Sept. 29, 1925. 1,555,167

J. D. SWITZER

CHALK LINE REEL

Filed Dec. 29, 1924

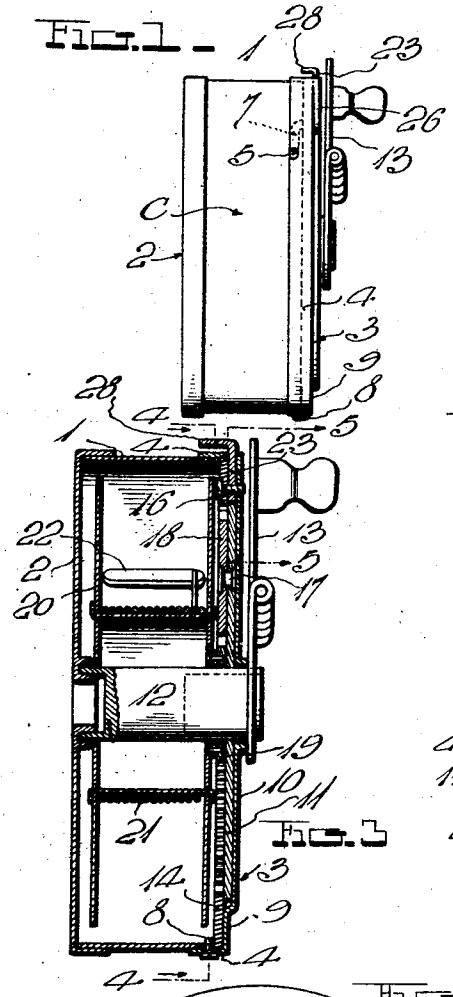


Fig. 1.

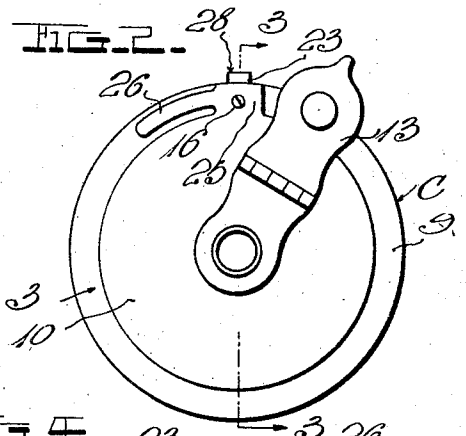


Fig. 2.

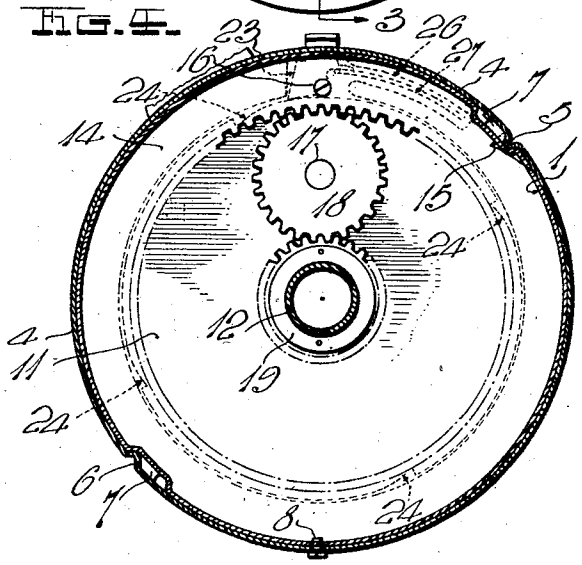


Fig. 4.

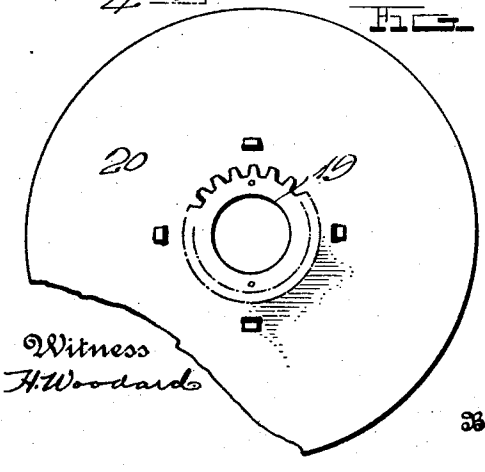


Fig. 6.

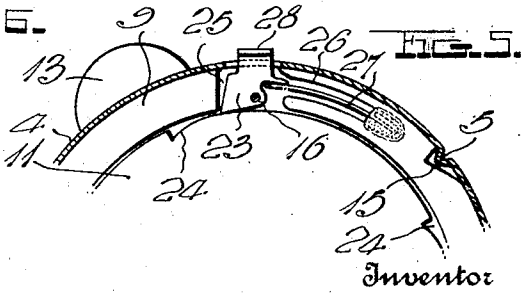


Fig. 5.

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UNITED STATES PATENT OFFICE.

JUDSON D. SWITZER, OF PORTLAND, OREGON.

CHALK-LINE REEL.

Application filed December 29, 1924. Serial No. 758,756.

To all whom it may concern:

Be it known that I, JUDSON D. SWITZER, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Chalk-Line Reels; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in line reels and has reference more particularly to one which is designed primarily for chalk lines and lines of similar nature, the object being to provide a rather simple and inexpensive reel which will rapidly wind the line when the latter is not in use and will permit it to be unwound to any desired extent, but will prevent unwinding beyond such extent.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, the description being supplemented by the accompanying drawing.

Figure 1 is a side elevation of a line reel constructed in accordance with my invention.

