March 1, 1949. J. W. PETRIE 2,463,303

REEL MECHANISM

Filed April 10, 1945

Fig. 1.

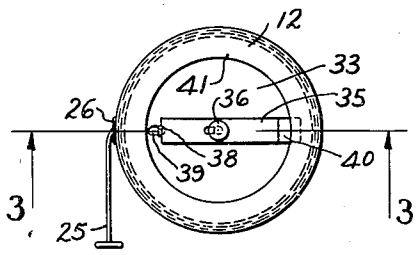


Fig. 2.

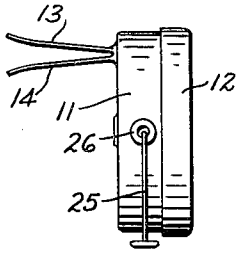


Fig. 3.

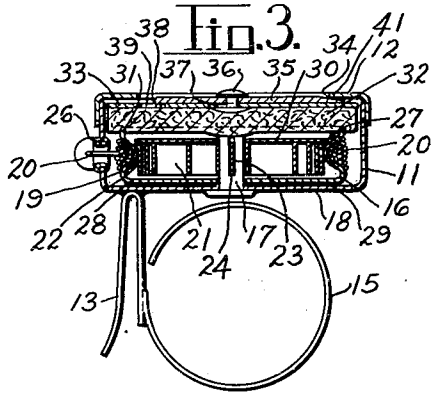


Fig. 5.

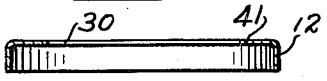


Fig. 6.

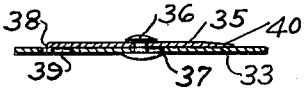


Fig. 7.

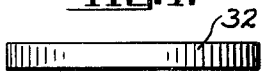


Fig. 4.

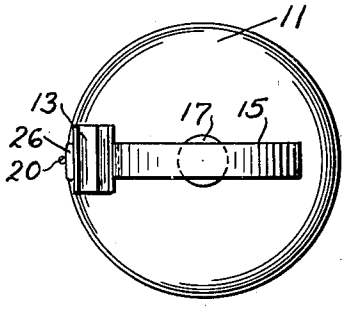
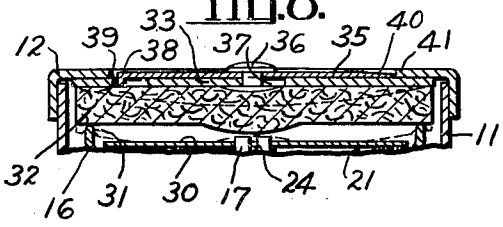


Fig. 8.



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REEL MECHANISM

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16 Claims. (Cl. 242—98)

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The invention relates to improvements in reel mechanisms and more particularly to an improved controlling means for reel mechanisms wherein a cord, or the like, winding spool is actuated by a coiled spring to wind the cord, or the like, thereon and into an enclosing casing.

In reels of the above type wherein a flexible tape measure is wound upon a spring actuated drum it is often desirable to control the winding up of the tape into a casing so that a relatively slow action may be obtained for making various readings on the tape as it is wound up, and then to obtain a relatively fast action to wind it into the casing. Similar reels used for other purposes may require a slow action when unwinding the tape so as to not overrun a desired measurement. Occasionally reels of this nature are used for other purposes which require a relatively sensitive control of the winding action and especially when delicate cords or threads are being wound upon the spring actuated spool.

One object of this invention is to provide in a reel of the above nature, an improved form of mechanism for controlling, to a relatively sensitive degree, the rapidity of winding a tape, cord, or thread upon a spring actuated spool, or the like, and into a casing.

Another object is to provide an improved form of brake mechanism for controlling the tape, cord, or thread winding mechanism of a reel of the above type.

Still another object is to provide an improved form of holding means for a reel of the above nature whereby it may be held conveniently and a more or less inconspicuously in one hand of the user while the tape, cord, or thread is manipulated by the other hand or otherwise being used.

A further object is to provide an improved reel which will be relatively inexpensive to manufacture, simple in construction, practical, pleasing in appearance, and very efficient and durable in use.

With these and other objects in view, which will appear as the description proceeds, there has been illustrated in the accompanying drawings one form in which the features and principles of this invention may be embodied in practice.

