W. H. SAWYER.

Attachment for Mechanically Connecting Hand Telephones.

No. 224,359. Patented Feb. 10, 1880.

Fig. 1.

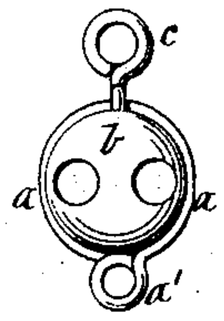


Fig. 2.

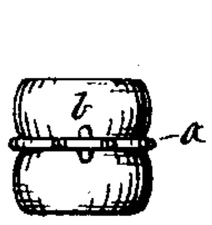
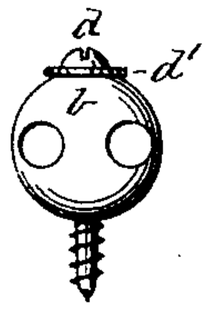


Fig. 3.



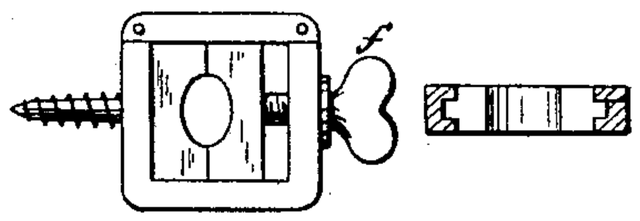


Fig. 4.

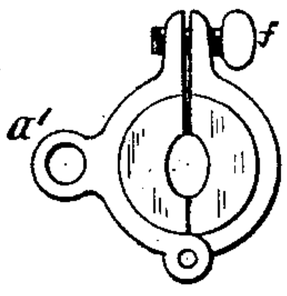


Fig. 5.

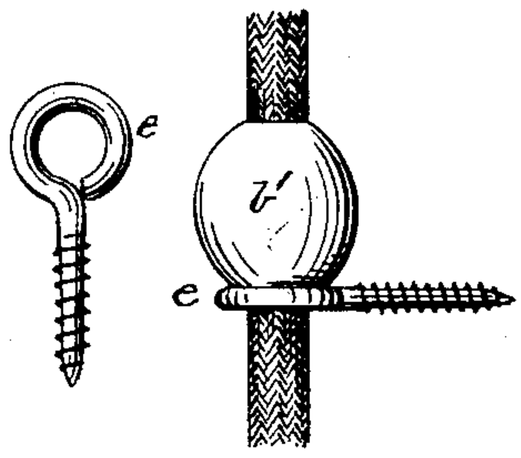
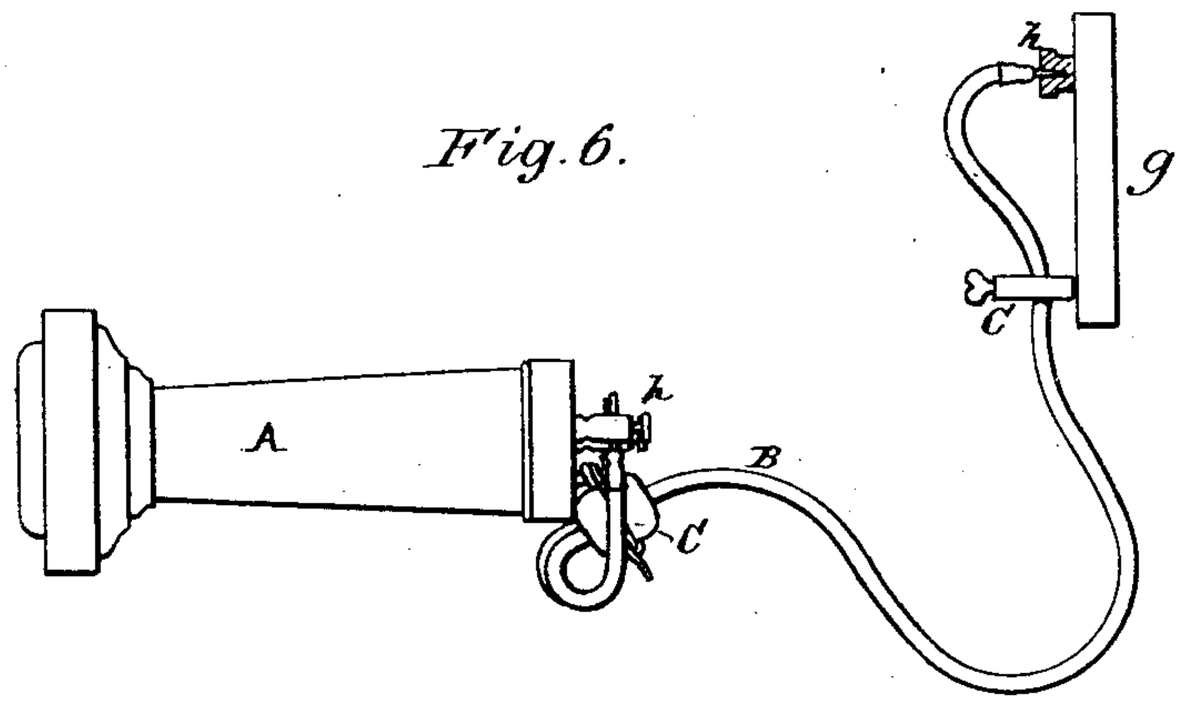


