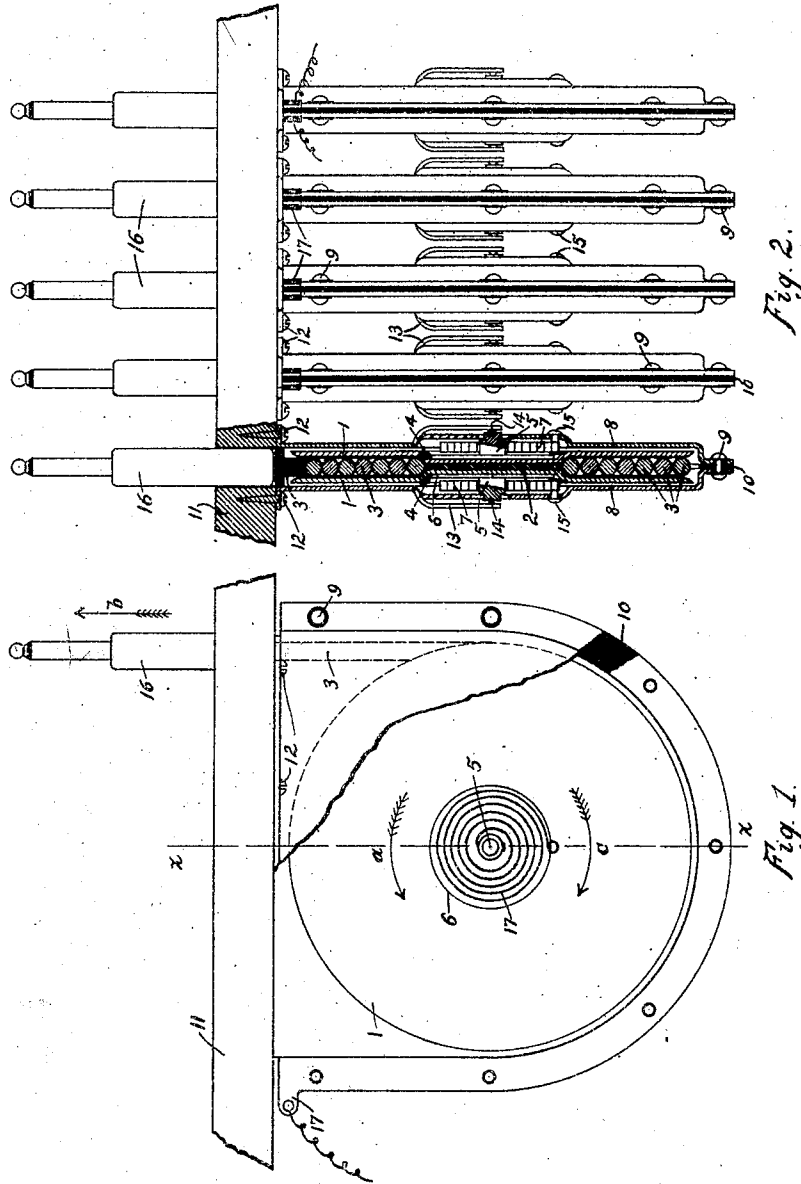


F. R. PARKER.
SWITCHBOARD CORD REEL.

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1,102,164.

Patented June 30, 1914.



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UNITED STATES PATENT OFFICE.

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SWITCHBOARD-CORD REEL

1,102,164.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDERICK R. PARKER, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Switchboard-Cord Reel, of which the following is a specification, reference being had to the accompanying drawings illustrating same.

This present invention is a modification of my invention set forth in my United States Letters Patent No. 796,929, on pulley weight, issued August 8, 1905.

My invention relates to pulleys or reels for cords or strands, such as telephone switchboard cords, for automatically winding the cord up when same is not in use, and for letting the cord out when it is desired to use same.