In the drawings:

Figure 1 is a front face view of a reel embodying the features and principles of this invention;

Figure 2 is a side view of the same showing one form of holding means;

Figure 3 is an enlarged sectional view taken on the line 3—3 of Figure 1 and showing another form of holding means;

Figure 4 is an enlarged bottom view of the reel shown in Figure 3;

Figures 5, 6, and 7 are detail views of certain elements of the reel of this invention; and

Figure 8 is an enlarged broken section of the

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reel of this invention with certain of the parts thereof shown by full lines in one position and by dotted lines in another position.

Referring now to the drawings wherein like reference numerals designate like parts throughout the several views, the numeral 11 denotes a casing, having a cover 12, and which is provided with holding means comprising, as shown in Figure 2, a pair of separated fingers 13 and 14 adapted to be slipped between adjacent fingers of a user's hand and firmly held, for instance in the palm, by pressing together said user's fingers. The fingers 13 and 14 are preferably spring tensioned to urge them apart and thus require a slight pressure to retain them in one's hand. Another form of holding means is illustrated in Figure 3 wherein only one finger 13 is provided and in place of the other an openable ring 15 is provided adapted to be slipped over and fitted to one of the adjacent fingers of the user.

The operative parts of the reel are enclosed in the casing 11 and cover 12 and include a tape, cord, or thread receiving spool 16 rotatably mounted upon a stud 17 extending into the casing 11 from its bottom 18. The spool 16 is generally hollow cup-shaped having a tape, cord, or thread 20 receiving groove 19 provided in its periphery. A coiled spring 21 one end of which is attached to the spool 16 and its other end attached to the stud 17, is disposed within the spool 16. The spring end attached, as by solder, to the spool 16 is indicated at 22 and the spring end attached to the stud is indicated at 23 as being threaded through a slot 24 in the stud and crimped thereabout whereby rotation of the spool 16 in one direction will wind up the spring 21 about the stud 17. The spring 21 is tensioned to constantly tend to unwind and in doing so will rotate the spool 16 in a direction opposite to that required to wind up the spring. The tape, cord, or thread 20 is wound upon the spool 16 in such a manner that by pulling upon its outer end 25 to remove it from casing 11 through an eyelet 26 the spool 16 will be rotated to wind up the spring, the inner end 27 of the thread 20 being secured to the spool 16 in any desired manner.

Between the bottom 28 of the spool 16 and the bottom 18 of the casing a disc 29 of non-metallic material such as card-board or paper is disposed to eliminate, or absorb, the noise of operation to a minimum, this being desired where such noise would interfere with the use of the reel, for instance, in accomplishing magician's disappearing acts, or tricks, wherein quiet operation is particularly important. Seated upon the outer edges of the coiled spring 21 is another disc 30 of non-metallic material such as card-board or paper which is provided for the purpose of quieting the action thereof while it is winding and unwinding.

Lightly seated upon the outer edge 31 of the

cup-shaped spool 16 is a disc 32 of friction imposing material such as leather, rubber, or as is preferable, in this instance, soft felted material. A disc 33 of metal, preferably sufficiently thin to be bendable, is disposed upon the felt disc 32. The resiliency of the felt disc 32 normally maintains the metal disc 33 outwardly against the cover, 12, the latter being provided with a comparatively large in diameter opening 34 through which the metal disc 33 may be engaged, for instance by the thumb of the user's hand in which the reel is being held. Varying degrees of pressure may be imposed upon the disc 33 and through it upon the felt disc 32 whereby varying degrees of frictional contact will be imposed upon the spool 16 and the disc 30 (see dotted lines in Figure 8), and through the latter upon the coils of the spring 21 and thus the rotational speed of the spool 16 from a full stop to its maximum speed can be controlled. Thus a tape, cord, or thread 20 may be withdrawn from the casing 11 and held at any desired length and be drawn into the casing at any desirable speed.

Means to retain the disc 33 in pressed in position to hold the spool 16 against spring action to wind up a length of tape, cord, or thread 20 may be provided. One form of such means is illustrated in the drawings and includes a member 35 which is transversely slidable on the disc 33 being movably secured thereto by a rivet 36 which passes through the member 35 and through the disc 33, an elongated hole 37 being provided in the disc to allow movement of the rivet 36 with the member in respect thereto. A lug 38 bent downwardly from an end of the member 35 extends into a slot 39 provided in the disc 33 to guide the member 35 in its sliding movements. The other end 40 of the member 35 is wedge-shaped to readily pass in under the cover rim 41 about the opening 34 and retain the disc 33 in depressed position, Figure 1, whereby the action of the spring 21 and the spool 16 will be stopped by the braking action of the felt disc 32 thereon (see Figure 3).

