

Nov. 18, 1930.

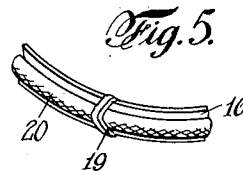
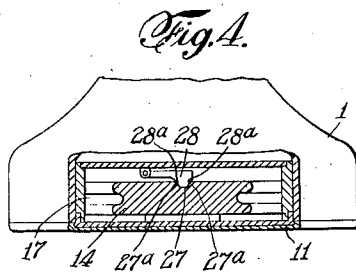
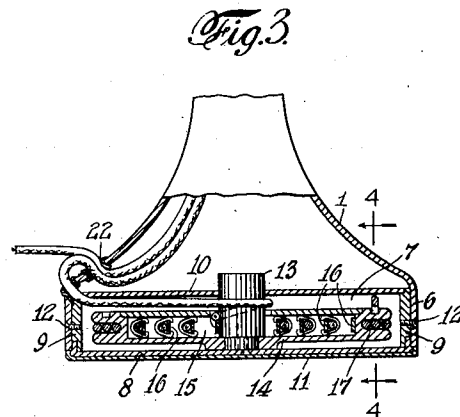
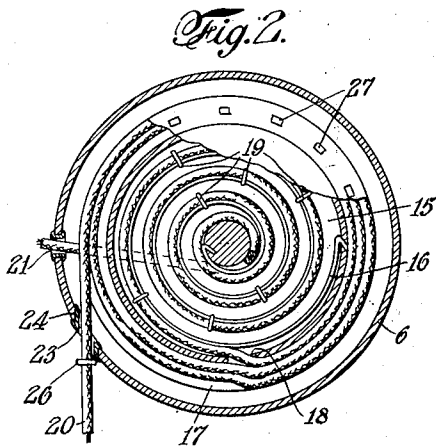
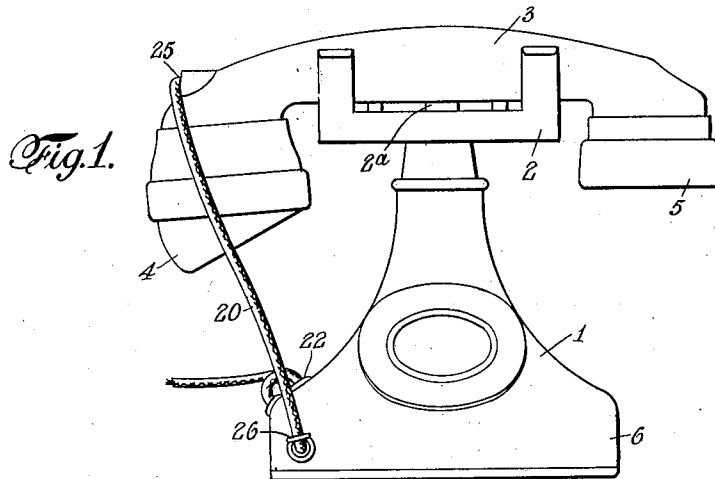
J. E. BOLLING

1,782,191

TELEPHONE CONNECTER TAKE-UP

Filed May 9, 1928

2 Sheets-Sheet 1



John Ester Bolling INVENTOR
BY Louis F. Oatley ATTORNEY

Nov. 18, 1930.

J. E. BOLLING

1,782,191

TELEPHONE CONNECTER TAKE-UP

Filed May 9, 1928

2 Sheets-Sheet 2

Fig. 6.

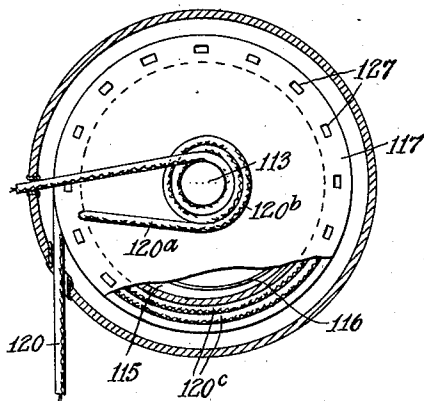


Fig. 7.

