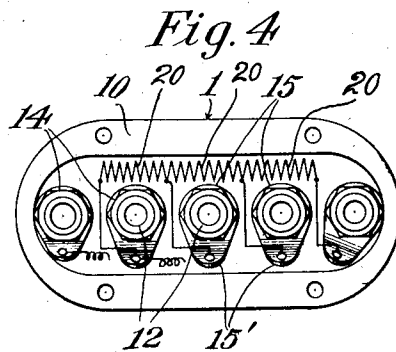
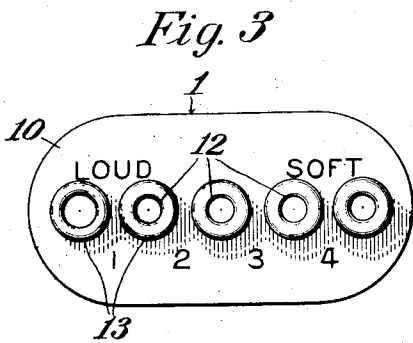
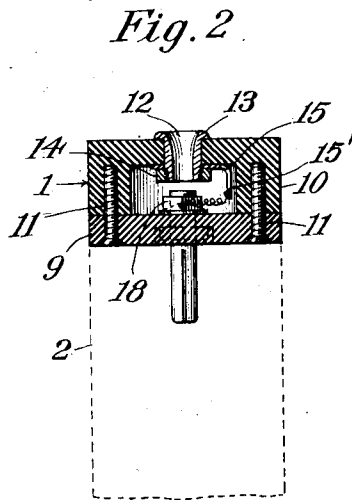
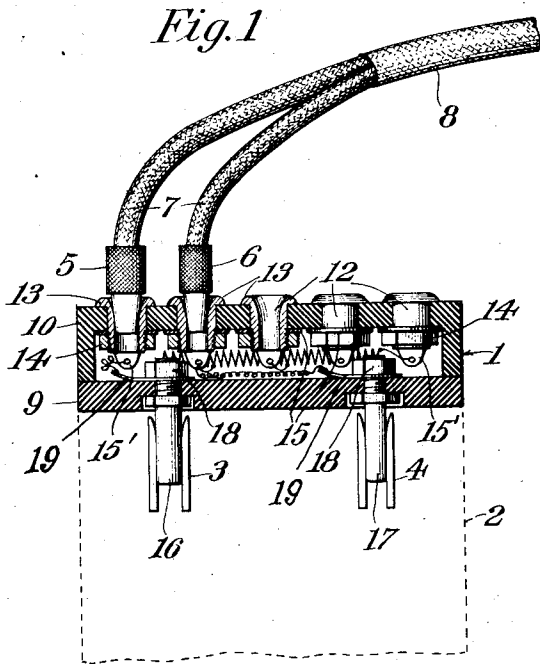


E. LOWE.  
 BATTERY REGULATOR.  
 APPLICATION FILED JULY 26, 1913.

1,094,156.

Patented Apr. 21, 1914.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## BATTERY-REGULATOR.

1,094,156.

Specification of Letters Patent. Patented Apr. 21, 1914.

Application filed July 26, 1913. Serial No. 781,395.

*To all whom it may concern:*

Be it known that I, EDGAR LOWE, a citizen of the United States, and resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Battery-Regulators, of which the following is a specification.

This invention relates to battery appliances, particularly for the deaf, who are now accustomed to the use of an electrical telephone outfit by which they may hear ordinary sounds. Generally described, such telephone outfit comprises a sensitive transmitter, a receiver, the necessary cord connections, and a source of current, ordinarily a small pocket battery. It has been found that regulation for different degrees of deafness, as well as for different degrees of intensity of sound, is essential or desirable, and certain plans have been proposed for securing this regulation, being made the subject of a number of patents. The plans hitherto proposed make use of resistances either as a separate instrument, or as part of the telephone appliance, the idea sought in all cases being to give as great compactness and inconspicuousness as possible, combined with strength, efficiency and durability.

The present invention provides a regulating resistance which is extremely compact, and which has the qualities of simplicity and durability.

