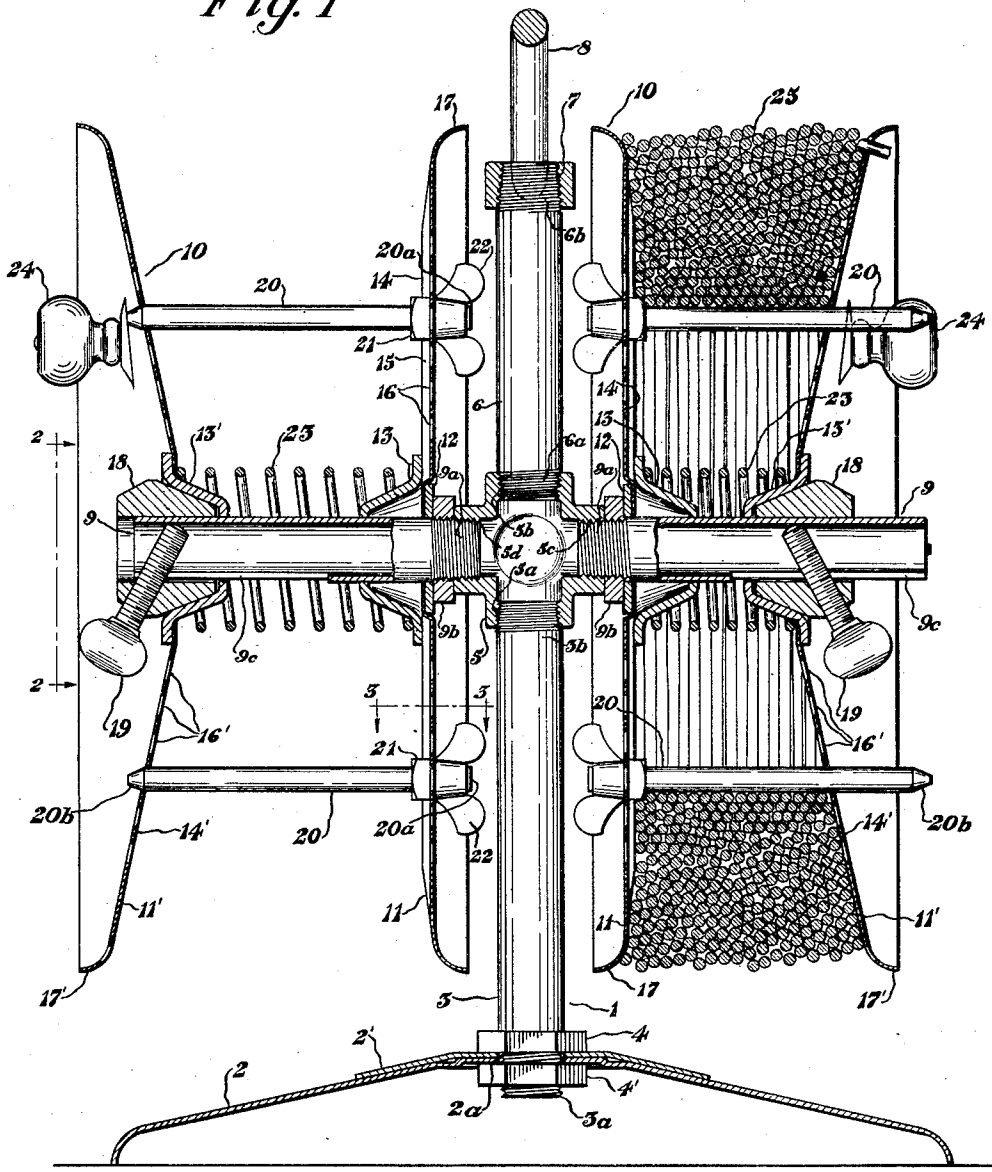
Dec. 15, 1931. H. J. HICK 1,836,969

REEL

Filed Oct. 7, 1927 2 Sheets-Sheet 1

Fig. 1



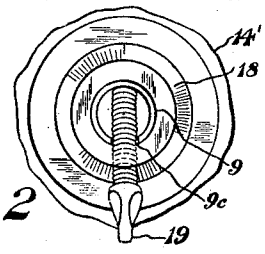


Fig. 2

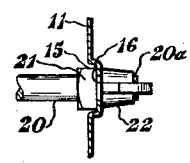


Fig. 3

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Dec. 15, 1931. H. J. HICK 1,836,969