The principal objects of my invention are, to provide a pulley or reel for strands or cords, such as telephone switchboard cords, which pulley or reel may be mounted directly underneath the plug shelf where plugs are used on the cords as in telephone switchboards, the said pulley or reel being adapted to automatically wind up the cord when same is not in use, and to let out the cord when it is desired to use same; to provide such a pulley or reel in a compact and suitable arrangement whereby a series thereof may be suitably mounted in a row without taking up a considerable space at the sides thereof, so that the said pulleys or reels may be mounted directly underneath the corresponding switchboard plugs in telephone switchboards; to provide improved means for operating such a pulley or reel; to provide improved means for carrying the circuits of the conductors of the cord through the device of the invention to suitable terminals which may be readily connected with other circuit conductors; to provide an improved casing for such a pulley or reel; and to provide simplicity of construction and cheapness of manufacture in such a device.

Other objects will be apparent from the following specification.

In telephone switchboards it is customary to use a pulley-weight for the connecting-cords thereof, consisting of a single pulley and a weight attached thereto, the said pulley simply hanging in a loop or swing of the

cord. This arrangement requires the operator's key-board to be a considerable distance above the floor or base of the switchboard, as the pulley-weight has to rise approximately one-half of the distance through which the end of the cord is pulled when connection is made. On a large switchboard the connecting-cord necessarily has to be pulled several feet from the keyboard and therefore the pulley-weight has to have considerable space in which to play up and down.

In my present invention I have provided a pulley or reel for telephone switchboard cords which may be mounted directly underneath the keyboard or plug shelf so as not to take up much space below the latter and which at the same time serves all of the purposes of the ordinary pulley-weight which hangs far below the keyboard or plug shelf. My improved pulley or reel used on a telephone switchboard cord enables the keyboard to be lowered considerably and the operator to sit in an ordinary chair instead of a high chair. The advantages in the construction of such a switchboard will be readily seen, the height of same being greatly reduced which permits of a large saving in the ironwork, woodwork, and cabling, and does away with the customary foot-rails and high chairs, thus making a neat, compact, and convenient construction. I have spoken of "telephone switchboards" as the advantages of such a pulley or reel are best seen here, but I do not wish to limit this invention to such particular usage.

By reference to the accompanying drawings illustrating the preferred embodiment of my invention, Figure 1 is a side elevation of the pulley or reel of the invention, with a portion of the casing removed, shown mounted on the underneath side of a plug shelf, the plug and cord also being shown; and Fig. 2 is an edge elevation of a series of the pulleys or reels of my invention, shown mounted on the underneath side of a plug shelf, one of the pulleys or reels and its switchboard cord being shown in cross-section taken on line *x, x* of Fig. 1; the switchboard plugs also being shown.

Like characters refer to like parts in the several figures.

Each pulley or reel is preferably made of two sheet-metal side portions 1 1 formed and

placed together as shown in Fig. 2, with insulation 2 placed therebetween to insulate the portions 1 1 from each other. The switchboard cord 3 is carried between the side portions 1 1 of the pulley or reel and is wound thereon preferably as shown, the conductors in the said cord being preferably soldered to the side portions 1 1. In Fig. 2 I have preferably shown the cord conductors passing through holes in the portions 1 1 and being soldered as at 4 4. To each side portion 1 of the pulley is attached a metallic hub 5 preferably having a faceplate 6 thereon resting against the corresponding portion 1, the portions 6, 1, 2, 1 and 6, being securely held together so as to keep the portions 1 1 with their respective hubs 5 5 insulated from each other. A coil spring 7 is provided for each hub 5 and is preferably placed over the hub as shown, the inner end of each spring 7 being suitably secured to its hub 5 whereby the hubs cause the springs 7 7 to be wound up when the pulley is turned in the direction of arrow *a*. The portions 1 1, the hubs 5 5, and the coil springs 7 7 are all incased within a casing, preferably made of two formed sheet-metal halves 8 8 secured together by rivets or bolts 9 9 and suitably insulated from each other by insulation 10. The casing 8 8 is preferably mounted to the underneath side of the plug shelf 11 by screws 12 12, preferably as shown. Each portion 8 of the casing may be provided with a tongue portion 13 cut out of the portion 8 and adapted to bear against the end of a hub 5 at a suitable contact 14 to make good electrical connection therewith. The outer end of each coil spring 7 is secured to its side of the casing 8 by a suitable screw, bolt or rivet 15. The cord 3 is provided with the usual connecting plug 16 which rests in a suitable seat in the plug shelf 11 when the cord and plug are not in use. Each hub 5 is preferably provided with a shoulder thereon to hold the pulley 1 1 in the middle of the casing 8 8, and the hubs 5 5 and the side portions 8 8 of the casing are formed to provide suitable bearings for the pulley 1 1 to rotate upon.