It will be understood that the novel features and principles of this invention may be embodied in other specific forms without departing from the spirit and essential attributes thereof, and it is therefore desired that the present embodiment be considered in all respects as illustrative and not restrictive, reference being had to the claims rather than to the foregoing description to indicate the scope of the invention.

Having thus fully disclosed the invention, what is claimed as new and for which it is desired to secure Letters Patent, is:

1. In a reel, a coiled spring, a spool actuated by said spring to wind a thread thereon, a casing in which said spool and spring are disposed, a cover having a central opening therein, a felt-like first disc extending over and resting on an end of said spool, and a springable second disc concentric with and resting on said felt-like disc whereby pressure imposed on said second disc through the opening in said cover will cause said first disc to brakingly engage said spool to control the actuation of said spool by the spring.

2. In a reel, a casing, a cover, a hollow spool rotatably mounted in said casing, a coiled spring arranged to rotate said spool to wind an elongated article thereon, a first disc of friction imposing material resting on and overlying the entire end of said spool, a thin resilient second disc of springable material resting on the first disc, said cover having a central opening therein concentric with said discs to expose the second disc for manual depression thereof to press said first disc into braking engagement with said spool to control the rotation thereof by said spring.

3. In a reel, a casing, a cover for said casing, a hollow cup-shaped spool rotatably mounted in said casing, a coiled spring in said spool and adapted to rotate the spool to wind an elongated article thereon, a first disc of friction imposing material overlying the open end of the spool and the end of the spring therein, a second disc of resilient material overlying the first disc, said cover having an opening therein concentric with the discs to expose the second disc for manipulation to press said first disc against the spool and spring to control the rotation of the spool by the spring.

4. In a reel, a casing, a cover, a hollow spool rotatably mounted in said casing, a coiled spring arranged to rotate said spool to wind an elongated article thereon, a first disc of friction imposing material resting on the entire end of said spool, a thin resilient second disc of springable material concentric with and resting on the first disc, said cover having an opening therein concentric with the discs to expose the second disc for manual depression thereof to press said first disc into braking engagement with said spool to control the rotation thereof by said spring, and a non-metallic disc of noise-absorbing material between, and in engagement with, said spool and said casing to dampen the noise of the rotation of said spool.

5. In a reel, a casing, a cover for said casing, a hollow cup-shaped spool rotatably mounted in said casing, a coiled spring in said spool and adapted to rotate the spool to wind an elongated article thereon, a first disc of friction imposing material overlying the open end of the spool and the exposed coils of the spring therein, a second disc disposed between said cover and said first disc, said cover having an opening therein concentric with said discs to expose the second disc for manipulation to press said first disc against the spool and toward the coils of the spring to control the rotation of the spool by the spring, and a non-metallic disc of noise absorbing material between, and in engagement with, said first disc and said spring to be pressed against the spring and to dampen the noise of operation of said spring.

6. In a reel, a casing, a cover for said casing, a hollow cup-shaped spool rotatably mounted in said casing, a coiled spring in said spool and adapted to rotate the spool to wind an elongated article thereon, a first disc of friction imposing material overlying the open end of the spool and the coils of the spring therein, a second disc of resilient material overlying the first disc, said cover having an opening therein concentric with the discs to expose the second disc for manipulation to press said first disc against the spool and toward the coils of the spring to control the rotation of the spool by the spring, a non-metallic disc of noise absorbing material between, and in engagement with, said spool and said casing to dampen the noise of the rotation of said spool, and a non-metallic disc of noise absorbing material between, and in engagement with, the said first disc and said spring to be pressed against the spring and to dampen the noise of operation of said spring.

7. A reel comprising an open ended casing, a spool in said casing adapted to have a thread wound thereon by rotation of the spool, a coiled

spring for rotating the spool, a circular first disc of friction imposing material in said casing and in overlying engagement with an end of the spool and the coils of said spring, a circular second disc of resilient material overlying and concentric with the first disc and substantially covering the open end of said casing, and means releasably connected to the casing and overlying the open end of the casing and the peripheral edge of the second disc to hold the second disc in place in the casing.

