Jan. 23, 1923.

1,442,999.

R. B. BOYLE.

AUTOMATIC REEL FOR ELECTRIC DEVICES.

FILED MAR. 3, 1921.

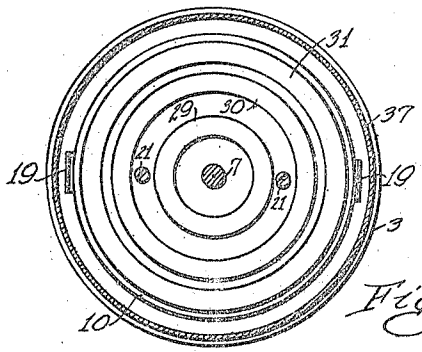


Fig. 3.

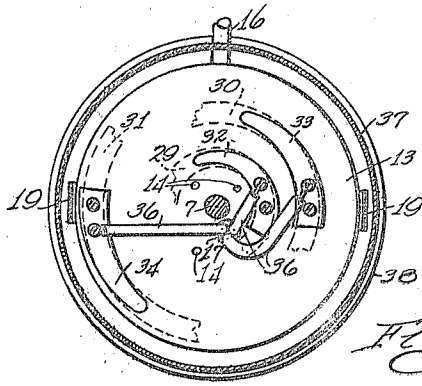


Fig. 4.

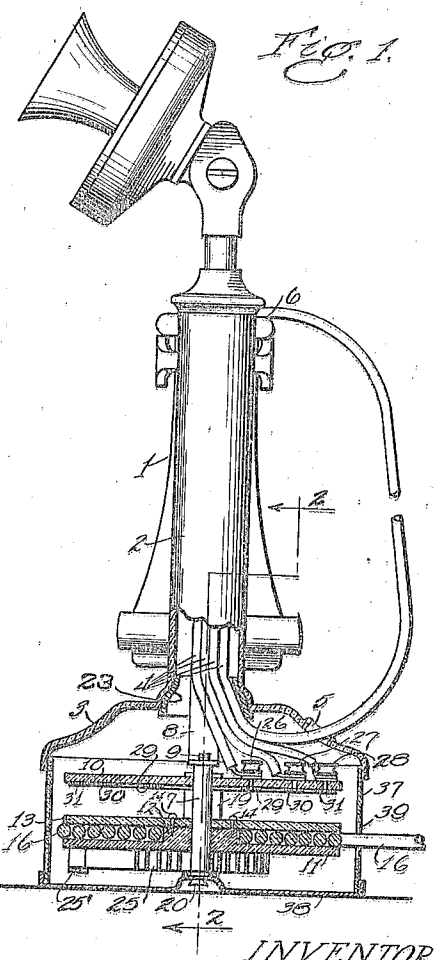


Fig. 1.

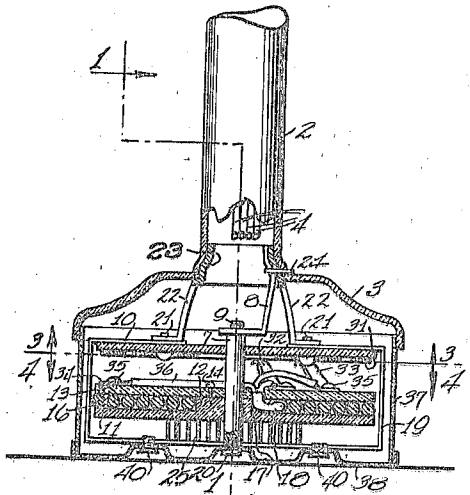


Fig. 2.

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UNITED STATES PATENT OFFICE.

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AUTOMATIC REEL FOR ELECTRIC DEVICES.

Application filed March 3, 1921. Serial No. 449,582.

To all whom it may concern:

Be it known that I, RUDOLPH B. BOYLE, a citizen of the United States, and a resident of Kansas City, in the county of Jackson and State of Missouri, have invented a new and useful Improvement in Automatic Reels for Electric Devices, of which the following is a full, clear, and exact description.

An object of my invention is to provide a device adapted to be attached to a movable electric instrument, such as a telephone instrument or the like, to receive a portion of a flexible electrical conducting member connecting the electric instrument with a fixed connection, wherefore such electrical conducting member is maintained taut at all times without interfering in any way with the ordinary operation of the electrical instrument.

A further object of my invention is to provide a device of the type described that can be operatively attached to a telephone instrument of an ordinary construction without any extensive changes in the construction of the latter being necessary.

A further object of my invention is to provide a device of the type described that can be attached to a telephone instrument to connect the latter with a fixed connection in the manner set forth without making use of any connecting members other than the electrically conducting cable forming a part of the standard telephone equipment.

A further object of my invention is to provide a device of the type described that is relatively simple in construction, and operation, not likely to get out of order easily, and thoroughly practical commercially.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings, forming part of this application, in which

Figure 1 is a side elevation partly in section showing the device applied to a telephone instrument.