The circuit of each conductor of the cord 3 extends through one of the side portions 1 of the pulley, a hub 5, a spring contact member 13 and a coil spring 7 in parallel, and one portion 8 of the casing, a connection terminal 17 on the casing, preferably next to the plug shelf 11. I may do away with the spring contact members 13 13 if desired, in which case the circuit of each strand of the cord may extend from a portion 1 through the corresponding hub 5, and thence through the corresponding coil spring 7 to one side of the casing 8 and to the corresponding terminal 17 thereon. This arrangement does away with all bear-

ing or brush contacts for leading the circuits of the strands of the cord off from the cord pulley. I may also do away with one of the coil springs 7 7 if desired and use only one coil spring for rotating the pulley. The spring contact members 13 13 may also be separate parts from the portions 8 8 of the casing, if desired, and suitably secured thereto.

The operation of the device is as follows: The cord 3 is preferably normally wound upon the pulley 1 1 as shown. When it is desired to use the cord 3 for making connections, the plug 16 is pulled in the direction of arrow *b*, which turns the pulley 1 1 and the hubs 5 5 in the direction of arrow *a* and winds up the coil springs 7 7 thereby putting them under tension. When it is desired to discontinue the use of the plug and cord, the same is released whereupon the tension of the springs 7 7 rotates the pulley 1 1 and hubs 5 5 in the direction of arrow *c* and thereby winds up the cord 3 on the pulley or reel 1 1 until the plug 16 is properly seated in the plug shelf 11 whereupon the motion of the pulley is stopped. When the pulley 1 1 and the cord 3 thereon is being installed, the springs 7 7 are preferably put under a slight tension tending to rotate the pulley in the direction of arrow *c*, so as to insure winding the cord 3 clear up thereon, quickly, when the cord and plug are released. The cord 3 may be unwound from and wound upon the pulley or reel 1 1 as many times and as quickly as desired, the circuits of the strands of the cord always being properly extended to the terminals 17 17, respectively, preferably by the arrangement shown.

If it is desired to install a new cord in a pulley, this may be accomplished without removing the pulley 1 1 from the casing 8 8, by simply unwinding, unsoldering, and removing the old cord from the pulley, and then winding a new cord upon the pulley and soldering the strands thereof to the side portions 1 1 of the pulley, preferably as shown. This soldering may be accomplished through suitable holes in the portions 8 8 of the casing which may be provided for the purpose.

I do not wish to limit this invention to the particular details of construction herein shown, as various modifications thereof may be made or utilized without departing from the scope of the appended claims. The portions 1 1 and 8 8 are preferably formed out of sheet metal, but they may be made in some other manner if desired, and also of some other material, as long as the circuits of the strands of the cord are properly maintained.

What I claim as my invention is:

1. In apparatus of the character described, a pulley for carrying a cord or

strands, the said pulley comprising two metallic side portions insulated from each other, suitable spindles associated with the said side portions and electrically connected therewith, a casing for the pulley made of two metallic halves insulated from each other, and a coil spring for each side of the pulley, placed between the latter and the casing, one end of each spring being connected with the corresponding spindle and the other end of each spring being connected with the corresponding side portion of the casing, whereby the pulley is rotated when the springs are wound up and then released, the said side portions of the pulley, the spindles, and the said halves of the casing forming parts of the metallic circuit of the cord or strands.

