

May 5, 1936.

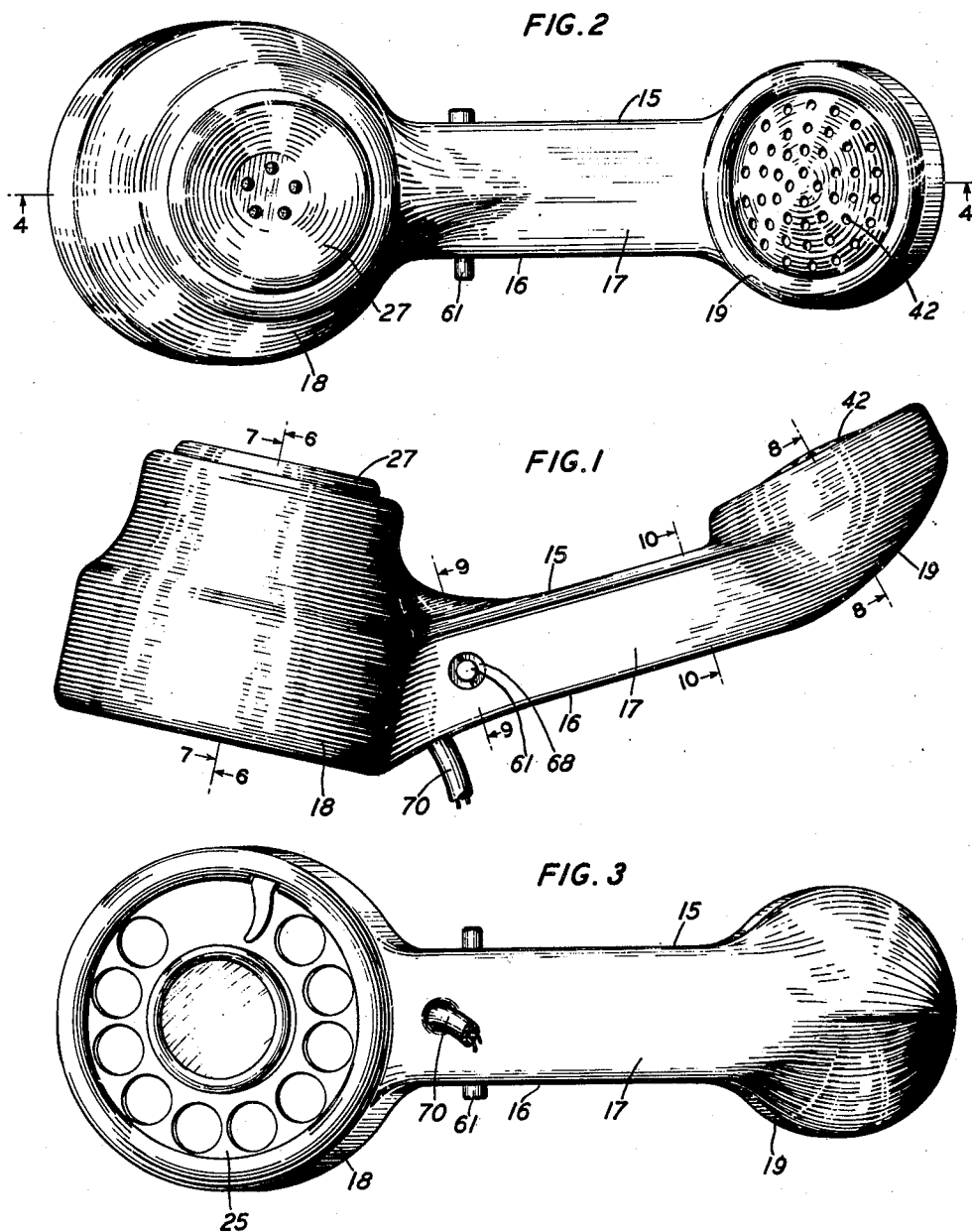
N. BLOUNT

2,039,625

ACOUSTIC DEVICE

Filed July 13, 1934

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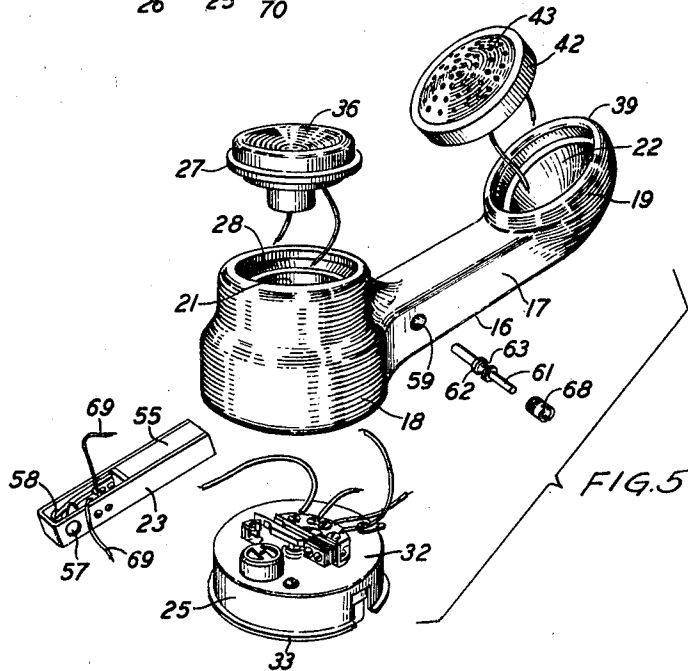
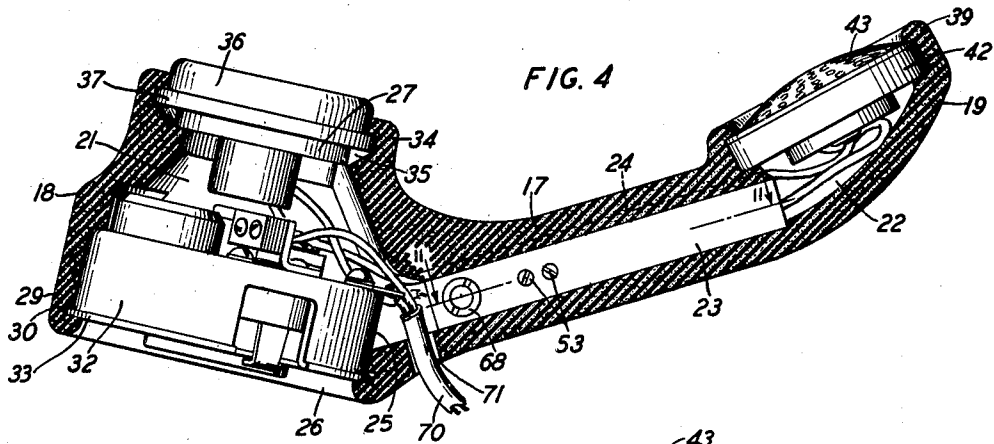


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ACOUSTIC DEVICE

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16 Claims. (Cl. 179-103)

This invention relates to acoustic devices, and, more particularly, to a hand telephone or telephone handset.

An object of this invention is to simplify the structure and to facilitate the assembly of hand telephones, for instance, of the type used by telephone linemen.

A feature of this invention comprises a hand telephone having a unitary support for a receiver and a transmitter, the support being composed of a resilient or flexible material, or shock absorbing material, such as rubber.

Another feature of this invention comprises a hand telephone having a unitary support for a receiver unit and a transmitter unit, the support containing recesses or hollow portions to receive the units, the recesses being defined by walls of extensible material adapted to contract about the units to hold them in position.

Still another feature comprises a hand telephone having a support for a receiver unit, a transmitter unit, and an impulse transmitter or calling dial, the support being elongated and having enlarged, recessed or hollow end portions, one of which is adapted to receive one of the units and the dial, and the other of which is adapted to receive the other unit, the units and the dial being held in position by flexible flange, or extensible, or resilient portions on the support.

