No. 681,813. Patented Sept. 3, 1901.

E. E. RIES.

SUPPORT FOR TELEPHONE TRANSMITTERS OR OTHER APPARATUS.

(Application filed Sept. 19, 1898.)

(No Model.)

Witnesses:
C. L. Belcher
Hattie Hoffman.

Inventor
Elias E. Ries.

UNITED STATES PATENT OFFICE.

ELIAS E. RIES, OF NEW YORK, N. Y.

SUPPORT FOR TELEPHONE-TRANSMITTERS OR OTHER APPARATUS.

SPECIFICATION forming part of Letters Patent No. 681,813, dated September 3, 1901.

Application filed September 19, 1898. Serial No. 691,390. (No model.)

To all whom it may concern:

Be it known that I, ELIAS E. RIES, a citizen of the United States, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Supports for Telephone-Transmitters or other Apparatus, of which the following is a specification.

My invention relates to extensible supports for telephone and other electrical apparatus designed for use in places where it is desirable that the instrument or other device when not in use may be supported so as to be out of the way and whereby it may be brought into effective or convenient proximity to the user without disturbing the circuit thereof.

The object of my invention is primarily to provide a neat, compact, ornamental, and convenient transmitter arm or support for desk and other use adapted to be rigidly secured to the desk or other fixed support in such a manner as to be at all times out of the way of books, papers, &c., that may be lying upon the desk or table and which is capable of being readily adjusted so as to be brought into and out of operative position without requiring the use of a conducting cord or cords for maintaining connections between the movable transmitter and its stationary support.

A further object of my invention is to provide an extensible or folding transmitter-arm of such compact form as to permit of the same being placed, for example, within an ordinary pigeonhole of a roll-top desk in such a manner that the transmitter-mouthpiece will normally be flush with the face of the desk or will project only slightly therefrom, so as to be out of the way of the slide of the desk when the latter is closed, and whereby the transmitter may readily be moved forward, so as to closely approach the lips of the user when he desires to carry on conversation, particularly at such times when it is desirable for privacy or other reasons to converse in a low tone or voice.

In another application filed concurrently herewith, Serial No. 691,389, I have shown and described several types of extensible supporting-arms designed to perform somewhat similar functions. In my present invention, however, I make use of a different type of apparatus, in which the telephone instrument, or preferably the transmitter thereof, is mounted upon a series of conducting-rods extending between stationary and movable bushings or spacing-pieces provided with openings through which certain of the said rods may slide and so arranged as to form an ornamental support or cage when the transmitter-arm is in its normal or closed position and an elongated rigid support for the transmitter when the arm is extended. I also provide means whereby the continuity of the transmitter-circuit is maintained through said conducting-rods in any position of the transmitter and also certain other novel features, as will hereinafter more fully appear.

In applying or carrying out my invention I prefer to combine with the stationary transmitter apparatus the various fixed elements of the telephone outfit, such as the induction-coil and signaling bell or buzzer, which fixed elements may be placed within the box forming the base to which the extensible arm that supports the transmitter proper is secured and to connect with said transmitter apparatus by means of a flexible cord those portions of the telephone outfit that require manipulation—such as the receiver, switch, and signaling key or button—which may be embodied in a single separate apparatus. I do not, however, limit myself to such arrangement, but may in some cases secure the base of the transmitter-supporting arm directly to the desk or other point of attachment without directly combining therewith any of its accessory elements, and in other cases—as, for instance, when my supporting-arm is to be used in connection with a wall instrument—I may mount the various other elements or devices constituting the telephone outfit upon a base-board or within a suitable telephone-box in the usual manner. It will be obvious also that my extensible supporting-arm may be used to hold at its free extremity a complete telephone outfit and that the movement or extension of said arm into position for use may be made to operate the necessary signaling and circuit-changing devices. This latter feature, however, I will not further refer to herein, since it is intended to form part of a separate application for Letters Patent.

Referring to the drawings, Figure 1 is a side elevation of one form of my extensible sup-

porting-arm mounted upon the front of a telephone-box and showing the arm as it appears in its closed or contracted position. Fig. 2 is a side elevation of the same, showing the arm as it appears in its extended position. Figs. 2^a, 2^b, 2^c, and 2^d are rear and front views, respectively, of the various insulating spacing bushings or sleeves used in Figs. 1 and 2, taken on vertical lines drawn immediately to the left and right of the bushings in the position occupied by them in Fig. 2. Fig. 3 is a side elevation, partly in section, of a modified form of my extensible arm and the transmitter supported thereby, showing the arm in its extended position. Figs. 3^a, 3^b, 3^c, and 3^d are rear and front views, respectively, of the insulating spacing bars or bushings shown in Fig. 3 and their contact-springs.

