United States Patent [19]

Breuner et al.

[11] **3,778,000**

[45] **Dec. 11, 1973**

[54] **ROTATABLE REEL**

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[22] Filed: **July 26, 1972**

[21] Appl. No.: **275,309**

[52] **U.S. Cl.** **242/77.2,** 242/79, 242/129

[51] **Int. Cl.** **B65h 75/20**

[58] **Field of Search** ..... 242/77, 77.2, 79, 242/84, 129, 106, 141; 206/52 W, 59 B; 211/115, 116; 248/317

[56] **References Cited**

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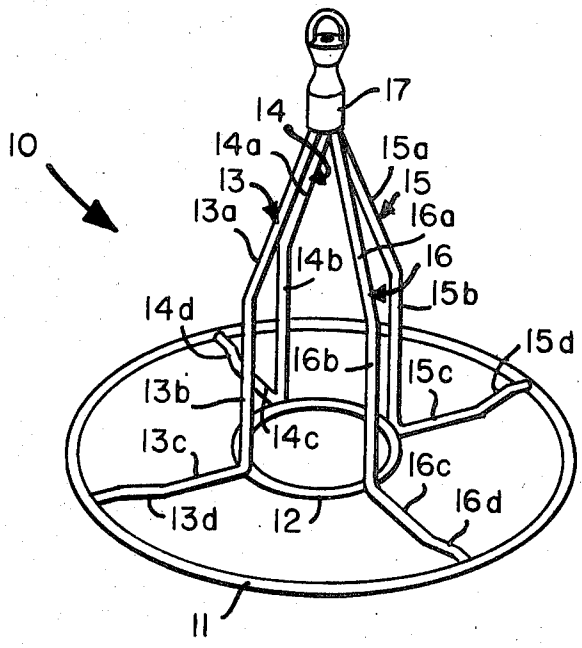
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Assistant Examiner—John M. Jillions
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[57] **ABSTRACT**

A reel for storing a coil of wire, and for either unwinding or rewinding the wire thereon, said reel being capable of being stacked within or nested with other similar reels. The reel includes an inner annular rim and an outer annular rim. A plurality of rod members, being connected together at one of their ends, diverge and extend downwardly at substantially equal angles with respect to each other to connect to the inner annular rim, and then extend outwardly and upwardly to connect at their other ends to the outer annular rim, thereby forming a core frame and a base frame. The reel includes a rotatable suspension connector having a reel holder and a holder shaft to enable the reel to be easily suspended and to be freely rotated when desired.

