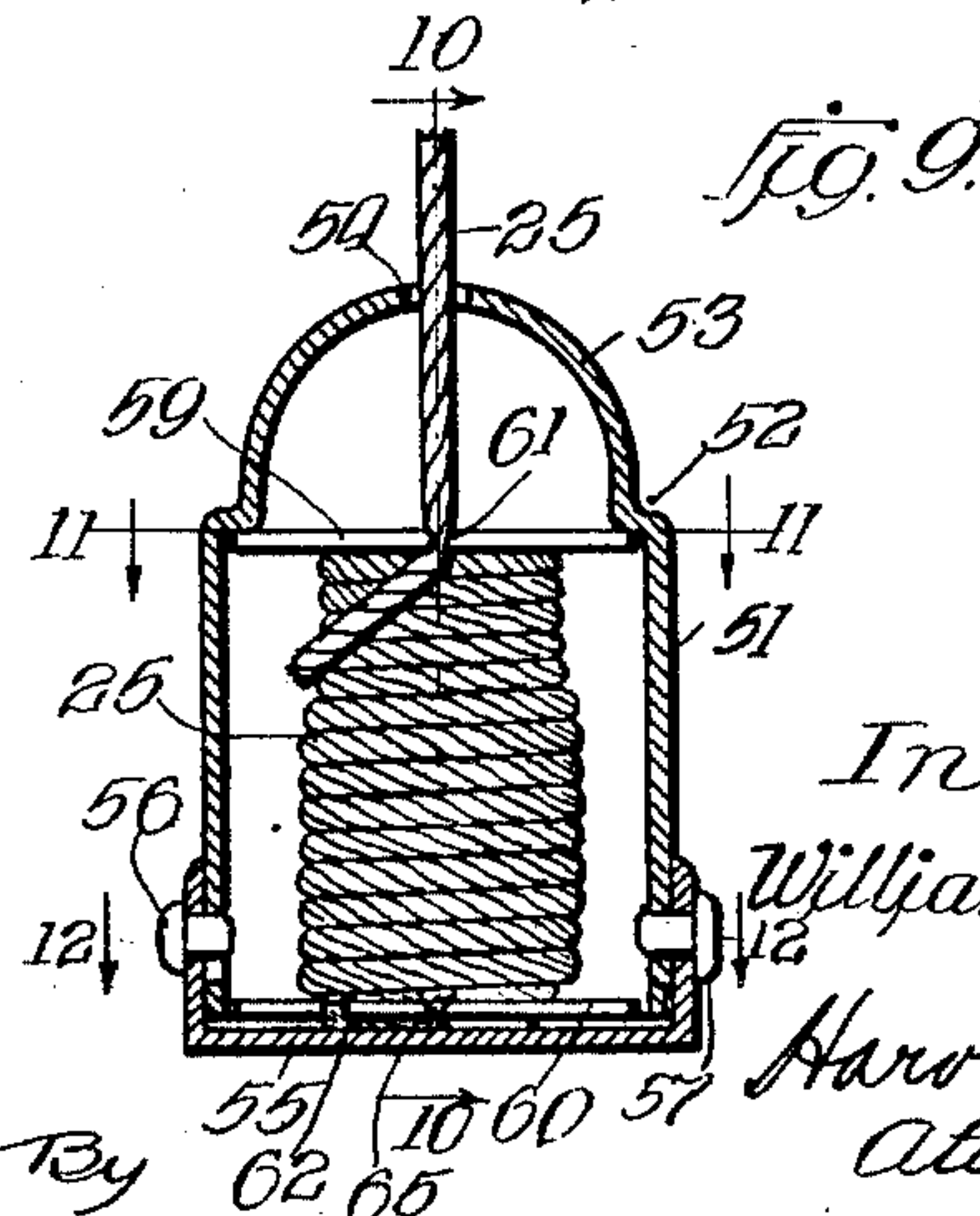


1,907,933

2 Sheets-Sheet 1



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May 9, 1933.

