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B. P. METTRAS

AUTOMATIC REEL

Filed April 1, 1924

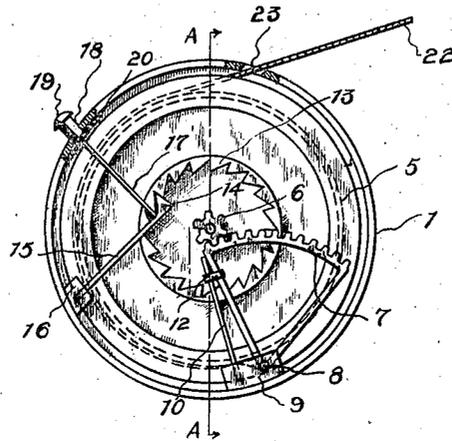


Fig. 1

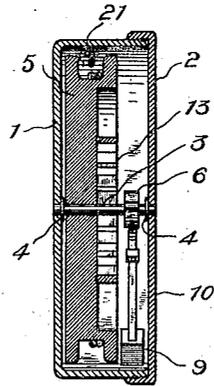


Fig. 2

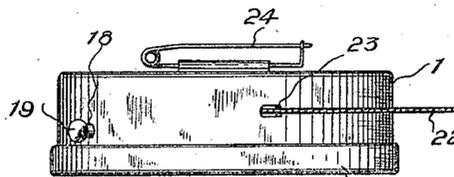


Fig. 3

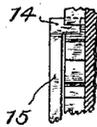


Fig. 4

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AUTOMATIC REEL.

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To all whom it may concern:

Be it known that I, BELLE PARKS METTRAS, a citizen of the United States, residing at De Beque, in the county of Mesa and State of Colorado, have invented certain new and useful Improvements in Automatic Reels, of which the following is a specification.

The present invention relates to an automatic reeling device.

More particularly the invention relates to an automatic reeling device of small size, and adapted for use in reeling and unreeling spectacle fastening chains, small tape measures, and like uses where a simple, reliable, sturdy and compact arrangement of parts which may be cheaply manufactured is highly desirable.

Although small reels designed to meet the demand for such uses have been provided, these devices rely on spiral or helical springs and complicated ratchet mechanisms, more or less unsatisfactory in operation.

The present invention has for its objects the provision of a reeling device in which a more reliable, simplified, and compact ratchet mechanism is provided.

Other objects are such as may be attained by utilization of the mechanisms and principles hereinafter set forth.

Referring to the drawings—

Fig. 1 is an enlarged side elevation of a preferred form of reel with the cover removed.

Fig. 2 is a sectional view taken along line A—A of Fig. 1.

Fig. 3 is an enlarged plan view of the assembled reel in its case.

Fig. 4 is a fragmental view showing the ratchet pawl structure.

The preferred form of mechanism comprises a case 1, with a cover 2 fastened thereto by screw threads or in any convenient manner. Rotatably mounted in holes formed in case 1 and cover 2 is a spindle 3 upon which spacing shoulders 4 may be formed. Rigidly secured to and rotatable with spindle 3 is a drum 5 and a drive pinion 6. Pinion 6 is in engagement with a segmental toothed rack 7 pivotally mounted at 8 in a block 9 which in turn is secured to case 1 in any convenient manner. Fastened to block 9 is a flat spring 10 which is slidably linked to rack 7 by a loop or hook connection 12 in such manner that as pinion 6 rotates and drives rack 7 about its pivot, to

the left in Fig. 1, spring 10 will be deflected and stressed.

Secured to drum 5 is a ratchet wheel 13, with the teeth of which a retaining pawl tooth 14, secured to a relatively stiff spring 15, is arranged to coast. Spring 15 is supported from a block 16 secured to case 1. A pawl release rod 17 engages spring 15 and extends at right angles thereto. At the opposite end rod 17 is secured a depressing and guiding member 18, which extends through and is guided in an opening in case 1. Member 18 is preferably enlarged at 19 and 20 to limit the movement thereof. A groove 21 is formed in drum 5, in which the chain, tape or cord 22 to be reeled and unreel is wound. One end of 22 is secured to the drum 5 and the other end thereof is passed through an opening 23 in case 2. A securing pin 24 fastened to the back of case 1 may be provided so that the case may be conveniently pinned to a garment.

In operation the chain or cord 22 is fully reeled in the position of parts shown in Fig. 1. To unreel or change the length thereof extending out through opening 23, a pull is exerted on 22. This causes drum 5 to rotate, unwinding 22 and rotating pinion 6 to drive rack 7 to the left in Fig. 1, about its pivot 8, in this manner stressing spring 10. As the drum rotates, pawl 14 will snap over the teeth of ratchet 13 and when the pull on 22 is removed, the parts will be prevented from restoring under the influence of spring 10, by engagement of pawl 14 with a ratchet tooth. It will be seen that in this manner any desired length of 22 may be drawn out of the case and will remain out until pawl 14 is released. To shorten the length of 22 outside of the case, member 19 is depressed and member 17 will push pawl 14 out of engagement with the ratchet teeth. Spring 10 will then force segment 7 to the right in Fig. 1, driving drum 5 through pinion 6 and shaft 3 to wind 22 on the reel as long as member 19 is held depressed or until the position of parts shown in Fig. 1 has been re-assumed.

Having described a preferred embodiment of my invention, what is desired to be secured by Letters Patent and claimed as new is:

1. In an automatic reeling device, a drum, an internal toothed ratchet wheel secured to said drum, a releasing pawl coasting with

said drum and carried by a flat spring member, and a releasing push rod coacting with said flat spring to force said pawl inward toward the center of said drum to release said
5 ratchet wheel.

2. An automatic reeling device comprising a casing; a drum rotatably supported in said casing; a ratchet mechanism controlling said drum; a pinion rotatable with said
10 drum; a segmental toothed rack meshing with said pinion and pivotally supported in said casing; a flat leaf spring having one

end thereof rigidly supported in said casing; and means for slidably connecting the free end of said spring to said rack.

3. The combination as set forth in claim 1 together with a pinion rotatable with said drum; a pivoted segmental toothed rack meshing with said pinion, and a flat leaf spring coacting with said rack.

In testimony whereof, I affix my signature.

BELLE PARKS METTRAS.