 5, 1929. I. W. GREEN ET AL 1,734,124

UNIVERSAL TELEPHONE SET

Filed May 27, 1926 3 Sheets-Sheet 1

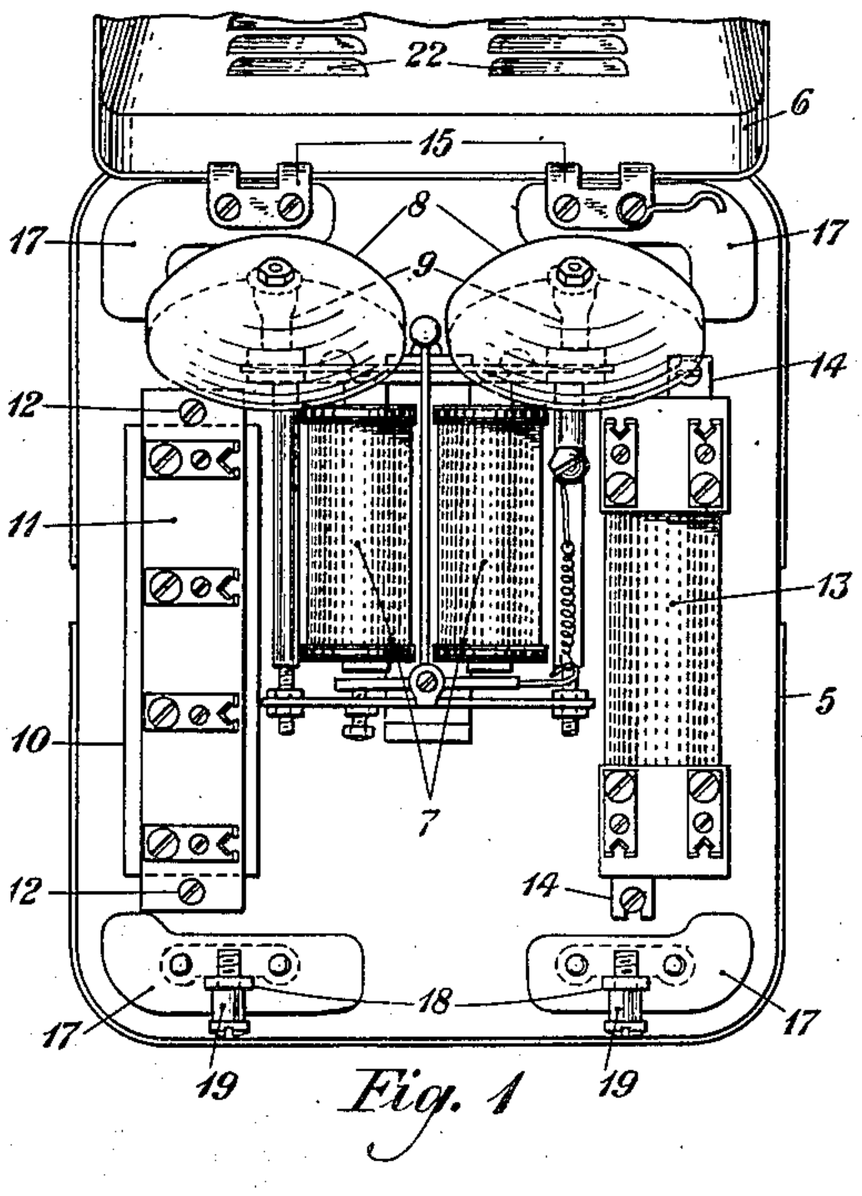


Fig. 1

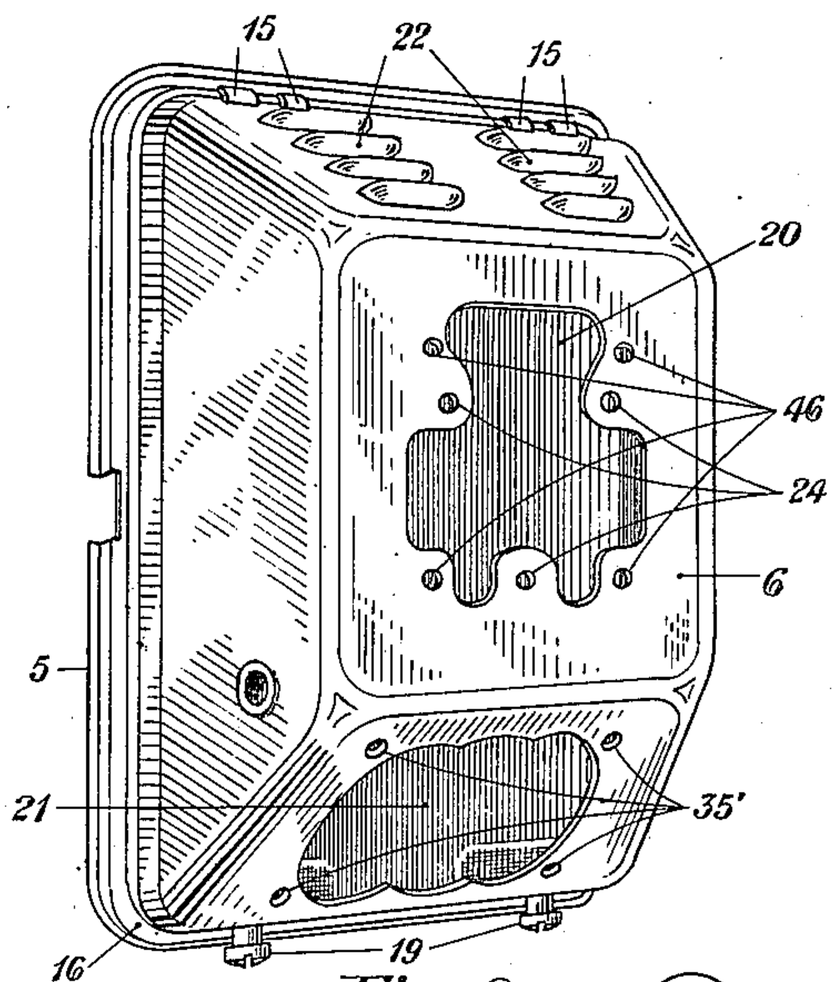


Fig. 2

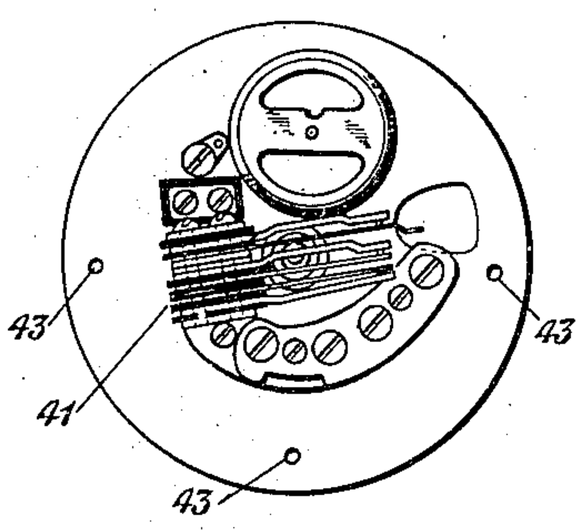


Fig. 3

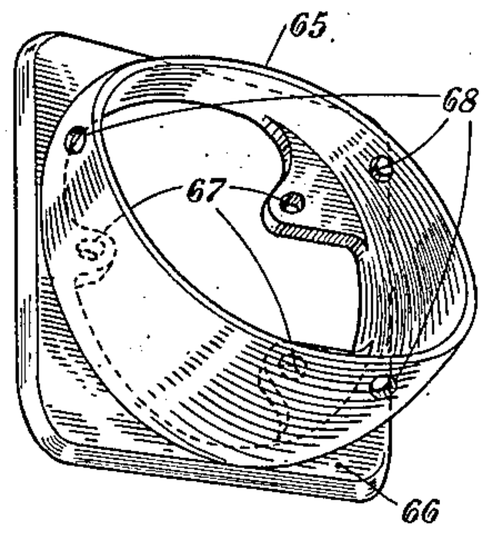


Fig. 5

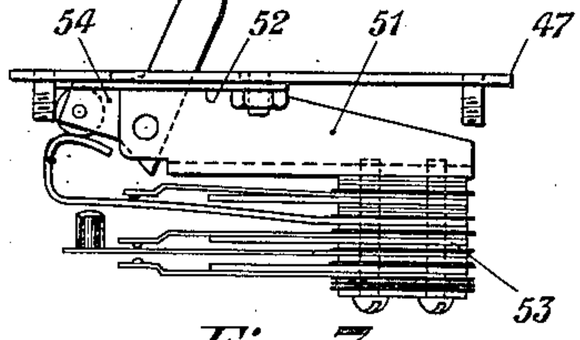


Fig. 7

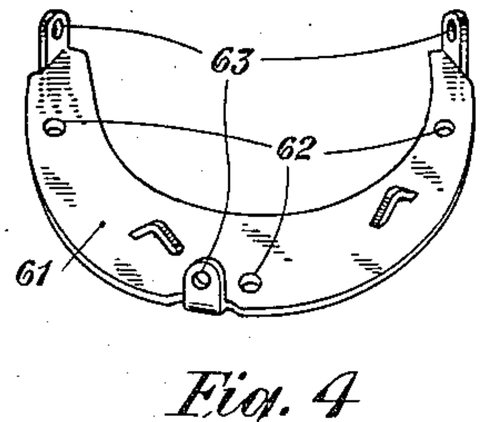


