Jan. 18, 1944. G. G. EISENBEIS 2,339,688

SWIVELABLE WIRE STORAGE REEL

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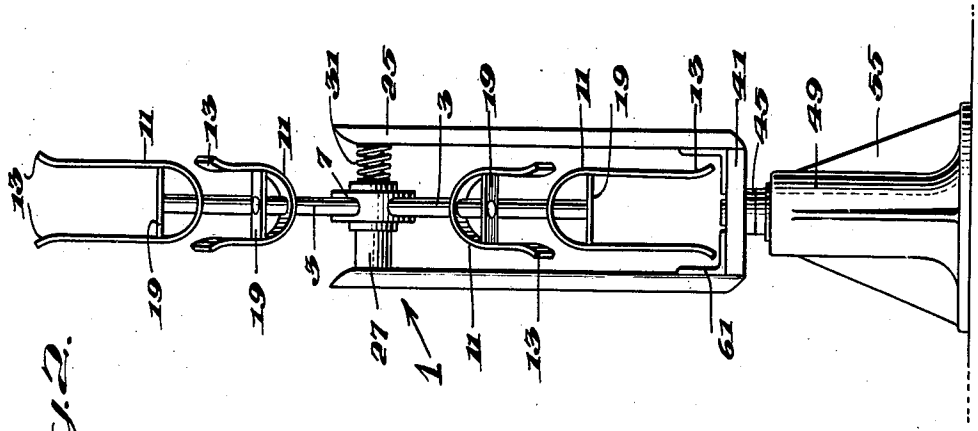


Fig. 2.

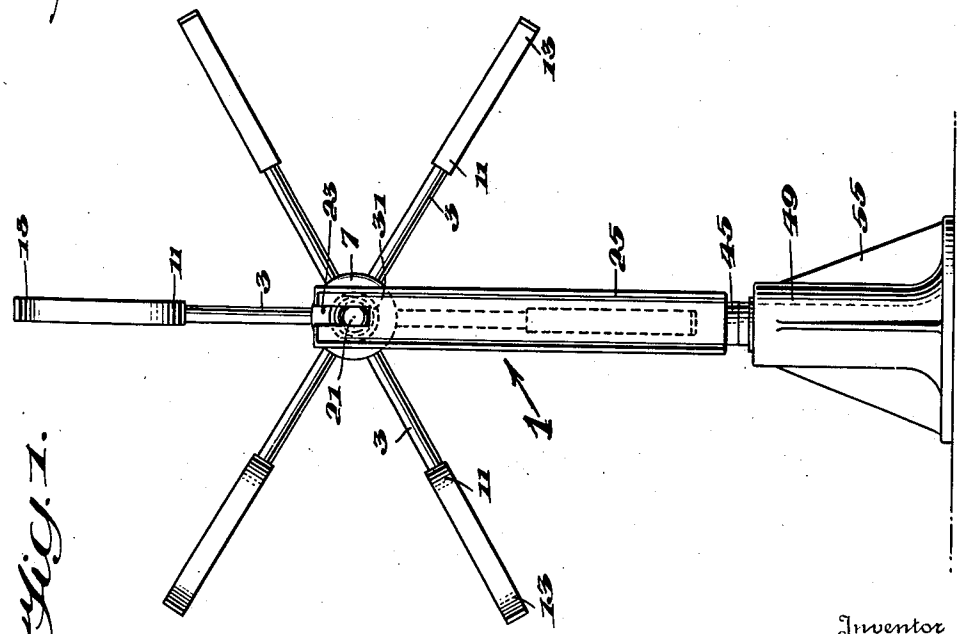


Fig. 1.

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Fig. 3.

