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O. C. KAVLE

SPRING REEL FOR CONDUCTORS

Filed Dec. 8, 1925

FIG. 1,

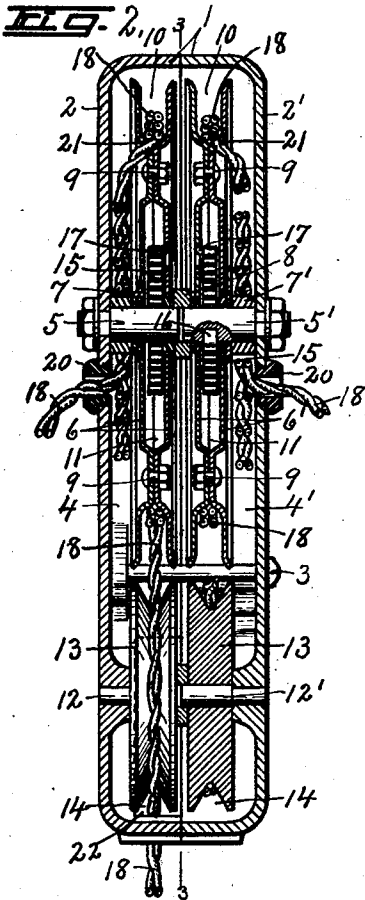
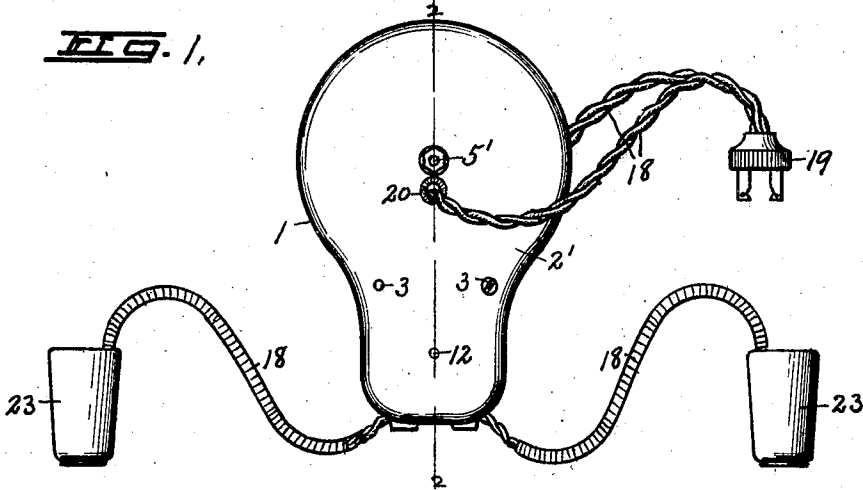
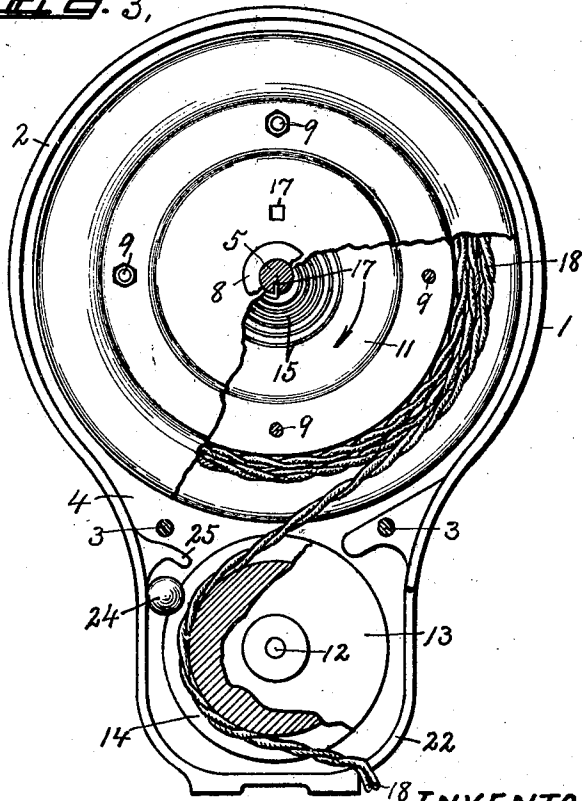


FIG. 3,



WITNESS

H. H. H.

INVENTOR
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ATTORNEYS

UNITED STATES PATENT OFFICE.

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SPRING REEL FOR CONDUCTORS.

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This invention relates to a portable hair waving machine and refers more particularly to the means for receiving and supporting one or more flexible cables carrying certain implements used in the permanent waving and other treatment of the hair.

