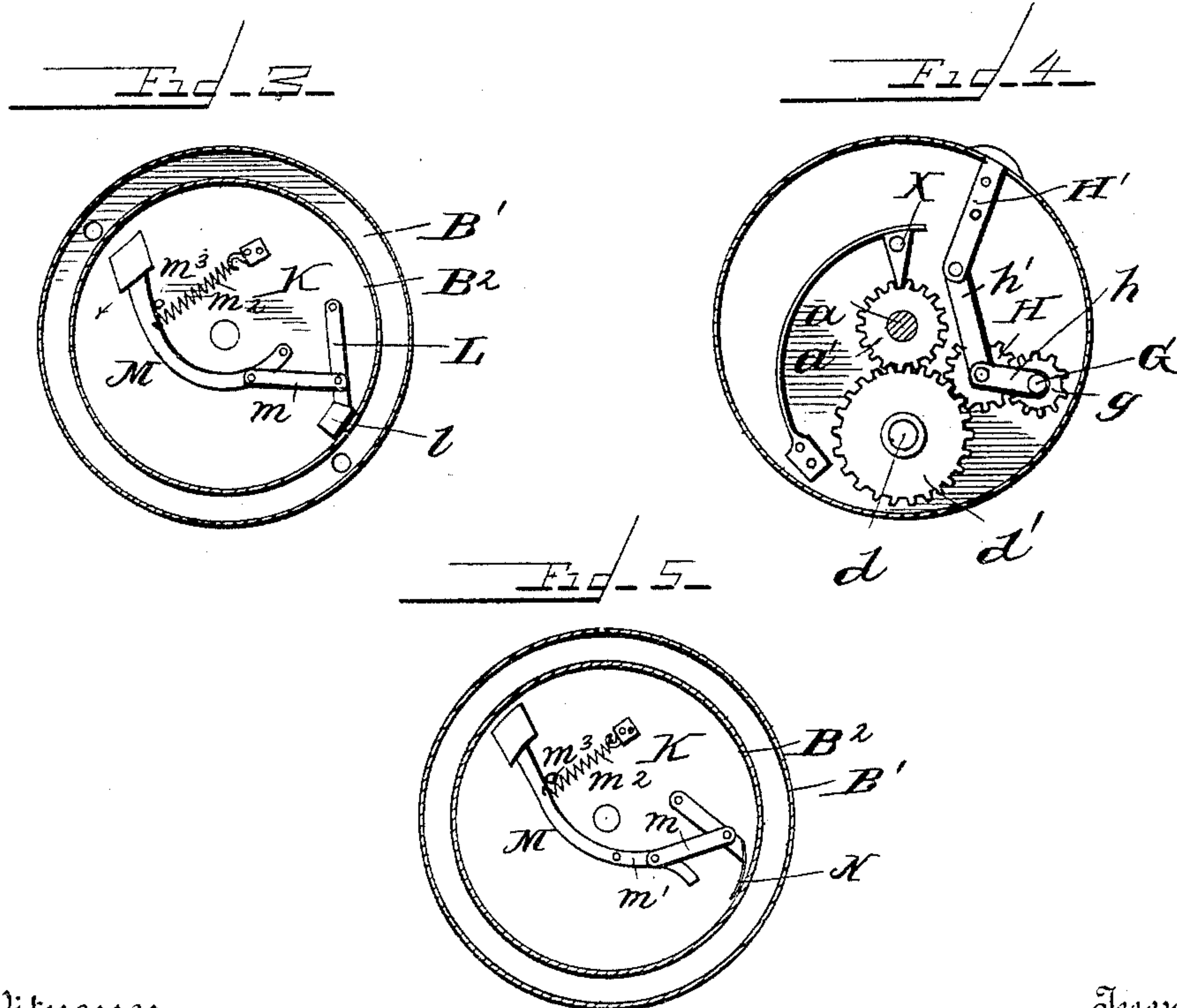