Fig. 4

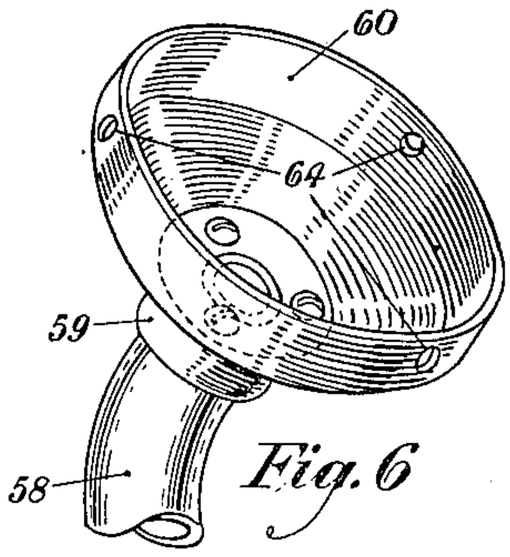


Fig. 6

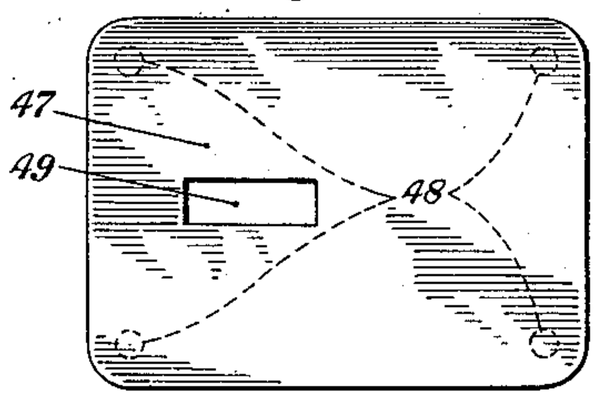


Fig. 8

INVENTORS

I. W. Green and A. H. Inglis

BY

ATTORNEY

Nov. 5, 1929. I. W. GREEN ET AL 1,734,124

UNIVERSAL TELEPHONE SET

Filed May 27, 1926 3 Sheets-Sheet 2

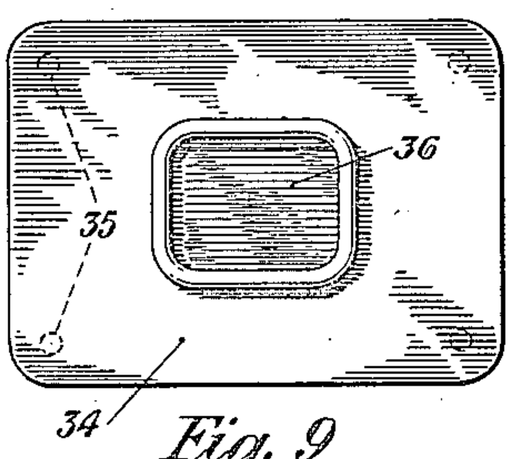


Fig. 9

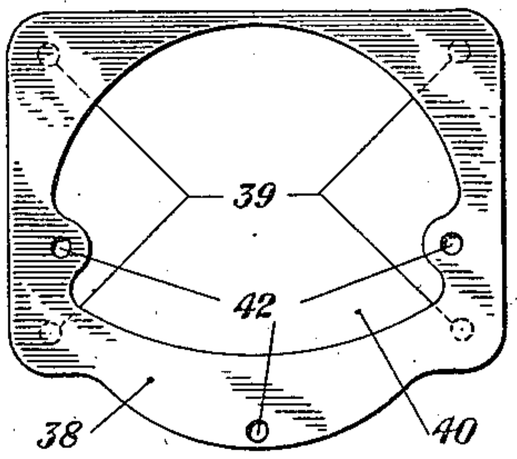


Fig. 11

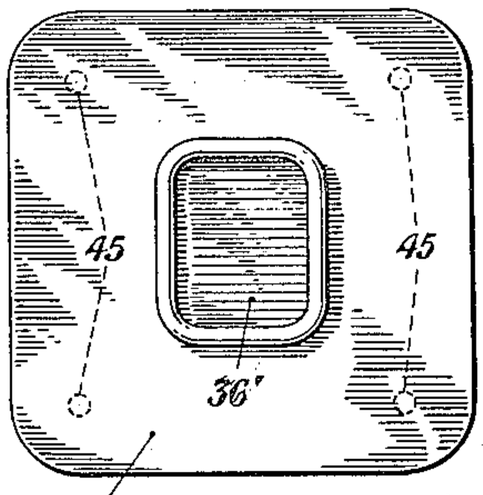


