

April 14, 1953

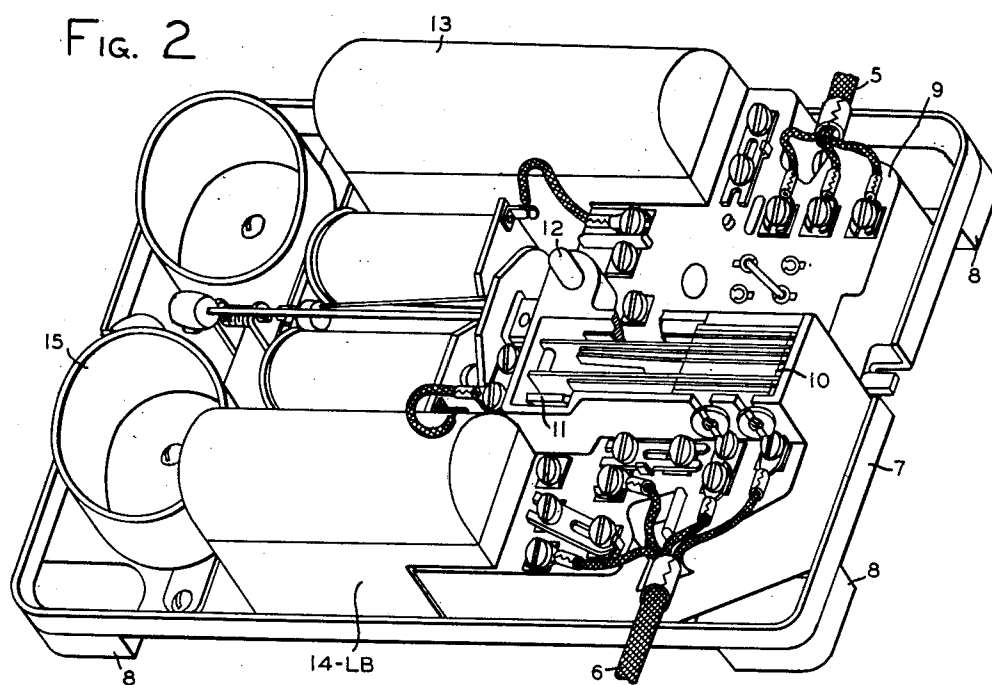
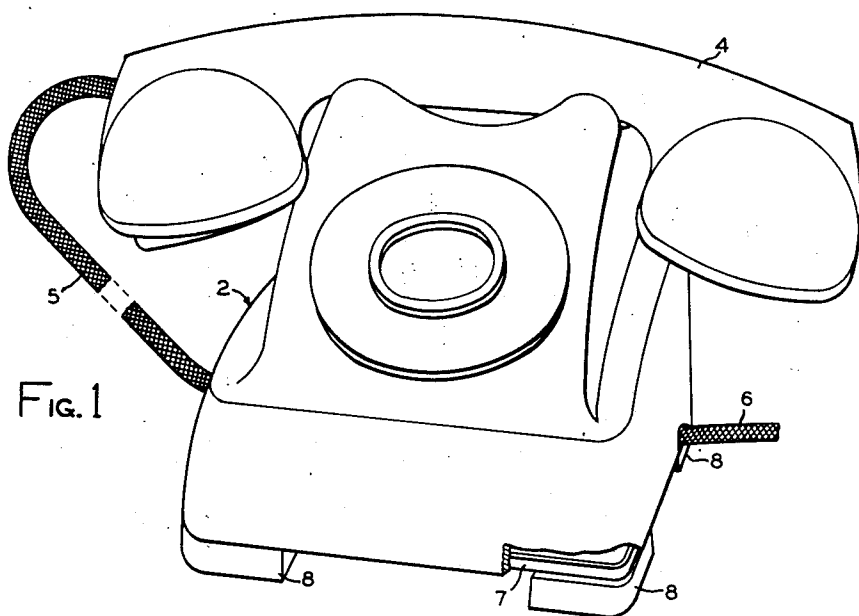
J. F. HOUDEK, JR

2,635,130

SUBASSEMBLY FOR TELEPHONE SETS

Original Filed July 13, 1945

2 SHEETS—SHEET 1



INVENTOR:
JOSEPH F. HOUDEK JR.