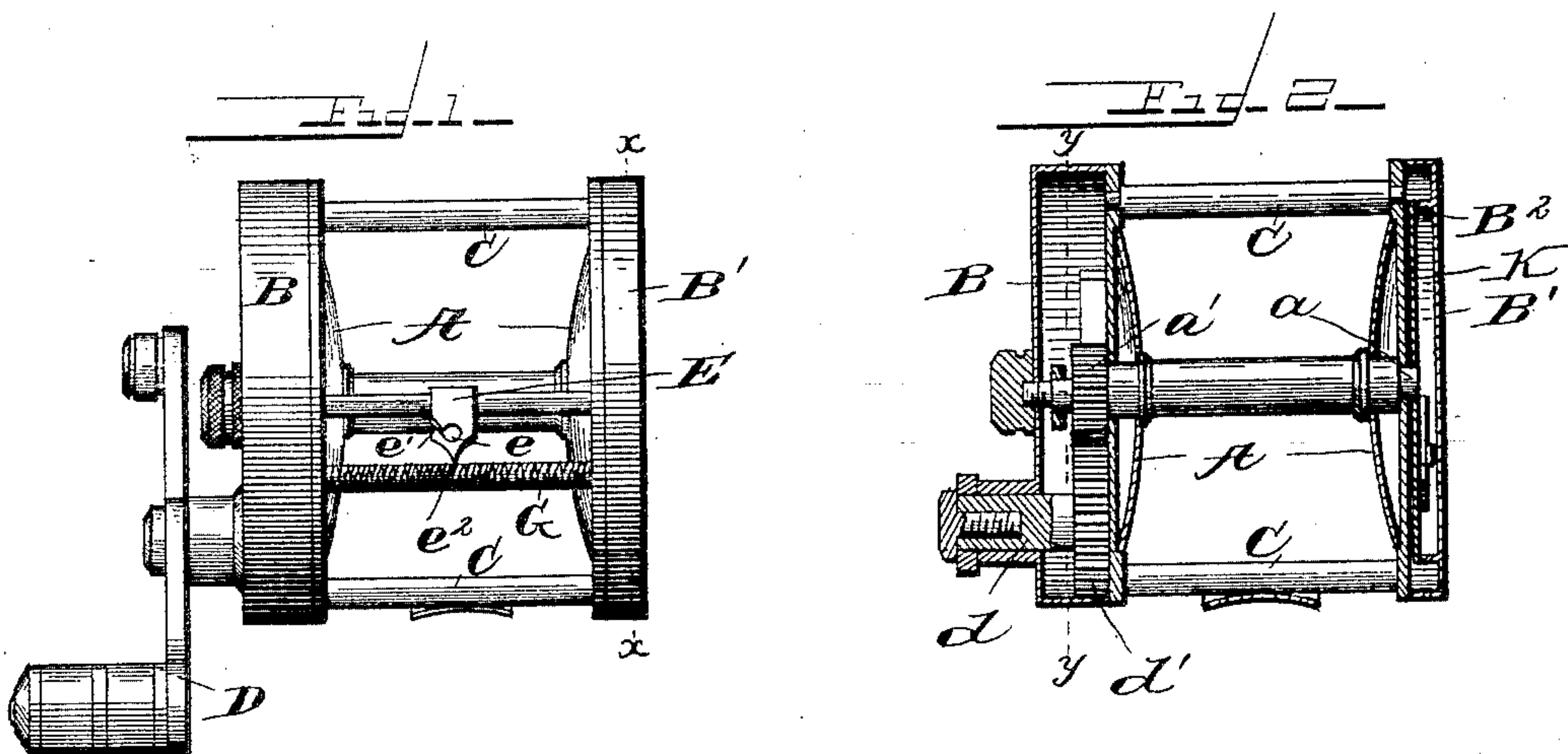