REEL

Filed Oct. 7, 1927 2 Sheets-Sheet 2

Fig. 5

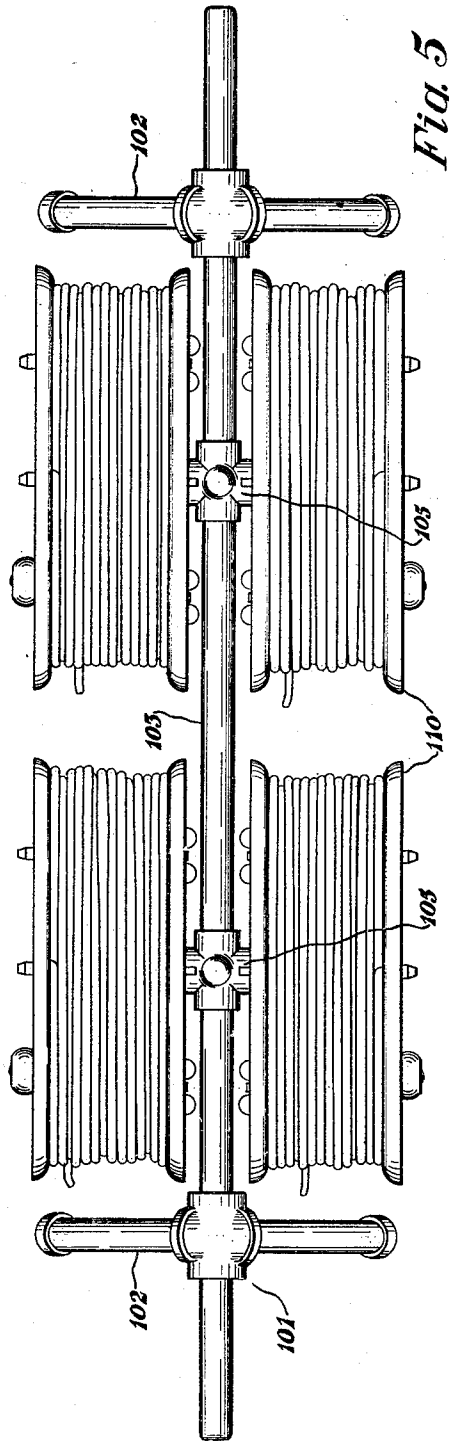
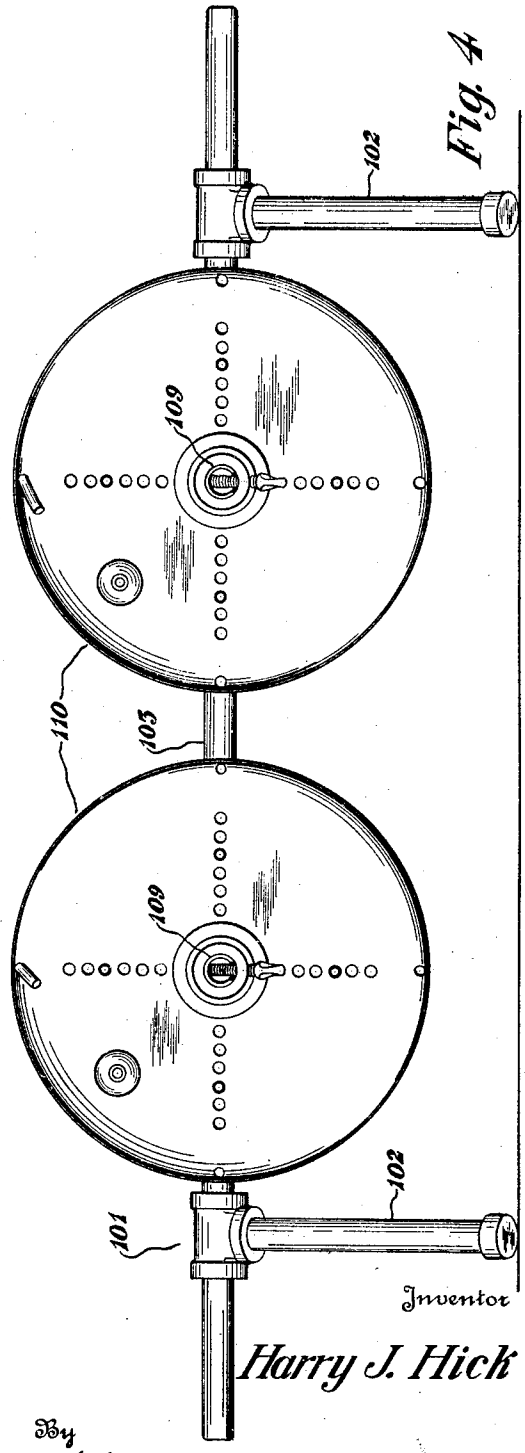