A preferred embodiment of the invention comprises a hand telephone or telephone handset comprising a unitary support, preferably of a resilient or flexible material, such as rubber, having a hollow handle portion to receive a finger-actuable switch, and having enlarged, recessed or hollow end portions adapted to receive a transmitter unit, a receiver unit, and an impulse transmitter or calling dial, the recesses having their open ends defined by flexible flange, or extensible, or resilient portions adapted to contract about and to hold the units and dial in position in the recesses.

A more complete understanding of this invention will be obtained from the detailed description which follows, read with reference to the appended drawings, wherein:

Fig. 1 is a side elevational view of an acoustic device embodying this invention;

Fig. 2 is a top plan view of the device of Fig. 1;

Fig. 3 is a bottom plan view of the device of Fig. 1;

Fig. 4 is a sectional view of the device of Figs. 1-3, taken along the line 4-4 of Fig. 2;

Fig. 5 is a perspective view of the device of

Fig. 1, exploded to show the units associated therewith;

Fig. 6 is a sectional view of the device of Fig. 1 along the line 6-6 thereof, with the receiver and impulse transmitter or calling dial removed;

Fig. 7 is a sectional view of the device of Fig. 1 along the line 7-7 thereof with the receiver unit, calling dial and switch unit removed;

Fig. 8 is a sectional view of the device of Fig. 1 along the line 8-8 thereof, with the transmitter unit removed;

Fig. 9 is a sectional view of the device of Fig. 1 along the line 9-9 thereof, with the switch unit removed;

Fig. 10 is a sectional view of the device of Fig. 1 along the line 10-10 thereof, with the switch unit removed;

Fig. 11 is a sectional view along the line 11-11 of Fig. 4 to show the details of the switch unit; and

Fig. 12 is a schematic showing the electrical connection of the various units embodied in the device of Fig. 1.

