

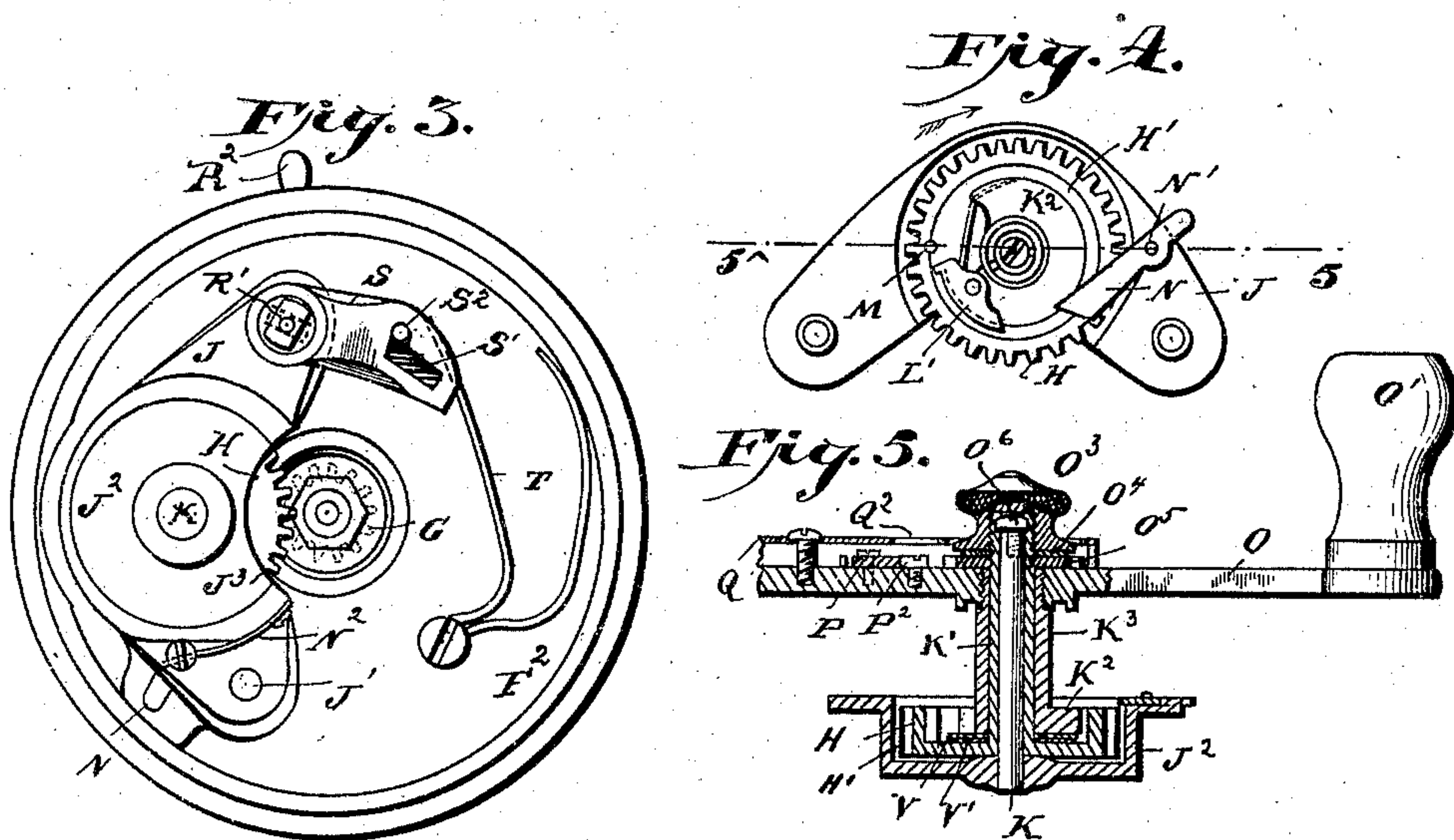
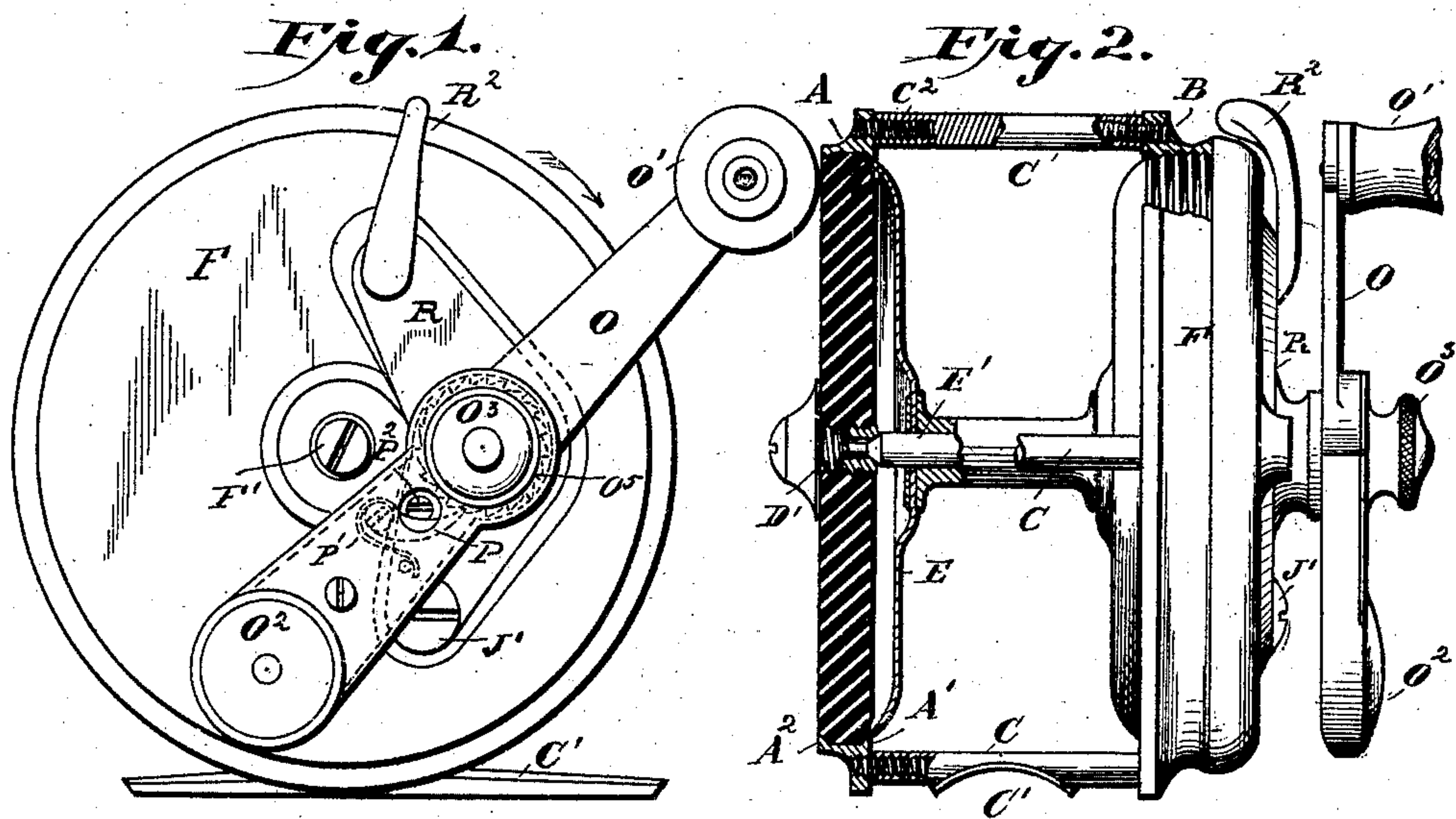
No. 850,580.