Fig. 4



Inventor

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Patented Dec. 15, 1931 1,836,969

UNITED STATES PATENT OFFICE

HARRY J. HICK, OF ALLIANCE, OHIO, ASSIGNOR TO THE HYKON MANUFACTURING COMPANY, OF ALLIANCE, OHIO, A CORPORATION OF OHIO

REEL

Application filed October 7, 1927. Serial No. 224,620.

My invention relates to reels for coils, wire and the like, and more particularly for coils of electric wires, cables, loom, and other material used in electrical wiring.

In my prior application for patent for coil reels, filed April 1, 1926, Serial No. 99,016, I disclose a reel of this general character and including removable and adjustable means whereby a coil of wire or the like may be quickly and readily mounted between reversely coned, large area flanged disks forming the reel, and whereby a variable pressure may be applied upon the coil between the disks to center the coil and hold and clamp it firmly to permit an easy and neat unwinding of the wire from the coil without tangling, and the reel parts being associated in such a manner as to provide a variable resistance against rotation of the reel to adjust the force required to unwind the reel to any desired degree.

In this reel of my aforesaid invention the entire support for the coil between the disks is provided by the flanged disks pressed against the sides of the coil, and the resistance against rotation of the reel is entirely provided by a wing-nut screwed upon the threaded end of the supporting shaft and clamping the disks against the sides of the coil.

Consequently, as the coil is unwound, it is necessary in order to properly support the coil and to provide the necessary resistance against unwinding, to repeatedly readjust the wing-nut for spacing the opposite disk faces closer and closer to each other.

Otherwise the constantly decreasing size of the coil tends to cause the same to slip between the disks and to unwind more rapidly than the wire being uncoiled therefrom is being used.

Moreover, the provision only of the adjustably spaced opposite disk walls as the sole support of the coil, renders it difficult to use the reel of my aforesaid invention for very large coils of heavy cable and the like.

Accordingly the objects of the present improvements are to provide a reel of the foregoing general description, and which further includes means between the disks providing a positive support for any size or weight of coil regardless of the relative spacing of the disks on the shaft, and furthermore including means setting up a substantially constant resisting torque against unwinding of a coil on the reel, regardless of the number of turns of the coil remaining on the reel and independent of the pressure or lack of pressure of the reel disks against the coil.

These and ancillary objects are attained by a construction and arrangement hereinafter described in detail, and illustrated in the accompanying drawings forming part hereof, in which

Figure 1 is an elevation section of a stand including a vertically extending support upon which are mounted a pair of the improved reels, adapted more particularly for the requirements of a house wiring electrician and the like for carrying coils of two colors of wire;

Fig. 2, a fragmentary elevation view of one of the reels looking in the direction of the arrows 2—2;

Fig. 3, a fragmentary sectional view of one of the reels as on line 3—3, Fig. 1, illustrating the method of connecting one of the coil supporting bars with one of the disks;

Fig. 4, a side elevation of another stand including a horizontally extending support upon which are mounted four of the improved reels, adapted more particularly for the requirements of cable, power or other wiring, requiring the use of cable, wire, loom and the like; and

Fig. 5, a top plan view thereof.