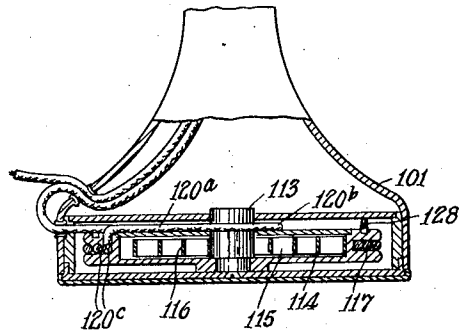


Fig. 9.

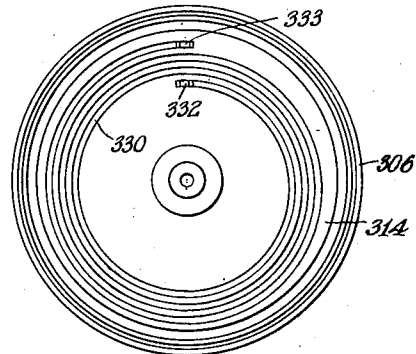


Fig. 8.

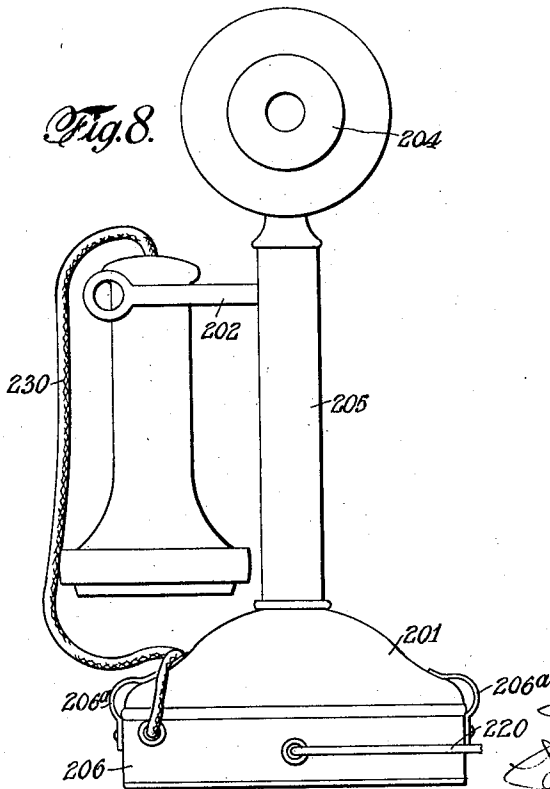
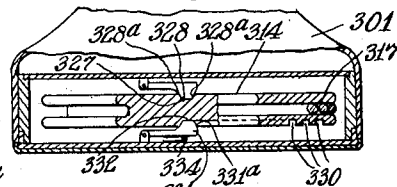


Fig. 10.



INVENTOR
John Ester Bolling
BY
Louis Prosser
ATTORNEY

UNITED STATES PATENT OFFICE

JOHN ESTEN BOLLING, OF EAST ORANGE, NEW JERSEY

TELEPHONE-CONNECTER TAKE-UP

Application filed May 9, 1928. Serial No. 276,271.

My invention consists in the novel features hereinafter described, reference being had to the accompanying drawing, which illustrates several embodiments of the same, selected by me for purposes of illustration, and the said invention is fully disclosed in the following description and claims.

My invention consists in a telephone connector take-up, which is especially adapted for use in connection with the telephone hand set comprising a telephone receiver and transmitter rigidly connected at opposite ends by an intermediate handle, but which is also applicable, if desired, to other types of telephone apparatus, and it comprises a spring actuated reel upon which the connector is wound and from which it may be drawn to the desired extent when the user grasps the telephone apparatus, and holds it in operative position for conversation, the connector being rewound upon the reel when the telephone apparatus is replaced in normal position, so that there is no appreciable amount of said connector exposed in a loose and uncontrolled condition in the normal position of the apparatus, the construction being such that the connector passes to and from the reel without interruption, and all movable contacts which are undesirable in telephone circuits are avoided. The reel may be provided with means for arresting it when drawn out to the desired extent and for releasing it when the connector is to be again coiled on the reel. The apparatus may be embodied in the base of the supporting member of the telephone set, or may be formed separately and attached thereto, as preferred. By the use of my invention, annoyance of having upon a desk or table, for example, a loose and uncontrolled section of the electric connector which is liable to become entangled with other objects, and also to become twisted during the handling of the telephone instrument, is entirely avoided.

