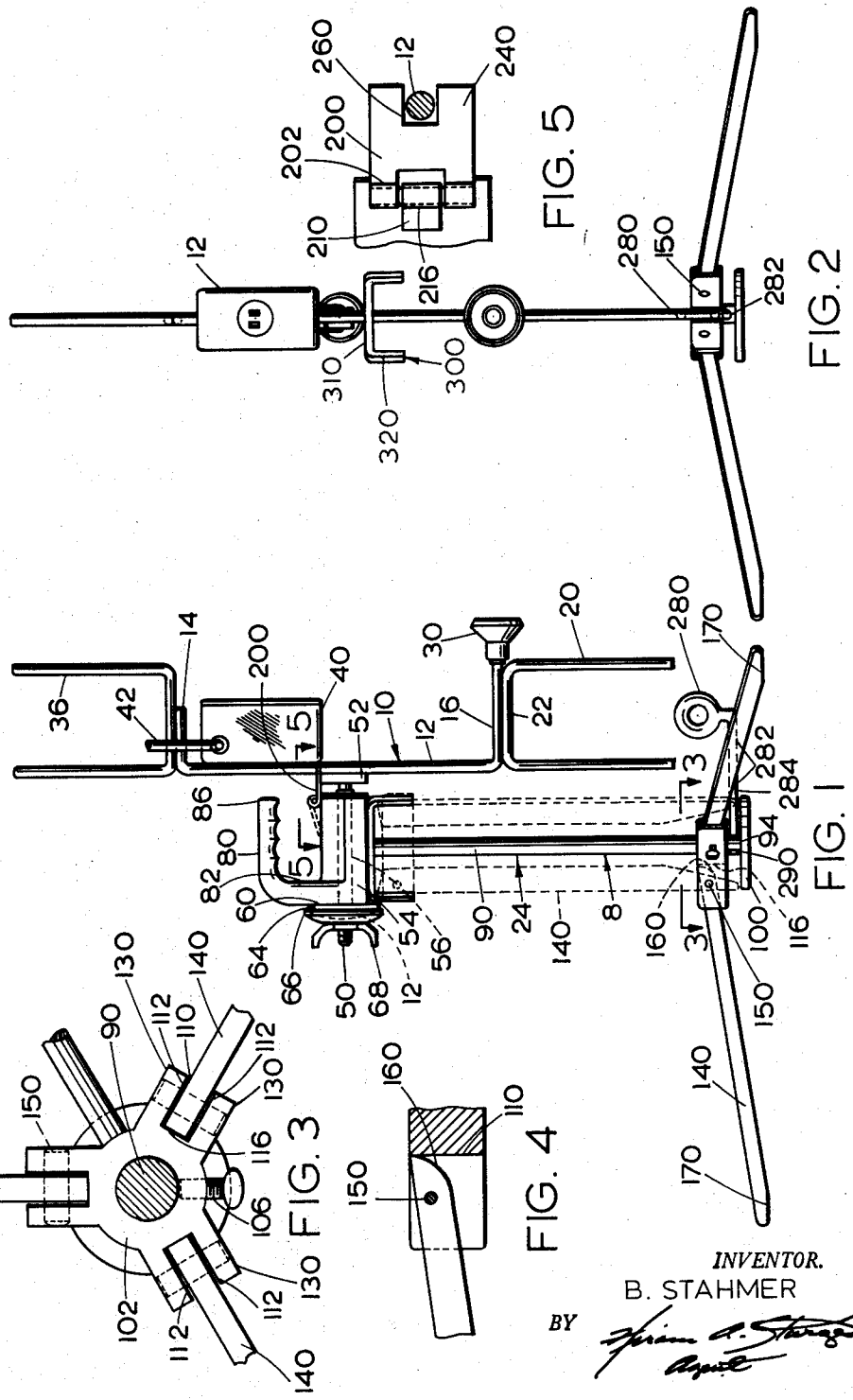
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COLLAPSIBLE REEL

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COLLAPSIBLE REEL

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This invention relates to reels of the type used for winding cable or electrical cord and it is particularly an object of this invention to provide a reel which is collapsible for storage in a much lesser space than heretofore.