The acoustic device of this invention comprises a hand telephone or telephone handset, designated generally 15. It comprises a unitary support 16, preferably of a resilient, flexible, or shock absorbing material, for instance, rubber, having a handle or hand grip portion 17 and enlarged, recessed or hollow end portions 18, 19.

The handle 17 is hollow, defining a substantially rectangular-sectioned passage 20 that connects the recesses 21, 22 of the end portions 18, 19, and contains a unitary switch assembly 23. A pair of grooves 24 in one defining surface of the passage 20 are adapted to receive conductors that extend between the recesses.

The recess 21 extends through the end portion 18 and is adapted to receive and house a calling dial or impulse transmitter 25 in one open end 26, and a unitary telephone receiver assembly 27 in its other and oppositely disposed open end 28. The open end 26 is defined by an annular, flexible, flange portion, or a resilient or extensible wall portion 29 containing an annular groove 30 and having an inner frusto-conically shaped surface 31 that converges toward the open end 26. Normally, the internal dimensions of the portion 29 are smaller than the outer dimensions of the calling dial so that, when the latter is inserted into the open end 26 by stretching the portion 29, with its case 32 adjacent the portion 31 and its flange portion 33 in the groove 30, the flange portion 29 contracts around the dial, holding it se-

curely in place, as shown clearly by Fig. 4. It will be noted that the frusto-conically shaped portion assumes a substantially cylindrical shape with the dial in position. The open end 28 is defined by a substantially annular, flexible, flange portion, or a resilient or extensible wall portion 34 containing a substantially annular groove 35, the internal dimensions of the flange portion being slightly smaller than the external dimensions of the unitary receiver 27, which includes an ear-piece or centrally apertured cap member 36. The receiver unit is insertable in the open end 28 by stretching the flexible portion 34 so that the rim portion 37 of the unitary receiver is positioned in the groove 35, the flexible flange contracting about the receiver and maintaining it in position in the open end 28 of the recess 21.

The open end 38 of the recess in the end portion 19 is defined by a substantially annular, flexible, flange or resilient or extensible wall portion 39 containing an annular groove 40 whose lateral defining surface 41 is substantially frusto-conically shaped, converging toward the open end of the recess. The internal dimensions of the flange portion 39 are slightly smaller than the external dimensions of the transmitter unit 42. The transmitter unit, which may be of the granular carbon type, and be provided with an apertured protector plate 43, is inserted in the groove 40 by stretching the flexible flange, which contracts around the unit to maintain it securely in position, the groove assuming a substantially cylindrical shape.

To remove the calling dial, the receiver unit, or the transmitter unit, the flange portion surrounding the respective unit is stretched radially outward to enlarge the open end to a size permitting the unit to drop out or to be lifted out.

In a handset constructed in accordance with this invention, it was found satisfactory to make the internal dimensions of the flange portions 5 per cent to 7 per cent smaller in diameter than the external dimensions of the respective units.

The unitary switch assembly 23 comprises a substantially U shaped metallic frame member 44 adapted to be slidably inserted in the passage 20 and supporting on the inner surface of one leg 45 a pair of contact springs 46, 47. The ends 48, 49 of these springs are normally out of contact, while the other ends 50, 51 are spaced apart by insulating discs 52, and are fastened to the frame leg 44 by screws 53 that thread into a clamping plate 54. A condenser 55 is frictionally supported at the open end of the frame member. Near the closed end of the frame member, the legs 45 and 56 contain coaxial apertures 57, 58 of different sizes in alignment with apertures 59, 60 in the handle 17. A finger-actuatable rod 61 extends through these apertures. The rod 61 has a central enlarged portion 62 containing a groove 63 into which the contact spring member 46 is adapted to ride. A spring metal member 64, secured at one end to the leg 56 of the frame member by screws 65 and clamping plates 66, 67, engages at its other end with one end of the portion 62. The frame member is maintained in position by a metallic bushing 68 that surrounds the rod 61 and threads into the aperture 57. To close the contact between springs 46, 47, pressure on the rod 61 against the restoring action of the spring member 64 is necessary. When it is desired to open the contact once again, the pressure on the rod is removed, the movement of the rod being expedited by the restoring action of the member 64. The contact springs are con-

nected into the hand telephone circuit by conductors 69. The function of the switch is to enable cutting the condenser out of the circuit when desired.