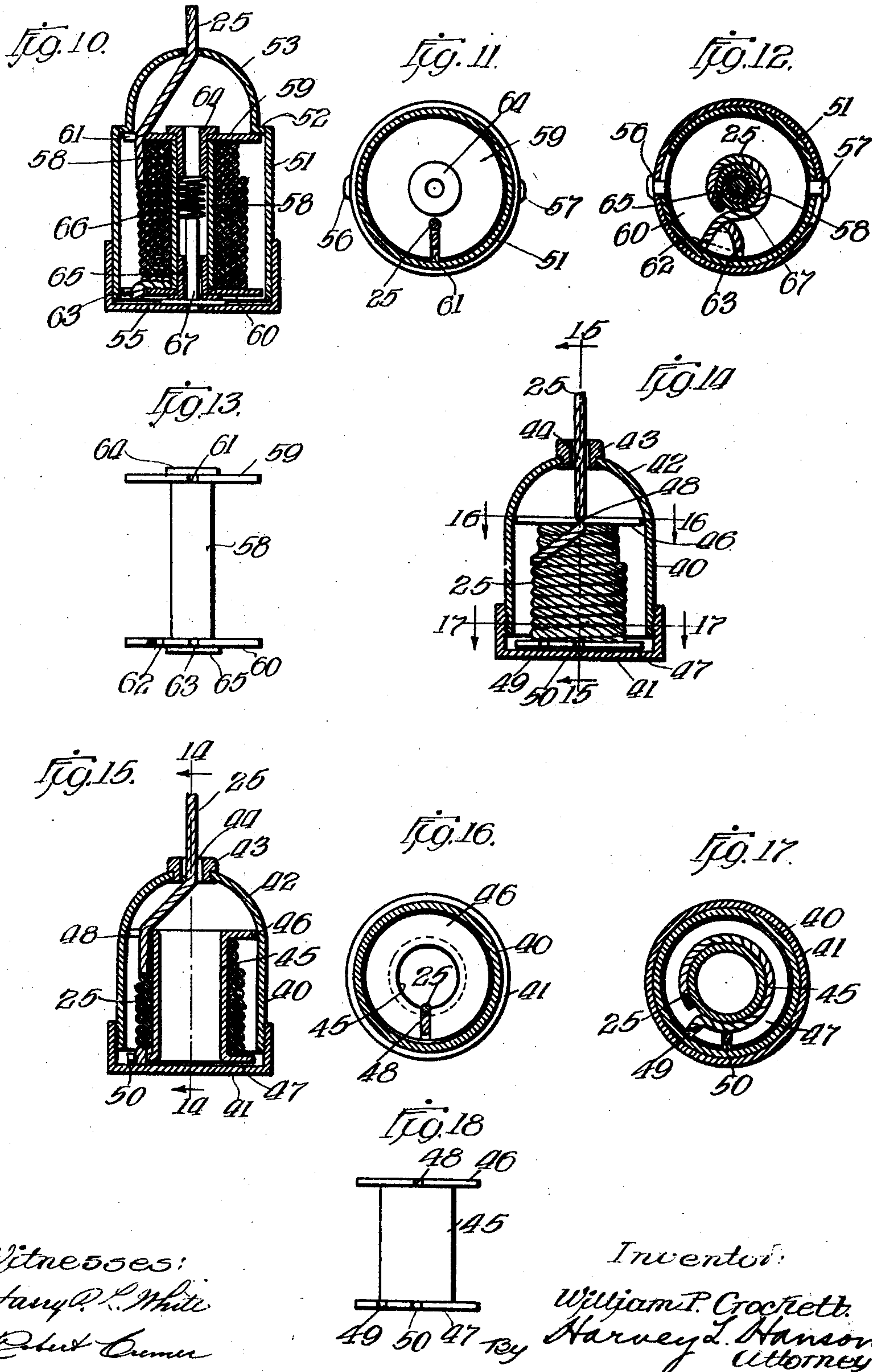
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COMBINED CORD HOLDER AND TAKE-UP REEL

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2 Sheets-Sheet 2



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COMBINED CORD HOLDER AND TAKE-UP REEL

Application filed February 28, 1931. Serial No. 519,078.