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM H. SAWYER, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO EUGENE F. PHILLIPS, OF SAME PLACE.

ATTACHMENT FOR MECHANICALLY CONNECTING HAND-TELEPHONES.

SPECIFICATION forming part of **Letters Patent No. 224,359**, dated **February 10, 1880.**

Application filed December 29, 1879.

To all whom it may concern:

Be it known that I, WILLIAM H. SAWYER, of the city and county of Providence, in the State of Rhode Island, have invented certain new and useful Attachments for Mechanically Connecting Hand-Telephones, Switch-Boards, &c., with the flexible electric conductors used therewith; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete description of my invention.

It is well known that much attention has heretofore been directed to devising "tips" for flexible electric cords or conductors used with hand-telephones, switch-boards, call-bells, &c., which would not only maintain good electric connections, but which also, as far as possible, would secure a strong mechanical connection capable of resisting the evil effects incident to the constantly-occurring pulls and tensile strains to which such flexible cords are subjected as necessarily incident to their use. The insulated jacketings or covers of these cords have usually great tensile strength, and ingenious and quite effective tips have heretofore been connected with these jackets by means of metallic shells or sockets, which receive and close in upon with pressure the jacketed end of the cord; but nevertheless the tip proper is exposed to frequent bending and breakage incident to tensile strains on the cord. Moreover, with these tips comparatively expensive screw-posts are required, because it is upon them that reliance is placed for mechanical union, as well as for the mere electric connection.

The prime object of my invention is to, in some cases, dispense with mechanical devices for maintaining electric connection, or, if such be used, to enable them to be simplified and constructed at low cost, and, however the electric connections be attained, to render them absolutely secure against those injuries heretofore prevalent, which are incident to abrupt tensile strains. One of the most frequent accidents in this line is the dropping of a hand-telephone, resulting in the complete or partial injury to one or more of the four electric connections with which such cords are used.

The main feature of my invention consists in the combination, with a flexible electric conductor, a hand-telephone, a switch-board, or other apparatus with which flexible cords are employed, of an attaching device for connecting the cord to the apparatus with which it is used independently of the means necessarily relied upon for securing electric connection.

In my prior application for Letters Patent, filed June 24, 1878, now pending, I show and describe supporting-heads for heavy elevator-cables, whereby the weight of the cable is so maintained as to relieve the several conducting-wires from unequal strain and to protect their electric connections from injury incident to such strains as would be due to the varying weight of the cable according to the position of the elevator, and, still further, so as to facilitate the placing of cables into operative position. I am well aware that my present invention involves the principle described in said application; but I have now applied it to conductors of an entirely different class. In elevator-cables the conducting-wires are heavy, and although a cable is flexible, it is well-known that cables, or such wires as are used therein, are impracticable for use as switch-cords, telephone-cords, and for other strictly analogous purposes; and it is also well known that cables are not subjected to pulls and shocks to which electric cords are exposed.

In the development of my invention I have devised a cord-holder which is particularly well adapted for use with all the various instruments requiring flexible electric cords or conductors; and my invention further consists of a clamping cord-holder for relieving the electric connections of flexible cords from undue strain, embodying a compressible elastic cushion which surrounds and compresses the cord, and is constructed with reference to ready and firm attachment to any apparatus with which electric cords may be desired.