These cables usually consist of electric conductors having one end connected to a suitable plug adapted to be inserted in a lamp or wall socket for electric connection with the source of supply while the other ends are connected to electric heaters or equivalent devices used in the process of waving or curling hair and inasmuch as the lamp or wall sockets to which they are attached are necessarily placed in fixed locations in order that the patrons in different portions of the parlors may be conveniently served.

The main object of the present invention is to provide simple and efficient means for storing the larger portion of the cable between the plug or heaters in relatively small compact space out of the way of travel and at the same time to allow any one of the cables with the waving tool or other implement thereon to be easily and quickly drawn out from its storage receptacle to any extent within its length and as easily replaced without liability to excessive wear, knotting or kinking.

In other words, I have sought to provide an automatic device for taking up the slack of the larger portion of the cable or cables between the plug and operating tool or tools and at the same time to allow the cable to be drawn out by hand to any desired degree within its length.

Other objects and uses relating to specific parts of the device will be brought out in the following description.

In the drawings:

Figure 1 is a face view of a portable hair waving device embodying the various features of my invention.

Figure 2 is an enlarged transverse vertical sectional view taken on line 2—2, Figure 1.

Figure 3 is an enlarged face view, partly broken away, and partly in section of the same device.

As illustrated this device comprises a hollow case or housing —1— adapted to be secured by any suitable fastening means to a stationary or portable frame not shown,

and is preferably divided midway between its front and rear sides to form opposite similar sections —2— and —2'— having their meeting faces clamped together by bolts —3— or equivalent fastening means to form intervening chambers —4— and —4'— communicating with each other.

These sections may be made of cast metal or other suitable material so that one pattern may serve for both and are provided with relatively large circular heads or top portions and relatively smaller base or bottom portions.

The upper larger portions of the sections —2— and —2'— are provided with inwardly projecting studs —5— and —5'— rigidly secured thereto co-axial therewith and with each other for receiving and supporting a pair of relatively co-axial large grooved pulleys or drums —6— and —6'— which are revoluble about the axes of the studs independently of each other.

Suitable spacing members —7— and —7'— surround their respective studs —5— and —5'— between the outer walls of the sections —2— and —2'— and adjacent ends of the hubs of the drums for holding the latter in spaced relation to the adjacent walls of the case for receiving portions of the electric conducting cables in a manner presently described.

An additional spacing member —8— surrounds the adjacent inner ends of the studs —5— and —5'— between the adjacent ends of the hubs of the drums —6— and —6'— for holding them in spaced relation to each other and permitting their independent revoluble movement.

Each of the drums —6— and —6'— is preferably composed of opposite similar circular sheet metal discs secured together face to face by bolts —9— which are preferably arranged in uniformly spaced relation circumferentially at points between and some distance from the periphery and axis of the drums.

The circumferential edges of the opposite sections of each drum are spread apart to form an annular groove —10— while the intermediate portions between the bolts —9— and studs are also spread apart to form an intervening annular chamber —11—.

The lower reduced portions of the case sections —2— and —2'— are provided with

inwardly projecting studs —12— and —12'— for receiving and supporting a pair of similar co-axial drums or sheaves —13— and —13'— of smaller diameter than the drums —6— and —6'— and are preferably made of wood, vulcanized fibre or equivalent material to reduce wear upon the cables and for insulating purposes.

These sheaves —13— and —13'— are arranged to revolve about the axes of the respective studs —12— and —12'— in the planes of rotation of their corresponding larger drums —6— and —6'— and are also provided with peripheral grooves —14— for receiving the cables in a manner presently described.

Separate coiled springs —15— are arranged within the chambers —11— of the drums —6— and —6'— for automatically rotating said drums in reverse directions and for this purpose the inner ends of the springs are fastened at —16— to their corresponding studs —5— and —5'— while their outer ends are fastened to suitable lugs —17— projecting laterally into said chambers from the inner walls thereof as shown in Figure 2.

These springs are preferably wound in reverse directions around their respective studs —5— and —5'— for retracting the drums rotarily in reverse directions after the latter have been rotated by their respective cables in a manner presently described.

A pair of separate electric conducting cables —18— are attached at one end to a plug —19— which in turn may be attached to a lamp socket, wall socket, or other terminal connections of a source of electric supply, said cables being passed through insulating bushings —20— in opposite sides of the case —1— near and preferably just below the studs —5— and —5'— so as to extend from the outside to the inside of the case where they are first wound in reverse directions one or more turns around the spacing sleeves —7— and —7'— and within the spaces between the outer walls of the case and adjacent end faces of the drums —6—, —6'—.