BY *John J. Bellamy*
ATTORNEY

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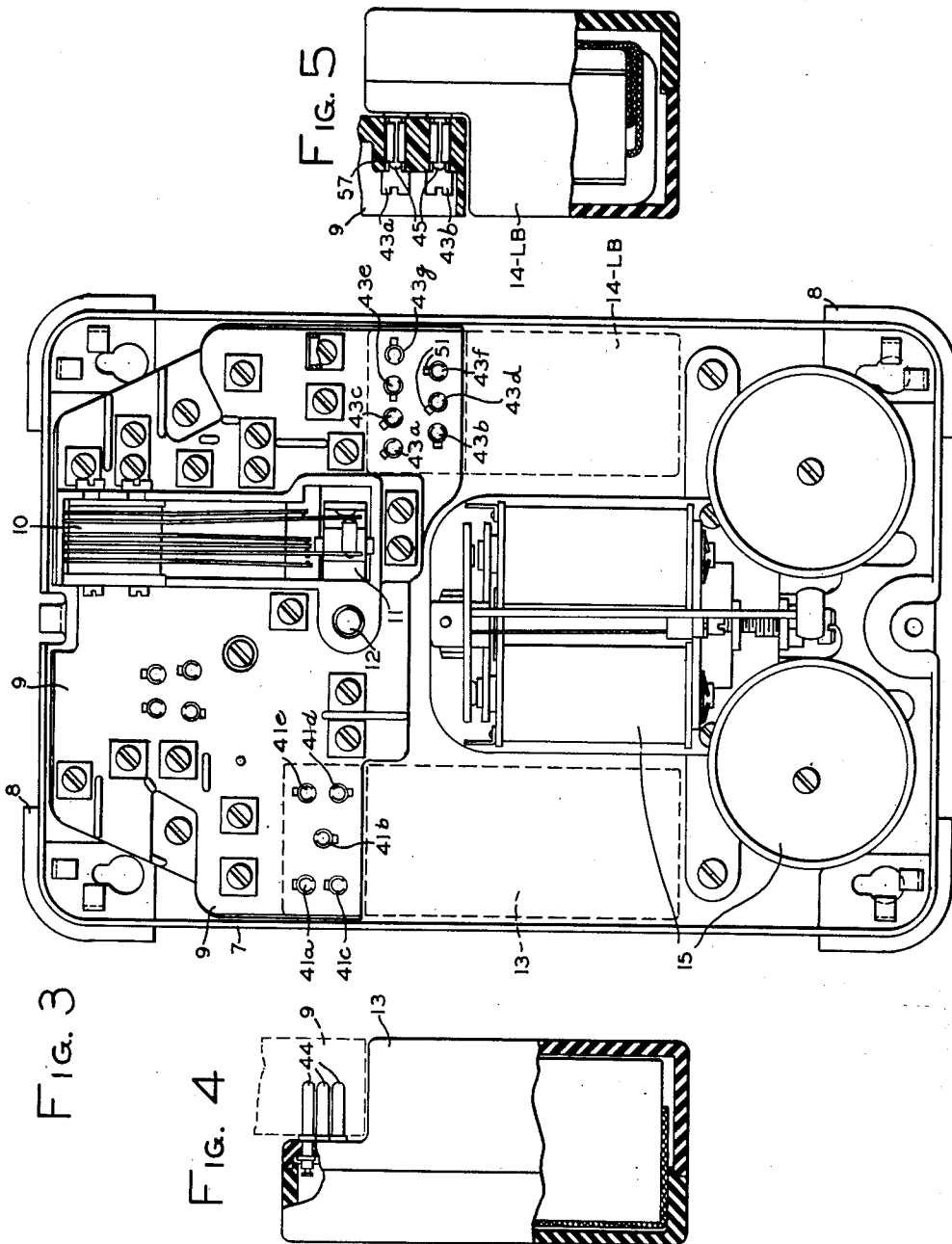
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2 SHEETS—SHEET 2



INVENTOR:
JOSEPH F. HOUDEK JR.
BY *John J. Bellamy*
AT TORNEY

UNITED STATES PATENT OFFICE

2,635,130

SUBASSEMBLY FOR TELEPHONE SETS

Joseph F. Houdek, Jr., Elmhurst, Ill., assignor, by
mesne assignments, to Kellogg Switchboard
and Supply Company, a corporation of Dela-
ware

Original application July 13, 1945, Serial No.
604,856. Divided and this application August
8, 1950, Serial No. 178,269

1 Claim. (Cl. 173—328)

1

This application is a division of my application
Serial No. 604,856, filed July 13, 1945, now Patent
No. 2,548,723, issued April 10, 1951.

This invention relates to sub-assemblies for
telephone sets of the type installed at subscriber
sub-stations and commonly called telephone sub-
sets.