PATENTED APR. 16, 1907.

E. HOLZMANN.
FISHING REEL.

APPLICATION FILED OCT. 20, 1905.

2 SHEETS—SHEET 1.



Attest:
S. Mitchell
S. W. Baader.

E. Holzmann Inventor:

by *Necar F. Funn* Atty

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2 SHEETS—SHEET 2.

Fig. 8.

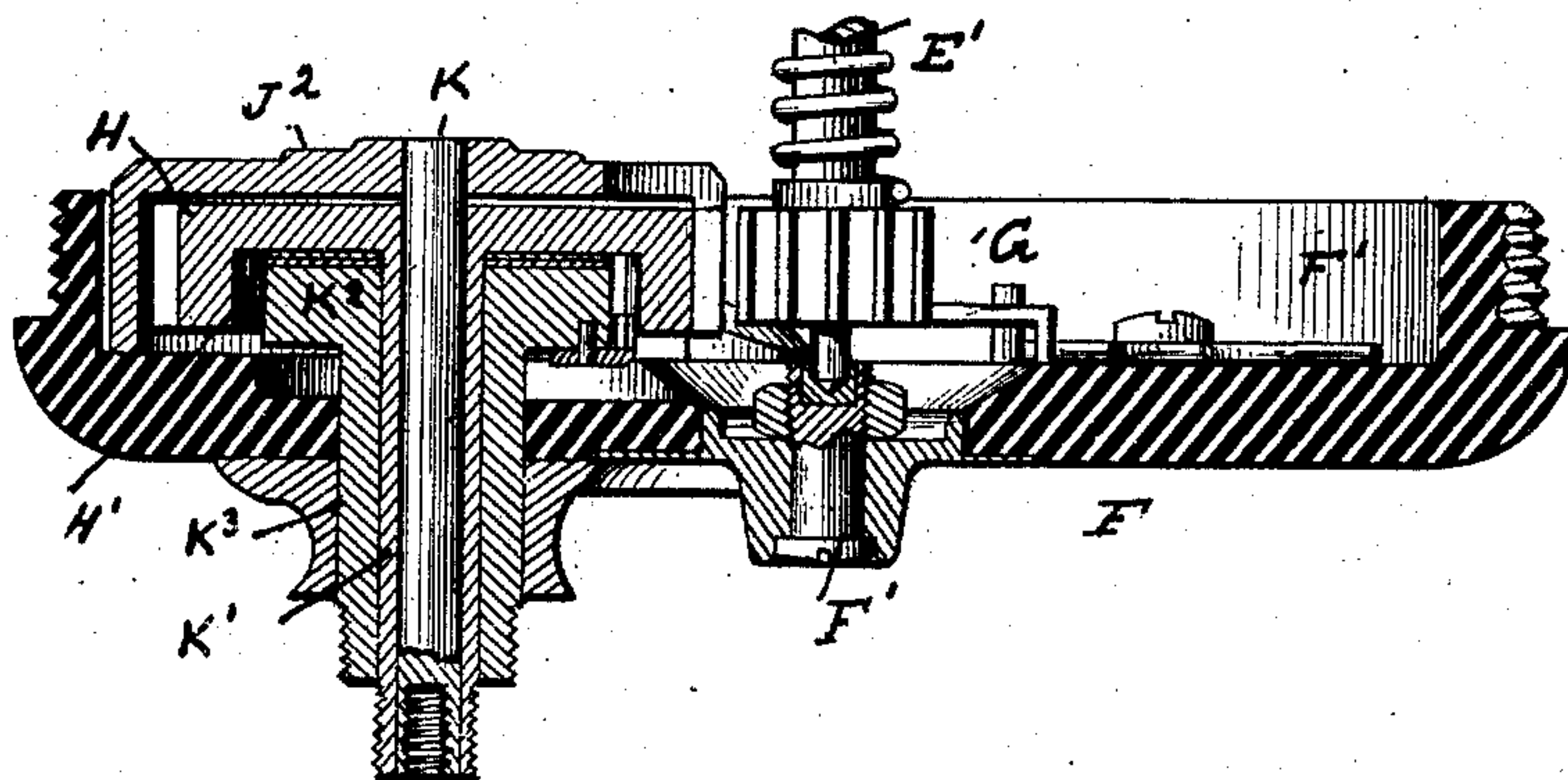


Fig. 9.

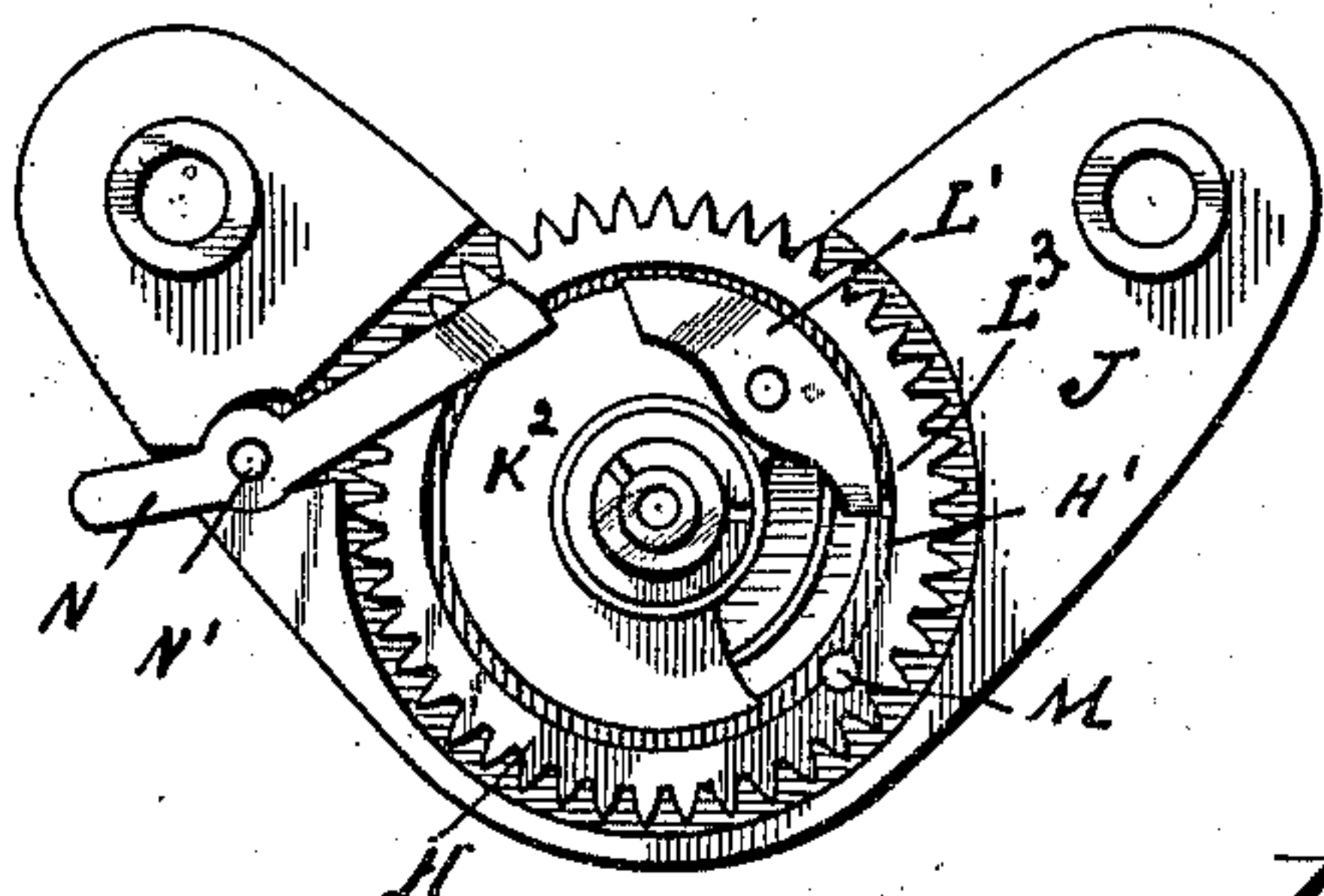


Fig. 10.