In the accompanying drawings,

Fig. 1 represents a front elevation of a telephone "hand set" showing my invention applied thereto, and embodied in the base of the supporting member.

Fig. 2 represents a horizontal section through the base of a supporting member

showing the arrangement of the reel, spring and the electric connector.

Fig. 3 is a partial vertical section of the base portion of the supporting member shown in Fig. 1.

Fig. 4 represents a section on line 4—4 of Fig. 3.

Fig. 5 is a detail of a portion of the reel spring, a portion of the connector, and a clip which may be employed for connecting it at intervals.

Fig. 6 is a view similar to Fig. 2 showing a modified construction.

Fig. 7 is a view similar to Fig. 3, showing the construction illustrated in Fig. 6.

Fig. 8 is a partial view of a lower portion of the transmitter stand of an ordinary telephone apparatus, showing my invention applied thereto, the reel being contained in a separate casing detachably connected to the transmitter support.

Fig. 9 is a partial vertical section, similar to Fig. 4, showing a slightly modified construction for arresting the movement of the reel.

Fig. 10 represents a portion of the under side of the reel showing the spiral pawl engaging groove thereon.

Referring to the form of my invention illustrated in Figs. 1 to 5 inclusive, 1, represents the supporting member of the ordinary telephone hand set, provided with the supporting yoke, 2, upon which rests the handle, 3, carrying the transmitting instrument, 4, and receiving instrument, 5. These connected parts will be hereinafter referred to as the hand piece. The support, 1, in this instance is provided with an integral cylindrical portion, indicated at 6, within which the reel chamber, 7, is formed in any desired manner. In this instance I have shown the reel chamber as comprising a main body, indicated at 8, provided with annular side portions, 9, and a removable cover, indicated at 10, the side portions, 9, being recessed at their lower portions to receive the marginal portions of a piece of felt, 11, and extending across the bottom of the reel chamber, and held in place by the overlapping portions of the cylindrical

portion, 6. The reel chamber is in this instance held in rigid relation with the supporting member, 1, by screws, 12, for example. The base plate, 8, carries a vertically disposed non-rotatable post or shaft, 13, upon which the reel is rotatably mounted. The reel, indicated at 14, is provided with a centrally located chamber, 15, to receive a coil flat spring, indicated at 16, and the outer annular face of the reel is provided with an annular recess, indicated at 17, of substantially the width vertically of the connector, and of a depth sufficient to contain a plurality of coils of the connector. The spring, 16, is connected at one end to the post, 13, and the other end is connected to the reel adjacent to the outer edge of the spring recess, or chamber, 15, and has its coils widely separated. The connector, indicated at 20, which is of the usual type of telephone cord or cable carrying the necessary wires, two, three or more as may be desired, is given a number of coils around the reel in the annular groove, 17, sufficient to enable the hand piece to be withdrawn from the supporting base, the maximum distance desired, and the connector is then carried within the spring chamber, 15, through an aperture, indicated at 18, see Fig. 2, and is then carried around the outer face of the spring coils, as indicated in Figs. 2, 3 and 5, and is secured at intervals thereto in any suitable manner, for example, by clips, indicated at 19. The spring is so constructed that when it is wound up to its maximum extent by the reeling off of the exterior coils of the connector, the coils of the spring will not be brought closer together than would readily accommodate the intervening coils of the connector. The connector is then carried from the innermost coil of the spring over the top of the reel, and preferably above the cover, 10, of the reel case and through an aperture, 21, in the base member, from which it passes through an aperture, indicated at 22, to the interior of the base member, where the wires are connected with the parts within, in the same manner that they would be if the connector had been led directly from the hand piece. The other end of the connector, 20, extends through an aperture, 23, at one side of the cylindrical portion, 6, preferably in a tangential manner, as indicated in Fig. 2, with respect to the reel, said aperture being provided with anti-friction eyelet, 24, or other device, and is connected to the hand piece, at 25, in the usual manner. The connections of the connector with the telephone apparatus form no part of my invention and will not be specifically described. The connector, 20, is shown provided with a stop member, indicated at 26, to engage the eyelet, 24, when the connector is wound up to the desired extent, and it will be seen, by reference to Fig. 1, that the exposed portion of the connector will ex-

tend directly from the base of the supporting member, 1, to the hand piece, without any appreciable slack, and with no uncontrolled slack portions to rest upon the desk or table.