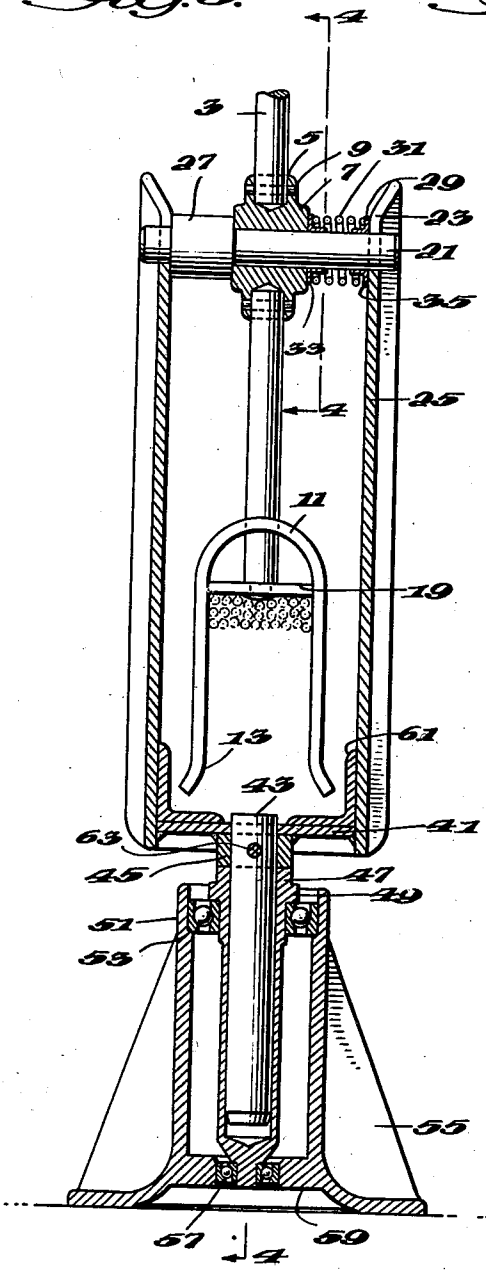
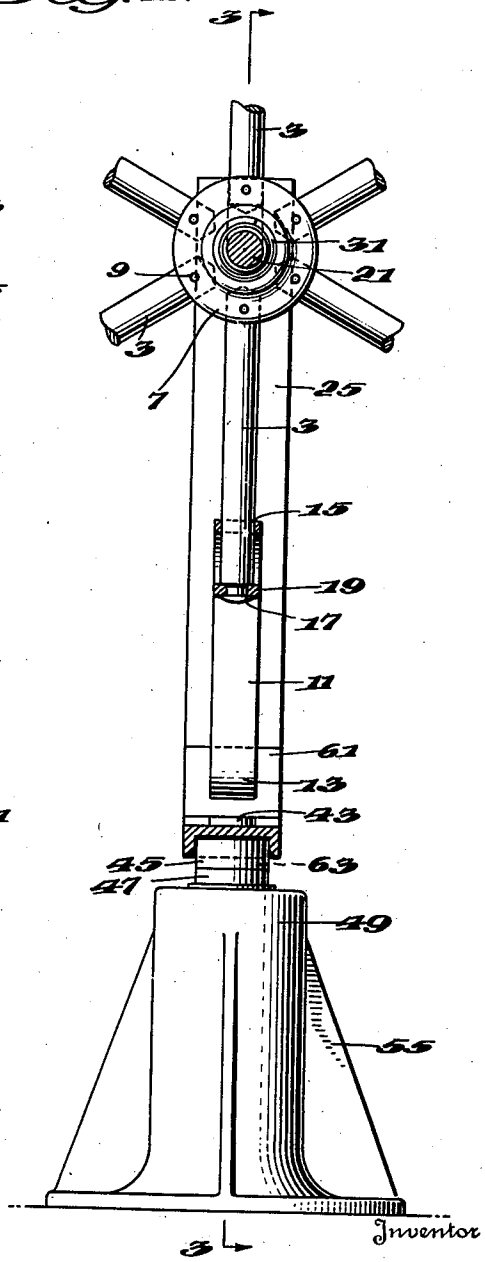


Fig. 4.



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Fig. 6.

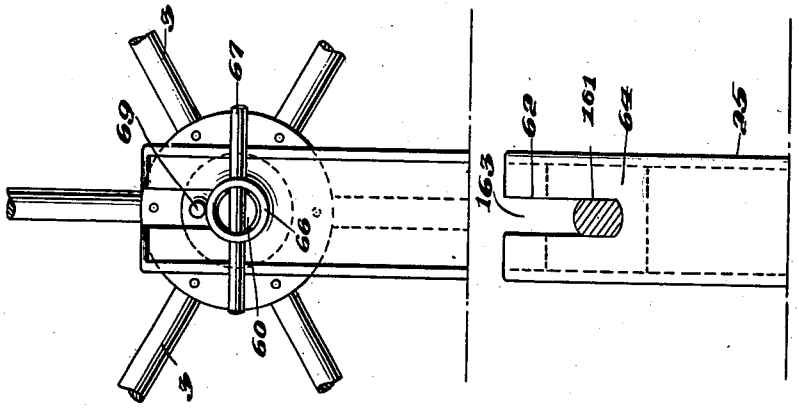
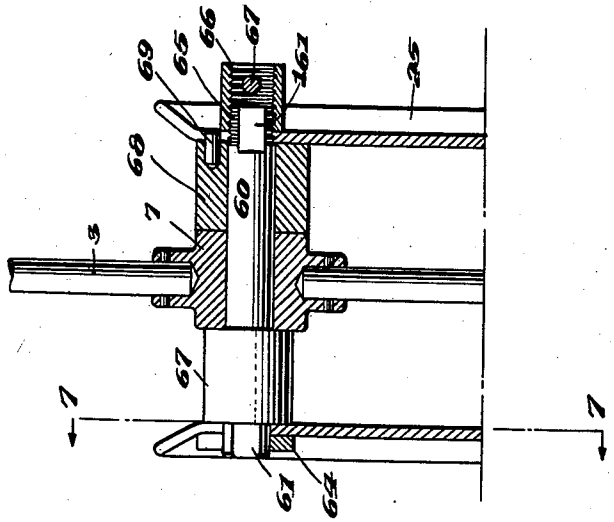


Fig. 7.