Furthermore, the device can be used or not at will in any outfit, or a different regulating resistance substituted, as may become desirable by reason of new or unusual conditions, and also in making up an outfit for any particular person.

The invention has several other advantages which will be later pointed out.

In the drawings;—Figure 1 is a sectional view of a regulating resistance embodying the principles of this invention. Fig. 2 is a sectional view at right angles to that of Fig. 1. Fig. 3 is a detail plan view. Fig. 4 is a bottom plan view with the lower plate removed.

Constructions embodying the invention will include a block 1, preferably of oval outline, this outline being exactly the sectional shape of an ordinary standard pocket battery 2 with two cells. This pocket bat-

tery is indicated in dotted lines in Figs. 1 and 2. The battery bushings 3, 4, by which a plug connection may be directly made to the telephone instruments if desired, are shown in Figs. 1 and 2. This two cell battery is adapted to supply the maximum voltage required for any conditions of practice. Also, as part of the outfit, there are illustrated plugs 5, 6, connected to flexible conductors 7, which are joined into a cable 8 leading to the instruments of the telephone outfit. These plugs may be inserted directly in the bushings 3 and 4 of the battery if desired.

The block 1 constitutes the housing and support for a regulating resistance, in accordance with the present invention, for which purpose, in the best constructions, it is made in two parts with a flat lower or bottom plate 9, the block 10 being hollowed out and the two parts connected by screws 11. The block 1 has a plurality of socket holes or bushings 12, as many as desired, preferably arranged in a row or rows across its top face, these bushings having, in the construction illustrated, a flange 13 at one end and a nut 14 at the other by which they are secured to the block. Each bushing 12 has a terminal clip or washer 15 held beneath the nut 14 and having a laterally projecting ear 15' for the attachment of an electric wire or conductor. The bottom plate 9 has holding prongs 16, 17 in the exemplified construction embodying the invention, at locations corresponding to the bushings 3 and 4 in the battery already described, these prongs being vertically sawed to form split plugs. These holding prongs or plugs are rigidly secured to the bottom plate 9 by nuts 18 and are furthermore provided with terminal ears on washers 19 held beneath the nuts 18. An electrical connection is made between one of these holding prongs or plugs 16 and an adjacent block bushing 12, the other holding prong or split plug 17 being connected to the next block bushing 12 of the series. The second, third and fourth block bushings 12 are connected to one another through intermediate resistances 20. In order to secure a sufficient regulating resistance within the small compass afforded by the interior of this housing, a high resistance alloy is employed, all wires being of course insulated except at the points of

their junction with the clips. In this way all the wires may be connected with their proper clips and placed in their housing before the two parts of the block are assembled, the assembling being last effected, whereupon the device is ready for use.

It will be observed that a complete appliance has been provided which can be attached to the usual battery by merely inserting the holding prongs or split plugs 16, 17 into the battery bushings 3, 4. This not only mechanically unites the regulating resistance to the battery, but furthermore completes the proper electrical circuits thereof. The usual battery bushings 3, 4 are now covered up, but a new row of bushings or socket holes 12 has been provided into which the plugs 5, 6 of the flexible connection 8 may now be engaged. This plugging may be done at the two left hand adjacent holes in Fig. 3, which gives the full battery strength, or one of the plugs may be inserted into a hole to the right in Fig. 3, which gives a greater or less degree of resistance according to the bushing selected.