2. In apparatus of the character described, a pulley made of two formed sheet-metal side portions with insulation therebetween, a hub on each side portion, a casing made of two formed sheet-metal halves insulated from each other, and a coil spring for each hub acting thereon to rotate the pulley under favorable conditions, and electrically connecting the halves of the casing with the respective hubs.

3. In apparatus of the character described, a pulley made of two metal halves insulated from each other, a cord having a pair of conductors therein, the said cord being wound upon the pulley and the said conductors being connected to the said metal halves, respectively, means for suitably carrying the circuit of each conductor off to suitable connection terminals, and a coil spring acting on the pulley whereby the cord is rewound upon the pulley after being unwound therefrom and then released.

4. In apparatus of the character described, a pulley made of two metal halves insulated from each other, a cord having a pair of conductors therein, the said cord being wound upon the pulley and the said conductors being connected to the said metal halves, respectively, a suitable casing for the pulley, means for suitably carrying the circuit of each conductor off to suitable connection terminals, and a coil spring on each side of the pulley acting on the latter whereby the cord is rewound upon the pulley after being unwound therefrom and then released.

5. A switchboard cord reel comprising a pulley made of two formed sheet-metal halves suitably secured together and insulated from each other whereby the said halves may be included in the circuits of the respective strands of a cord carried by the pulley, suitable means for mounting the pulley in place, and spring mechanism acting on the pulley to automatically wind the cord thereon when the latter is not in use, the said spring mechanism constituting parts of the said circuits.

6. The combination with a switchboard

plug shelf, of a pulley located beneath the shelf, said pulley being made of two metal halves suitably insulated from each other, a casing inclosing the pulley and mounted to the plug shelf to suitably position the pulley, said casing being made of two metal halves suitably insulated from each other, said pulley being adapted to carry a switchboard cord, said halves of the pulley and casing being adapted to be included in the circuits of the respective strands of the cord, and spring mechanism acting on the pulley to automatically wind the cord thereon when the latter is not in use.

7. The combination with a switchboard plug shelf, of a pulley located beneath the shelf and adapted to carry a switchboard cord, a casing for the pulley suitably mounted to properly position the pulley, said casing being made in halves which are suitably insulated from each other whereby the circuits of the respective strands of the cord may be carried through the said halves, a pair of coil springs attached to the casing and acting on the pulley to automatically wind the cord thereon when the latter is not in use, and means for suitably extending the circuits of the strands of the cord to suitable connection terminals.

8. A switchboard cord reel comprising a pulley made of two metal halves suitably secured together and insulated from each other whereby the said halves may be included in the circuits of the respective strands of a cord carried by the pulley, and spring mechanism acting on the pulley to automatically wind the cord thereon when the latter is not in use, the said spring mechanism constituting parts of the said circuits.

9. A pulley of the character described having conductive portions suitably insulated from each other whereby they may be included in the circuits of respective strands carried by the pulley, spring mechanism in the said circuits and acting on the pulley to automatically wind the said strands thereon as desired, and means for suitably extending the said circuits to suitable connection terminals.

10. A switchboard cord reel comprising a pulley made of two metal halves suitably secured together and insulated from each other whereby the said halves may be included in the circuits of the respective strands of a cord carried by the pulley, and coil springs acting on the pulley to automatically wind the cord thereon when the latter is not in use, the said springs being included in the respective circuits of the said strands.

11. A pulley of the character described having conductive portions suitably insulated from each other whereby they may be included in the circuits of respective strands carried by the pulley, and spring members

acting on the pulley to automatically wind the said strands thereon as desired, the said spring members being included in the respective circuits of the said strands.