(No Model.)

S. L. BEAN.  
FISHING REEL.

No. 467,849.

Patented Jan. 26, 1892.



Witnesses  
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# UNITED STATES PATENT OFFICE.

SAMUEL L. BEAN, OF BEAN, NORTH DAKOTA.

## FISHING-REEL.

SPECIFICATION forming part of Letters Patent No. 467,849, dated January 26, 1892.

Application filed March 7, 1891. Serial No. 384,145. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL L. BEAN, a citizen of the United States, residing at Bean, in the county of Grand Forks and State of North Dakota, have invented certain new and useful Improvements in Fishing-Reels; and I do hereby 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 is in the nature of an improvement in reels for fishing; and it consists in the novel features of construction and combination of parts hereinafter fully described.

In the accompanying drawings I have shown one form in which I have contemplated embodying my invention, and the same is fully disclosed in the following description and claims.

Referring to said drawings, Figure 1 is a front view of a reel, embodying my improvements. Fig. 2 is a transverse section of the same. Fig. 3 is a section on line *x x*, Fig. 1. Fig. 4 is a section on line *y y*, Fig. 2. Fig. 5 is a view of a slightly-modified form of weighted lever and brake.

A is the spool of a reel, having the ends of its spindle mounted in suitable bearings formed in the side casings B B', and C C are suitable cross rods or braces connecting the side casings to give rigidity to the framework. The spool is mounted in any suitable or usual manner, and its shaft *a* is provided with a pinion *a'*, which is in gear with the driving-pinion *d'* on the crank-shaft *d*. The spool is operated in the usual manner by means of a crank or handle D, secured to the crank-shaft *d*, and the reel is provided with the usual click X.

The reel-casing is provided with a reciprocating or traveling thread-guide for laying the line evenly upon the spool as it is wound in, and I also provide means for throwing this mechanism out of gear when the line is being paid out in casting or in playing a fish, as such traveling thread-guide is not needed and would, if left in gear, retard the free delivery of the line.

The traveling or reciprocating thread-guide E is mounted to slide on a transverse rod or bar E' and is provided with an aperture or

eye *e*, through which the line passes. An open slot *e'* communicates with said aperture *e* in such a manner that the line may be quickly placed in engagement with said guide or disengaged therefrom by hand, but when in engagement therewith will not be permitted to leave the aperture *e*.

A revolving shaft G is mounted in the casings and provided with a double-threaded screw for engaging a projection or arm *e*<sup>2</sup> from the thread-guide E and reciprocating it. The threads of said screw are reversed in the usual manner, and the arm *e*<sup>2</sup> travels along the thread in one direction until it reaches the end of the thread and is guided into the reverse thread, thus reversing the movement of the thread-guide, as is usual in such constructions. The worm or screw shaft G is provided with a pinion *g*, which receives motion from the driving-pinion *d'*, as shown in Fig. 4, or from the spool-pinion, if desired, by means of a connecting-gear H, which is held in engagement with the worm-shaft pinion *g* by a link *h*, and is adapted to be thrown into and out of engagement with the driving-pinion *d'* by means of an operating-lever H', extending outside of the casing through a slot in the same and connected in this instance with the connecting-gear H by means of a link *h'*. By this means the worm-shaft and thread-guide can be thrown into and out of operation, as desired.

In the use of reels in casting it is desirable to exert a considerable tension on the spool to retard or resist its movement at the time the line starts with a jerk and during the first moments that the bait is speeding over the water, and then it is desirable to release this pressure as the momentum of the bait lessens in order that the line may be delivered as far as possible. If a drag or other device is put on at the moment of casting, the effect is slight against the great force or jerk of the bait as the line is cast; but as the momentum of the bait decreases the drag tends to stop it too quickly and thus prevent the bait from being cast as far as is desired. In order to effect this tension of the spool and subsequent release, it is customary for expert casters to "thumb the reel," as it is called, or, in other words, to press with the thumb upon



the spool with considerable force at the moment of making the cast and gradually releasing the pressure as the momentum of the bait decreases. This causes the person using the reel great inconvenience, as the skin soon becomes blistered and sore by the friction of the spool, and the result is accomplished with difficulty and often very imperfectly.

I provide a mechanical device or brake for retarding the movement of the reel and automatically releasing the tension of the brake as the momentum of the spool decreases. To this end I provide a brake and a governor for said brake operated by centrifugal force to vary the pressure of said brake, according to the velocity of the spool.