Its general object is to provide an improved
form of sub-assembly, for telephone subsets so
arranged that compact assembly of elements
within the subsets can be effected.

A more specific object is to construct an effi-
cient, space saving sub-assembly capable of being
received within the limited confines of the hous-
ing of a cradle type subset.

It has been chosen to illustrate the invention
as embodied in a sub-assembly including a block
for housing subset instruments (such as coils
and condensers), and a terminal block (or base
block) in association with which the instrument
block is mounted. The instrument block includes
a housing portion arranged to lie adjacent to
the base block in abutting relation with an edge
thereof, and is provided with a laterally extend-
ing portion overhanging the base block. The
laterally extending portion projects from the
upper part of the instrument block and is pro-
vided with depending prongs which cooperate
with socket terminals in the base block so as to
secure the parts together both mechanically and
electrically.

A feature of the invention is that by reason
of the novel overhanging mounting of the in-
strument block, it abuts the terminal block on
at least two sides to reliably support the instru-
ment block in rigid relation against vibrational
and jarring forces normally incident to handling
of the subset.

Another feature is that a sub-assembly con-
structed in accordance with this invention per-
mits a compact association of elements with a
minimum of hinderance to their accessibility.

Other objects and features will become appar-
ent as the description progresses.

Fig. 1 is a perspective view, generally from the
front, of a telephone desk set incorporating the
invention.

Fig. 2 is a view of the base assembly incorpo-
rated in the telephone set of Fig. 1, as seen from
a point above the right rear corner thereof.

Fig. 3 is a plan view of the base assembly shown
in Fig. 2 but with certain parts removed.

Fig. 4 is a profile view of the condenser block
13 of Fig. 2 showing in dotted outline how it is
associated with the base block and showing parts

2

of the condenser block broken away to reveal
its construction.

Fig. 5 is a profile view of induction coil block
14-LB of Fig. 2 showing in cross-section a por-
tion of the base block 9 with which it is associ-
ated and showing parts of the coil block broken
away to reveal its internal construction.

Reference is made to the co-pending applica-
tion of Joseph F. Houdek Jr., for telephone sets,
Serial No. 665,042 filed April 26, 1946, now Patent
No. 2,524,350, issued October 3, 1950, directed to
the circuit arrangement for the present telephone
set.

The general arrangement

As shown in Fig. 1, the illustrated telephone set
is supported on feet 8, attached to base plate 7.
It includes the base assembly shown in Fig. 2
and a housing 2 providing a cradle within which
handset 4 normally rests. Cord 5 contains three
conductors interconnecting handset 4 with the
base assembly. Line cord 6 contains four con-
ductors for making all required external con-
nections to the set.

The base assembly, shown in Fig. 2 includes
base plate 7 and the parts attached thereto.
These attached parts include base block 9, which
carries all necessary attachment terminals for
the entire set; condenser block 13; coil block
14-LB and ringer 15. Hookswitch 10 together
with its actuating parts 11 and 12, is received
within a suitable opening in base block 9.

The base block

Referring now to Fig. 3, it will be noted that
condenser block 13 and coil block 14-LB of Fig. 2
have been removed from the assembly and shown
in side view in the associated Figs. 4 and 5 which
also show in dotted lines and in cross section,
respectively, portions of base block 9 with which
they are associated. The respective assembled
positions occupied by these parts are shown in
dotted outline in Fig. 3. The pin socket termi-
nals through which parts 13 and 14-LB attach,
mechanically and electrically, to the base block
9 are also exposed to view in Figs. 3 and 5. These
pin-socket terminals include the five terminals
41a to 41e for condenser block 13 and the seven
terminals 43a to 43g for coil block 14-LB.

The several screw terminals and pin-socket
terminals mounted in base block 9, together with
downwardly extending terminals of hookswitch
10, are interconnected within the hollow back
portion of the base block. The interconnection
is accomplished by preformed conducting strips
received within the prongs of the bifurcate ter-

minal ends as explained in detail in the parent case, now Patent No. 2,548,723.

Pin-socket terminals

Suitable openings in base block 9 are provided for each of the pin-socket terminal groups 41 and 43. The wall of the base block is thickened at regions such as at 57 (Fig. 5) by formations which may be described as dependent bosses. The extent of boss 57 is shown in cross-section in Fig. 5. This thickening of the wall permits a satisfactory support length for the pin-socket terminals not required for other terminals on the assembly.