The invention relates to a combined cord holder and take-up reel, and particularly to a device used in connection with the operation of electrical switching mechanism.

5 The invention is particularly useful in efficiently operating the electrical switching mechanism in use in hospitals, sanitariums and other places where it is desired to signal a nurse or other person from a patient's bed.

10 The invention is especially adapted for use in connection with the operation of call switches for signal systems such as are shown and described in my applications for United States Letters Patent, Serial Number 317,807, 15 filed November 7, 1928, and Serial Number 358,846, filed April 29, 1929. These applications show improvements over the construction shown and described in my Patent Number 1,620,951, issued March 15, 1927.

20 These cases disclose call switches which are operated by the patient or other person, to call a nurse or other attendant, who, after responding to the call, resets the call switch so that it will be in order for the next operation by the patient.

25 In connection with the present invention, as in the other cases referred to, the effort is made, so far as possible, to relieve the patient of as much burden as possible in the operation of the call switch, and pass the burden to the nurse or other attendant.

30 In the more improved form of call switches referred to, the nurse or other attendant is compelled to operate the sliding plate of the switch against the spring connected thereon, 35 having the greatest tension and the largest amount of resistance and friction, while the patient in whatever weakened condition, may readily and quite easily operate the call switch and signal the nurse or other attendant by pulling the chain or cord against the 40 action of a relatively weaker spring and with much less friction involved in the whole operation.

45 By this use of the call switches of my inventions visual and audible signals have been readily made by the patient from practically any position regardless of where the call switch is placed with respect to the bed of 50 the patient.

The present invention is for the purpose of connecting the pull cord of the call switch with the cord which extends to the bed of the patient and a portion of which may be wound on a reel or spool contained within a receptacle acting as a cord handle, and also for readily breaking such connection.

It is one of the objects of the invention to so construct the means connecting the pull cord of the call switch with the cord to the bed, so that the call switch may be readily operated, and when desired to break the connection.

While the bed stands in a certain relation to the call switch the slack in the cord may be taken up and the unused portion of the cord wound on the reel within the handle. If the bed be moved toward or away from the call switch the reserve supply of cord may be taken from the reel, or, if the bed be entirely removed from the vicinity of the call switch, the connection between the two cords may be broken.

It is extremely important in connection with signalling operations in hospitals, sanitariums and the like, that there should be no interference in the mechanism to prevent a patient, in whatever weakened condition to initiate a signal for a nurse and therefore the present invention is aimed to provide a highly efficient means for operating the call switch from the bed without the cord being snarled or tangled, or the connection with the call switch being impaired in any way. On the other hand, if the patient is strong and powerful, and possibly exhibits signs of impatience and pulls too strongly on the cord so that there would be a tendency to impair or wreck the call switch mechanism or its pull cord, the construction of the connector between the pull cord and the bed cord is such that the connection between the two would be broken, thus saving the call switch and its pull cord from damage.

Another of the objects of the invention is to enable the change between longer or shorter cord to be made quickly and readily and therefore the reel and its holder are constructed in such a manner that the cord does not become snarled or tangled.

The invention will be further understood

by reference to the accompanying drawings illustrating the same, and forms of take-up reels and holders, and it will be understood that various changes and modifications of the construction may be made without departing from the spirit of the invention as set forth in the appended claim.

In the drawings:

Figure 1 is an assembly view of the call switch, a portion of the bed and the combined cord holder and take-up reel.

Figure 2 is a longitudinal sectional view of the mechanism connecting ends of the call switch pull cord and the cord extending to the bed.

Figure 3 is a cross sectional view on the line 3—3 of Figure 2.

Figure 4 is a cross sectional view on the line 4—4 of Figure 2.

Figure 5 illustrates the blank from which the cord connector illustrated in Figure 2, is made.