Figure 2 is a section along the line 2—2 of Fig. 1,

Figure 3 is a section along the line 3—3 of Fig. 2,

Figure 4 is a section along the line 4—4 of Fig. 2.

In carrying out my invention, I make use of an ordinary telephone instrument indicated generally at 1 and having a hollow stem 2 mounted on a hollow base 3. Electrical conducting wires 4 are disposed within the stem, as best seen in Figure 1 and are connected in the usual manner to the several parts of the instrument, one of the wires passing through an opening 5 in the base 3 and being connected at 6 to the receiver of the instrument.

The parts described so far are ordinary in construction and form no part of my invention except in so far as they cooperate with the parts to be described hereinafter. The usual base plate (not shown) is removed from the base 3 and a vertically disposed stub shaft 7 is secured in the position shown by means of a bracket 8, the connection being effected by means of a bolt 9. A disk 10 formed of any suitable insulating material, such as an indurated fiber, is mounted on the shaft 7. The reel, consisting of an insulating disk 11 having a hub 12 and a second insulating disk 13 secured to the hub by means of screws 14 to provide a space between the disks 11 and 13 for the reception of a flexible cable 16 is mounted on the shaft 7 for rotation thereabout. The flexible cable 16 passes through an opening 17 in the disk 13 that communicates with a passage 18 in the hub 12 and is then wound into convolutions disposed on the reel. A frame 19 formed of a flat bar mounted intermediate its length on the outer end of the stub shaft 7 is bent as shown, the ends thereof overlying the disk 10, which is held in a fixed relation therewith by bolts 21 extending through the disk 10, the frame 19, and engaging with brackets 22 depending from a tubular member 23 arranged to enter the lower end of the stem 2 and being held in adjusted position by a clamp 24. The latter also engages with the bracket 8 to maintain the same in the position shown.

It will thus be observed that the disk 10 is held against rotation and constitutes a stator that is positioned along the shaft 7 a spaced distance from the reel which forms the rotor of the device. A spring 25 mounted on the stub shaft below the disk 11 has its inner end secured to the shaft 7, while the outer end thereof is secured to a post 25′. The latter is fastened to the disk 11 adjacent the outer edge thereof.

It will be noted that three of the electri-

cal conducting wires 4 are connected to the binding posts 26, 27 and 28 that project upwardly from the disk 10. The binding posts 26, 27 and 28 connect with concentric circular contact disks 29, 30 and 31, respectively, that are secured to the under side of the insulating disk 10. Brushes 32, 33 and 34 secured to the disk 13 by means of screws 35 or the like are arranged to constantly contact with the contact disks 29, 30 and 31, respectively.

A plurality of electrical conducting wires 36 connected with the brushes 32, 33 and 34 are arranged to form the flexible cable 16 that is disposed on the reel. The cable 16 passes through an opening 39 in the cylindrical portion 37 of a housing having a base 38 fitting the cylindrical portion 37 and secured in fixed position by means of screws 40 engaging the frame 19 and a screw 20 that engages the stub shaft 7. The flexible cable is extended to connect with a fixed connection (not shown) such as the electrical conducting means fastened in the wall for use with the ordinary telephone equipment.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. The telephone instrument 1 may be positioned at varying distances from the fixed connection. As the distance is increased, the flexible cable 16 will be unwound from the reel which is rotated against the action of the spring 25. When the distance is decreased, the action of the spring 25 will rotate the reel to take up the slack and hold the flexible cable taut at all times. It will be apparent that the brushes 32, 33 and 34 will be maintained in constant engagement with the contact disks 29, 30 and 31 during the rotation of the reel and that consequently the flow of electric current from the wires 36 along the brushes, the contact disks, the binding posts, and along the electrical conducting wires 4 to the several parts of the telephone instrument to operate the same in the ordinary manner is unimpeded. Service is therefore uninterrupted during the movement of the instrument to which the device is applied from place to place, the extent of movement being limited only by the length of the flexible cable 16 and the size of the reel.

I claim:

1. The combination with a telephone comprising a hollow stem fashioned into a hollow base, of a frame carried by said stem, a stub shaft carried by said frame, a spring actuated insulating reel rotatably mounted on said shaft, a stationary insulating disc carried by said frame, a plurality of concentric conducting rings carried by said disc, electric terminals in electrical connection with said rings, spring contacts carried by said reel and being adapted to engage said rings, and wires connected to said spring contacts and adapted to be wound on said reel.

2. The combination with a telephone comprising a hollow stem fashioned into a hollow base, of a frame carried by said stem, a stub shaft carried by said frame, a spring actuated insulating reel rotatably mounted on said shaft, a stationary insulating disc carried by said frame, a plurality of concentric conducting rings carried by said disc, electric terminals in electrical connection with said rings, spring contacts carried by said reel and being adapted to engage said rings, wires connected to said spring contacts and adapted to be wound on said reel, and a casing received in said hollow base and being secured to said frame.

RUDOLPH BOARDMAN BOYLE.