Referring to Fig. 1 of the drawings, A is a box adapted to be secured to the inner back wall of a roll-top desk or other fixed support and adapted to contain the transmitter induction-coil, buzzer, and such other accessory portions of the telephone outfit as may be desired. To the front of this box my extensible transmitter-arm is secured in such a position that when the arm is extended the mouthpiece F of the transmitter E will come approximately opposite the lips of the subscriber or user.

In the form shown in Figs. 1 and 2 the supporting-arm proper consists of three sections or groups of three rods each. The rods of each section are placed at equidistant points around a circular line passing through all the rods and are so shifted or disposed with relation to the rods of the other sections that when the supporting-arm is closed the various rods form a cylindrical cage, as shown at G, Fig. 1.

In the form of my invention shown in Fig. 3 each section of the supporting-arm consists of but two rods, and the rods of each section are so spaced relatively to each other that when the arm is closed all the rods will be grouped together at approximately equal distances apart in the same vertical plane.

The construction of my improved supporting-arm will be more clearly comprehended by reference to the modification shown in Fig. 3 and in the detail views Figs. 3^a, 3^b, 3^c, and 3^d. The modification here shown, although similar in principle, is of a more simple character, and will therefore be first described.

The transmitter E, having at its forward end the mouthpiece F, is supported by the metallic rods D′ D′, forming the forward section of the extensible support. The forward ends of these rods are threaded and enter at diametrically opposite points the plug *e*, forming the projecting rear portion of the transmitter E and constituting one of its terminals. The lower rod D′ is insulated from the plug *e* and is provided with a spring-finger *e′*, that makes contact with the center terminal *e″* of the transmitter, as shown in Fig. 3. The rods D′ D′ are arranged to slide with a slight degree of friction through the two inner holes formed in a spacing-piece *c′* of hard rubber or other insulating material and are provided with screw-heads *d d* at their rearward extremity, which act as stops against the piece *c′* and serve to prevent the withdrawal of the rods from said piece when the arm is fully extended. Into the rear face of the spacing-piece *c′*, at points slightly above and below the rods D′ D′, respectively, are firmly driven or otherwise secured the forward ends of two additional rods C′ C′, forming the middle section of the supporting-arm. By reference to Fig 3^d, which shows a view of the rear and front faces, respectively, of the spacing-piece *c′*, it will be seen that the rear surface of the piece *c′* is recessed at the points where the rods D′ D′ and C′ C′, respectively, enter it. Within these recesses are located double eyelets or twin sleeves *j j*, formed of spring-brass or other metal adapted to maintain constant electrical contact between each pair of the rods D′ C′. These contact eyelets or sleeves *j j* are so arranged as to flexibly bear upon and permit the rods D′ D′ to slide freely in and out within them, while at their opposite ends they are soldered to the ends of the rods C′ C′ and driven into the spacing-piece *c′* with the same. The rear ends of the middle rods C′ C′ after passing freely through a fixed spacing-piece *b′* are driven into or otherwise made fast to a sliding spacing-piece *c*. Fig. 3^c shows a rear and front view of the spacing-piece *b′*, through which the rods C′ C′ pass before entering their spacing-piece *c*. It will be seen that the rear face of the spacing *b′* is recessed similar to that of *c′* and contains contact-springs *j′ j′*, which are fixed upon the ends of the rods B′ B′, forming the rear or first section of the arm, and make sliding contact with the arms C′ C′ of the middle section as they pass in and out through the piece *b′*. The rear ends of the arms B′ B′ are driven into another spacing or base piece *b*, which in Fig. 3 is shown as being provided with trunnions *b‴ b‴*, having upper and lower bearings in a frame *a″*, fixed to the base *a*.