Figure 6 is an enlarged view of a ring and its support for holding and guiding the cord.

Figure 7 is a cross sectional view of the cord ring and support shown in Figure 6.

Figure 8 illustrates one form of cord holder and handle, employing a cover operated with a bayonet joint.

Figure 9 is an enlarged view of the cord holder shown in Figure 8 showing the cord holder in section on the line 9—9 of Figure 8, and the reel and cord in elevation.

Figure 10 is a cross sectional view of the cord holder shown in Figures 8 and 9, and shows a cross section view through the reel and the cord wound thereon.

Figure 11 is a cross sectional view through the cord holder and shows the top of the reel on the line 11—11 of Figure 9.

Figure 12 is a cross sectional view through the cord holder and reel on the line 12—12 of Figure 9.

Figure 13 is an elevational view of the reel illustrated in Figures 9 to 12, inclusive.

Figure 14 is a cross sectional view of another form of cord holder employing a screw cap and containing a reel with the cord wound thereon.

Figure 15 is a cross sectional view of the cord holder and reel illustrated in Figure 14.

Figure 16 is a cross sectional view of the cord holder shown on the line 16—16 of Figure 14 and showing the top of the reel.

Figure 17 is a cross sectional view of the cord holder and the reel on the line 17—17 of Figure 14, and

Figure 18 is an elevational view of the reel shown in Figures 14 to 17, inclusive.

The invention is shown in use with the call switch mechanism attached to the plate covered by the mounted wall plate 20. The wall plate 20 has set therein the signal 21, the sliding stem 22 of the signal and the metallic plunger housing 23. The pull cord

24, one end of which is connected to and secured in the operating plunger of the call switch, extends through and from the metallic plunger housing 23. The pull cord 24 may be of any material providing it has a ball at its free end, but preferably it is a small ball chain with a relatively larger ball at its end.

A main operating cord 25 having the cord holder 26 at one end and the cord connector 27 at its free end is hung on the bed 28 through the ring 29 extending through the ring support 30 attached to the top rail of the bed.

The connector 27 is preferably made from a blank having the central body portion 31, and having an aperture 32 for the reception of an end of the cord 25. Extending from the central apertured body portion is the plurality of arms 33. Any number of arms may be employed, but four are shown in the drawings. Each of the arms 33 are pressed with curved and flat surfaces and with outwardly extending terminating lips, more particularly shown in Figures 2 and 5 of the drawings. When assembled the arms 33 are bent at or near the lines 34 to form the open walled cylindrical member or element of the connector 27, within which is the knot 35 of the cord 25 and the relatively large ball 36, of the pull cord or chain 24.

The cylindrical casing 37 having the aperture 38 through which the end of the cord 25 passes, encases a large portion of each of the arms 33 when in operative position. When the connection is to be made between the pull cord or chain 24 and the main cord 25, the ball 36 is placed within the arms 33 near their outer or upper ends and this is readily accomplished because of the springiness of the arms 33. The cylindrical sleeve or casing 37 is then passed to and over the lower end of the bent arms 33. The sleeve or casing 37 is thereupon passed along the outer faces of the arms 33 closing the upper ends of the arms 33 against the ball 36, and because of the formation of the spring arms 33, holds the ball 36 and the pull cord or chain to which it is connected in firm and secure position.

It will also be obvious that because of the springiness of the arms 33 that when sufficient force is exerted on the main cord 25, the cord 25 with the arms 33 and the sleeve or casing 37 will be disconnected from the pull cord or chain 24 and its end ball 36.

In order to properly hang the cord 25 on the bed the ring 29 with its support 30 is used. The support 30 is preferably of some soft material which will not deface or mar the bed and may be formed of a strip of material, the ends of which are fastened together as by a snap 39 or in any other suitable manner.

Two forms of the cord holder and reel are shown in the drawings. The preferred form is the one illustrated in Figures 14 to 18, inclusive and shows a receptacle having a screw

cap. The other type of cord holder and reel shown in Figures 8 to 13, inclusive embodies a receptacle employing the cover with the bayonet joint.

