

No. 893,891.

PATENTED JULY 21, 1908.

G. F. ATWOOD.
HAND TELEPHONE SET.
APPLICATION FILED MAR. 12, 1906.

Fig. 1

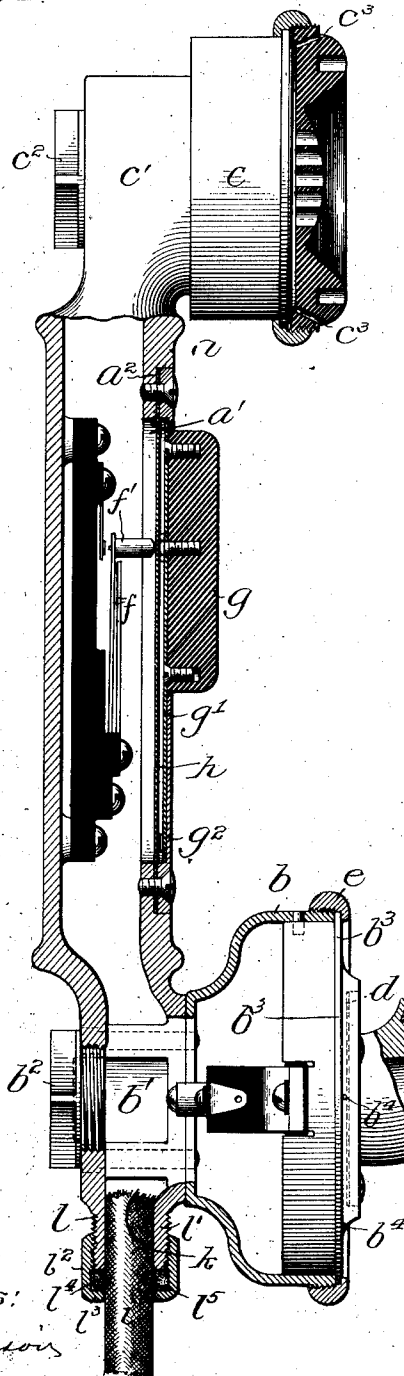
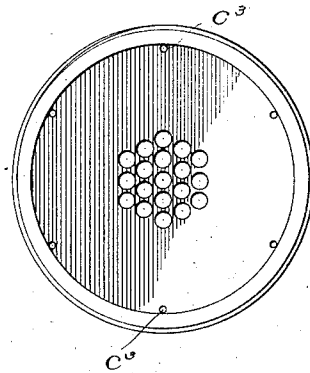


Fig. 2



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UNITED STATES PATENT OFFICE.

GEORGE F. ATWOOD, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO WESTERN ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

HAND-TELEPHONE SET.

No. 893,891.

Specification of Letters Patent.

Patented July 21, 1908.

Application filed March 12, 1906. Serial No. 305,550.

To all whom it may concern:

Be it known that I, GEORGE F. ATWOOD, citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Hand Telephone Sets; of which the following is a full, clear, concise and exact description.

My invention relates to a hand telephone set, and has for its object to provide a water tight instrument which will be especially adapted for severe outdoor use.

The instrument of my invention was designed primarily for army use, where telephone apparatus is liable to be subjected to abuse by men untrained in its care, and to damage through exposure to the weather.

Generally speaking, my invention contemplates a hand set comprising a handle carrying at one end a waterproof transmitter and at the other end a waterproof receiver. The handle is preferably hollow and carries therein switch terminals controlling the local circuit of the transmitter. A plunger passes through the opening in the handle to operate said terminals, means being provided for sealing said opening against moisture, while permitting the operation of the plunger. A conductor-carrying cord passes into the handle, and to said transmitter and receiver, its point of entry being sealed by a stuffing box, which holds the cord in place to relieve the cord conductors from strain.

I will describe my invention by reference to the accompanying drawing, which illustrates the preferred embodiment thereof, reserving for the appended claims a statement of the parts, improvements and combinations which I consider novel.

In the drawings, Figure 1 is a partial longitudinal sectional view of a hand telephone set embodying my invention; and Fig. 2 is a rear view of the ear piece of the receiver to show the disposition of the drain holes therein.

The same letters of reference designate the same parts wherever shown.

The hollow handle *a* of the hand set shown carries at one end a transmitter *b*, and at the other end a receiver *c*, the transmitter and receiver carrying upon the rear of their inclosing cases terminal chambers *b'* *c'* respectively. The terminal chambers *b'* *c'* are preferably formed integrally with opposite ends of the handle *a*, said handle and chamber being preferably made of metal to be sub-

stantial and strong, the receiver and transmitter being secured to said chambers in any suitable way. The terminals of said parts *b c* project within the chambers *b' c'* respectively in position for convenient access, said chambers being provided with removable caps *b² c²*, respectively.

The transmitter shown forms the subject matter of my application Serial No. 305,549 filed March 12th, 1906, and is rendered waterproof by a waterproof membrane *d* secured over the opening in the front supporting plate *b³* thereof, and by the clamping ring *e*, which seals the joint between the two members of the containing case. The front plate *b³* is provided with a number of inclined drainage holes *b⁴* to conduct any moisture which may reach the outer surface of the diaphragm to the exterior of the transmitter. I also provide a flexible mouth-piece *b⁵* for the transmitter, so that it may be subjected to hard usage without damage thereto.