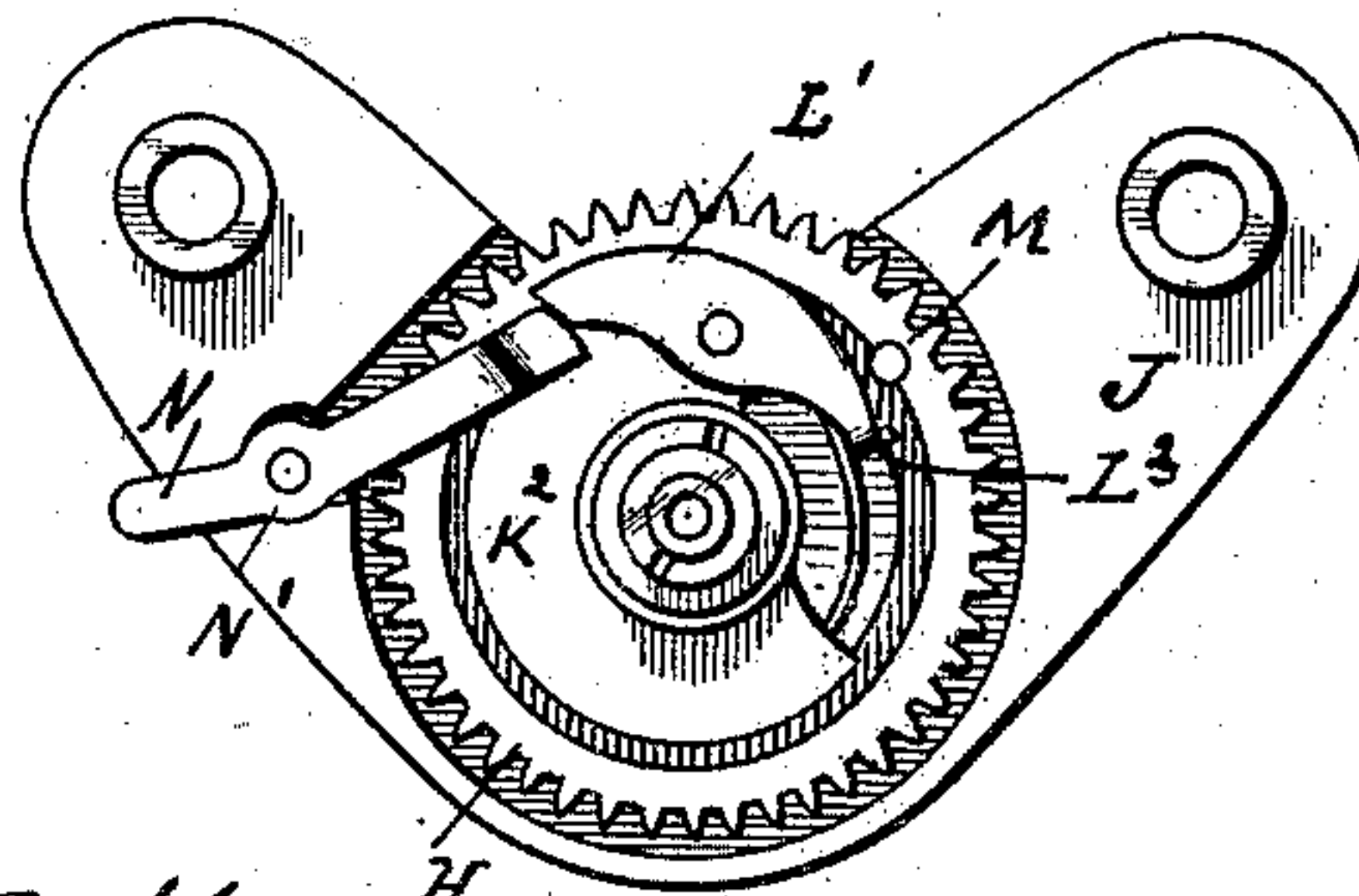
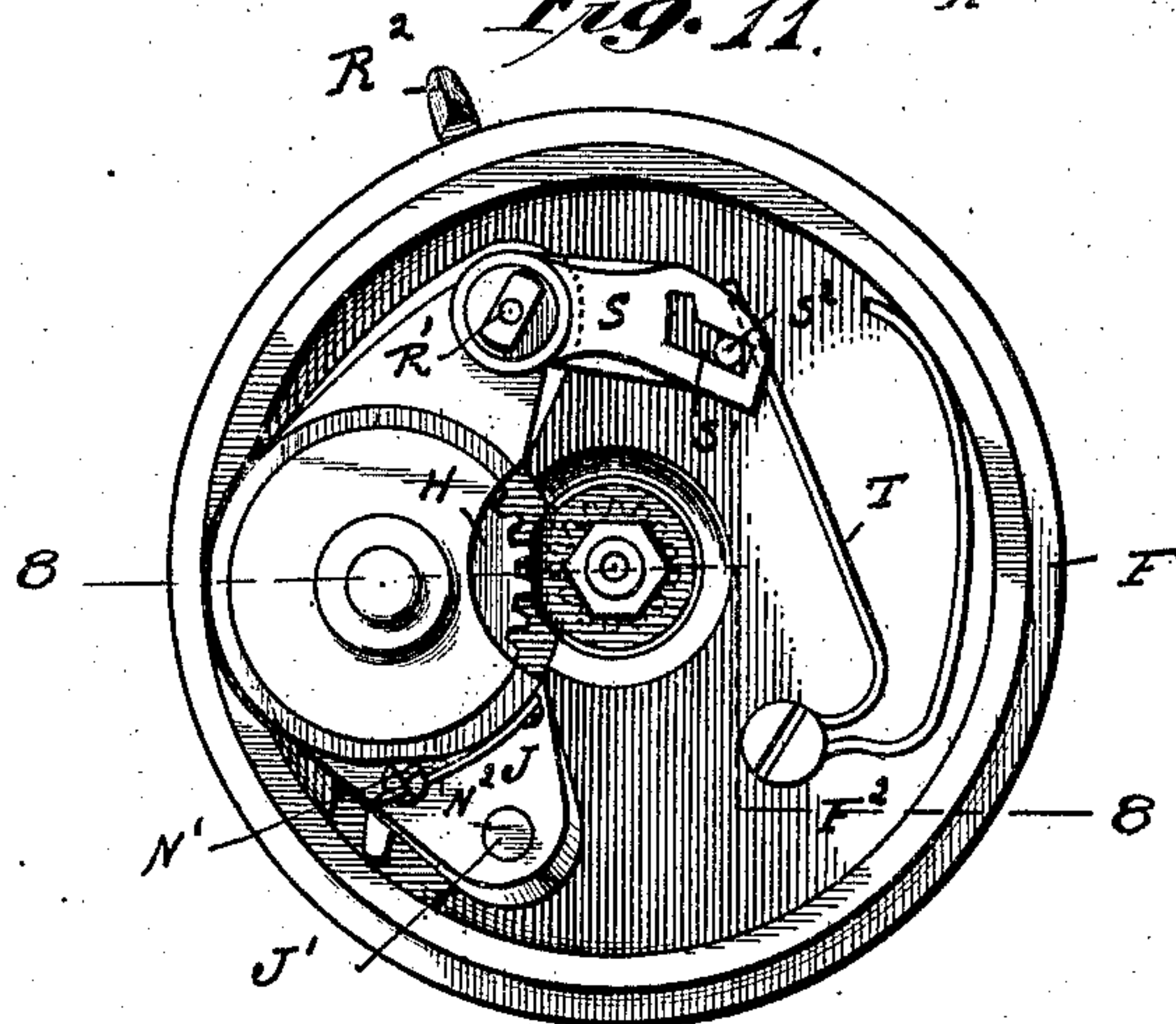