Fig. 5.



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UNITED STATES PATENT OFFICE

2,339,688

SWIVELABLE WIRE STORAGE REEL

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Application December 8, 1942, Serial No. 468,260

2 Claims. (Cl. 242—85)

This invention relates to wire storage reels and, more particularly, to a swivelable reel or swift for holding a supply of wire while the wire is being fed to a flexible shaft winding machine, wire rope winding machine, or similar instrumentality.

In winding flexible shafting and wire rope it is customary for the manufacturer to rewind the wire from the bundles as received from the wire mill onto reels or spools from whence the wire is fed to the winding machinery. Various types of swiveled supply reels have been used heretofore whereby the wire as fed from the reel to the winding machine swivels or moves in such a manner that the normal twist or twist imparted by nature of the winding operation therein is removed in part or in whole. These prior devices have been cumbersome and awkward structures that are difficult to refill with a fresh wire holder and, in many instances, they bind and prevent free oscillation or swiveling whereby the wire is not drawn evenly from the reel in untwisted condition.

The primary object of the present invention is to construct a sturdy reel holder from which the wire supply reel per se may be easily inserted or withdrawn and to support the reel in such a manner that in operation the reel may swivel or oscillate and permit the wire thereon to be drawn off in a smooth flow.

A further object is to construct such a wire holder wherein a minimum number of rugged parts are used and to mount the reel and holding means therefor in a base member which is suitably bearinged to insure that no binding will occur as the reel swivels or oscillates.

A still further object is to include with the reel per se a dampening or braking device whereby the reel will not rotate faster than the speed at which the wire is being drawn therefrom while permitting the reel to rotate without undue friction.

In the drawings:

Figure 1 is a side elevation of the reel and its standard;

Figure 2 is a front elevation of the reel and standard showing the side arms for supporting the reel and the position of the dampening means therefor;

Figure 3 is an enlarged vertical section taken on line 3—3 of Fig. 4 in the direction of the arrows;

Figure 4 is an enlarged view partly in cross-section taken on line 4—4 of Fig. 3 in the direction of the arrows;

Figure 5 is an enlarged detail of a modified form of dampening or braking device in which some of the parts thereof are shown in cross-section;

Figure 6 is a side elevation of the modified form of reel braking device; and

Figure 7 is an enlarged detail taken on line 7—7 of Fig. 5 showing the manner in which the axle thereof passes through the slots in the side bars.

Specifically, the wire holding reel per se is designated by the numeral 1 and comprises a plurality of radially extending arms 3 the inner ends of which are secured in sockets 5 equi-spaced throughout the periphery of a hub member 7, the inner ends of the arms 3 being secured in the sockets 5 by means of pins 9. Each arm 3 carries a U-shaped fork member 11 with the outer open ends of the U-member slightly flared at 13. These forks are rigidly affixed to the arms by permitting the arms to pass through openings 15 in the U-shaped portion of the forks and terminating in a rivet-like connection 17 in the transverse bars 19 that are secured to the inner sides of the U-shaped arms of the fork adjacent the U-portion thereof. These transverse bars not only rigidly secure the forks to the arms but also form a platform or surface for the wire supply wound onto the reels.

The hub member 7 is secured to a horizontal member or axle 21 of such a length as to engage and extend beyond the vertical slots 23 formed in the spaced vertical side arms 25 of the reel holder. These arms 25 are slightly flared at their upper ends to facilitate the insertion of a reel into the slots formed therein. The hub 7 is spaced from one side arm 25 by a bushing or filler 27 and, on the opposite side, by means of a dampening device, or brake 29. This brake comprises a coil spring 31 positioned about the side axial extension and is confined between two annular flanges 33 and 35. As clearly illustrated in Fig. 3, the brake 29 presses the flange 35 against the inner face of one of the arms 25 to prevent free rotation of the reel although the frictional engagement of the brake is such that it does not prevent rotation of the reel when the proper tension or pull is placed on the wire being fed therefrom. The upper flared ends of the side arms 25 facilitate the insertion of the reel into the holder and simultaneously compress the brake spring 29.