A cord 70 for connecting the hand telephone to a telephone circuit has entrance to the hand telephone through a passage or opening 71. The transmitter, receiver, calling dial, switch and condenser are suitably electrically interconnected in the usual well known manner, as shown by Fig. 12.

While this invention has been disclosed with reference to a specific embodiment, it is to be understood that various other embodiments thereof are devisable without departing from the scope of the invention, which is to be considered as limited, therefore, by the appended claims only.

What is claimed is:

1. An acoustic device comprising a transmitter unit, a receiver unit, and a common unitary support for said units, said support having a handle portion with recessed end portions and being entirely of a resilient material, said recessed portions being extensible for the reception of said units.

2. An acoustic device comprising a receiver unit, a transmitter unit, and a unitary support for said units, said support having a handle portion having recessed end portions to receive said units, said end portions having portions thereof of flexible material resiliently contractable about said units.

3. A unitary support for a telephone transmitter unit and a telephone receiver unit, said support having a handle portion having hollow end portions for said units defined by wall portions of a resilient material and normally of smaller internal dimensions than said units.

4. An acoustic device comprising a plurality of telephone units, and a common hand support for said units, said support being entirely of rubber and having hollow portions to receive the respective units, said hollow portions being defined by resilient, extensible wall portions initially of smaller internal dimension than the respective units and which, when said units have been forcibly inserted in said hollow portions, contract about said units.

5. A hand telephone comprising a transmitter unit, a receiver unit, and a unitary support having a handle portion with recesses at its ends to have said units enclosed therein, the open ends of said recesses being defined by flexible flange portions for holding the units in said recesses.

6. A hand telephone comprising a transmitter unit, a receiver unit, and a unitary support of rubber having a handle portion with recesses at its ends to receive said units, the recesses having portions contractable about said units when inserted in said recesses to hold them in position.

7. A telephone set comprising an elongated unitary supporting structure, a transmitter unit within one end of said structure, and a receiver unit and a calling dial within the other end of said structure, said supporting structure comprising resilient portions contractible about each of said units and dial to hold them in position.

8. A unitary support for sound wave translating units comprising an elongated body of a resilient material having a hand grip portion and recessed end portions for said units, each of said end portions having a flexible portion containing an internal groove to receive at least a part of one of said units.

9. A unitary support for sound wave translat-

ing units comprising an elongated body of rubber having a hollow hand grip portion to enclose a switch unit, and recessed end portions to enclose said translating units, each end portion having
 5 a resilient wall portion that contracts around the unit when the latter is inserted in the recess of the end portion.

10 10. A unitary support of resilient material for a hand telephone set comprising a transmitter unit, a receiver unit, and a calling dial unit, said support having a handle portion and hollow portions at the ends of the handle, the hollow portions being defined by walls each containing an internal groove to receive at least a part of one
 15 of the units, the walls being contractable about the units to hold them in position.

11. A unitary support of resilient material for a hand telephone set comprising a transmitter unit, a receiver unit, a switch unit, and a calling
 20 dial unit, said support having a handle portion and hollow portions at the ends of the handle, the hollow portions being defined by walls each containing an internal groove to receive at least a part of one of the units, the walls being contractable about the units to hold them in position,
 25 the handle containing a passage connecting with the hollow portion and adapted to enclose said switch unit slidably insertable therein through the hollow portion for one of said units.

30 12. A unitary support for a transmitter unit,

a receiver unit, a calling dial and a switch unit, comprising a body of resilient material having a hollow handle portion to enclose said switch unit, and hollow end portions, one of said end portions to enclose the receiver unit and the
 5 calling dial, and the other end portion to enclose the transmitter unit, the hollow portions being resiliently extensible so that the units and dial may be forced thereinto and held therein by contractive action of the end portions.

13. A unitary support as claimed in the preceding claim in which the resilient material is rubber.

14. A hand telephone set comprising a transmitter, a receiver, and an elongated, flexible rubber support having recessed portions at its ends for the reception of said transmitter and receiver, and an intermediate hand grip portion.

15. A hand telephone set comprising a transmitter unit, a receiver unit, and an elongated, flexible rubber unitary support having recessed portions at its ends for said units.

16. A hand telephone set comprising a transmitter, a receiver, and a support therefor having a hand grip portion and a recessed portion at each end of said hand grip portion to enclose said transmitter and receiver, said support being flexible and in a single piece.

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