

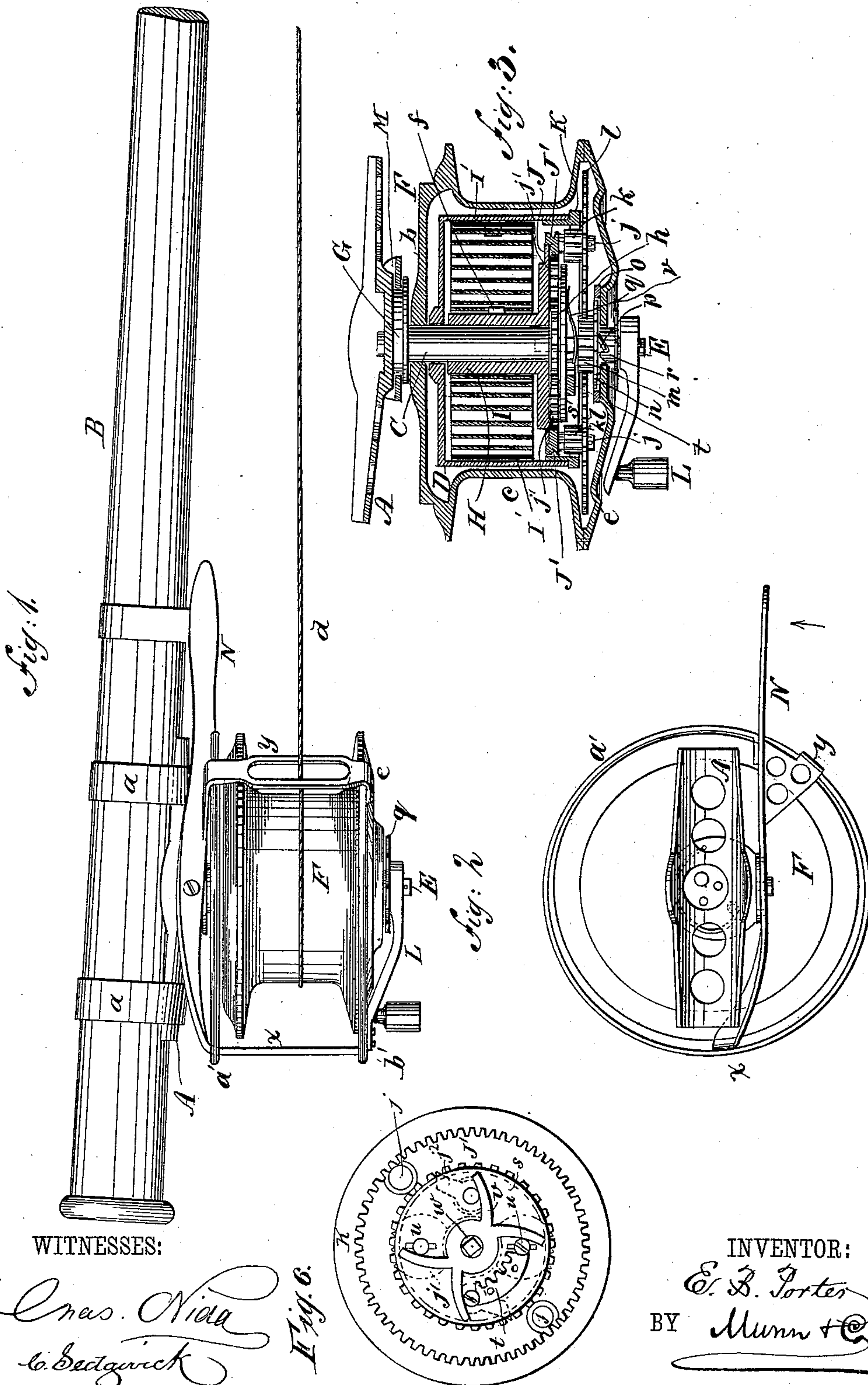
(No Model.)

2 Sheets—Sheet 1.

E. B. PORTER.  
FISHING REEL.

No. 478,713.

Patented July 12, 1892.