A disk K is secured to the spool-shaft *a* and rotates therewith, or it may be secured to some other part and made to operate from said spool. On the disk K is pivoted a brake-lever L, provided at its extremity with a brake-shoe *l*, adapted to engage the inner face of a flange B<sup>2</sup>, projecting inwardly from the other wall of casing B'. The brake-shoe may be faced with leather, rubber, or other material to give it a friction-surface, if desired. A weighted lever M is pivoted to the revolving disk K and connected by a link *m* with the brake-lever L in such a manner that when the disk is rotated very rapidly the weighted end of the lever M will be thrown outward in the direction indicated by the arrow in Fig. 3 and will force the brake-shoe into engagement with the flange B<sup>2</sup> of the casing B'. This will exert a degree of tension upon the said flange according to the rapidity with which the disk is revolving, and thus offering the greatest resistance to the movement of the spool when the spool and disk are being rotated at the greatest speed and gradually releasing the pressure as the speed of the spool lessens. A spring *m*<sup>2</sup> is connected to the lever M and holds the lever against the action of centrifugal force and in engagement normally with a stop *m*<sup>3</sup>, which limits the movement of said lever under the action of said spring. In this way I provide the spool with a brake which is automatically controlled by its governor and the tension applied and released automatically, according to the speed at which the line and spool are moving. It will thus be seen that when the line is cast, as the spool rotates with great rapidity, the centrifugal governor will apply the brake sharply and prevent backlash and insure an even running of the line. As the speed of the bait and sinker lessens the governor will gradually release the brake and allow the line to be delivered more freely, thus permitting the line to be drawn off to a great length and enabling the operator to make long casts without the inconvenience and uncertainty that has heretofore attended this operation.

The reciprocating thread-guide is thrown out of operation by the shipping-lever before the line is cast, and the governor is thus left free to control the spool without the retard-

ing effect which the reciprocating-thread-guide mechanism would have on the spool and which would prevent the beneficial results attained by the governor of relieving the spool from tension when the line slacks its movement if the said mechanism could not be thrown out of gear. The line may also be disengaged from the eye or aperture *e* of the thread-guide and the line drawn out freely, if desired. I prefer to form the thread-guide in such a manner that no projecting surfaces are left above the same upon which the line can catch and loop, thus obviating any difficulty of this kind.

In Fig. 5 I have shown the weighted lever M and link *m* so constructed and arranged that the portion *m*' of the lever M will form with said link a toggle-joint, and thus apply the brake with great force. In this way I am enabled to obtain the desired pressure of the brake with a very light-weighted lever, and the construction is thereby made lighter. In Fig. 5 I have also shown a spring brake-shoe N secured to the end of the brake-lever and constructed to lie at an angle to the curved surface of the flange B<sup>2</sup>. When the brake is first applied, the extremity only of the spring N will be made to engage said flange; but as the governor applies the brake with greater pressure the spring will yield against the flange and a greater amount of surface will be made to engage the flange the greater the pressure which is applied to the spring-shoe. As the pressure of the brake is lessened the amount of surface of the spring in frictional engagement with the disk will decrease, and thus render the brake very sensitive to the control of its governor.

What I claim, and desire to secure by Letters Patent, is—

1. In a reel, the combination, with the spool, of a brake mounted on a revolving part connected with said spool and adapted to be moved by it, said brake being adapted to engage a stationary part of the casing to retard the movement of the spool, substantially as described.

2. In a reel, the combination, with the spool, of a brake mounted on a revolving part connected with said spool and adapted to be moved by it, and a centrifugal governor for said brake, substantially as described.

3. In a reel, the combination, with the spool, of a brake for retarding the movement of said spool, and means for automatically varying the pressure of said brake, substantially as described.

4. In a reel, the combination, with the spool, of a brake mounted on a revolving part connected with the spool for movement, the weighted lever connected with said brake, and the retracting-spring holding said lever against the action of centrifugal force, substantially as described.

5. In a reel, the combination, with the spool, of a brake mounted on a revolving part connected with said spool for movement, a piv-



5 oted weighted lever connected with said brake, a retraction-spring holding said lever against the action of centrifugal force, and a stop limiting the movement of said lever by said spring, substantially as described.

10 6. In a reel, the combination, with the spool, of a brake mounted on a revolving part connected with said spool for movement, and a centrifugal governor for said brake including a toggle-lever, substantially as described.

15 7. In a reel, the combination, with the spool, the brake, and the automatic centrifugal governor for said brake, of the traveling thread-guide and means for operatively connecting it with and disconnecting it from said spool, substantially as described.

8. In a reel, the combination, with the spool,

of a brake for retarding the movement of said spool having a yielding friction-surface and means for varying the pressure of said brake 20 and the extent of said friction-surface, substantially as described.

9. In a reel, the combination, with the spool, of a brake for retarding the movement of said spool provided with a spring-shoe and an au- 25 tomatic centrifugal governor for varying the pressure of said brake-shoe, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL L. BEAN.

Witnesses:

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J. D. KINGSBERRY.