8 Claims, 4 Drawing Figures



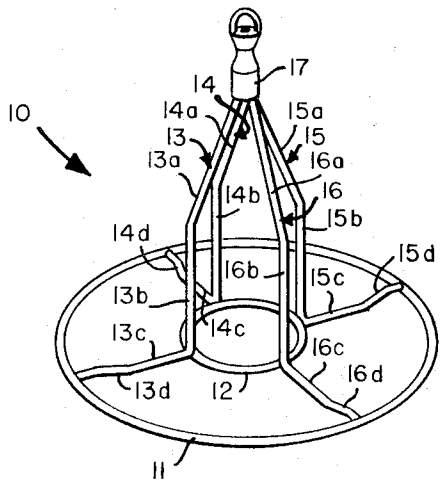


FIG. 1

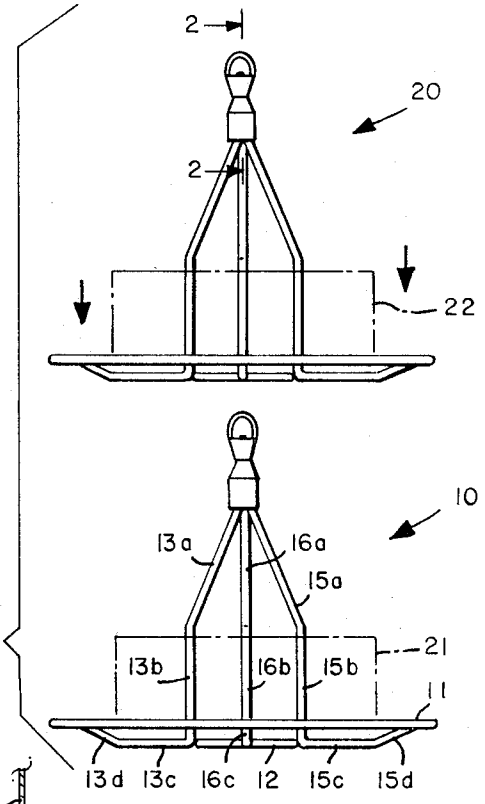


FIG. 3

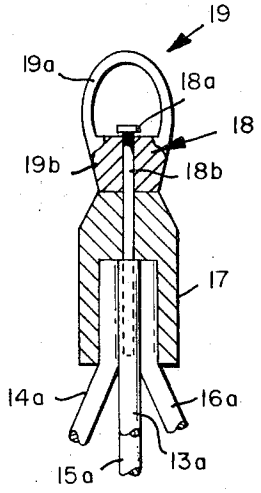


FIG. 2

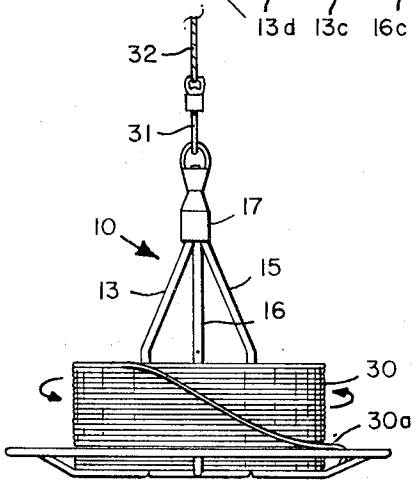


FIG. 4

ROTATABLE REEL

The present invention relates to a rotatable reel, and more particularly relates to a rotatable and suspendable reel that can be nested with other similar reels.

Electrical wire is normally wound in a coil form either within a box, in a carton, or the like. An electrician will carry the box or carton containing the coil or wire to a location in a building, and then proceed to withdraw the wire in order to utilize it in the electrical installation. As the electrician moves to different locations in the building or to other buildings, the withdrawn wire may have to be temporarily rewound to prevent it from becoming ravelled, and thereby further complicating the electrical wire installation process. Further, in the construction of a building, several different sizes of wires may be needed thereby requiring that several coils of wires be carried from place to place.

This invention provides a rotatable reel for holding a coil of electrical wire or the like. The reel can be suspended for rotation in any desired location in order to conveniently unwind or rewind the electrical wire thereon. As the reel of this invention can be stacked within or nested with other similar reels, the electrician can carry several reels with different size wires thereon thereby requiring the minimum amount of trips to bring the several wires to different locations in the building as required.

The reel of this invention includes an inner and an outer annular rim with a plurality of connecting rods forming a core frame and a base frame. The core frame of the reel can be positioned over a core frame of another reel with or without coils thereon to enable reels to be nested on top of each other. A rotatable connector attached to the top of the core frame enables the reel to be quickly suspended in any desired location, and to be easily rotated to unwind or rewind the coil of wire thereon.

It is therefore an object of this invention to provide a reel with a rotatable and suspendable frame for either unwinding or rewinding electrical wire thereon.

Another object of this invention is to provide a rotatable and suspendable reel for a coil of electrical wire that can be quickly and easily installed to either unwind or rewind electrical wire thereon.

Still another object of this invention is to provide a light weight reel for electrical wires that is simple in construction and economical to build.

A further object of this invention is to provide a reel for electrical wires that can be nested with other similar reels with or without coils mounted thereon.

A still further object of this invention is to provide a reel comprising a base frame, a core frame, and a rotatable connector, wherein the reel can be suspended in any convenient location, and wherein wire in a coil form thereon can be easily and quickly unwound to enable the wire to be conveniently utilized in electrical installations.

The novel features which are believed to be characteristic of the invention, both as to its organization and method of operation, together with further objects and advantages thereof, will be better understood from the following description considered in connection with the accompanying drawings in which an embodiment of the invention is illustrated by way of example. It is to be expressly understood, however, that the drawings

are for the purpose of illustration and description only and are not intended as a definition of the limits of the present invention.

FIG. 1 is a perspective view of the rotatable reel of this invention.

FIG. 2 is an enlarged partially broken away view of the top portion of the rotatable reel as seen for example along lines 2—2 of FIG. 3.

FIG. 3 is a side view of two indentical rotatable reels as seen in FIG. 1, in which one rotatable reel is positioned above the other to illustrate how they can be nested.