It has been a common experience that electrical reels and the like have had base portions which have usually been in the form of a large metal casting having considerable diameter to provide the reel with stability. When such reels are used by television and radio technicians and also by the armed services in places where the reel is used temporarily and then placed in a truck to be moved to another location, space has been a problem. In a truck, one or more such reels take up a disproportionate amount of floor space in proportion to their total bulk and this space is usually needed for many other items of equipment also being moved at the same time.

While this condition has existed in many parts of industry, there has not been on the market a suitable solution to this problem.

It is, therefore, an object of this invention to provide a reel, the base portion of which is adapted to collapse and more particularly to be adapted to be drawn up into a space beneath the handle and alongside a standard, whereby the total space taken up by the collapsed base is no greater in height than the space taken up by adjacent other parts of the reel.

Other and further objects and advantages of the present invention will be apparent from the following detailed description, drawings and claims, the scope of the invention not being limited to the drawings themselves as the drawings are only for the purpose of illustrating a way in which the principles of this invention can be applied.

Other embodiments of the invention utilizing the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings:

FIGURE 1 is a side elevation of the collapsible reel of this invention, collapsed positions of the legs being shown in dotted lines.

FIGURE 2 is a view of the reel of FIGURE 1 as seen from the righthand side, a section of the cord not being shown.

FIGURE 3 is a sectional view taken along the line 3—3 of FIGURE 1.

FIGURE 4 is a sectional view showing the way the legs are pivotally attached to the leg carrier.

FIGURE 5 is a view of the unwinding lock.

Referring to the drawings, it will be seen that the reel of this invention has a simple and economical reeling portion preferably composed of a single central member 12 of substantially a C-shape as seen in side elevation, the central member 12 being disposed for rotation in a vertical plane and having outwardly turned horizontal end portions 14 and 16 which latter are preferably formed integral with the portion 12 for economical construction.

The portion 16 is suitably secured to a cord-supporting saddle 20 which is preferably of U-shape and which in the position shown in FIGURE 1, is in an inverted U position.

The transverse portion 22 of the saddle 20 is horizontal at all times and fixed to horizontally disposed portion 16 of the reel central portion 12, the portion 16 extending outwardly away from a later described portion of the reel 24 which shall be hereinafter termed the carrier portion, and extending outwardly from the latter a sufficient

distance to receive thereon a knob 30 rotatably disposed on the portion 16 which latter is preferably made of cylindrical shafting material or the like for the simple and economical assembly of the knob 30 thereon.

As thus described, the knob 30 is adapted to spin and rotate with respect to the axis of the portion 16 and such knobs make possible convenient and rapid control of the cord-receiving portion of the reel.

Another saddle 36 is similarly attached to the portion 14 whereby both saddles 20 and 36 open outwardly to receive cord in their concave outer sides.

The wire-receiving portion 12 further has an outlet box 40 secured to its vertical central portion 12 and the latter has a cord 42 extending outwardly therefrom and only a portion of which is shown in FIGURE 1, although it will be understood that the cord is adapted to be reeled up in the saddles 20 and 36.

A horizontal shaft 50 is attached at its outer end to a mounting member 52 which is firmly fixed to the central portion 12 of the reel.

The shaft 50 is rotatably received in a bearing 54 which latter has a horizontally disposed bore 56 therethrough.

That side of the bearing 54 which is opposite the mounting member 52 is provided with a surface 60 which is disposed at a right angle to the bore 56 and which is flat for receiving thereagainst a washer 64 on the other side of which is a spring 66 of a type quite resilient and adapted to exert a braking force on rotation of the cord-receiving portion 10 of the reel 8 in proportion to pressure against the spring 66 by an adjustment wing nut 68 disposed on the opposite side of the spring 66 from the washer 64.

The spring 66 is of a type that is concave on that side of it that faces the washer 64 and convex on its other side, the concave side being indicated in dotted lines at 72, such washers being common on the market and no claim is made to this washer apart from the reel.

A convenient carrying handle 80 is mounted in a generally horizontal position directly above the bearing 54 and the handle 80 is connected to the bearing 54 by a connection portion 82 which extends downwardly from the handle 80 on that side of the handle which is opposite the cord-receiving portion 10 of the reel whereby the portion 10 tends to weight the reel during carrying such that the opposite or free end 86 of the handle 80 is downward whereby the handle 80 tends to slip further into the hand instead of out of the hand during carrying.