With the apparatus constructed as thus far described, it will be obvious that when the instrument is not in use, the connector, 20, will be wound up on the reel within the casing, constituting the base of the instrument (or a separate casing connected therewith). When the operator removes the hand piece, 3, from the yoke, 2, to use the telephone, releasing the spring actuated switch plunger, indicated at 2^a, he can, by simply placing the hand piece in proper position with respect to his head, draw out the connector, 20, to the necessary extent against the tension of the spring, which will be correspondingly wound up, but will not be sufficiently compressed to bring its coils into contact with the portions of the connector applied thereto. As the hand piece is moved toward the yoke, 2, to replace it thereon, the connector, 20, will be rewound on the reel, so that it will not at any time rest upon the supporting desk or table. In some instances it may be desirable to hold the reel when the connector has been drawn out to the desired extent, so as to relieve the user of the retracting pull of the spring, and in Figs. 2, 3 and 4, I have shown means for accomplishing this result. This includes a locking pawl and interengaging parts, the one connected with the casing, and the other with the reel, the coacting parts being so constructed that they can be disengaged by a movement of the reel in either direction. For example, in Figs. 2, 3 and 4, I have shown the reel provided with a circular series of locking recesses, indicated at 27, for engaging a vertically movable pivoted gravity pawl, 28, secured to the reel casing or other stationary part of the apparatus. As indicated in Fig. 4, the pawl is provided with oppositely disposed cam portions, 28^a, for engaging similar cam portions, 27^a, at opposite ends of the locking recesses, 27, the parts being so constructed that as the pawl is pulled out and the recesses, 27, are passed rapidly by the pawl, 28, it will have no effect to arrest the movement of the reel, but by stopping the reel and permitting the pawl to slowly engage one of the recesses, the reel will be held against the retracting force of the spring, but the pawl can be instantly disengaged by pulling the cord a little further, so as to bring the coacting cam faces of the reel and pawl into engagement, and by allowing the connector to be wound up on the reel, the recesses, 27, will again pass the pawl so rapidly as to cause the coacting cam faces to keep it out of locking engagement with the recesses. I do not limit myself to this specific means for locking the reel in adjusted positions as the same result may be accomplished

by other means within the scope of my present invention.

In Figs. 6 and 7 I have shown a modification of my invention, in which figures the corresponding parts are given the same reference characters with the addition of 100 to avoid repetition. In these figures, the connector, 120, is given a certain number of turns upon the reel, 114, within the peripheral groove, 117, thereof, and is then carried upon the upper side of the reel, as indicated at 120^a, and given a sufficient number of coils around the stationary stem, 113, to provide a slack portion which will uncoil and coil with the corresponding uncoiling and coiling of the portions of the connector in the peripheral groove, 117. It will be understood that the slack coils, which are indicated at 120^a, will be of much smaller diameter than the coils, indicated at 120^b, in the peripheral groove, 117, and sufficient room will be provided within the casing above the reel to permit the coils, 120^b, to expand and contract without at any time placing any injurious strain on the slack portions of the connector, 120. By this means the connector may be carried from the hand piece to the reel and from the reel to the telephone connections within the base of the instrument without the use of any sliding connections, as in the form of my invention illustrated in the preceding figures. In this construction the rewinding spring, indicated at 116, may be of any desired form, and is preferably contained within the chamber, 115, formed in the central portion of the reel surrounding the stem, 113.

It will be understood that the reel casing may be formed separately from the base of the telephone stand with which it is used and secured thereto, as previously described, and also that it may be applied to the supporting stand of the desk type of telephone, in which the transmitter is permanently connected with the stand, and the receiver only is removable therefrom. In this case either the connector extending from the supporting base to the receiver, or the connector extending from the supporting base to the telephone box or other stationary part, may be wound upon the reel. In illustration of the foregoing I have shown in Fig. 8, for example, my improved reel contained in a separate casing, indicated at 206, and secured by clips, 206^a, to the base, 201, of a telephone instrument. In this instance the connector, indicated at 220, which is wound up on the peripheral portions of the reel, is the connector extending from the telephone base, 201, supporting a telephone transmitter, 204, to the telephone box, or other fixed part, 230, representing in this instance the connector which extends to the receiving instrument, 205, supported upon a yoke, 202, connected with the upper part of the base, 201, in the usual manner. It will be understood that the reel car-

ried within the casing, 206, will be constructed so that the connector passes to it and from it without interruption and without the use of any sliding contacts.