Similar numerals refer to similar parts throughout the drawings.

The stand for carrying the improved reels and indicated generally at 1 in Fig. 1, includes a coned disk base 2 upon which is centrally mounted a preferably vertically extending pipe 3 as by means of nuts 4 and 4′ which securely clamp to the base 2, the lower end 3*a* of the pipe extending through an aperture 2*a* in the base 2, and there being preferably provided a coned reinforcing disk 2′ between the base 2 and the nut 4. At the upper end 3*b* of the pipe 3 a standard pipe fitting cross 5 is mounted by screwing

a lower threaded aperture 5*a* of the cross upon the pipe end.

Opposite the lower threaded aperture 5*a*, an upper threaded aperture 5*b* is located in the cross, and the lower end 6*a* of a handle pipe 6 is screwed therein, the upper end 6*b* of the handle pipe having screwed thereon a threaded aperture 7 of a handle 8.

The cross 5 is provided with side opening threaded apertures 5*c* and 5*d* preferably axially opposite each other and at right angles to the preferably axially alined openings 5*a* and 5*b*.

A threaded end 9*a* of a cantilever reel bearing tubular shaft indicated generally at 9, is screwed into each of the threaded apertures 5*c* and 5*d* of the cross. Each bearing shaft is provided with a shoulder nut 9*b* screwed on its threaded end adjacent the cross; and a longitudinally extending slot 9*c* for a purpose hereinafter to be described is provided in the tubular wall of each of the shafts 9.

Upon each of the cantilever reel shafts 9, an improved reel indicated generally at 10 is adjustably mounted. Each reel includes an inner disk 11 and an outer disk 11′ having suitable central apertures therein, through which their shaft 9 extends.

Each inner disk 11 is preferably provided centrally at one side with a thrust washer 12 secured thereto as by spot welding, and the outer face of the thrust washer is adapted for abutment with the adjacent face of the lock and thrust nut 9*b*.

At the opposite side of each inner disk 11, a preferably conical hub 13 is secured as by spot welding, and serves to maintain the disk 11 in fixed angular relationship with its shaft 9.

Each disk 11 preferably includes a central zone 14 which may be flat throughout the major portion of its extent, and provided with a plurality of radially extending grooves 15; and in the base wall of each of the grooves, radially spaced apertures 16 are provided, and the plane of the zone 14 is preferably perpendicular with the axis of its shaft 9, the zone 14 terminating at its outer periphery with a curved flange 17.

Each outer disk 11′ is provided centrally with a hollow conical hub 13′ secured thereto as by spot welding, and the inner conical surface of each hub 13′ is adapted for rotatably fitting against the outer conical surface of a longitudinally adjustable thrust bearing 18 slidable upon its shaft 9 and adapted to be secured in any desired longitudinal position thereon, as by means of a set screw 19 screwed in the thrust bearing, the inner end of the set screw passing through the slot 9*c* of its tubular shaft 9 and clamping against the inner surface of the shaft.

Each disk 11′ preferably includes a central outwardly flaring dished zone 14′, which terminates at its outer periphery with a curved flange 17′; and circumferentially and radially spaced apertures 16′ are provided in each disk 11′ for registering with the apertures 16 in the adjacent disk 11.

A plurality of laterally extending coil supports are removably and rigidly secured upon each disk 11, and the coil supports are preferably in the form of bars 20, one end 20*a* of each of which is threaded and provided with a nut 21 screwed thereon for permitting the threaded end 20*a* to pass through one of the apertures 16 in its disk 11, so that the inner face of the nut 21 will abut against the outer face of the bottom of its groove 15, and will be locked against turning by the side walls of its groove 15; and a thumb nut 22 screwed upon each threaded end 20*a* extending through its aperture 16, securely and rigidly mounts each bar 20 upon the disk 11.