FIG. 4 is a side view of the rotatable reel seen in FIG. 1 which is seen to be suspended to allow a coil of electrical wire thereon to be unwound.

Referring now to the figures, as seen in FIG. 1, the rotatable reel 10 of this invention includes an outer annular rim 11 and an inner annular rim 12, both of which may be made of steel rods or the like. A plurality of rod members, seen to be four rods 13, 14, 15, and 16 in this illustrated example, are connected together by being welded within collar 17 at one of their ends. Collar 17 is a short hollow cylindrical member made of steel or the like.

Rods 13 through 16 have four sections designated by the letters *a*, *b*, *c*, and *d* appended to the numeral designations of said rods 13 through 16 respectively. Sections 13*a*, 14*a*, 15*a*, and 16*a* are shown to extend downwardly from collar 17 at equal angles with respect to each other. Sections 13*a*, 14*a*, 15*a*, and 16*a* also diverge to positions above inner annular rim 12. Then sections 13*b*, 14*b*, 15*b*, and 16*b* extend downwardly to form a coil hub frame, and connected by being welded to equidistant positions along the circumference of inner annular rim 12. Thereafter, sections 13*c*, 14*c*, 15*c*, and 16*c* extend outwardly to form a coil bottom support, and then sections 13*d*, 14*d*, 15*d*, and 16*d* extend upwardly to connect by being welded to equidistant positions along the circumference of outer rim 11. As a result, outer annular rim 11 is raised above inner annular rim 12.

Referring now to FIG. 2, there is shown therein an enlarged sectional view of the top portion of the rotatable reel. Collar 17 is seen to enclose the four ends of sections 13*a* through 16*a* of rod members 13 through 16 respectively. A holder shaft 18 is provided with a flanged top end 18*a*. Holder shaft 18 has a shank 18*b* with a bottom portion extending within collar 17 to be also welded and held with the ends of rod members 13 through 16 inside collar 17. A reel holder 19 is also provided with an eye shaped head 19*a* capable of being held by suspension means such as a hook or the like. Reel holder 19 forms a shaft housing 19*b* being a hollow cylindrical member. Shank 18*b* of holder shaft 18 is journalled within shaft housing 19*b* to be freely rotatable therein forming in effect a swivel member.

Referring now to FIG. 3, there is shown therein a side view of the rotatable reel 10 seen in FIG. 1 together with an identical reel 20 superpositioned above rotatable reel 10. Reel 10 has a coil of electrical wire 21 fitted around hub frame formed by sections 13*b* through 16*b*, and resting on the bottom support formed by sections 13*c* through 16*c*. Reel 20 has another coil of electrical wire 22 similarly placed thereon. Coils 21 and 22 are shown in phantom. When reel 20 is lowered, the top portion of reel 10 will fit within the inner rim of reel 20 and extend upward until the bottom support of reel

20 rests on coil 21. Similarly, another reel with a coil of electrical wire can also be placed on top of reel 20. In this manner, several reels holding coils of different size wires can be nested to allow them to be conveniently carried from one place to another in a compact arrangement.

Referring now to FIG. 4, there is shown therein a side view of rotatable reel 10 seen in FIG. 1 which is seen to also have a coil of electrical wire 30 thereon, and which is suspended to allow reel 10 to freely rotate and thereby to either wind wire thereon or unwind wire therefrom. A hook 31 connected to supporting cable 32 fits inside eye shaped head 19*a* of reel holder 19 to show one means of suspending reel 10. Cable 32 may be attached to any suitable overhead structure. The coil of electrical wire 30 fits around the hub frame formed by sections 13*b* through 16*b*, and rests on the bottom support formed by sections 13*c* through 16*c*. The end portion 30*a* of wire 30 conveniently rests on one of the upwardly directed sections 13*d* through 16*d*. Thereby, the end portion 30*a* of wire 30 is held off the ground and on the rotatable reel to prevent it from being ravelled or from interferring with other work being done. In removing the wire 30 from reel 10, the end portion 30*a* is gripped and pulled to rotate reel 10 and thereby to unwind the electrical wire as needed. It will of course also be realized that if it is desired to wind wire on reel 10, then reel 10 may be rotated by hand and wire being fed thereto will be wound on reel 10 in coil form.