Fig. 10

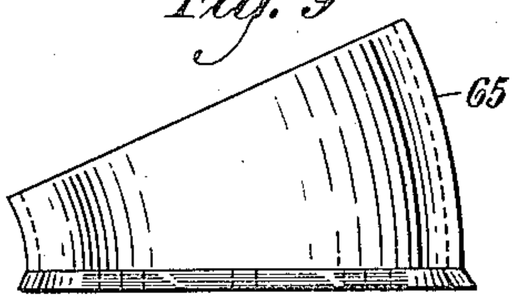
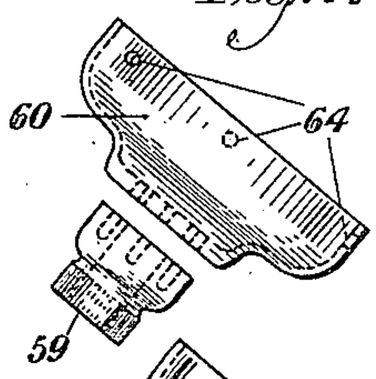


Fig. 12



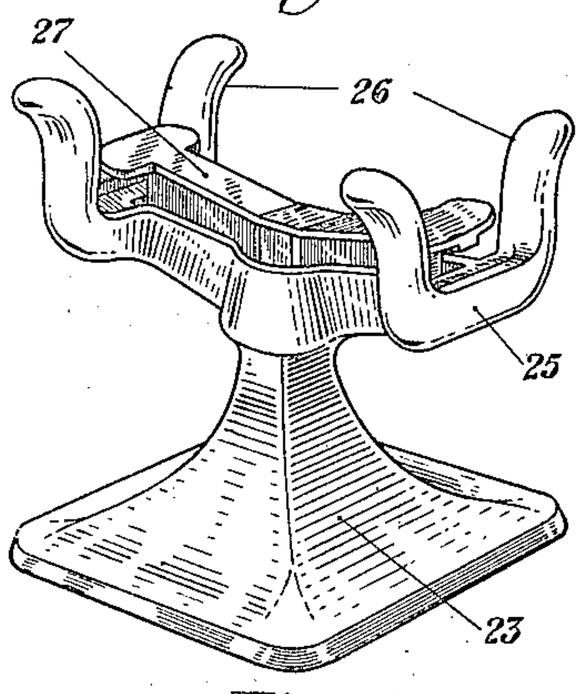


Fig. 16

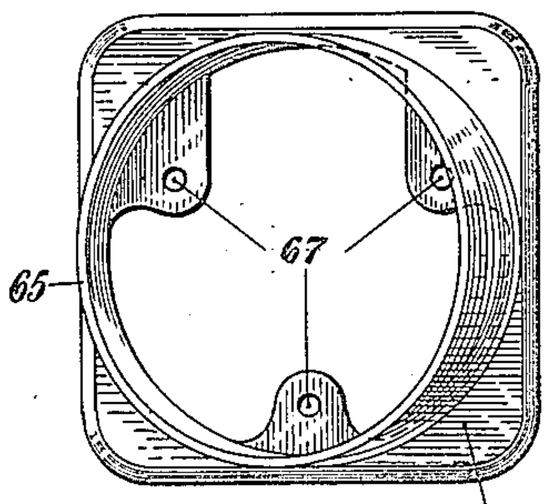


Fig. 13

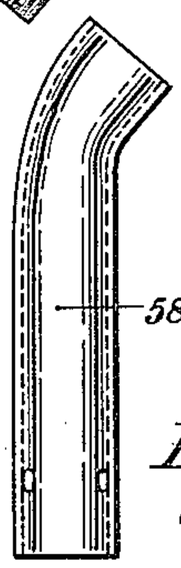


Fig. 17

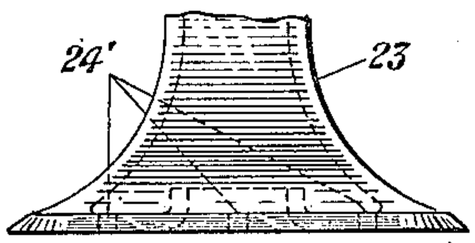
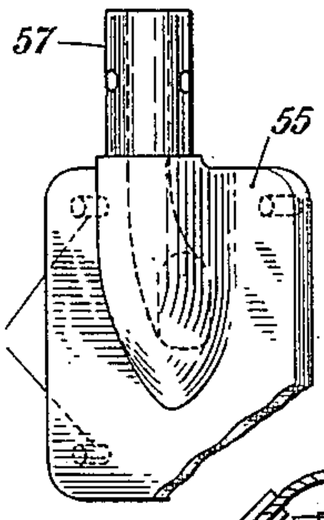
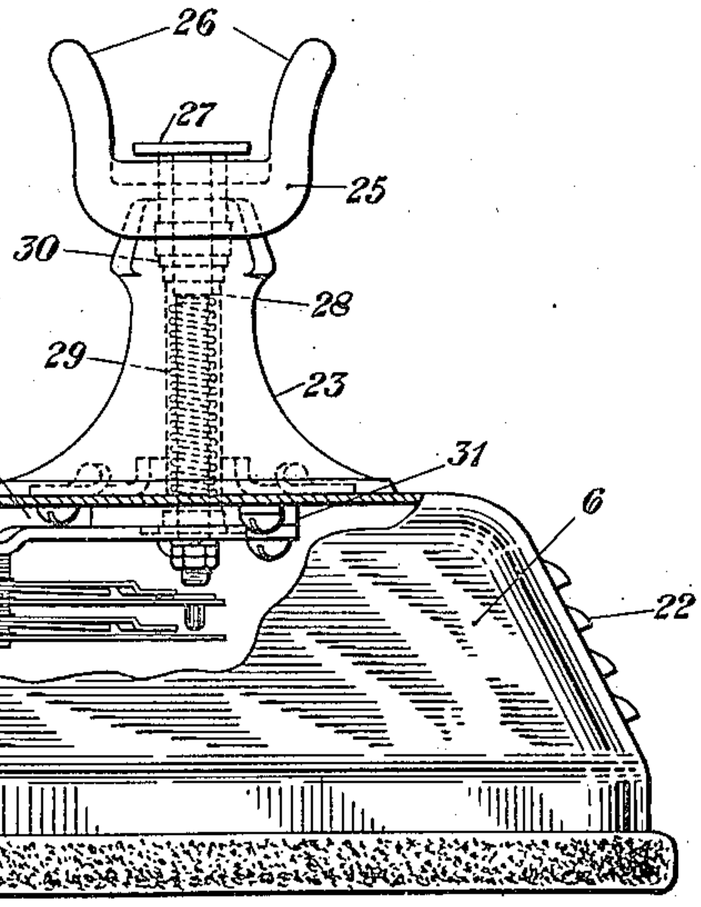