Figure 2 is an end elevation.

Figure 3 is an enlarged vertical sectional view as indicated by line 3—3 of Fig. 2.

Figures 4 and 5 are vertical sections as indicated by lines 4—4 and 5—5 of Fig. 3, the casing wall being omitted from these views.

Figure 6 is an end elevation of the line winding reel.

In the drawing above briefly described, a comparatively flat casing C has been shown, said casing having an annular side wall 1 and two opposed end walls 2 and 3, the wall 2 being by preference permanently secured to the side wall 1, while the wall 3 is detachable. This wall is provided with a continuous flange 4 which surrounds the side wall 1, said flange being provided, in the present disclosure, with a pair of inwardly stamped studs 5 and 6 which are receivable in or removable from bayonet grooves 7 stamped in the side wall 1, one of these groove being shown in dotted lines in Fig. 1. To attach or detach the end wall 3, it is of course necessary to turn it with respect to the side wall 1, and to normally prevent such turning, any suitable means such as the screw 8, may be used.

The end wall 3 is provided with a substantially annular rim portion 9 which is offset inwardly from the plane of its major portion 10, and a flat circular disk 11 is disposed at the inner side of said major portion 10, said disk being carried by an appropriate shaft 12 which extends across the center of the casing C and is provided with the usual foldable crank 13 or some other suitable handle by means of which it may be rotated. A flat internal gear ring 14 contacts with the inner surface of the rim portion 9 and overlaps the marginal part of the disk 11. When inserting this ring 14, it is angled and passed betweeen the stud 6 and the end wall 3, the latter being then of course separate from the remainder of the casing. This having been done, the ring is righted and forced into place within the flange 4, said ring being provided with a notch 15 which clears the stud 5. To hold the ring against rotation, a screw 16 has been provided, said screw also having another function hereinafter described.

Meshing with the gear ring 14 and rotatably mounted at 17 upon the disk 11, is a planetary gear 18, said gear also meshing with a central gear 19 which is secured to one end of an appropriate reel 20, said reel being disposed within the casing and being rotatable upon the shaft 12. The disk 11 however, is secured to this shaft, by soldering, brazing or in any other preferred manner, so that said shaft will rotate said disk, thus causing the planetary gear 18 to be rapidly rotated by the gear ring 14, so that said planetary gear in turn rapidly rotates the gear 19 and the reel 20, to wind the line 21, the wall 1 being provided with an appropriate slot 22 through which said line passes.

I provide a manually releasable dog 23 which co-operates with notches 24 in the edge of the disk 11 to hold the latter and all other parts against retrograde movement. A part of the rim portion 9 of the casing wall 3 is outwardly stamped as at 25 to provide a pocket in which the dog 23 is received, and a part of this rim portion is also outwardly stamped as at 26 to provide a groove in which is mounted a suitable spring 27 for moving the dog to operative position. For releasing this dog, it is providing with a suitable finger-piece 28 extending through an opening to the exterior of the casing. The screw 16 above described, serves as a pivotal mounting for

the dog 23, in addition to holding the ring 14 against rotation, and when the entire device is assembled, the free edge of the side wall 1 abuts the inner side of this ring 14, so as to hold it tightly against the rim portion 9 of the end wall 3.

By providing the novel construction shown and described, a reel is provided which will be rather simple and inexpensive, yet it will be highly efficient and desirable. Obviously, when a chalk line or the like is wound within the casing C, it will be protected against injury from any tools or the like which may be carried in the same tool-box or other container with the reel and line. Moreover, the line may be more easily and rapidly unwound or wound, than is possible when winding it in the usual manner, and instead of tying a knot in the line to prevent unwinding thereof beyond a desired extent, it will be seen that the notches 24 and dog 23 perform this function.

As excellent results are obtainable from the details disclosed, they are preferably followed. However, within the scope of the invention as claimed, modifications may of course be made.

I claim:

1. A line reel comprising a casing having opposed end walls, one of which is provided with a rim portion offset inwardly from its major portion, a circular disk engaging the inner side of said major portion, said disk having its peripheral edge disposed within the confines of said rim portion, an internal gear ring secured against the inner side of said rim portion and lapping onto the inner side of said disk, a planetary gear mounted rotatably on said disk at the inner side of the latter and meshing with said gear ring, a central shaft passing across the casing and fixedly carrying said disk, a reel rotatable upon said shaft between said disk and the remote end of the casing, and a central gear secured to one end of said reel and meshing with said planetary gear.

2. A structure as specified in claim 1; part of said rim portion of said one end wall being outwardly bulged to provide a pocket and a groove leading therefrom, both said pocket and said groove opening toward the aforesaid gear ring, a manually releasable dog pivotally mounted in said pocket and co-operable with said disk to hold all movable parts against retrograde movement, and a spring mounted in said groove for moving said dog to operative position.

3. A line reel comprising a casing having an annular side wall and opposed end walls one of which is detachable and provided with a flange to engage said side wall, said detachable end wall having a rim portion offset inwardly from its major portion, a circular disc engaging the inner side of said major portion, and lying within said offset rim portion, an internal gear ring engaging said rim portion and lapping onto the inner side of said disc, said gear ring being held in close engagement with said rim portion by the adjacent edge of the annular side wall of the casing, means to hold said gear ring against rotation, a central shaft rotatively mounted in said casing and fixedly carrying said disc, a planetary gear rotatably mounted on said disc and meshing with said gear ring, a reel rotatable on said shaft, and a gear secured to said reel and meshing with said planetary gear.

In testimony whereof I have hereunto affixed my signature.

JUDSON D. SWITZER.