8. A reel comprising a casing, a spool in said casing adapted to have a thread wound thereon by rotation of the spool, a coiled spring for rotating said spool, brake means including a disc of friction imposing material within said casing and overlying an end of the spool, means engageable by a finger of the user to press the disc against the end of the spool to vary the speed of rotation, and means slidable into a binding position between the disc and an end of the casing to releasably lock the disc pressing means in disc pressing position against the spool end to hold the spool against rotation by the spring.

9. A reel comprising a casing, a spring actuated spool in said casing upon which a thread is wound by rotation of the spool by spring action, and manually operable means to gradually vary the speed of rotation of said spool, and spread apart fingers extending outwardly from an end of the casing and flared apart at their outer ends for positioning between and gripping by adjacent fingers of a user's hand for support thereby.

10. A reel comprising a casing, a spring actuated spool in said casing upon which a thread is wound by rotation of the spool by spring action, and manually operable means to gradually vary the speed of rotation of said spool, and spread apart members extending outwardly from an end of the casing and flared apart at their outer ends for positioning between adjacent fingers of a user's hand, the outer end of one of said members being in the form of a ring adapted to embrace one of the adjacent fingers.

11. A reel comprising a casing, a spool in said casing adapted to have a thread wound thereon by rotation of the spool, a coiled spring for rotating said spool, and a manually operable brake means in said casing including a disc of material adapted to act on an end of said spool for gradually retarding the speed of rotation thereof by said spring from full speed to a complete stop, and means carried by and connected to said disc and slidable thereon into binding engagement with the adjacent end of the casing to releasably lock the brake disc against the end of the spool in spool full stop position.

12. In a reel, a casing, a cover for said casing, said cover having an opening therein, a hollow spool rotatably mounted in said casing, a coiled spring in said spool and adapted to rotate it to wind a thread thereon, a first disc of friction imposing material substantially concentric to said spool and resting thereon, a second disc of resilient material substantially concentric to said spool and resting on said first disc, both of said discs being substantially concentric to the opening in said cover whereby the second disc may be engaged by the user to press the first disc against the spool to vary the speed of rotation thereof by said spring.

13. In a reel, a casing, a cover for said casing, said cover having an opening therein, a hollow spool rotatably mounted in said casing, a coiled spring in said spool and adapted to rotate it to wind a thread thereon, a first disc of friction imposing material substantially concentric to said spool and resting thereon, a second disc of resilient material substantially concentric to said spool and resting on said first disc, both of said discs being substantially concentric to the opening in said cover whereby the second disc may be engaged by the user to press the first disc against the spool to vary the speed of rotation thereof by said spring, and means to releasably lock said second disc in position to press said first disc against said spool to stop rotation thereof.

14. In a reel, an open ended casing, a cup-shaped spool rotatably mounted in said casing with its open end adjacent the open end of said casing, a coiled spring in said spool adapted to rotate it in one direction to wind a thread on the periphery of said spool, a cover having a relatively large central opening therein providing a rim overlying the open end of said casing, and a brake disc between said cover rim and the open end of said spool adapted to be pressed against the end of said spool to control its rotation by said spring.

15. In a reel, an open ended casing, a cup-shaped spool rotatably mounted in said casing with its open end adjacent the open end of said casing, a coiled spring in said spool adapted to rotate it in one direction to wind a thread on the periphery of said spool a cover having a relatively large central opening therein providing a rim overlying the open end of said casing, a brake disc between said cover rim and the open end of said spool adapted to be pressed against the end of said spool to control its rotation by said spring, and another disc between the first disc and the cover rim adapted to be manually contacted through the opening in the cover to press the first disc against the spool end.

16. In a reel, an open ended casing, a cup-shaped spool rotatably mounted in said casing with its open end adjacent the open end of said casing, a coiled spring in said spool adapted to rotate it in one direction to wind a thread on the periphery of said spool, a cover having a relatively large central opening therein providing a rim overlying the open end of said casing, a brake disc between said cover rim and the open end of said spool adapted to be pressed against the end of said spool to control its rotation by said spring, another disc between the first disc and the cover rim adapted to be manually contacted through the opening in the cover to press the first disc against the spool end, and a slide member attached to the second disc and having an end adapted to slide under the cover rim to lock the discs in spool braking position.

JOHN W. PETRIE.

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