The outer end 20*b* of each bar 20 extends through and longitudinally slidably fits in one of the suitably registered apertures 16′ of the adjacent disk 11′ and is supported thereby.

For providing a constant resistance against rotation of each reel 10 thus formed by the side disks 11 and 11′, and the coil supporting bars 20, the apexes of the conical hubs 13 and 13′ are preferably directed towards each other, and yielding means such as a coil compression spring 23 is inserted over each shaft 9 between the disks 11 and 11′ thereon, and the ends of the spring fit over the conical hubs and thrust the outer surface of each washer 12 against the opposed surface of its nut 9*b*, and the inner conical surface of each hub 13′ against the outer conical surface of its bearing 18.

A handle 24 may be provided on each disk 11′ for turning the reel on its shaft.

In use, one of the reels 10 may be removed from its shaft 9 by unscrewing the set screw 19 of the thrust bearing 18 for the reel, and longitudinally sliding the thrust bearing and the reel from their shaft 9.

The side disks 11 and 11′ of the reel may then be separated by longitudinally sliding the disk 11′ from the bars 20; and after suitably radially spacing the bars 20 in proper apertures 16 to accommodate the internal diameter of the desired coil 25 of wire or the like to be supported by the reel, the coil 25 may be slipped over the supporting bars 20, and the disk 11′ may be replaced upon the bars 20, so that the inner peripheral face of the coil will be supported by the bars 20 and the sides thereof will rest against the inner faces of the disks.

The reel with the coil supported thereon, may then be replaced upon its shaft 9, and the thrust bearing 18 longitudinally adjusted and secured thereon to provide the desired resistance against rotation of the coil, the spring 23 maintaining this resistance irre-

gardless of the number of turns of the coil 24 remaining in the reel after use of part of the wire of the coil.

It will be seen that by providing each disk 11′ with a central outwardly flaring dished zone 14′ terminating in the outer periphery 17′, each disk 11′ may be moved toward its corresponding disk 11 a considerable distance without permitting the bars 20 to project materially beyond the outer periphery 17′ of the disk 11′, so as to catch clothing and the like of the operator.

Figs. 4 and 5 illustrate a stand 101 including angled leg 102 spacing and maintaining at a suitable distance above the floor, a horizontally extending pipe support 103, at each of any desired number of suitable joints, of which a standard pipe fitting cross 105, similar to the crosses 5, may be mounted; and each of the pipe fitting crosses carry opposite and laterally extending reel shafts 109, similar to the shafts 9, upon each of which a reel 110, similar to the reels 10, is mounted, whereby one of my improved reels for any desired number of different kinds of cable wire and the like is provided, greatly facilitating electric wiring operations in large buildings.

I claim:

1. A reel including a shaft, spaced side disks rotatable and slidable on the shaft, a hollow conical hub on one of the disks, a thrust bearing on the shaft for each disk, one of the thrust bearings being conical for fitting in the conical hub, and yielding means exerting a force on each disk against its thrust bearing.

2. A reel including a shaft, spaced side disks rotatable and slidable on the shaft, a hollow conical hub on each of the disks, a thrust bearing on the shaft for each disk, each of the thrust bearings being conical for fitting in a conical hub, and yielding means between the disks exerting a force on each disk against its thrust bearing.

3. A reel including a shaft, spaced side disks rotatable and slidable on the shaft, one of the disks having conical walls extending from its periphery to its central portion and inclined toward the other disk, a plurality of spaced apertures in each of the disks, and a laterally extending coil support removably and rigidly secured in an aperture of one of the disks and longitudinally slidably fitting and being supported in an aperture of the other disk.

4. A reel including a shaft, spaced side disks rotatable and slidable on the shaft, one of the disks having conical walls extending from its periphery to its central portion and inclined toward the other disk, a plurality of spaced apertures in each of the disks and a plurality of laterally extending coil supports each removably and rigidly secured and in an aperture of one of the disks and longitudinally slidably fitting and being supported in an aperture of the other disk.

In testimony that I claim the above, I have hereunto subscribed my name.

HARRY J. HICK.