Certain other minor features of my invention will hereinafter be designated.

To more particularly describe my invention I will refer to the accompanying drawings, in which—

Figures 1 and 2 represent two forms of cord-holder embodying a compressible elastic cush-

ion. Figs. 3 and 4 represent two forms of cord-holder in which screws are relied on for compression. Fig. 5 represents a cord-holder which has no compressing capacity and requires for use therewith an electric cord having a bulbous enlargement near its end. Fig. 6 represents my cord-holders as applied to a hand-telephone and wall-board.

The cord-holder Fig. 1 is composed of two parts. The open ring *a*, with eyes *a'* at the break thereof for receiving a screw, by which it may be firmly connected with the instrument, wall-board, or switch-board, embraces the cylindrical elastic clamping-cushion *b*, preferably composed of rubber for insulation purposes. This cushion may be provided with one or more axial openings for receiving the electric cord. The one shown has two openings for receiving the two branches of such cords as are used with hand-telephones. This clamping-cushion, when on the cord, tightly embraced by the ring, and secured in position by a screw, so securely binds and holds the cord that it cannot move therein. For affording a means by which a telephone may be suspended on its hook when not in use, I provide the ring *a* with a hanging-eye, *c*.

The cord-holder Fig. 2 embodies the same elastic cushion *b;* but instead of applying pressure thereto circumferentially, as in Fig. 1, I apply it diametrically by means of the screw *d*, which has under its head a clamping-plate, *d'*. These rubber cushions are quite inexpensive, and can be (and one of them is preferably) so attached to the cords as to be fixtures thereon, thus enabling the cords so provided to be placed on the market ready for application and use with various forms of cord-holders, and a flexible cord provided with such a bulbous enlargement constitutes a minor feature of my invention; and in that connection I do not limit myself to the rubber cushion, for a wooden or metal enlargement, or one formed in the construction of the cord, would serve a valuable purpose with such a cord-holder as is shown in Fig. 5, containing an eye, through which the cord is passed and against which the bulbous enlargement *b'* on the cord, however produced, would firmly abut for relieving the electric connections from tensile strain.

The eye *e* of Fig. 5 could be closed and applied to the cord prior to the enlargement thereof, as stated, or it could be used with the cord-holders Figs. 3 and 4, both of which have thumb-screws *f* for compressing the cord.

The holder Fig. 3 has a screw for direct attachment, and the holder Fig. 4 has an eye, *a'*, for the reception of a retaining-screw, as in Fig. 1.

Any one of the several forms of cord-holder shown can be satisfactorily used with a telephone, switch-board, or wall-board; and I do not limit myself to any precise construction of cord-holder under the main feature of my invention.

In Fig. 6 I show a telephone, A, and its cord B provided with cord-holders C, one of which is connected to the rear of the telephone and the other to the wall-board *g*. The electric connections *h* at both ends may be merely sockets, or the fine exposed wires of the cords may be simply wrapped around posts or pins, or snugly slipped into sockets; or the usual tips and screw-posts may be employed. Of whatever character the electric connections may be, it is obvious that all the tensile strain on the cord will be borne by the cord-holders C, and the electric connections fully protected, because the cord-holders are relied upon for union of the telephone and the wall-board wholly independently of the electric connections.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A flexible electric cord or conductor constructed for use with hand-telephones, switch-boards, &c., provided with an attaching device for connecting the cord to the apparatus with which it is to be used independently of the means relied on for securing electric connection, substantially as described.

2. The combination, with a hand-telephone, of a cord-holder attached thereto for maintaining a secure mechanical connection with a flexible cord, or conductor independently of the necessary electric connections, substantially as described.

3. A clamp for use with flexible electric cords for relieving their electric connections from undue strain, embodying a compressible elastic cushion which surrounds and compresses the cord and is provided with means for firmly connecting it with the apparatus with which the cord is used, substantially as described.

4. A flexible electric conductor provided with a bulbous enlargement, substantially as described, whereby it may be used with a cord-holder for relieving the electric connections of the flexible cord from undue tensile strain, as set forth.

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