In Figs. 9 and 10 I have shown a slightly modified construction for arresting the reel when the cord, or connector, is in the coiled or normal position, and also when it has been drawn out to a predetermined extent so as to prevent the connector from being subjected to undesirable strain. In these figures the parts corresponding with those shown in Figs. 1 to 5 have been given the same reference numerals with the addition of 300, to avoid repetition. In these figures I have shown the reel provided, preferably on the under side, for example, with a spiral groove, 330, adapted to be engaged by a movable pawl, indicated at 331, pressed upwardly into the groove, by a spring, 334, and being connected with the bottom plate, 308, of the reel casing in such manner as to permit it to follow the convolutions of the groove. The groove, 330, is of such length as to permit the necessary rotary movement of the reel to unwind a predetermined length of the connector, 320, and the pawl and groove are so constructed that the reel will be arrested when the connector is in the coiled or normal position, and also when the connector has been drawn out to the predetermined extent. I prefer to form the pawl in substantially the same manner as indicated in Fig. 4, with the releasing cams, indicated at 331^a, and to provide a locking recess, 332, at the end of the groove engaged by the pawl when the connector has been drawn out to the desired extent, which recess is also provided with the coacting cam faces 332^a, similar to the construction illustrated in Fig. 4. The opposite end of the groove, 330, may be provided with a similar recess, indicated at 333, also, but this is not necessary as it may terminate simply in an abutting shoulder or end wall of any desired character, which will enable the pawl to stop the movement of the reel under the influence of its spring. With this arrangement the reel will be arrested in its normal position without any strain on the connector, a sufficient length of the connector being provided to simply enable the hand piece to be placed on the supporting yoke and the reel will also be arrested and preferably locked when the hand piece has been removed and the connector has been drawn out to the predetermined extent for use. This construction will dispense with the employment of a stop, such as is indicated at 26 in Fig. 1, on the connector, and will also dispense, if desired, with the use of the circular series of locking apertures, such as are indicated at 27 in Fig. 2 and 127 in Fig. 6, and the coacting locking pawl. It is obvious, however, that these locking recesses and the coacting pawl therefor could also be employed, if it were

desired, in order to enable the reel to be automatically locked when the connector has been drawn out less than the predetermined extent provided by the spiral groove, 330, and its coacting pawl, 331, and I have, therefore, illustrated in Fig. 9 at 327, one of such a circular series of recesses with its cam portions, 327^a, and the co-acting pawl, 328, with its cam portions, 328^a, for engaging the same.

What I claim and desire to secure by Letters Patent is:—

1. The combination with a telephone hand set, comprising a supporting member and a hand piece provided with transmitter and receiver, of a connector reel connected with the base of said supporting member, a rewinding spring therefor, and a connector connected with said hand piece, and having portions engaging said reel, adapted to be withdrawn therefrom when the hand piece is removed from said supporting member for use, and to be rewound thereon when the hand piece is replaced, and locking means for arresting said reel, said reel including interengaging portions on said reel and a part connected with said supporting member, said interengaging portions being constructed to be disengaged by a movement of the reel in either direction.

2. The combination with a telephone hand set, comprising a supporting member and a hand piece provided with transmitter and receiver, of a horizontal connector reel connected with the base of said supporting member, a rewinding spring therefor, and a connector connected with said hand piece, and having portions engaging said reel, adapted to be withdrawn therefrom when the hand piece is removed from said supporting member for use, and to be rewound thereon when the hand piece is replaced, and a locking pawl for engaging portions of said reel, the interengaging portions of said pawl and reel being constructed to be automatically disengaged by a movement of the reel in either direction.

3. The combination with a telephone hand set, comprising a supporting member and a hand piece provided with transmitter and receiver, of a horizontal connector reel connected with the base of said supporting member, a rewinding spring therefor, and a connector connected with said hand piece, and having portions engaging said reel, adapted to be withdrawn therefrom when the hand piece is removed from said supporting member for use, and to be rewound thereon when the hand piece is replaced, and a locking pawl for engaging locking recesses in said reel, said pawl and recesses being provided with cam portions for disengaging the pawl by a movement of the reel in either direction.