The lower ends of the side arms 25 are welded to a horizontal bottom bar 41 having a central opening therein for receiving the upper end of

a vertical shaft or pintle 43. This pintle extends downwardly and passes through a collar 45 welded to the underside of the bar 41 with the lower edge of the collar resting upon the top surface of an open ended tubular member 47 wherein the enlarged diameter step 49 thereon is supported by an upper anti-friction bearing 51 mounted in channel 53 of the cylinder base 55. The lower solid end of the tubular member 47 is reduced in diameter and rotatably supported in an anti-friction bearing 57 mounted in an opening in the bottom 59 of the base 55. A transverse pin 63 holds the pintle 43 in position in the collar 45.

It is preferable to reinforce the connection between the side bars 25 and bottom bar 41 by means of angles 61 so that the reel holder possesses the requisite rigidity.

In operation it is usual to remove the reel 1 and to feed thereon by any suitable means a supply of wire from a spool or coil as received from the wire manufacturer. When sufficient material has been wound on the reel the reel is positioned on the side bars 25 of the reel holder and the free end of the wire led to the winding die of the flexible shafting or other machine. As the wire is drawn off of the reel, the brake 29 prevents the wire from being fed at too fast a rate and, also, as the wire is fed, the entire reel structure swivels or oscillates on pintle 45 mounted in the bearings of the supporting base to insure that the nominal twist is removed and the wire laid up in the winding machine in a smooth and orderly manner. It will also be appreciated that any size reel, or reel-supporting arbor, may be readily supported and interchanged into the base member 55 and rotatable tubular member 47.

Figures 5, 6 and 7 illustrate a modified form of reel braking or dampening device particularly for use with large size and heavily loaded reels. While the form of braking or dampening device shown in the other figures of the drawings is most satisfactory for ordinary use the modified form of dampener is preferred for heavy reels. Here the spaced vertically extending parallel arms 25 between which the reel is supported are similar to the first described form of invention and the reel has radial arms 3 attached to a central hub 7 carried on an axle 60. This axle is preferably made with flattened parallel sides 161, as shown in Fig. 7, whereby the ends of the axle extend through and engage the parallel side walls 62 of the slots 163 formed in the arms 25. Because of the weight imposed by this heavy duty type of reel the end of the axle 60 is supported by a slotted washer or reinforcing plate 64 on the outside of one of the arms 25. The opposite end of the axle is screw-threaded at 65 for engagement with an internally threaded nut or cylinder 66 having an operating handle or pin 67 extending through the outer portion thereof.

On opposite sides of the hub 7 and lying between the sides of the hub and the inner sides of the arms 25 are bushings or fillers 67 and 68. The filler 67 may be of metal or any other suitable material, while the bushing or filler 68 is preferably formed of fiber, wood, or other friction material. To maintain the relative position of the friction bushing 68 it is provided with an outwardly extending pin 69 which prevents rotation of the bushing by contact of the pin 69 with the side wall 62 of the slots through which the axle extends. It will be obvious that tightening up of the internally screwthreaded thimble 66 on the threaded end of the axle by means of the operating pin 67 will force the bushing 68 against the side of the hub 7 and, thus, dampen or regulate the speed of rotation of the wire carrying reel.

What I claim is:

1. A wire storage device comprising a fixed cylindrical base, a vertical, rotatable pintle mounted therein, a horizontal member secured to the upper end of said pintle, a pair of spaced vertical arms secured to the ends of said member, the upper end portions of said vertical arms being slotted and outwardly flared, and a storage reel having a horizontal axle for detachable engagement with the said slots in the said vertical arms wherein the said reel consists of a hub secured centrally of the said horizontal axle and has a plurality of radially extending arms projecting from said hub, each of said arms passing through an opening formed in the lower part of an outwardly extending U-shaped member, and a horizontal wire supporting bar affixed to the ends of said arms and to the inner side arms of said U-shaped members.

2. A swivelable wire holding and dispensing device consisting of a vertical shaft having a pair of spaced upstanding arms supported thereon, slots in the upper ends of said arms, a reel structure comprising a horizontal shaft carrying a plurality of radial arms detachably mounted in said slots, a wire holding U-shaped member mounted on the end of each radial arm, a friction brake positioned on one end of said horizontal shaft between said arms and one of said upstanding arms, a collar on the upper part of said vertical shaft, the said vertical shaft being detachably carried in a rotatable tubular sleeve supported at its lower end and adjacent its upper end in spaced apertured anti-friction bearings, whereby the weight of the reel structure is transmitted to the upper end of said bearinged tubular sleeve through said bushing attached to the upper part of said vertical shaft and an outer cylindrical supporting base having an inner annular shoulder for supporting the upper of said spaced anti-friction bearings and a central aperture in said base for supporting the lower of said spaced bearings.

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