From the description so far given of Fig. 3 it will be seen that the spacing-pieces *b b′* and the rods B′ B′ constitute the first section of the extensible arm, the spacing-pieces *c c′* and the rods C′ C′ the second section, and the rods D′ D′, with the projecting piece *e* of the transmitter, the third section. When the arm is contracted by pushing back the transmitter E, the piece *c*, carrying the rods C′ C′, slides back upon and is guided horizontally by the rods B′ B′. The backward movement of piece *c* continues until it abuts against the face of the piece *b*, at which time the forward piece *c′* of the middle section will likewise come to rest against the face of the spacing-piece *b′*. The rods D′ D′ of the front section will also slide along the forward spacing-piece *c′*, passing through clearance-holes in the pieces *b′* and *c* until the heads *d d* rest within

the piece *c* or against the front face of the rear spacing-piece *b*. During this process the electrical continuity of the circuit between the line and the microphone terminals is constantly maintained through the upper and lower series of rods, respectively, by means of the connecting-springs *j j'* and *j j'* within the spring-pieces or bushings.

Referring now to Figs. 1 and 2, it will be seen that the base-piece *b* of my extensible arm is contracted at its rear portion, (see *b''* in Fig. 2ª,) so as to form a seat for the ornamental base-piece *a'*, which is preferably of spun or stamped metal. The base-piece *b* is secured firmly in the position shown upon the rods B B B of the rear section, and the rear ends of these rods, which pass through the base *a*, are threaded and provided with clamping-nuts *g g g*, to two of which the conductors *k k* are led. The forward ends of the rods B B B are spaced by the terminal piece *b'*, which is of circular shape, as are all the other spacing-pieces or insulating-sleeves shown in this figure. The rods C C C of the second section are fixed, respectively, in the spacing-sleeves *c* and *c'*. The sleeve *c* is capable of sliding on the rods B B B of the first or fixed section, its rods C C C being guided horizontally during such movement by the openings in the piece *b'*, through which they pass, and by the rods B B B, passing through similar openings in the piece *c*. The forward sleeve *c'* is made somewhat thicker than the others in order to permit of its being recessed at both ends and at the same time to constitute a sufficiently long and rigid bearing for the rods D D D of the third or forward section. One of the rods D is insulated from the projection *e* of the transmitter and makes connection with the center terminal *e''* of this transmitter by means of a projecting spring *e'* in the manner already described with respect to Fig. 3. By referring to the detail views, Figs. 2ª, 2ᵇ, 2ᶜ, and 2ᵈ, which show, respectively, a rear and front view of the successive spacing-disks *b c b' c'*, it will be seen that the front of the disk *c'* is recessed to accommodate the projecting spring *e'* and center terminal *e''* when the arm is fully closed, as in Fig. 1. The rear end of the disk *c'* is also recessed and provided with contact-springs *i i*, which are fixed to two of the rods C C C and bear upon two of the corresponding or adjacent rods D D D. These rods are shown in Fig. 2ᵈ as having the screw-heads *d d d*, which limit the forward movement of the rods and which are capable of passing freely through openings shown in the disk *b'* and of nesting within the shaded depressions or holes *d' d' d'* in the front of the disk *c* (see Figs. 2ᶜ and 2ᵇ) when the arm is fully closed. The overlapping of the rods of the various sections and the contact-springs *i i i' i'*, by which electrical contact between them is maintained, is clearly shown in and will be made apparent by an inspection of the different detail views.

The friction imparted to the various sections of my extensible supporting-arm by the spacing-sleeve is preferably such that when the arm is extended from the closed position shown in Fig. 1 by grasping between the fingers and drawing forward the mouthpiece F or the transmitter E of which it forms part the outer or third section will be first to move forward, the rods D D D sliding through the sleeve *c'* until their further motion is arrested by the screw-heads *d d d* coming in contact with the same. Upon continuing the forward pull upon the transmitter the rods C C C of the second section will be drawn out by their forward sleeve *c'* until their rear sleeve *c* has traversed the rods B B B, constituting the first section, and abuts against the forward sleeve *b'*, when the arm will be fully extended. In closing the arm by pushing against the mouthpiece F the rods D D D will take their places beside the rods C C C, and these two sets in turn will then take their places beside the rods B B B of the rear section until the cylindrical cage shown at G in Fig. 1 is again completed.

By virtue of the equidistant circular spacing of the rods of the various sections a neat, strong, and attractive transmitter-support is obtained that is graceful in appearance, effective in operation, simple in construction, and economical in manufacture. By reason of the sliding contact made between the rods and contact-springs efficient and permanent connection is established between the microphone-terminals and the clamping-nuts *g g*, to which the conductors *k k* of the transmitter-circuit lead, without the use of a flexible conducting cord or cords. The movement of the arm being in a horizontal direction and the rods and spacing-pieces constituting the same being of comparatively small dimensions readily permit of its being placed within a convenient pigeonhole of a desk or used in any other location to which existing types of telephone instruments or transmitter-supports are not applicable.