5 Referring to the form of cord holder and reel shown in Figures 14 to 18, inclusive, the cylindrical casing or receptacle 40, is provided with the exterior screw thread for the reception of the closure or cap 41, which has
10 interior screw threads. The receptacle 40 is dome shaped at its opposite end as shown at 42. The thimble 43 having an aperture 44, is fitted into the end of the dome opposite the cap 41. The main cord 25 passes through the
15 aperture 44 to the interior of the receptacle 40. A reel 45 having the flanges 46 and 47 at the ends of its body portion is adapted to be placed in the receptacle 40, and the cord 25 is wound upon this reel.

20 The flange 46 of the reel is cut away at 48 for the passing therethrough of the cord 25 and the flange 47 is cut away at 49 and 50 for the passing therethrough of one end of the cord 25 and the securing of the end portion of the cord to the reel.

25 After the end of the cord 25 and the connector 27 has been passed through the ring 29 and connected with the pull cord 24, the end of the cord is secured in the flange 47, utilizing the cut away portions 49 and 50, and a predetermined amount of the cord 25 is wound on the reel 45. The cord is then laid
30 through the cut away portion 48 and the reel, and wound cord, is then placed in position in the receptacle 40 with the flange 46 pressing against the dome 42, and as it continues to be pressed against the dome is held against rotation.

35 The cap 41 is thereupon screw threaded on to the receptacle 40 and the cord with its holder is ready for use to operate the call switch. It will thus be seen that the excess amount of cord is wound on the reel and that the holder is in the proper place and elevation for use by the patient. It will also be
40 seen that by use of the cord holder 26, the cord may readily be seen or found, if the room should be darkened.

45 With reference to the form of connector or holder and reel shown in Figures 8 to 13, inclusive, the structure embraces the cylindrical casing 51, having the shoulder 52 with the dome portion 53 extending therefrom. An aperture 54 for the passage of the cord 25 is in
50 the end of the dome.

55 The cover or closure 55 is adapted to be secured to the casing 51 by means of the bayonet slot connections 56 and 57. The reel 58 is provided with the flanges 59 and 60. The
60 flange 59 is cut away at 61 and the flange 60 is cut away at 62 and 63 for the reception of the cord 25.

65 The body portion of the reel 58 is hollow and is provided with the thimbles 64 and 65 which extend part way in the hollow body

portion with the coil spring 66 interposed between the inner ends of the thimbles 64 and 65. The cover 55 is provided on its interior with the stem 67 to compress the coil spring 66 in order to effect closure of the cord holder through the medium of the bayonet slot locking arrangement.

70 It will also be seen that when the cord reel is in place in the holder the flange 59 is pressed against the shoulder 52 of the casing 51, preventing rotation of the reel.

75 The operation of the cord 25 by the two forms of holders, is, of course, identical.

80 It will thus be seen from the foregoing description that all of the slack of the cord may be taken up by means of the reel and that the two cords, that is the main cord and the pull cord, may be operated to cause the call switch to function, or a connection between the two
85 cords may be readily broken whenever desired.

90 It will, of course, be obvious that the invention is not to be limited to use in hospitals or similar places, or in fact for use in connection with call switches for signals, but may be used in any connection where a predetermined amount of cord is desired, and where a connection between two cords may be maintained or broken as desired.

95 Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States is:—

100 In a connector which connects a first cord with a second cord or chain, the combination of a base portion, a plurality of arms extending from said base portion, said arms being adapted for the reception and detachment of the end of said second cord or chain, a thimble adapted to fit over said arms when they
105 are bent toward each other, said base portion and the closed end of said thimble each being apertured, the end of said first cord being passed through said thimble and base portion and knotted and held between said
110 arms, the wall of said thimble being straight and unflanged and the said arms being of springy material frictionally engaging the interior wall of said thimble.

115 In witness whereof, I hereunto subscribe my name this 13th day of February, A. D. 1931.

WILLIAM P. CROCKETT.

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