Fig. 11.



Attest:

E. Mitchell
J. M. Bader.

Inventor:

E. Holzmann

by

Oscar F. Gunn his Atty

UNITED STATES PATENT OFFICE.

ERNEST HOLZMANN, OF NEW YORK, N. Y.

FISHING-REEL.

No. 850,580.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed October 20, 1905. Serial No. 283,710.

To all whom it may concern:

Be it known that I, ERNEST HOLZMANN, a citizen of the United States, residing at the city of New York, borough of Brooklyn, county of Kings, State of New York, have invented certain new and useful Improvements in Fishing-Reels, of which the following is a specification.

This invention relates to improvements in fishing-reels; and the object of my invention is to provide a new and improved fishing-reel which is simple in construction, strong, and durable and can be easily adjusted so as to throw a drag or brake into or out of operation as the fisherman may desire, and is, furthermore, so constructed that the handle is stopped automatically and that all the adjustments can be made from the outside of one of the covers.

In the accompanying drawings, in which like letters of reference indicate like parts in all the figures, Figure 1 is a side elevation of my improved fishing-reel, showing the removable cover on which the winding-gear is mounted. Fig. 2 is a transverse sectional view of the reel, parts being shown broken away and others in section. Fig. 3 is an inside elevation of the removable cover, showing the winding-gear on the inner surface of the same. Fig. 4 is a detail view of the winding-gear plate pivoted to the inner face of the removable cover. Fig. 5 is a vertical sectional view on the line 5 5 of Fig. 4. Fig. 6 is a perspective view of the clutch-disk and its sleeve. Fig. 7 is a bottom view of the clutch-disk. Fig. 8 is an enlarged detail sectional view through the removable cover, taken on the broken line 8 8 8 8 of Fig. 11. Figs. 9 and 10 are enlarged detail plan views of the pivoted angle-plate on the inner face of this removable cover and the parts on said angle-plate, the two figures showing different positions of the parts. Fig. 11 is an inside elevation of the movable cover, similar to Fig. 3, showing the parts in different positions.