All of the pin socket terminals may be of the same construction. Pin-socket terminals 43a and 43b of Figs. 2 and 3 are shown in Fig. 5 as seen from the side. Both of these terminals have been rotated slightly in Fig. 5 from the position in which they are shown in Fig. 3 in order to facilitate drawing and to promote clarity. Each terminal has the general form of a split tube which lies within its opening in base block 9.

The top end of the tube is provided with a laterally extending positioning tab 51 formed integrally therewith. In assembled position, tab 51 lies in a positioning recess formed adjacent to the top end of the opening through part 9, thereby fixing the position of the pin-socket terminal rotationally to conform to a predetermined direction.

Preferably, the opening through which the pin-socket terminals pass are substantially larger than the pin socket terminal so as to permit expansion of the pin-socket terminal when it grippingly receives a pin terminal, and also to permit substantial lateral displacement of any pin-socket terminal to accommodate variations in the relative locations of several pins which are to cooperate with a group of the pin-socket terminals.

Condenser and coil blocks

Upon referring to Figs. 4 and 5 in connection with Figs. 2 and 3, it will be observed that the condenser and coil blocks 13 and 14-LB are of similar construction except that condenser block 13 is somewhat longer because of the increased volume of the enclosed condensers as compared to the induction coil. Each block is in the form of a two-piece container, the lower section of which is provided with pin terminals shown at 44 for condenser block 13 and at 45 for coil block 14-LB. The lower portion of the block is provided with an overhanging shelf through which the pin terminals 44 or 45 protrude. The protruding ends of these terminals cooperate with pin-socket terminals 41 or 43 as the case may be. Condenser block 13 has five terminals for cooperation respectively with pin-socket terminals a to e in group 41, while coil block 14-LB has seven pin terminals for cooperation respectively with pin sockets a to g of group 43. The inner end of each pin 44 or 45 is formed as shown for one such pin 44 in Fig. 4 to receive one or more internal terminal conductors. Preferably, after the condenser assembly, or the induction coil, as the case may be, has been placed in the lower section of the concerned one of the two blocks, and has had its terminal leads connected to the inner end of

the terminal pins, the block is filled with an insulating compound surrounding the condenser or coil, following which the upper portion of the block is assembled and is secured in place as by cement. The finished block (13 or 14-LB) is thus sealed against the entrance of moisture into the electrical apparatus contained therein. As shown best in Fig. 2, observed in conjunction with Figs. 4 and 5, each of the blocks 13 and 14-LB lies partly opposite the forward edge of base block 9 and partly overhangs the base block. Either such block is placed in assembled position shown, with its pins (44 or 45) entering the pin sockets (41 or 43 as the case may be). It will be observed that the left-hand portion of base block 9 is narrower from front to rear than the remainder thereof so as to accommodate the somewhat greater length of condenser block 13.

The pin terminals (44 or 45) of either of the blocks under discussion are rather widely spaced to conform with the spacing of the concerned pin-socket terminals 41 or 43 (Fig. 3). As a result each of the two blocks is held reliably in place by the gripping action of the pin socket on its terminal pins, rendering additional securing means unnecessary. A special feature of this arrangement is that when the base assembly is incorporated in the complete set, the housing 2 (Fig. 1) serves to retain blocks 13 and 14-LB in place in the event that they should tend to be jarred out of position during shipment in an upside-down condition, as may occur. This feature results from the disclosed location of blocks 13 and 14-LB parallel to the longer sides of the base plate 7 and below the abutments formed in the housing 2 where the enlarged base portion thereof gives way to the narrower pedestal portion which terminates in the handset cradle.

I claim:

40 A subassembly for a telephone substation set including a terminal block carrying a number of terminals including a first group mounted adjacent one edge thereof, an instrument block including an instrument-containing portion 45 which, in the mounted position thereof, abuts one side of the terminal block adjacent to the first group of terminals, the instrument block including a terminal portion which overhangs the terminal block above the first terminal group, 50 and a second group of terminals extending through said overhanging portion aligned with, and arranged to be brought respectively into sliding contact with the terminals of said first group when the instrument block is brought to 55 a position above the terminal group and moved downwardly into the said mounted position thereof.

JOSEPH F. HOUDEK, JR.

60 References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,835,109	Ayres	Dec. 8, 1931
1,967,021	Gary	July 17, 1934
2,268,619	Reid	Jan. 6, 1942
2,314,225	Leece	Mar. 16, 1943
2,362,797	Bokovoy	Nov. 14, 1944
2,482,214	Rogie	Sept. 20, 1949