12. A switchboard cord reel comprising a pulley made of two metal halves suitably secured together and insulated from each other whereby the said halves may be included in the circuits of the respective strands of a cord carried by the pulley, a casing for the pulley made of metal halves which are suitably insulated from each other, and coil springs acting between the pulley and casing and conductively connected with the respective halves thereof whereby the circuits of the said strands are extended through the respective halves of the pulley, the respective coil springs and the respective halves of the casing, the said springs causing the pulley to automatically wind the cord thereon when the latter is not in use.

13. A pulley of the character described having conductive portions suitably insulated from each other whereby they may be included in the circuits of respective strands carried by the pulley, a casing for the pulley having conductive portions suitably insulated from each other, and spring members acting on the pulley to automatically wind the said strands thereon as desired, the said spring members being conductively connected with the conductive portions of the pulley and casing whereby the circuits of the said strands are extended through the respective conductive portions of the pulley, the respective spring members and the respective conductive portions of the casing.

14. The combination with a pulley carrying conducting strands, of spring members acting on the pulley to wind the said strands thereon, the said spring members being insulated from each other and included in the respective circuits of the said strands.

15. The combination with a pulley carrying a plurality of conducting strands, of spring mechanism acting on the pulley to rotate same, the said spring mechanism having portions thereof insulated from each other and included in the respective circuits of the said strands whereby the said circuits are extended off from the pulley.

16. A pulley of the character described having conductive portions insulated from each other whereby they may be included in the circuits of respective strands carried by the pulley, and spring mechanism acting on the pulley to rotate same and constituting parts of the respective circuits of the said strands.

17. The combination with a pulley carrying conducting strands, of a casing for the pulley, comprising conductive portions insulated from each other whereby they may be included in the respective circuits of the

said strands, and means for conductively connecting the said strands with the respective conductive portions of the casing.

18. The combination with a pulley carrying conducting strands, of spring members acting on the pulley to wind the said strands thereon as desired, the said spring members being included in the respective circuits of the said strands, and a casing for the pulley, comprising conductive portions insulated from each other whereby they may be included in the respective circuits of the said strands.

19. The combination with a pulley carrying a plurality of conducting strands, of spring mechanism acting on the pulley to rotate same and constituting parts of the respective circuits of the said strands, and a casing for the pulley, comprising conductive portions insulated from each other whereby they may be included in the respective circuits of the said strands.

20. A pulley of the character described having conductive portions suitably insulated from each other whereby they may be included in the circuits of respective strands carried by the pulley, spring members acting on the pulley to automatically wind the said strands thereon as desired, the said spring members being included in the respective circuits of the said strands, and a casing for the pulley, comprising conductive portions insulated from each other whereby they may be included in the respective circuits of the said strands.

21. A pulley of the character described having conductive portions insulated from each other whereby they may be included in the respective circuits of strands carried by the pulley, and spring mechanism acting on the pulley to rotate same and constituting a part of the circuit of at least one of the said strands.

22. The combination with a pulley carrying conducting strands the circuits of which are insulated from each other at the pulley, of a casing for the pulley having at least a portion thereof included in the circuit of one of the said strands, and spring mechanism acting on the pulley to rotate same and serving to conductively connect the said portion of the casing with its said strand.

23. The combination with a pulley carrying conducting strands the circuits of which are insulated from each other at the pulley, of a casing for the pulley having portions thereof insulated from each other and included in the respective circuits of the said strands, whereby the said circuits are extended off from the pulley.

24. A pulley having conductive portions insulated from each other whereby they may be included in the respective circuits of strands carried by the pulley, a casing for the pulley

comprising conductive portions insulated
from each other whereby they may be in-
cluded in the respective circuits of the said
strands to extend the said circuits off from
5 the pulley and spring mechanism acting on
the pulley to rotate same.

As inventor of the foregoing I hereunto

subscribe my name in the presence of two
subscribing witnesses this 24th day of May
1907.

FREDERICK R. PARKER.

Witnesses:

WALTER A. GREIG,
CEPHAS B. ADAMS.