The frame of the wheel is composed of two rings A and B united by a series of posts C, to one of which a longitudinally-grooved plate C' is attached, by means of which the reel is to be held on the pole. The posts C are provided at each end with a threaded hole into which headless screws C² are screwed, which screws are also passed through the rings A and B and have their outer ends finished flush with the annular outer surfaces of said rings A and B. The ring A is provided at its

inner surface with a bezel or flange A', against which the inner edge part of a disk or lead D rests, which is preferably made of hard rubber, vulcanite, or similar material and provided along its rim at the outer surface with a bevel. After this disk D has been inserted into the ring A the metal of the ring is worked or spun over the bevel for the purpose of securely holding the disk D in the opening of the ring A, said disk being held between the bezel or flange A' and the flange A², formed by spinning or working the metal over the bevel of said disk, as clearly shown in Fig. 2. This disk is also provided with a suitable central bearing D' for the shaft E' of the spool E.

The ring B is provided with a screw-thread in its inner annular surface, and into this ring B a removable cover F is screwed, and this cover F has a suitable adjustable bearing F' for the shaft E' of the spool E. Within a recess F², formed in the inner surface of the cover F, a pinion G is fixed on the shaft or arbor E' of the reel E, and this pinion is adapted to engage a cog-wheel H, mounted in and supported on an angle-plate J, pivoted at J' to the inner surface of the cover F, said plate J being provided with a suitable circular casing J², containing the cog-wheel H, which casing is provided with a recess J³ in its rim, through which recess or opening part of said cog-wheel H can extend to engage the pinion G. A shaft K projects from the center of the casing J² in which it is fixed, and this shaft is surrounded by a tubular shaft K', made integral or attached to the cog-wheel H. The cog-wheel H is provided on the face toward the inner side of the cover F with a circular recess H', in which a clutch-disk K² is located, said clutch-disk being made integral with the sleeve K³, surrounding the sleeve K' loosely. The clutch-disk K² is provided with a recess L, and at one end of said recess a pawl L' is pivoted to the clutch-disk by the pivot or screw L², which pawl is provided at one end with a spur or tooth L³, and on that end of the pawl provided with the tooth L³ the free end of a spring L⁴ acts, which is attached to the clutch-disk and serves for throwing the toothed end of said pawl L' outward—that is, from the center of the clutch-disk. A pin M is secured on the inner surface of the annular rim of the cog-wheel H, which rim surrounds a recess H', and this pin is parallel with the axis of rotation of this cog-wheel

and is adapted to be engaged by the spur or tooth L^3 of the pawl L' . A tripping-lever N is pivoted to the plate J by means of a pivot N' , which is secured to said tripping-lever 5 and mounted to turn in an aperture in said plate J . A notch is cut in the side of this pivot, as shown in Fig. 3, and into said notch the free end of a spring N^2 , secured on the plate J , extends, which serves to hold the 10 free end of said lever in the path of the pawl L' —that is to say, the free end of the lever N projects over the rim of the toothed cog-wheel H and over the rim part of the clutch-disk K^2 . The winding-lever O , provided 15 with the usual handle O' and counterweight O^2 , is screwed on the sleeve K^3 beyond the outer surface of the cover F , and the free threaded end of the sleeve K' projects beyond the sleeve K^3 , as shown in Fig. 5. A 20 cap-nut O^3 is screwed on the sleeve K' and bears on a washer O^4 , which in turn bears on a ratchet-wheel O^5 upon the outer surface of the winding-lever O . A screw O^6 is screwed into the upper end of the shaft K , and its 25 head bears upon a shoulder in the upper end of the bore of the shaft K' , and this screw serves for drawing the several parts together and keeping them in proper position. A pawl P , acted upon by a spring P' , engages the 30 ratchet-wheel O^5 , and the spring P' presses said pawl against an eccentric screw P^2 , screwed into the winding-lever O . A casing Q on this lever O covers the pawl and its spring P' and has a hole Q^2 , through which a 35 screw-driver or other implement can be inserted, so as to turn the screw P^2 to such an extent that it holds the pawl P out of engagement with the ratchet-wheel O^5 when the click produced by the ratchet-wheel is 40 not desired. A lever R , substantially the same shape as the lever J , is pivoted on the outside of the cover F by the same pivot J' by which the lever J is pivoted on the inside of the cover, and the free or swinging ends of 45 the levers J and R are united by a transverse pin R' , passing through a suitable slot in the cover and secured to both levers. To the free upper end of the outer lever R a finger-piece R^2 is attached, by means of which the 50 said united levers J and R can conveniently be shifted by the operator whenever he so desires. An arm S is pivoted to the swinging end of the inner lever J and is provided with an L-shaped slot S' , through which a stop- 55 pin S^2 projects from the inner face of the cover F . A spring T , attached to the inner face of the cover F , bears on the free end of the pivoted arm S and serves to hold either end of the slot S' against the stop-pin S^2 , as 60 shown in Figs. 3 and 11.