It will be seen that during carrying the connection portion 82 will engage a carrier's hand thereby causing the handle 80 and connection portion 82 to, in a sense, "hook into" the carrier's hand, thereby giving assurance of the handle not slipping and the reel dropping from its loaded weight.

The bearing 54 and its bore 56 and the handle 80, all extend horizontally parallel to each other. Beneath the bearing 54 and attached thereto is a vertical standard 90 which is preferably in the form of a cylindrical shaft elongated sufficiently to extend preferably from the underside of the bearing 54 down to and preferably substantially beyond the lowermost part of the cord-receiving portion 10 terminating in a connection at 94 to a retaining shoulder 100 which extends outwardly on all sides from the standard 90.

As best seen in FIGURE 3, a leg carrier 102 is slidably mounted on the standard shaft 90 by means of a vertical hole 104 through the leg carrier 102.

The leg carrier 102 further has a set screw 106 threadedly mounted therethrough for fixing the position of the leg carrier 102 vertically on the shaft 90.

The leg carrier 102 preferably has at least three notches 110 therein, each notch having flat vertical wall surfaces

112 disposed in parallelism and opposite each other and each recess 110 further having an innermost wall 116 which is preferably vertically disposed and normal to the wall 112.

The walls 112 each are preferably formed on oppositely disposed surfaces of pairs of ears 130 which latter are disposed one pair to each of a plurality of legs 140, which latter are preferably three in number, each received in one of the recesses 110.

Pins 150 extend through each pair of ears 130 respectively for pivotally securing each respective leg 140 to the ears 130 and thereby to the leg carrier 102.

Each leg 140 has an inner end surface which is rounded on its underside as best seen at 160 and the innermost part of each inner end of each leg 140 is adapted to engage and abut the inner wall 116 of the respective recess 110 at times when each leg is extending at a slight downward inclination at its outer end from the horizontal sufficiently to uphold the shoulder 100 substantially away from the floor or other surface on which the reel may rest.

Each leg 140 has an undersurface 170 which is adapted to be disposed in a horizontal plane at times when the innermost terminal end of the respective leg 140 is in abutment with the inner wall 116 of the respective recess 110.

As thus described, it will be seen that the reel is in an operative position when the legs 140 are spread out and when the leg carrier 102 is in a lower position near the shoulder 94. When it is desired to carry the reel, the set screw 106 is operated for placing the leg carrier in the dotted line position shown in FIGURE 1 with the leg carrier 102 closely adjacent the bearing 54 whereby the legs 140 can be disposed extending vertically downwardly therefrom.

To prevent the reel cord-receiving portion 10 from rotating as the reel is carried, a lock 200 is provided which latter has an opening extending through each of its two inwardly extending nibs 202 for receiving a pin 204 which also extends through a hock 210 which extends upwardly from the bearing 54 and preferably is an integral part of a casting forming the bearing 54, the handle 80, and the connection portion 82. The hub 210 has an opening 216 therethrough for receiving the pin 204 and the pin 204 extends in a direction normal to the axis of the bore 56. The lock 200 has at its end opposite its rotatably attached end a pair of spaced latch portions 240 which are disposed in parallelism with a sufficient recess 260 therebetween for receiving the connection portion 12 of the cord-receiving portion of the reel at times when the lock 200 is disposed in a horizontal locking position extending outwardly toward the cord-receiving portion 10 beyond the bearing 54 to arrest any rotation of the cord-receiving portion 10. At such times the lock 200 rests on the upper surface of the bearing portion 54 whereby it remains in a horizontal position although it is adapted to be swung upwardly and rearwardly to be received in a retracted position beneath the handle 80 as shown in dotted lines in FIGURE 1.

As wire is pulled from a roll of wire in the cord-receiving saddles 20 and 36, it passes through an eyelet 280 of a cord receiving guide 282 which has a portion 284 connecting it to the lower end of the standard 90. The connection between the portion 284 and the lower end of the standard 90 can be by having the portion 284 extend into an opening in the standard shaft 90 and such an opening is visible at 290 in FIGURE 1.

As thus described, this invention is believed to provide a reel which can be collapsed to conserve space in a truck or car or for the convenience of simply carrying the reel without its base interfering with the legs of the operator.