In order to insure a predetermined polarity in the connections the plugs 5, 6 are of unequal size, in the practical construction shown, one being larger than the other, and the left-hand bushing in Fig. 3 is enlarged to accommodate the larger plug. The other block bushings 12 have a size to accommodate the smaller plug 6 which can be placed at will in any of this series. This not only insures a predetermined polarity in the connections, but also prevents the plugs being located in any improper manner, because it is always insured that the big plug will be in its proper hole at the left since it will not fit any of the other openings. In order to get good electrical circuits solid plugs 5 and 6 with slight taper are used, which are put in place with a slight twist. This gives an exceedingly good connection, preventing any accidental resistance in the circuit. The two holding prong plugs 16, 17, which fit into the battery bushings 3, 4, cannot be twisted into place, and for this reason comparatively long straight split plugs are employed as illustrated. The battery bushings have a straight lower portion to receive the straight split plugs, but are somewhat tapered at the top to receive the tapered solid plugs. The battery bushings are furthermore of a size adapted to respectively receive the two solid plugs 5, 6, large and small, the two split plugs or holding prongs 16, 17, being of corresponding size. This arrangement gives all the features of interchangeability first described, but absolutely prevents any connections being made with a polarity different than the prearranged polarity, or any improper connections made. Thus the device can be put in the hands of unskilled persons, entirely unfamiliar with its prin-

ciples, without instruction, and without possibility of incorrect use. Its advantages on the score of simplicity, compactness and durability will be obvious from the foregoing description, since the complete regulating resistance adds no noticeable bulk to the ordinary battery. It is furthermore advantageous in the fact that the battery is out of sight anyway and can afford to have an extra bulk added better than can the other instruments, which are more conspicuous. Moreover, the device, when attached to the battery, becomes scarcely distinguishable therefrom and would not be considered an extra part or appliance from the ordinary standpoint of use. In other words, the regulating resistance is added without forming a distinguishable fourth part of the outfit, which otherwise would increase its apparent complication and therefore be undesirable. Furthermore, the electrical connections are made in a very efficient way, without any of the uncertainty which characterizes some mere contact arms, for example, because the plugs always afford a good connection. The casing of the resistance is preferably made of hard rubber or vulcanite, thereby forming an ornamental cap for the battery of more finished appearance than a relatively cheap discardable battery will ordinarily possess.

What is claimed is:—

1. In combination with a battery having terminals, a regulating resistance comprising a block adapted to fit on the top of the battery and having a plurality of bushings, means for connecting two of the bushings to the terminals of the battery, and resistances joining one of said latter two bushings into a series with others on the block.
2. In combination with a battery having terminals, a regulating resistance comprising a block adapted to fit on the top of the battery and having a plurality of bushings, holding prongs for connecting two of the bushings to the terminals of the battery, and resistances joining one of said latter two bushings into a series with others on the block.
3. In combination with a battery having bushings, a regulating resistance comprising a block adapted to fit on the top of the battery, said block further having a plurality of block bushings, split holding prongs for connecting two of the block bushings to the battery bushings, and resistances joining one of said two block bushings into a series with others on the block.
4. In combination with a battery having terminals, a regulating resistance comprising a block adapted to fit on the top of the battery and having a plurality of bushings one of different size from the others, means for connecting this bushing and another bushing on the block to terminals of the

battery, and resistances joining one of said terminal connected bushings into a series with others on the block.

5 In combination with a battery having bushings, a regulating resistance comprising a block adapted to fit on the top of the battery and having a plurality of bushings one of different size from the others, for connecting this bushing and another bushing on the block to bushings of the battery, resistances joining one of said terminal connected bushings into a series with others on the block, the battery bushings further being of unequal size corresponding to the respective sizes of the bushings in the block.

10 6. In combination with a battery having bushings, a regulating resistance comprising a block adapted to fit on the top of the battery and having a plurality of bushings, means for connecting two of the block bushings to the bushings of the battery, resistances joining one of the said two block bushings into a series with others on the block, all of said block bushings being tapered,

said battery bushings having partly tapered and partly straight holes. 25

7. In combination with a battery having bushings, a regulating resistance comprising a block adapted to fit on the top of the battery and having a plurality of bushings, split prongs for connecting two of the block bushings to bushings of the battery, resistances joining said bushings into a series with others on the block, said block bushings being tapered and said battery bushings being partly tapered and partly straight, said block bushings furthermore being of two sizes, the two battery bushings being corresponding sized, substantially as described. 30 35 40

Signed at New York in the county of New York and State of New York, this 21st day of July A. D. 1913.

EDGAR LOWE.

Witnesses:

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D. T. MALLORY.