The receiver *c* is provided with inclined drainage holes *c³* in its ear piece, so that all moisture will be carried away from the working parts of the instrument.

The hollow handle *a* contains the switch spring terminals *f* which in practice control the local circuit of the transmitter, said terminals being adapted to be operated by a plunger or depressor bar *g* projecting through the opening *a'* in the case and engaging a pin *f'* carried by one of said terminals *f*. The plunger is provided with a spring *g'* for restoring the same, said spring and plunger being carried by a support or plate *g²* adapted to be secured over the opening in the handle. The opening *a'* is preferably countersunk to form a seat *a²* for the plate *g²*, the plunger *g* projecting through a hole in said plate *g²*. A thin waterproof lining or cover *h* is placed over the opening *a'*, being held in place between the plate *g²* and the seat *a²*.

The conductor-carrying cord *i* of the set passes into an opening *k* in the end of the handle, said opening being preferably made in a wall of one of the terminal chambers *b'*, said hole being sealed by a stuffing box *l*, which also serves to hold the cord in place to prevent strain from coming upon the terminals of the cord conductor within the handle and chambers. The stuffing box preferably comprises an externally threaded tube *l'* secured to the outer wall of chamber *b'* over the

opening *k* therein, together with a nut *l'* adapted to screw upon the tube *l'*, said nut having an inturned annular lip *l'* adapted to compress a flexible washer *l'* surrounding the cord *i* against the edge of the tube *l'*, thereby sealing the opening *k* and binding the washer against the cord to lock it in place. A metallic washer *l'* is preferably interposed between the lip *l'* and the washer *l'*.

10 I claim:—

1. In a hand telephone set, the combination with a hollow handle, of a transmitter and receiver carried by said handle, switch terminals within the handle, a plunger projecting through an opening in the handle adapted to control said terminals, and a flexible waterproof cover for said opening for rendering said opening watertight.

2. In a hand telephone set, the combination with a hollow handle, of a transmitter and receiver carried at the ends thereof, switch terminals within the handle, a depresser bar in the opening in said handle adapted to control said terminals, a support for said depresser-bar secured to the handle over said opening, and a waterproof cover for said opening interposed between said support and handle.

3. In a hand telephone set, the combination with a hollow handle, of a transmitter and receiver carried at the ends thereof, switch spring terminals within said handle, a depresser bar in an opening in the handle adapted to operate said springs, a spring for restoring said bar, a plate supporting said depresser bar and restoring spring, the said opening being countersunk to provide a seat for said plate, said plate having an opening through which said depresser-bar projects, and a waterproof lining interposed between said plate and its seat and covering the opening in the handle.

4. In a hand telephone set, the combination with a hollow handle, of a waterproof transmitter at one end thereof, a receiver at the other end of said handle having drainage holes in its ear piece, switch terminals within said handle, a plunger projecting through an opening in the handle adapted to control said terminals, and a flexible waterproof cover for said opening, said cover being interposed between said plunger and said switch terminals.

5. In a hand telephone set, the combination with a hollow handle, of a receiver and transmitter carried thereby, a conductor-car-

rying cord passing through a hole in said handle, and a stuffing box for holding the cord to prevent strain on its terminals within the handle, and for sealing said hole.

6. In a hand telephone set, the combination with a hollow handle, of a receiver and transmitter, a terminal chamber secured to each end of said handle, said chambers being secured to the rear of said receiver and transmitter, a cord passing through a hole in the wall of one of said chambers and carrying conductors adapted to be connected with the terminals of said receiver and transmitter, and a stuffing box sealing said hole and holding said cord to prevent strain on its terminals.

7. In a hand telephone set, the combination with a hollow handle, of a receiver and transmitter carried thereby, a conductor-carrying cord passing through a hole in said handle, an externally threaded tube surrounding said hole, a flexible washer surrounding the cord and resting against the edge of said tube, a nut adapted to screw upon said tube and having an inturned annular lip engaging said washer; whereby the cord is locked in position and said hole sealed.

8. In a hand telephone set, the combination with a hollow handle, of a waterproof transmitter carried at one end thereof, a waterproof receiver carried at the other end of said handle, switch terminals within said handle, a plunger projecting through an opening in the handle for operating said terminals, means for sealing said opening against moisture, a conductor-carrying cord passing into said handle, and a stuffing box for sealing the point of entry of said cord, and for holding the cord in place to obviate strain upon the terminals of the cord conductors.

9. A hand telephone instrument provided with a hollow handle, said handle having an opening therein, a flexible waterproof cover for said opening, switch terminals within the handle below said opening, and means for controlling said terminals from the exterior of said flexible cover.

In witness whereof, I, hereunto subscribe my name this 3rd day of March A. D., 1906.

GEORGE F. ATWOOD.

Witnesses:

WM. L. TOM,

R. EDWARDS, Jr.