Fig. 14





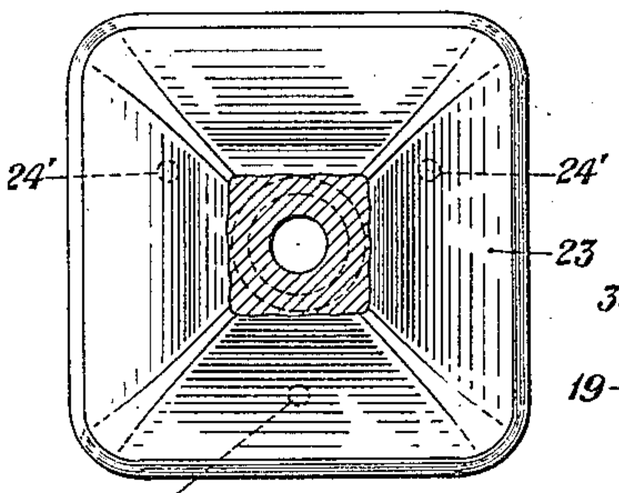


Fig. 15

Fig. 18

INVENTORS

I. W. Green and A. H. Inglis

BY

ATTORNEY

Nov. 5, 1929. I. W. GREEN ET AL 1,734,124

UNIVERSAL TELEPHONE SET

Filed May 27. 1926 3 Sheets-Sheet 3

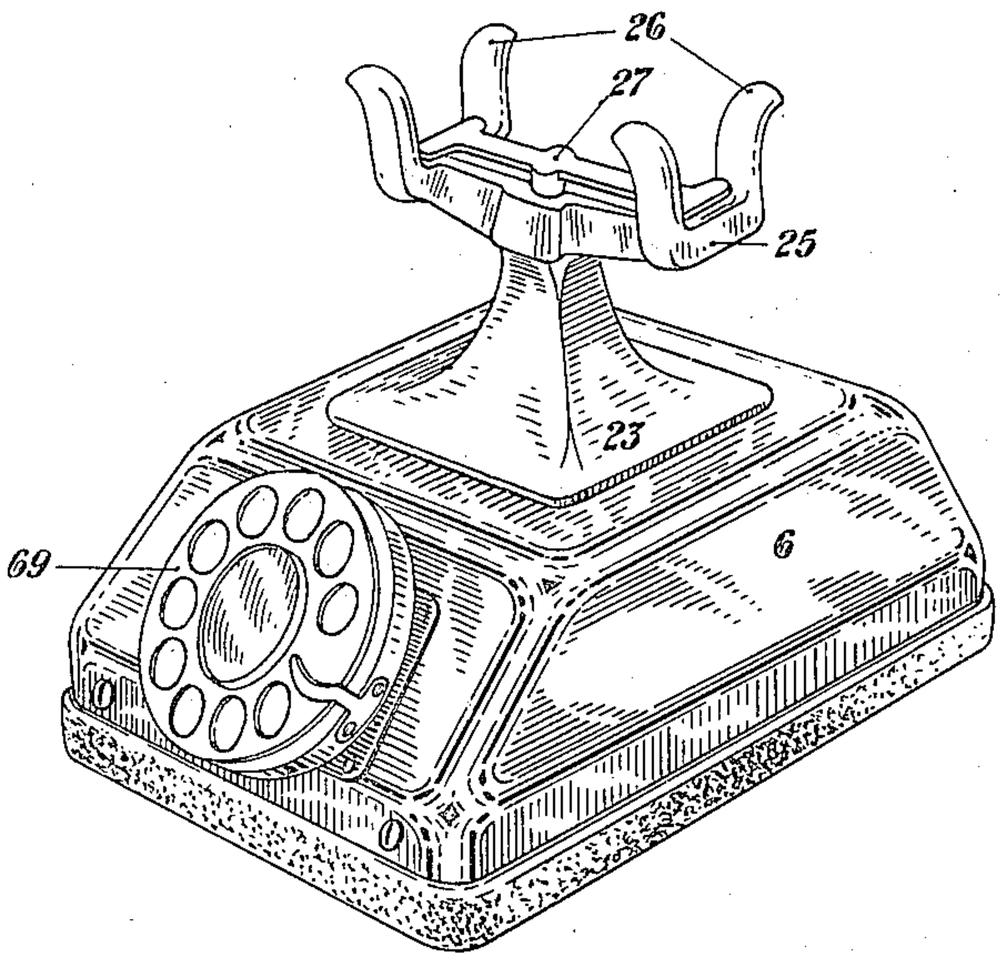


Fig. 19

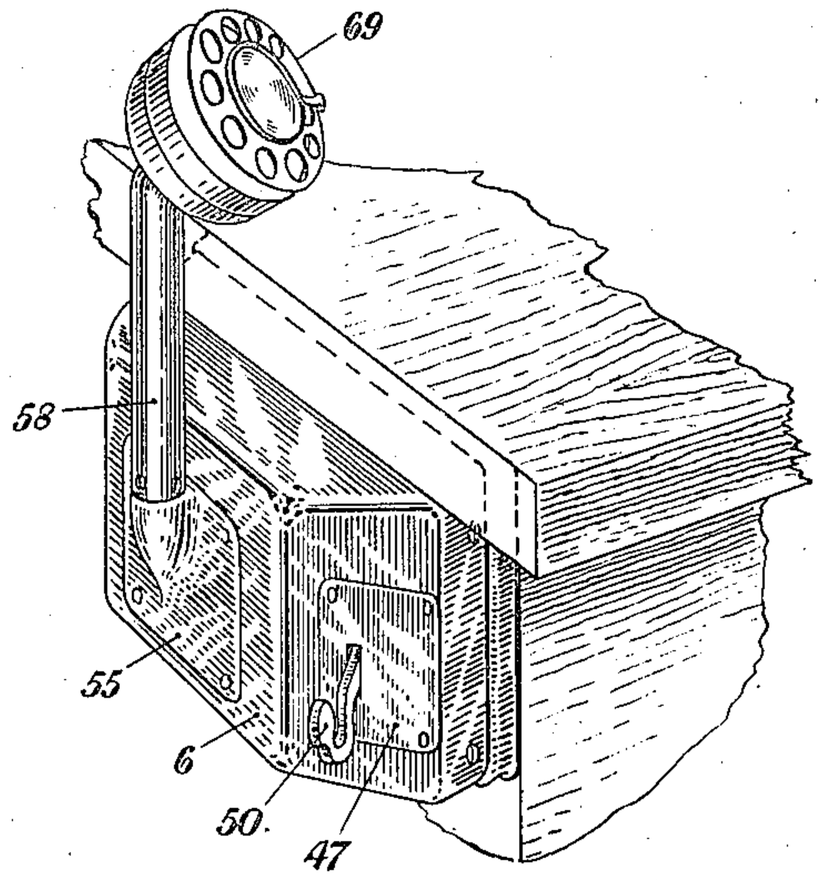


Fig. 20

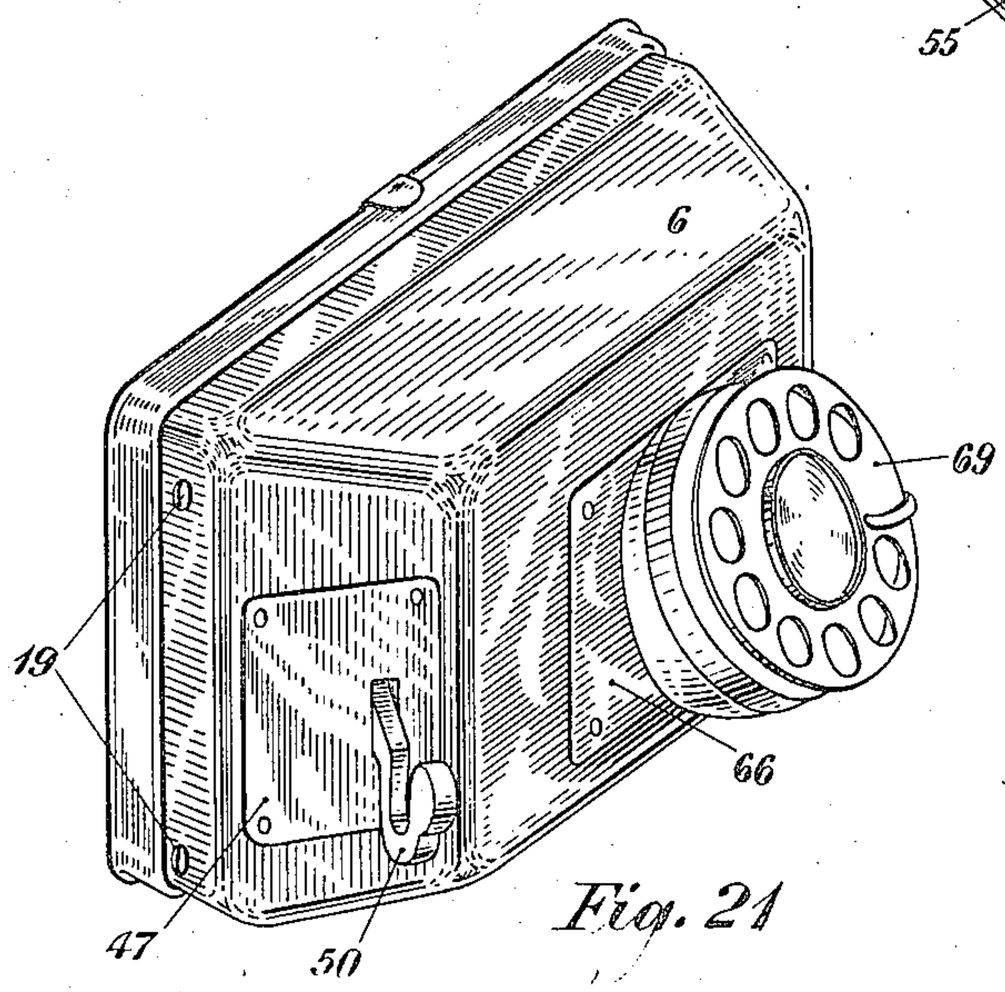


Fig. 21

INVENTORS
I.W. Green and A.H. Inglis
BY
Gerfor
ATTORNEY

Patented Nov. 5, 1929 1,734,124

UNITED STATES PATENT OFFICE

IRVING W. GREEN, OF CRANFORD, AND ALFRED H. INGLIS, OF UPPER MONTCLAIR, NEW JERSEY, ASSIGNORS TO AMERICAN TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION OF NEW YORK

UNIVERSAL TELEPHONE SET

Application filed May 27, 1926. Serial No. 112,101.

This invention relates to telephone station sets, and more particularly to housings for sets of this character which are adapted to be used with a combination of different units to form various telephone set mountings.

It has been customary in connection with telephone sets to use separate bell boxes which contain the usual ringer apparatus, together with apparatus including induction coils, condensers and other units. Furthermore, it has been customary to employ various sets at the stations as may be desired, comprising, for instance, such forms as a semi-portable type for mounting on the top of a desk or table, a permanent mounting secured to either the right or left side of a desk or table, and a set to be mounted on a wall. These mountings, of course, have to be equipped with either manual or machine switching arrangements, depending upon which system is used in the territory where the apparatus is to be installed. Each type of the previously mentioned mountings requires different instrumentalities in their make-up, and the form used in one type cannot be used interchangeably with other types. This condition makes it necessary to carry all the types enumerated in stock and also requires the use of a separate bell box with any of the types installed.

Accordingly, it is an object of this invention to provide a unitary structure comprising a universal mounting with which various types of telephone station sets may be interchangeably attached. Another object consists in providing the unitary structure with ringer and other equipment now included in separate bell boxes. These and other objects will be apparent from the following description, when considered in connection with the accompanying drawings in which one embodiment of the invention is illustrated.