It will be apparent that instead of constituting each section of three rods in the type of arm shown in Fig. 2 I may use a somewhat larger diameter of spacing-sleeve and provide four rods for each section or may make use of a variable number of rods in the different sections and may also when the occasion requires it use more than three sections in the construction of my extensible arm. Where each section consists of four rods, I may connect them into two groups of two rods each by means of contact-springs, so as to obtain increased conductivity, particularly at the sliding contacts.

It may sometimes be desirable in special locations to fold my transmitter-arm sidewise when it is in its contracted position. To permit of this, I have shown in Fig. 2 a form of swiveled base which may be used instead of the rigid base shown in Figs. 1 and 2.

By reference to Fig. 3 it will be seen that

the rear spacing-piece *b* of my extensible arm is provided with trunnions or extensions *b'''* *b'''* at its upper and lower extremity, which have their bearings within a frame *a''*, secured to a base *a*. These trunnions or extensions may be in electrical connection with the rods B' B', respectively, and the frame *a''* may be divided into two parts, each connecting with one of the conductors *k' k'* of the transmitter-circuit, by which construction direct electrical connection between the bearings *a'' a''* of the frame and the rods B' B' of the arm may be maintained through the trunnions or extensions *b''' b'''* either with or without an additional spring-contact, thus dispensing with the use of separate conductors. I prefer, however, in order to secure greater simplicity to utilize the nuts *g' g'* upon the threaded ends of the rods B' B' as a means for attaching the conducting-wires *k' k'*, as shown in the drawings, although it will be obvious that other means for maintaining such connection may be employed. The mounting of the arm *b* not only permits of folding the transmitter sidewise when the arm is closed, but also of swinging it into more convenient position for use when the arm is extended. The type of arm shown in this figure, although not perhaps quite as ornamental or symmetrical as that illustrated in Fig. 1, has the advantage in addition to its greater simplicity of being more rigid, owing to the gradually-increasing vertical distance between the rods constituting the successive sections of the arms from its forward or transmitter-supporting end toward its base.

While I have herein shown and described my extensible arm as applied to telephone apparatus, it is obvious that the novel construction embodied therein may be advantageously utilized or employed in connection with other apparatus, and I therefore do not desire to limit myself to the particular construction and application of my invention herein specified as the same may be materially modified without departing from the spirit of my invention embodied therein.

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

1. In a telephone apparatus, the combination with a base-board or box for carrying the stationary portion of said apparatus adapted to be secured to a desk or other support, of an extensible arm mounted upon and projecting from said base-board or box and consisting of a series of groups or sections of conducting-rods insulated from each other, said groups being capable of relative motion in the direction parallel to the common axis of the groups, a telephone-transmitter mounted upon the outermost group of said rods and contact-pieces between certain rods of the several groups for maintaining a sliding electrical connection between the transmitter and said stationary portions of the telephone outfit through the rods of said groups.

2. A supporting-arm for telephone-transmitters, comprising a stationary section and one or movable sections each consisting of a number of separate parallel rods, insulating-pieces for spacing the rods of each section, openings in said spacing-pieces for the entrance or passage of the rods of other sections, and contact springs or bushings within certain of said spacing-pieces for effecting a sliding or frictional connection between rods of the fixed section and corresponding rods of the movable section or sections whereby said rods form the circuit to and from the transmitter.

3. An extensible supporting-arm for the purpose specified, consisting of one set of two or more rods secured together at their ends by blocks of insulation, and a set of parallel rods also secured together at their ends by blocks of insulation, one of which slides upon the rods of the first section, while the rods of the latter section slide through holes in the insulation at one end of the first section, contact-pieces for maintaining electrical connection between adjacent rods of said sections for the purpose specified, and a frame in which said arm is mounted to swing, substantially as set forth.

4. A supporting-arm for telephone-transmitters consisting of a series of sections composed of rods arranged in the several sections as elements of a cylinder, insulating-pieces for spacing apart the rods of each section, the rods of one section adapted to slide through openings in the spacing-pieces of an adjacent section whereby said arm may be extended or collapsed at will and when collapsed said rods will form a cylindrical mass, and contact springs or bushings within certain of said spacing-pieces for effecting a sliding or frictional connection between rods of adjacent sections whereby said rods form the circuit to and from the transmitter, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 8th day of September, 1898.

ELIAS E. RIES.

Witnesses:
WM. H. CAPEL,
HATTIE HOFFMAN.