An extra feature of special value is a retainer 300 suitably attached to the standard 90 and disposed in a position such that its supporting portion 310 is disposed

above the uppermost positions of the folded legs 140, yet its three spaced apart downwardly depending retainer portions 320 are adapted to grip the outer sides of the legs 140 to prevent them from swinging outwardly at times when they are in carrying positions. The depending retainer portions 320 are spaced apart such that the carrier 102 can be received in the space between the depending portions 320 as the legs are moved upwardly and then the portion 102 can be rotated into a position such that the legs are immediately inwardly of the respective depending portions 320. The setscrew 106 is then locked against the standard to maintain the leg carrier 102 in place.

From the foregoing description, it is thought to be obvious that a collapsible reel constructed in accordance with my invention is particularly well adapted for use, by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof, and for this reason, I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice, except as claimed.

I claim:

1. In a collapsible reel having an upright standard, a leg carrier vertically slidably mounted on said standard, means for maintaining said leg carrier in a selected position on said standard whereby said leg carrier can be in a lower position on said standard for operation and in a higher position on said standard for providing a collapsed position, a plurality of legs, means swingably mounting the inner ends of said legs on said leg carrier in a manner permitting the vertical swinging of outer ends of said legs from outwardly extended use positions to downwardly depending collapsed positions such that at times when said legs are in collapsed positions, they are disposed alongside said standard and such that when said legs are in said operational positions, their outer ends are prevented from swinging upwardly with respect to said leg carrier beyond a position suitable for maintaining the stability of said standard, and reeling means mounted on the upper end of said standard, said reeling means comprising a cord reeling portion, means comprising a bearing disposed alongside of said reeling portion and mounting said reeling portion on the upper end of said standard for rotation of said reeling portion about a horizontal axis, a handle having an undersurface extending generally horizontally, said undersurface being disposed above and spaced from said bearing, and means attaching said handle to said bearing.

2. The combination of claim 1 in which said means swingably mounting the inner ends of said legs on said carrier comprises a plurality of notches in said carrier, said notches being spaced apart around said carrier, said legs having their inner ends disposed in said notches respectively, pins rotatably interconnecting said legs and said leg carrier at said notches, said pins being spaced apart outwardly from the inner ends of said notches respectively, said legs each extending inwardly a greater distance at the upper side of their inner ends, when seen in use positions than at the lower portions of their inner ends, the upper portions of the inner ends of said legs each being adapted to engage the inner wall of respective ones of said notches at times when said legs are in a position for substantially supporting said standard, and whereby when said leg carrier is raised on said standard, said legs are free to hang downwardly from said pins in said notches as the lower portion of the inner ends of each leg are not in contact with the inner wall of the respective notch.

3. The combination of claim 1 which is further provided with means fixed to said standard for engaging said

legs while the latter are in a carrying position to prevent said legs from swinging outwardly at their lower ends.

4. In a collapsible reel having an upright standard, a leg carrier vertically slidably mounted on said standard, means for maintaining said leg carrier in a selected position on said standard whereby said leg carrier can be in a lower position on said standard for operation and in a higher position on said standard for providing a collapsed position, a plurality of legs, means swingably mounting the inner ends of said legs on said leg carrier in a manner permitting the vertical swinging of outer ends of said legs from outwardly extended use positions to downwardly depending collapsed positions such that at times when said legs are in collapsed positions, they are disposed alongside said standard and such that when said legs are in said operational positions, their outer ends are prevented from swinging upwardly with respect to said leg carrier beyond a position suitable for maintaining the stability of said standard, and reeling means mounted on the upper end of said standard, said reeling means comprising a cord reeling portion, means comprising a bearing disposed alongside of said reeling portion and mounting said reeling portion on the upper end of said standard for rotation of said reeling portion about a horizontal axis, a handle having an undersurface extending generally horizontally, said undersurface being disposed above and spaced from said bearing, and means attaching said handle to said bearing, a cord receiving guide disposed below said reeling portion whereby the pulling of a cord wound on said reeling portion through said cord receiving guide will have a lesser tendency to upset the reel than if the cord were pulled directly from said reel, and means mounting said cord receiving guide on a lower part of said standard beneath said leg carrier.

5. The combination of claim 1 in which said means for attaching said handle to said hub comprises a connection portion which is disposed on that side of said handle which is opposite said reeling portion whereby said connecting portion tends to engage the side of a carrier's hand to prevent said handle from slipping out of the carrier's hand.

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