Referring to the drawing, Figure 1 illustrates a top plan view of the interior of the improved device; Fig. 2 is a perspective view of the exterior of such device; Figs. 3 and 4 are details of machine-switching apparatus which may be used with the improved arrangement; Figs. 5 and 6 are perspective views of casings in which the machine-switching apparatus indicated in Figs. 3 and 4 may be mounted; Fig. 7 is a side elevation of a hook switch and its spring contacts; Fig. 8 is a top plan view of a plate on which the hook switch may be mounted; Figs. 9 and 10 are top plan views of blank plates which may be attached respectively to openings in the sloping side and top walls of the improved mounting; Figs. 11, 12 and 13 are casings which may be attached to the mounting indicated in Fig. 2 to support dial switching mechanism; Figs. 14 and 15 are fragmentary views of the cradle shown in perspective in Fig. 16; Fig. 17 is an exploded view of an arm which may be attached to the mounting; Fig. 18 is a side elevation partly in section of the mounting showing the cradle arrangement of Fig. 16 positioned thereon, and Figs. 19, 20 and 21 are perspective views showing the universal mounting having a top desk set, a side desk set and a wall set, respectively, associated therewith.

In Fig. 1 of the drawings is shown the interior of the improved unitary structure, which includes the equipment found in a bell box usually mounted separately from the telephone set on a wall or other supporting surface. The housing for this equipment in the present instance consists of a base 5 with a cover 6 hinged thereto to be presently referred to. A polarized ringer 7 of any well known type is mounted in the approximate center of the base and is provided with gongs 8. The gongs are mounted in an inclined position on posts 9 which may be attached to the yoke of the ringer in any suitable manner to provide for the desired inclination of the gongs. A condenser 10 is mounted on the base at one side of the ringer, and on top of said condenser a terminal strip 11 is positioned by screws 12 which extend through either end thereof. These screws may also pass through lugs provided on the ends of the condenser and engage threaded openings in the base to secure the terminal strip and condenser thereto. An induction coil 13 is secured to the base on the opposite side of the ringer, for instance, by screws extending through lugs 14 on the ends of the induction

coil and engaging with threaded openings in the base.

The condenser 10, strip 11 and coil 13 are provided with terminals to which conductors are attached in practice, and the ringer 7 is likewise connected to conductors so that it will be actuated by current impressed on said conductors. These electrical connections, however, are well known in the art, and their application to the elements just outlined are similar to the practice followed when a separate bell box is employed for the purpose of housing them.

The cover 6 is hinged at one end by means of the members 15 which are secured to the base 5 and extend through slots provided in the cover. The lower rim of the cover forms a flange 16 which extends about its surface and the edge thereof, when the cover is closed, is so seated on the base 5 that a tight closure is provided, so that dust is excluded from the interior. Raised portions 17 are provided on the base to further effect this tight closure, and lugs 18 are associated with the raised portions at one end of the base. These lugs are threaded and carry screws 19 with which slots provided in the cover engage so that when the screws are tightened they securely lock the cover to the base, as more clearly indicated in Fig. 2. The sides of the cover extend from the flange 16 in a sloping direction to the flat portion on the top of said cover, and the meeting points of the sides and top are suitably rounded.

The flat portion of the cover 6 has an opening 20 of irregular form cut in its approximate center, and on one of the sloping sides of said cover a second opening such as indicated by the numeral 21 is provided. On the sloping side of the cover adjacent its hinged portion and directly over the gongs 9 of the ringer, a double row of vent holes are shown in the present instance in the form of louvres 22. These serve to permit the gongs to be heard more clearly when the ringer is operated.

The unitary structure shown in Figs. 1 and 2 is adapted to be used as a universal mounting for various types of telephone station sets and for manual or machine-switching service, as will be pointed out below, and as indicated in Figs. 19, 20 and 21. While the face 5 of the housing has been referred to as a base, it will be evident that this term is more appropriate when the device is used as in Fig. 19, and, in general, this outer wall 5 may be designated as an outer plane base of the housing or casing.

In the use of the approved device as a telephone set for manual service to be positioned on the top of a desk or table, a standard or pedestal 23, such as shown in Figs. 14, 15, 16 and 19, is attached to the top flat surface of the cover. This attachment may be made by screws, applied through the three holes 24 from the interior of the cover, which register with three threaded openings 24′ on the bottom of the standard. The standard 23 may have an integral cradle member 25 formed on its upper portion which extends outwardly on either side thereof. The cradle 25 is provided with four outwardly extending or flaring guard arms 26, the extremities of which are preferably turned outwardly, as more clearly shown in Figs. 16, 18 and 19. A T-shaped plunger comprising a horizontal bar 27 and a spindle 28 is associated with the standard. The bar is seated in a depressed portion of the cradle, and the spindle, which is attached to the center of said bar, extends downwardly therefrom and is adapted to move vertically within the tubular standard. A spiral spring 29 encircles the spindle and extends thereon from a plate to the enlarged head 30 of the spindle and controls the vertical movement thereof. When a hand set comprising a receiver and transmitter, which has not been illustrated in the present instance for the sake of clearness, but which may be of any well known type, is placed on the T-shaped plunger, its weight causes the depression of the spring 29. The guard arms serve to keep the hand set positioned in the cradle. When the hand set is removed from the cradle, the spring 29 causes the elevation of the spindle which provides for the electrical connection of the hand set in a well understood manner.

The lower end of the spindle 28 extends through an aperture and washer 31 and is suitably insulated therefrom. The washer may be integral with the standard, and a ring 32 is attached to said washer. The ring has a finger extending therefrom to which a bank of springs 33 is affixed. The extended end of the spindle 28 opens and closes contacts between these springs upon the seating and removal of the hand set from the cradle.

The mounting of the standard 23 upon the top of the cover 6, as just described, is employed when the convertible mounting is to be used for a top desk or table set and when manual service is available. Under these conditions, the opening 21, as indicated in Fig. 2 of the drawings, will have a blank plate 34 covering it. The blank plate 34, which is illustrated in Fig. 9 is a rectangular form and has a threaded stud at each of its corners on its bottom surface. These studs, as indicated by the reference character 35 register in apertures 35′ provided in the front sloping surface of the cover 6 about the opening 21. The studs extend through the apertures 35′ and engage nuts 36 beneath the apertures and thus secure the plate 34 to the cover. The plate 34 may be provided, if desired, with a card holder 36 affixed in any suitable position to its center.