In the above description, holder shaft 18 and reel holder 19 provided a rotatable suspension connector of the rotatable reel 10. Further, hook 31 with supporting cable 32 provided one type of suspension means for the rotatable reel 10. It will also be realized that although the plurality of rod members 13 through 16 was shown to be continuous rod members with indicated sections connecting to inner annular rim 12 and outer annular rim 11, that these sections of the rod member can be separated into two parts if desired. For example, those sections with the appended letters *a* and *b*, which form a core frame, could be ended at their connections to inner annular rim 12. Also, it will be realized that those sections with the appended letters *c* and *d* could comprise a separate plurality of rod members. Then, those sections with the appended letters *c* and *d* together with inner annular rim 12 and outer annular rim 11 would be the base frame for rotatable reel 10. In addition, although in FIG. 2 the nesting arrangement is shown with coils of wire included, it will also be realized that the rotatable reels of this invention could likewise be nested without coils of wire thereon.

Having herein described the invention, what is claimed as new is:

1. A rotatable reel comprising:
a reel holder capable of being held by suspension means, said reel holder forming a shaft housing;
a holder shaft with a flanged top end, said holder shaft being journalled within the shaft housing to be freely rotatable therein;
an inner annular rim;
an outer annular rim; and
a plurality of rod members connected together at one of their ends to the bottom end of the holder shaft, said plurality of rod members diverging and extending downwardly at substantially equal angles with respect to each other to connect to the inner annular rim, and thereafter extending outwardly and upwardly to connect at their other ends to the outer annular rim at substantially equal distances along the outer annular rim, and to raise the outer annular rim above the inner annular rim.

2. The rotatable reel defined in claim 1 which additionally includes a cylindrical collar connected to and surrounding the said one of the ends of the plurality of rod members, and connected to the bottom end of the holder shaft, and wherein said plurality of rod members diverge and also extend downwardly to connect to the inner annular rim and to form a coil hub frame for a coil of electrical wire to be positioned thereon.

3. A rotatable reel comprising:
a rotatable suspension connector;
an inner annular rim;
an outer annular rim; and
a plurality of rod members connected together at one of their ends to the bottom of the rotatable suspension connector, said plurality of rod members diverging and extending downwardly at substantially equal angles with respect to each other to connect to the inner annular rim, and thereafter extending outwardly and upwardly to connect at their other ends to the outer annular rim at substantially equal distances along the outer annular rim, and to raise the outer annular rim above the inner annular rim.

4. The rotatable reel defined in claim 3 wherein said plurality of rod members diverge and then extend downwardly to form a coil hub frame above the inner annular rim for a coil of wire to be positioned thereon.

5. A rotatable reel comprising:
a reel holder capable of being held by suspension means, said reel holder forming a shaft housing;
a holder shaft with a flanged top end, said holder shaft being journalled within the shaft housing to be freely rotatable therein;
a base frame including an inner annular rim, an outer annular rim, and a plurality of base rod members connecting the inner and outer annular rims at substantial equal spaced distances along said rims; and
a core frame formed by a plurality of core rod members connected together at one of their ends and being connected to the bottom end of the holder shaft, said core rod members diverging and extending downwardly at substantial equal angles with respect to each other, and the other ends of the core rod members being connected to the inner annular rim.

6. The rotatable reel defined in claim 5 which additionally includes a cylindrical collar connected to and surrounding the said one of the ends of the plurality of rod members, and connected to the bottom end of the holder shaft, and wherein said plurality of rod members diverge and also extend downwardly to connect to the inner annular rim and to form a coil hub frame for a coil of electrical wire to be positioned thereon.

7. A rotatable reel comprising:
a rotatable suspension connector;
a core frame formed by a plurality of core rod members connected together at one of their ends and being connected to the rotatable suspension connector, said plurality of core rod members initially diverging and then extending downwardly at substantially equal angles with respect to each other to form a coil hub frame; and

a base frame including an inner annular rim and an outer annular rim, and a plurality of base rod members, said plurality of base rod members being respectively connected to the plurality of core rod members, and said plurality of base rod members extending outwardly to connect to substantially equidistant positions on the circumference of the

outer annular rim to form a coil bottom support.

8. The rotatable reel defined in claim **7** wherein said base rod members in extending outwardly are also curved upwardly to raise the outer annular rim above the inner annular rim.

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