4. The combination with a telephone set, and a connector therefor extending continuously from one part of the telephone appa-

ratus to another part thereof, a reel for said connector and a rewinding spring for said reel, said connector having portions intermediate its ends wound upon the reel, and locking means for said reel provided with means for automatically disengaging it by a movement of the reel in either direction.

5. The combination with a telephone set and a connector therefor extending continuously from one part of the telephone apparatus to another part thereof, of a reel, a coiled rewinding spring for said reel, said connector having portions between its ends wound upon said reel, and slack portions adjacent to said reel engaging portions arranged in coils, each coil of the connector being contiguous throughout its length with a coil of the spring and secured thereto so as to move therewith.

6. The combination with a telephone set and a connector therefor extending continuously from one part of the telephone apparatus to another part thereof, of a reel for said connector, provided with a peripheral groove, and with an interior recess, a rewinding spring for the reel located in said recess, and having its coils separated, said connector having portions between its ends engaging the peripheral groove of said reel and slack portions between said reel engaging portions and the adjacent end of said connector arranged in coils, coils of the connector lying between adjacent coils of the spring, each coil of the connector being contiguous throughout its length with a coil of the spring and secured thereto so as to move therewith.

7. The combination with a telephone set and a connector therefor extending continuously from one part of the telephone apparatus to another part thereof, of a reel for said connector, provided with a peripheral groove, and with an interior recess, a rewinding spring for the reel located in said recess, and having its coils separated, said connector having portions between its ends engaging the peripheral groove of said reel and slack portions between said reel engaging portions and the adjacent end of said connector arranged in coils parallel to those of said spring, and secured thereto, and locking means for said reel including a pawl for engaging recesses in said reel, said pawl and recesses having interengaging portions for automatically disengaging said pawl by a movement of the reel in either direction.

8. The combination with a telephone hand set comprising a supporting member, and a hand piece provided with transmitter and receiver, of a casing connected with the supporting member, a reel located in said casing and provided with a peripheral groove, and with a centrally located recess, a rewinding spring for said reel located in said recess and having its coils separated, said casing having a receiving apparatus arranged with its

axis in a tangential line with respect to said reel, a continuous connector extending from said hand piece to said supporting member, said connector having a portion extending
5 from the hand piece through said tangential aperture and coiled in the peripheral groove of said reel, and slack portions between the reel engaging portions and the supporting member arranged in coils parallel to those of
10 said spring and secured thereto.

9. The combination with a telephone hand set comprising a supporting member, and a hand piece provided with transmitter and receiver, of a casing connected with the supporting member, a horizontal reel located in
15 said casing and provided with a peripheral groove, and with a centrally located recess, a rewinding spring for said reel located in said recess and having its coils separated, said casing having a receiving apparatus arranged with its axis in a tangential line with
20 respect to said reel, a continuous connector extending from said hand piece to said supporting member, said connector having a portion extending from the hand piece through said tangential aperture and coiled in the peripheral groove of said reel, and
25 slack portions between the reel engaging portions and the supporting member arranged in coils parallel to those of said spring and secured thereto, said reel being provided with a circular series of locking portions, and a vertically movable locking pawl, the inter-
30 engaging portions of said pawl and said locking portions of the reel being constructed to disengage said pawl by a movement of the reel in either direction.

10. The combination with a telephone set, and a connector therefor, a reel for said connector, a rewinding spring for said reel, said
40 reel being provided with a spiral groove and a locking projection engaging said groove for arresting the reel at the termination of a predetermined rotary movement thereof in either direction.

11. The combination with a telephone set and a connector therefor extending continuously from one part of the telephone apparatus to another part thereof, of a reel for said
50 connector, a rewinding spring for said reel, said connector having portions intermediate its ends wound upon the reel, said reel being provided with a spiral groove, a locking pawl for engaging said groove to limit the rotary
55 movement of the reel in both directions, said groove being of a length sufficient to permit the withdrawal of a predetermined length of the connector from the reel and being provided at the end thereof engaged by the pawl
60 when the connector is fully drawn out with a locking recess to engage said pawl.

In testimony whereof I affix my signature.

JOHN ESTEN BOLLING.