If the set just described is to be used in connection with machine-switching service, the

form indicated in Fig. 19 is used. The standard 23 in this case is left in the position outlined, and the plate 38 (Fig. 11) is attached to the front sloping surface of the cover 6 in place of the plate 34. This plate has a stud 39 provided on each corner of its bottom surface. The studs 39 are similar to the studs 35 provided on the blank plate 34 and extend through the apertures 35′ of the cover and engage nuts beneath said apertures. The plate 38 has a comparatively large opening 40 in its center which is provided for the purpose of permitting the extension therethrough of switching equipment of a dial. The dial and its equipment are well known in the art and need only a brief description to show their application to the present invention. Fig. 3 shows the rear face of a dial, and its switching equipment 41 extends through opening 40 into the interior of the housing provided by the base 5 and its cover 6. For the purpose of positioning the dial, it is first attached to the plate 38, indicated in Fig. 11, by means of screws extending through three apertures 42 provided in the plate 38 into threaded openings 43 in the rear of the dial, as shown in Fig. 3. When the unit comprising the dial and plate 38 are secured to each other, the plate is attached to the cover 6, as previously indicated. The bottom of the universal set is preferably provided with felt or the like when used as a top desk set to prevent scratching the surface on which it is positioned.

When it is desired to use the improved arrangement as a mounting on the side of a desk or table for manual service, it is fastened thereto by screws extending through the base and engaging the supporting wall. The blank plate 44 shown in Fig. 10 is applied over the aperture 20 on the flat surface of the set. This plate is provided with a stud 45 affixed to each corner of its bottom surface, and may also have a card holder 36′ provided on its center. The studs register with four openings 46, shown in Fig. 2, and extend therethrough to engage nuts positioned beneath the openings, and thus serve to attach the blank plate 44 to the top surface of the cover. In case the mounting is to be positioned at the right side of the desk or table, the flat surface will be turned toward the right with the aperture 21 appearing in the front. A plate 47 (Fig. 8) having a stud 48 on each corner of its bottom surface is placed over this opening with the studs 48 registering in and extending through the openings 35′ of the cover 6, shown in Fig. 2 and nuts engage the extended portions of the studs beneath the cover and secure the plate 47 thereto. The plate 47 has a slot 49 provided therein through which a hook switch 50 extends. The hook switch 50 (Fig. 7) is journaled in a plate 51, and this plate is secured by means of a bolted lug 52 to the underface of the plate 47. A bank of contact springs 53 is secured to the plate 51 by means of bolts. These contact springs are opened and closed by a cam 54 attached to the hook switch 50, so that when a hand set (not shown) is removed from the hook switch, contact is made between the springs in an obvious manner to close a circuit, and the restoration of the hand set to the hook switch opens the spring contacts.

When it is desired to mount the set on the left side of a desk or table, the flat portion of the cover faces toward the left, and the plate 47 is associated with the front sloping side of the cover. In this instance, however, the plate will be reversed in its attachment to cover the opening 21.

The positioning of the set on the right and left side of the table or desk, just referred to, with the blank plate 44 attached to its flat surface is employed only when manual service is necessary.

Where machine switching service is employed, the form shown in Fig. 20 will be used. This figure shows the universal set applied to the left side of the desk, but it may be equally well mounted on the opposite or right side of the desk as will be presently described. The hook switch attached to plate 47 will be used in this connection, as just described, for either the right or left side of the desk or table. In machine-switching service, however, the plate blank 44 will be removed from the flat surface of the cover, and a plate 55, as more clearly shown in Fig. 17, will be substituted. The plate 55 is of the same shape as the plate 44 and has studs 56 similarly positioned about the four corners of its bottom surface. The plate 55 has an opening formed in its inner surface which extends upwardly into a tubular sleeve 57. A second tubular sleeve 58 telescopes the sleeve 57, and may be attached thereto by screws or the like. The tubular openings previously referred to are provided for the purpose of housing the conductors extending from the interior of the casing to a dial on the end of the arm. The sleeve 58 has a socket 59 attached thereto, and the other end of the socket registers with a casing 60. This casing and its attached socket and sleeve are shown in perspective in Fig. 6 in connected relation. The rear portion of a machine-switching dial, such as is indicated in Fig. 3 is adapted to be inserted within the casing 60. The dial in this connection has a substantially crescent-shaped plate 61 attached to its rear surface. The plate 61 has openings 62 extending through it, and these openings register with the openings 43 in the rear face of the dial when the plate and dial are placed together, so that screws may be extended through the openings 62 into the openings 43 of the dial to secure these elements to each other. The plate 61 has lugs 63 disposed about its surface. Each of these lugs is provided with

openings, and when the unit comprising the plate 61 and the dial are positioned in the casing 60, the openings in the lugs 63 register with openings 64 in the casing, so that screws passing through the registered openings secure the dial to the casing. The machine-switching arrangement just described is equally well adapted to be used with a left side desk mounting or right side desk mounting. In the latter mounting the plate 55 is simply reversed from the position shown in Fig. 20 and applied to the mounting on the right side of the desk. The turning of the tubular sleeve with the dial is readily permitted in an obvious manner.

If it is desired to use the mounting shown in Fig. 2 for a set to be attached to a surface, such as a wall, the combination set forth in connection with the left side desk or table stand mounting will be used in case manual service is desired.

In the case of machine-switching service in connection with a wall mounting, the dial will be attached as shown in Fig. 21. The blank plate 44 will be detached in this instance from the flat portion of the cover, and a casing 65, such as is indicated in Figs. 5, 12 and 13 will be substituted for the removed plate. The casing 65 is provided with a plate 66, corresponding in form to the plate 44 and with three inwardly extending lugs having openings 67 therein. The openings 67 register with the three openings 24 provided in the flat portion of the cover 6, so that screws inserted from the interior of the said cover pass through the aligned openings 24 and 67 may engage ruts seated on the lugs over the latter openings to secure the elements together. The plate 66 has a ring-like portion extending upwardly therefrom, the height of one portion of said ring being greater than that of the other, as shown in Figs. 5, 12 and 13. The ring has openings 68 provided about its surface, as may be more clearly seen in Fig. 5. These openings are adapted to coincide with the openings provided on the lugs 63 of plate 61, (Fig. 4) so that when this plate is attached to the rear portion of a dial, (Fig. 3) the unit provided by such attachment is adapted to be seated in the casing 65, so that when screws are inserted through the aligned openings 68 of said casing and the openings provided in the lugs 63 of crescent-shaped plate 61, they will serve to securely mount the dial in the casing 65.

From the above it will be obvious that by means of the present invention a single unit is provided, which consists of a casing comprising the base 5 and its cover 6 and the equipment commonly contained in a separate bell or ringer box. This unit is adapted to be used with a variety of mountings. For instance, Fig. 18 indicates a top desk set equipped for use with manual service. To convert this set so that it may be used with machine switching service, it is only necessary to remove the blank plate 30 from the front sloping side and substitute the dial 69, as shown in Fig. 19 and described above.

To mount the unit on the left side of a desk or table, the casing is applied thereto as shown in Fig. 20, and the plate 55, which carries the tubular arm 58 and dial 69, is attached to the flat surface of the casing. The plate 47 carrying the hook switch 50 and its associated springs is mounted on the front side of the casing. If manual service is desired in connection with this mounting, the plate 55 is removed and a blank plate substituted therefor.