These cables are then extended through suitable openings —21— in the bottoms of the respective grooves —10— of their respective drums —6— and —6'— and are wound in reverse directions one or more turns around the peripheries of said drums within the grooves and then extended around opposite faces of the corresponding sheaves —13— and thence outwardly through openings —22— in opposite sides of the lower reduced portion of the case, the corresponding ends of the cables being secured to separate electric heaters —23— or other electric implements adapted to be used in the process of waving or curling hair.

The coiled spring —15— of each drum is

wound around the stud or shaft —5— of each drum in a direction opposite the winding of the cable around the drum for increasing the tension of the spring as the cable is unwound by hand thereby causing the spring to automatically rewind the cable on the pulley when the outward pull upon the cable is released.

The cable of each drum is also wound around the corresponding stud in a direction opposite to the winding of the cable around the drum to enable it to unwind from around the stud while it is being unwound from the drum, this additional winding around the stud serving as a means for holding the cable against slipping when being wound and unwound upon and from said drum.

Associated with each of the smaller sheaves —13— is a one-way ball lock —24— and stop —25— the ball —24— being seated between the wall of the peripheral groove of each sheave and adjacent side of the case —1— adjacent the side of the pulley around which the cable extends so as to frictionally lock the sheave against rotation without engaging the cable when the cable is drawn outwardly through the opening —22— with a sliding motion against the periphery of the sheave and permit the rotation of said sheave when the cable is being rewound upon the larger drum —6— or —6'—.

The stop —25— is located slightly above the normal locking position of the ball to prevent displacement of the ball from the peripheral groove in the smaller sheave, particularly during the rewinding of the cable on the larger drum.

The object in using two or more cables on the same device is to permit simultaneous service to a corresponding number of patrons but it is evident that these devices may be multiplied indefinitely or reduced to a single cable and its associated drum and sheave, if desired, without departing from the spirit of this invention.

Operation.

When the case of the apparatus is properly secured in place the ends of the cables carrying tools or implements —23— will be normally drawn into the case through the openings —22— by the operation of the drums —6— and —13— through the medium of their retracting springs —15—.

When it is desired to use either one of the implements —23— its corresponding cable is drawn outwardly through the opening —22— thereby unwinding it from one side of the larger drum and causing it to slide around the opposite side of the smaller drum during which operation the spring —15— will maintain a continuous retracting influence upon the drum and cable for taking up the slack of such cable and as

soon as the operator has finished the necessary work by the use of the implement —23— the pull upon the cable may be released thus permitting it to be rewound upon the larger drum with greater freedom than the withdrawing operation by reason of the free rotation of the smaller drum.

By this arrangement the cable is always kept free from the floor and at the same time is always ready for use while the friction between each cable and its sheave serves to prevent unwinding of the cable from its drum by the weight of the implement attached to said cable.

15 What I claim is:

1. In a device of the character described, a case, a drum and a sheave both rotatably mounted within the case to rotate about parallel axes and in substantially the same plane, a cable wound around the drum and extending from one side thereof around the opposite side of the sheave and outwardly through an opening in the case and provided with an electric implement, the other end of the cable being extended through a separate opening in the case to the exterior thereof and provided with means for attachment to a source of electric energy, and a spring for rotating the drum in a direction to rewind the cable thereon.

2. In a device of the character described, a case, a drum and a sheave both rotatably mounted within the case to rotate about parallel axes and in substantially the same plane, a cable wound around the drum and extending from one side thereof around the opposite side of the sheave and outwardly through an opening in the case and provided with an electric implement, the other end of the cable being extended through a separate opening in the case to the exterior thereof and provided with means for attachment to a source of electric energy, a spring for rotating the drum in a direction to rewind

the cable thereon, and means cooperating with one of the drums for frictionally retarding its movement in one direction and permitting its free movement in the reverse direction.

3. In a device of the character described, a case, a plurality of drums rotatably mounted co-axially within the case for independent rotary movement, separate springs one for each drum and each rotating its drum the reverse of the other, separate cables wound in reverse directions upon their respective drums and having their opposite ends extending through separate openings in the case to the exterior thereof for connection respectively with a source of electric energy and with separate electric implements, the ends carrying the implements being adapted to be drawn outwardly for rotating their corresponding drums against the action of their respective springs.

4. In a device of the character described, a case, a plurality of drums rotatably mounted co-axially within the case for independent rotary movement, separate springs one for each drum and each rotating its drum the reverse of the other, separate cables wound in reverse directions upon their respective drums and having their opposite ends extending through openings in the case to the exterior thereof for connection respectively with a source of electric energy and with electric implements, the ends carrying the implements being adapted to be drawn outwardly for rotating their corresponding drums against the action of their respective springs, and devices for retarding the unwinding of the cables from their respective drums and for permitting free rewinding of said cables on their drums.

In witness whereof I have hereunto set my hand this 5th day of February, 1925.

OSCAR C. KAVLE.