When the fisherman wishes to cast—that is to say, throw out the line with as little resistance as possible—the pinion on the spool must be disengaged from the winding-wheel, 65 and to accomplish this the finger-piece R^2 is

moved from the position shown in Fig. 3 to the position shown in Fig. 11, whereby the cog-wheel H or winding-wheel is entirely disengaged from the pinion G , secured on the spool. After the cast has been made the 70 winding-wheel H is reengaged with the pinion G by moving the parts back into the positions shown in Fig. 3. By turning the handle O in the direction of the arrow, Fig. 1, the clutch-disk K^2 is rotated in the direction 75 which is indicated by the arrow in Fig. 4 and its pawl L' is rotated with it, and the spur or tooth L^3 on this pawl L' when it encounters the pin M on the cog-wheel H abuts against this pin, and thus necessarily carries 80 along the cog-wheel H , and so continues to carry along and rotate the cog-wheel H in the direction of the arrow in Fig. 4 as long as the handle-lever is turned for winding the line on the spool—that is, in the direction in- 85 dicated by the arrow, Fig. 1. When the fisherman stops winding and the fish on the line pulls outward the line or when the fish gives a sudden jerk, as when snapping the bait, which might possibly throw the handle 90 out of the fisherman's hands, the wheel H is turned in the reverse direction of the arrow in Fig. 4, because this wheel is still engaged with the pinion on the spool, and the jerk on the line produced by the fish pulls the line 95 outward and turns the spool in the reverse direction of winding. The pin M , against which the spur L^3 of the pawl L' rests, carries this pawl and necessarily, also, the friction-disk K^2 , carrying the pawl around in the re- 100 verse direction of the arrow in Fig. 4 until that end of the pawl L' opposite the one carrying the spur L^3 strikes against the spring-pressed tripping-lever N , which, as stated, projects over the rim part of the cog-wheel 105 H and partly over the friction-disk. By this contact between the pawl L' and the tripping-lever N that end of the pawl L' opposite the one carrying the spur L^3 is pressed toward the inner surface of the rim of the 110 cog-wheel H , and the end carrying the spur L^3 is thus pressed in the direction toward the center of the clutch and moved sufficiently far away from the inner surface of the rim of the cog-wheel H as to permit the pin 115 M to pass freely. The clutch-disk is thus disengaged from the wheel H , which is turned in the inverse direction of the arrow of Fig. 4, by the pulling of the fish, and at the same time this clutch-disk is locked in place. It 120 follows that the rotation of the cog-wheel H in the inverse direction of the arrow, Fig. 4, cannot affect the handle—that is, it cannot rotate the same in the inverse direction when a fish pulls at the line—and thus there is 125 absolutely no danger of the handle being thrown out of the fisherman's hands or the fisherman's hand being injured by the rapidly-rotating handle, which might occur if the parts were not disengaged in the manner 130

stated. As the pawl L' has been disengaged from the pin M and the cog-wheel H, it is evident that the fish can pull out on the line and rotate the cog-wheel H in the inverse direction of the arrow, Fig. 4, without turning the handle backward, same as stated above. The desired resistance is produced by means of the washer V and a washer V', made of parchment or vulcanized fiber, which two washers are interposed between the surface of the clutch-disk K² and the recessed face of the wheel H. By turning down the nut O³ the friction between the clutch-disk K² and the face of the wheel H may be increased as much as desired, or by turning the nut O³ in the inverse direction this friction may be decreased. It is thus evident that when the fish pulls on the line to such an extent that the strain is greater than the winding strain or when there is no winding strain at all the handle is stopped automatically as soon as the pawl L' during the reverse movement of the wheel H strikes the tripping-lever N. To wind in the line, the handle is turned in the direction of the arrow, Fig. 1, whereby the pawl L' is at once disengaged from the tripping-lever N and is thrown by its spring against the inner surface of the rim of the cog-wheel H, and when it arrives at the pin M it engages the same, thus turning the cog-wheel H in the direction of the arrow, Fig. 4. When the fisherman turns the handle O in the direction of the arrow, Fig. 1, to wind in the line, and thereby turns the wheel H in the direction of the arrow, Fig. 4, the pawl L' also encounters the tripping-lever N, but from the other side, and presses this lever back, and after the pawl has passed the free end of this tripping-lever the spring N² throws the tripping-lever out again, and so on, whereby this tripping-lever is at all times brought into such position that it can automatically stop the friction-clutch and the handle whenever the line is pulled out by the fish. It is very evident that this automatic stop for the handle prevents injury to the hand in case the fish, by a sudden dart, wrenches the handle out of the fisherman's hand, and if this automatic stop were not provided there would be danger of injuring the fisherman's fingers by means of the rapidly-rotating handle.

The handle O is screwed to the sleeve K' of the clutch-disk and turns with the same and the clutch-disk and by means of the mechanism described rotates the wheel H. The ratchet-wheel O⁵ is loose on the handle, but is held on the sleeve K'. Therefore when the wheel H is rotated in the inverse direction of the arrow, Fig. 4, as it is when the fish pulls outward on the line, this ratchet-wheel is rotated with the wheel H, and thus slips under the free end of the spring-pawl P, secured to the handle, which is now held stationary by means of the mechanism previously de-

scribed. Of course when the handle is turned to wind in the line the clutch-disk K² and the wheel H rotate together, and consequently this ratchet-wheel then also rotates with the handle.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is---

1. In a fishing-reel, the combination with a casing and spool, of gearing for turning the spool, a handle for operating the gearing, means for automatically preventing the handle from turning backward, when the spool, while engaged with the winding-gear, rotates in the inverse direction of the winding direction, substantially as set forth.