If a right desk mounting is desired, the unitary casing is converted from the position shown in Fig. 20, and the plate carrying the dial is applied to the casing in its inverted position together with the plate 47 carrying the hook switch. If manual service is desired in connection with the right side desk mounting, the plate 55 is removed and a blank plate, such as is indicated in Fig. 10, is substituted therefor.

In Fig. 21 the casing is equipped with a switch hook and a dial 69 for mounting on a wall for use with machine switching service. If the casing is to be used for manual service, the plate 66 carrying the dial is simply removed and a blank plate 44 substituted therefor. The wall set is equally well adapted to be mounted, so that the switch hook is positioned at the right of the casing, and the dial or blank plate may be attached to the casing at this time. All that is necessary to accomplish this is that the casing be turned so that the side now appearing on the left be reversed to the right.

A universal casing is thus provided by this invention which is adapted to have a number of interchangeable attachments which may be interchangeably mounted on the casing in a number of different ways.

What is claimed is:

1. In a telephone set, a casing, a bell, condenser and induction coil therein, said casing having an extended outer plane face on one side, means to fasten a pedestal on one face of the casing to support a hand set when the casing is mounted with said plane face horizontal and forming the under side of the casing, and means to fasten supporting means to hang the hand set on another face of the casing when it is mounted with said face vertical.

2. In a telephone set, a casing, instrumentalities including all the elements of a desk telephone ringer box mounted therein, said casing having an extended outer plane face on one side, means to fasten a pedestal on one face of the casing to support a hand set when the said plane face is horizontal and is the under side of the casing, and means to fasten supporting means to hang the hand set on another face of the casing when said face is

vertical, and switches associated with the means to fasten the pedestal and the means to fasten the supporting means.

3. In a telephone system comprising a casing, ringer apparatus, induction coil and condenser within said casing, means to fasten a pedestal on one face of the casing when it is mounted in one position and means to mount a hook switch on another face of said casing when the casing is in another position, said pedestal and said hook switch being adapted to support a hand set, and means to fasten a dialing switch on said casing in either instance, the dialing switch being mounted on the location of the pedestal when the hook switch is used, and being mounted on the location of the hook switch when the pedestal is used.

4. In a telephone set comprising a casing having one mounting to support a pedestal and another mounting for a hook switch to support a hand set, a dialing switch provided with means whereby it may be positioned interchangeably on said casing in the position of either the pedestal or hook switch depending on whether one or the other is used, and ringer apparatus, induction coil and condenser contained within said casing.

5. In a telephone set comprising a casing having openings in two of its sides, a pedestal adapted to be attached to said casing over one of its openings, a hook switch adapted to be attached to said casing over another of its said openings, said pedestal and said hook switch being each adapted to support a hand set, a dialing switch adapted to be attached to said casing over either of said openings and used interchangeably in combination with the pedestal and with the hook switch, and apparatus including a ringer, induction coil and condenser contained within said casing.

6. In a telephone set comprising a casing adapted to be mounted in a horizontal or vertical position, said casing having a plurality of mounting faces, a pedestal adapted to be mounted on one face of the casing in its horizontal position, a hook switch adapted to be mounted on another face of said casing in its vertical position, said pedestal and said hook switch being adapted to support a hand set and apparatus including a ringer, induction coil and condenser contained within said casing.

7. In a telephone set comprising a casing adapted to be mounted in a plurality of positions, said casing having a plurality of mounting faces, a pedestal adapted to be mounted on one face of the casing in one of its positions, a hook switch adapted to be mounted on a second face of said casing in another of its positions, a dialing switch adapted to be attached to the casing and alternately used in combination with the pedestal when that is mounted on the casing and with the hook switch when that is mounted on the casing, and instrumentalities including all the essentials of a desk telephone ringer box mounted in the casing.

8. In a telephone set comprising a casing adapted to be mounted in a plurality of positions including a top desk mounting, a right side desk mounting, a left side desk mounting and a wall mounting, a pedestal adapted to be used with the casing for the top desk mounting, a hook switch adapted to be used interchangeably for the right side desk mounting, left side desk mounting and wall mounting, said pedestal and hook switch each being adapted to support a hand set, a dialing switch adapted to be fastened to said casing in place of said pedestal or said hook switch and used in combination with the pedestal and hook switch depending on which is used, and apparatus including a ringer, induction coil and condenser contained within said casing.

9. In a telephone set comprising a casing adapted to be mounted in a plurality of positions, said casing having a plurality of mounting faces, said positions including a top desk mounting, a right side desk mounting, a left side desk mounting and a wall mounting, a pedestal adapted to be attached to one face of the casing when mounted on the top of a desk, a hook switch attached to another face of the casing and adapted to be used interchangeably when the casing is mounted on the right side of a desk, left side of desk and on a wall, said pedestal and hook switch being each adapted to support a hand set, and apparatus including a ringer, induction coil and condenser contained within said casing.

10. In a telephone set, a casing, said casing having a plurality of mounting faces, a ringer, induction coil and condenser within said casing, said casing being adapted in one position to rest on a table and serve as a base for a stand mounted on one face to support a hand set, and in another position to be fastened to a vertical wall and to be provided with a hook switch mounted on another switch for a hand set, blank plates adapted to be fastened to said casing in place of said stand and said hook switch when one or the other is not used, and dialing apparatus adapted to be fastened to said casing for use in combination with the stand and with the hook switch.

11. In a telephone set, a casing, said casing having two mounting faces, a ringer, induction coil and condenser within said casing, said casing being adapted in one position to rest on a table and serve as a base for a stand fastened on one mounting face to support a hand set, and in another position to be fastened to a vertical wall and to be provided with a hook switch fastened on another mounting face for supporting the hand set, said stand and said hook switch being adapted for use in manual telephone service, and dialing apparatus adapted to be fastened to one

mounting face of said casing in combination with the stand and with the hook switch fastened to the other mounting face of the casing for use in machine switching telephone service.

12. The combination of a universal casing with a number of interchangeable telephone units which may be applied thereto for a top desk mounting, a right side desk mounting, a left side desk mounting and a wall mounting, and means whereby said units may be interchangeably fastened to the casing in a number of different desired mounting combinations, said units including a switch hook to support a hand set for each mounting for manual telephone service, and a dial adapted to be attached to said casing and used in combination with said hook switch for machine switching telephone service.

In testimony whereof, we have signed our names to this specification this 26th day of May, 1926.

IRVING W. GREEN.
ALFRED H. INGLIS.