2. In a fishing-reel, the combination with a frame, a spool therein, a winding-gear and a handle, of a clutch-disk for engaging the winding-gear and means for automatically throwing the clutch-disk out of gear with the winding-wheel and locking the clutch-disk, when the spool is turned in the inverse direction of winding, substantially as set forth.

3. In a fishing-reel, the combination with a frame, a spool therein, a winding-gear and a handle, of a clutch-disk connected with the handle, which clutch-disk can engage the winding-gear, and a tripping-lever for automatically throwing the clutch-disk out of gear with the winding-gear when the spool is turned in the inverse direction of winding, substantially as set forth.

4. In a fishing-reel, the combination with a frame, a spool therein, a winding-gear and a handle, of a clutch-disk connected with the handle, a spring-pawl on said clutch-disk for automatically engaging the winding-gear when the handle is turned to wind in the line, and a tripping-lever for engagement with said pawl and thereby locking the clutch-disk and also disengaging the pawl from the winding-gear and preventing the handle from turning backward, substantially as set forth.

5. In a fishing-reel, the combination with a frame, a spool therein, and a handle, of a winding cog-wheel for turning the spool, a pin in said cog-wheel, a clutch-disk connected with the handle, a spring-pawl on said clutch-disk, a stud on the winding-wheel for engagement with said spring-pawl, a tripping-lever for throwing said pawl out of engagement with the pin on the clutch-disk and thereby holding the clutch-disk and preventing the handle from turning backward, substantially as set forth.

6. In a fishing-reel, the combination with a casing, a spool therein, a winding cog-wheel and a handle, of a clutch-disk connected with the handle, a spring-pawl pivoted on said clutch-disk, a pin on the winding-wheel for engagement with said pawl, a tripping-lever adapted to engage said pawl and thereby throw the pawl out of gear with the winding-wheel, and a spring acting on

said tripping-lever to hold it in the path of the pawl, substantially as set forth.

7. In a fishing-reel, the combination with a casing, spool, winding cog-wheel and handle, of a clutch-disk for engagement with said winding cog-wheel, a tripping-lever for throwing the clutch-disk out of gear with the winding-wheel, friction-disks interposed between the clutch-disk and winding-wheel, and means for adjusting the pressure on said friction-disk, substantially as set forth.

8. In a fishing-reel, the combination with a casing, a spool and a winding-wheel having a recess and a sleeve projecting from the center of said winding-wheel, of a clutch-disk within the recess of the winding-wheel, a sleeve on said clutch and surrounding the sleeve of the winding-wheel, a friction-washer interposed between the clutch-disk and winding-wheel, the handle being secured to the sleeve of the clutch-disk, a ratchet-wheel on the sleeve of the winding-wheel, and a spring-pawl pivoted on the handle and engaging said ratchet-wheel, substantially as set forth.

9. In a fishing-reel, the combination with a casing, a spool and a winding cog-wheel having a circular recess in one face, of a casing, a pin projecting from the same, the winding cog-wheel being contained in said casing and having a sleeve surrounding said pin, a clutch-disk within the recess of the winding-wheel and having a sleeve surrounding the sleeve of the winding-wheel, a handle secured to the sleeve of the clutch-disk, the sleeve of the winding-wheel projecting beyond the handle and the sleeve of the clutch-disk, and a tightening-nut screwed on the outer end of the sleeve of the winding-wheel, substantially as set forth.

10. In a fishing-reel, the combination with a frame, spool, and a winding cog-wheel having a circular recess in one face, of a casing

having a central fixed pin, the winding cog-wheel being within this casing and having a sleeve which surrounds the fixed pin, a clutch-disk within the recess of the winding-wheel and having a sleeve which surrounds the sleeve of the winding-wheel, a handle secured on the sleeve of the clutch-disk, a ratchet-wheel on the sleeve of the winding-wheel and resting loosely on the handle, a washer on said ratchet-wheel, and a nut screwed on the free end of the winding-wheel sleeve projecting beyond the handle, which nut bears on the washer of the ratchet-wheel, and a pawl on the handle for engagement with said ratchet-wheel, substantially as set forth.

11. In a fishing-reel, the combination with a casing, spool and a winding cog-wheel having a circular recess in one face, of a casing, a central pin secured in said casing, the winding cog-wheel being within said casing and having a sleeve surrounding said pin, a clutch-disk within the recess of the winding-wheel and having a sleeve surrounding the sleeve of the winding-wheel, a handle secured on the sleeve of the clutch-disk, a friction-disk between the clutch-disk and the winding-wheel, a nut screwed on the free end of the winding-wheel sleeve, and serving to increase the pressure between the winding-wheel and clutch-disk, substantially as set forth.

12. A fishing-reel having a drag and an automatic stop, substantially as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 19th day of October, 1905.

ERNEST HOLZMANN.

Witnesses:

OLIN A. FOSTER,
S. M. BAEDER.