WITNESSES:

*Chas. Nida*  
*C. Bedgwick*

*Fig. 6.*

INVENTOR:  
*E. B. Porter*  
BY *Munn & Co*  
ATTORNEYS.

(No Model.)

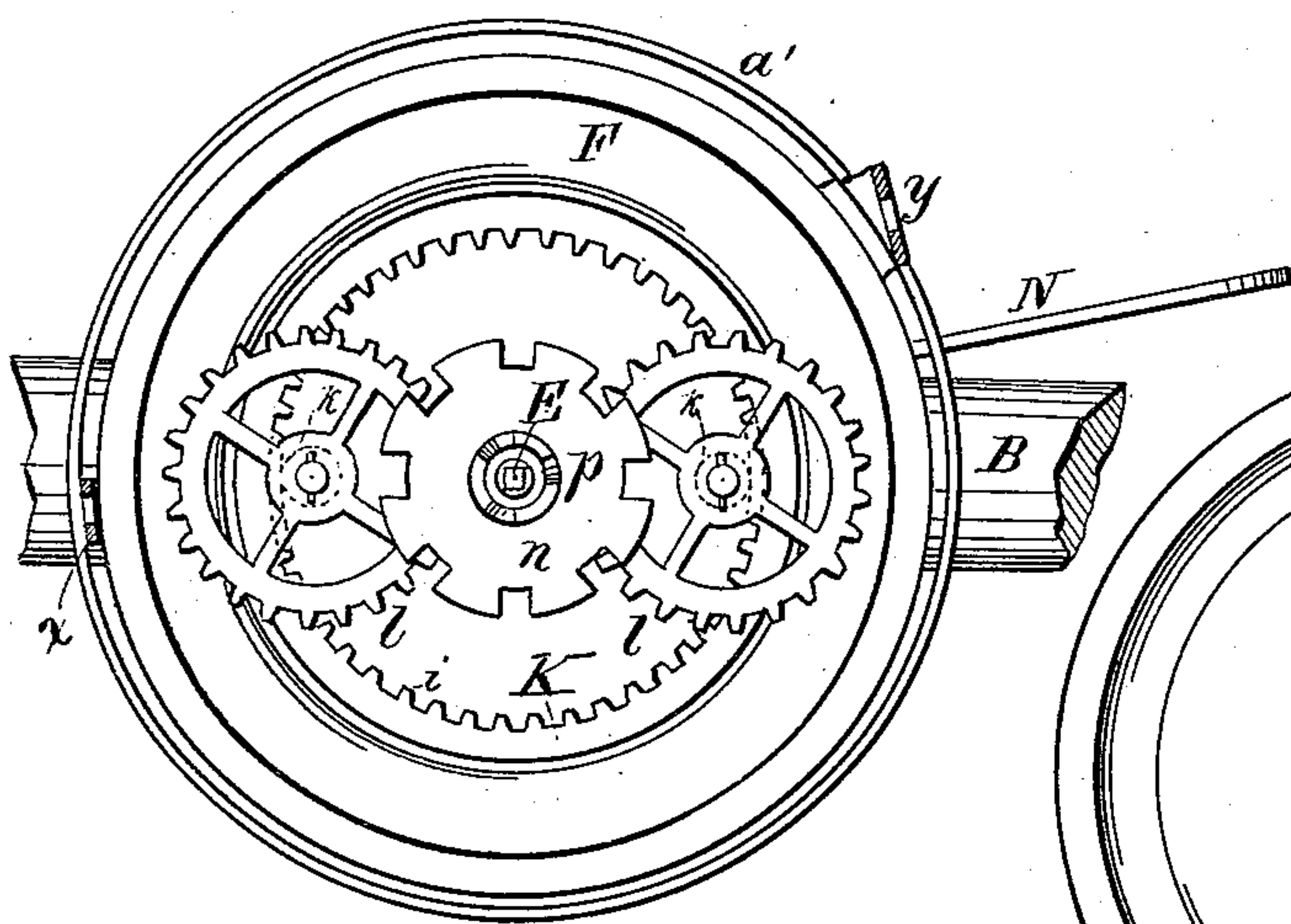
E. B. PORTER.  
FISHING REEL.

2 Sheets—Sheet 2.

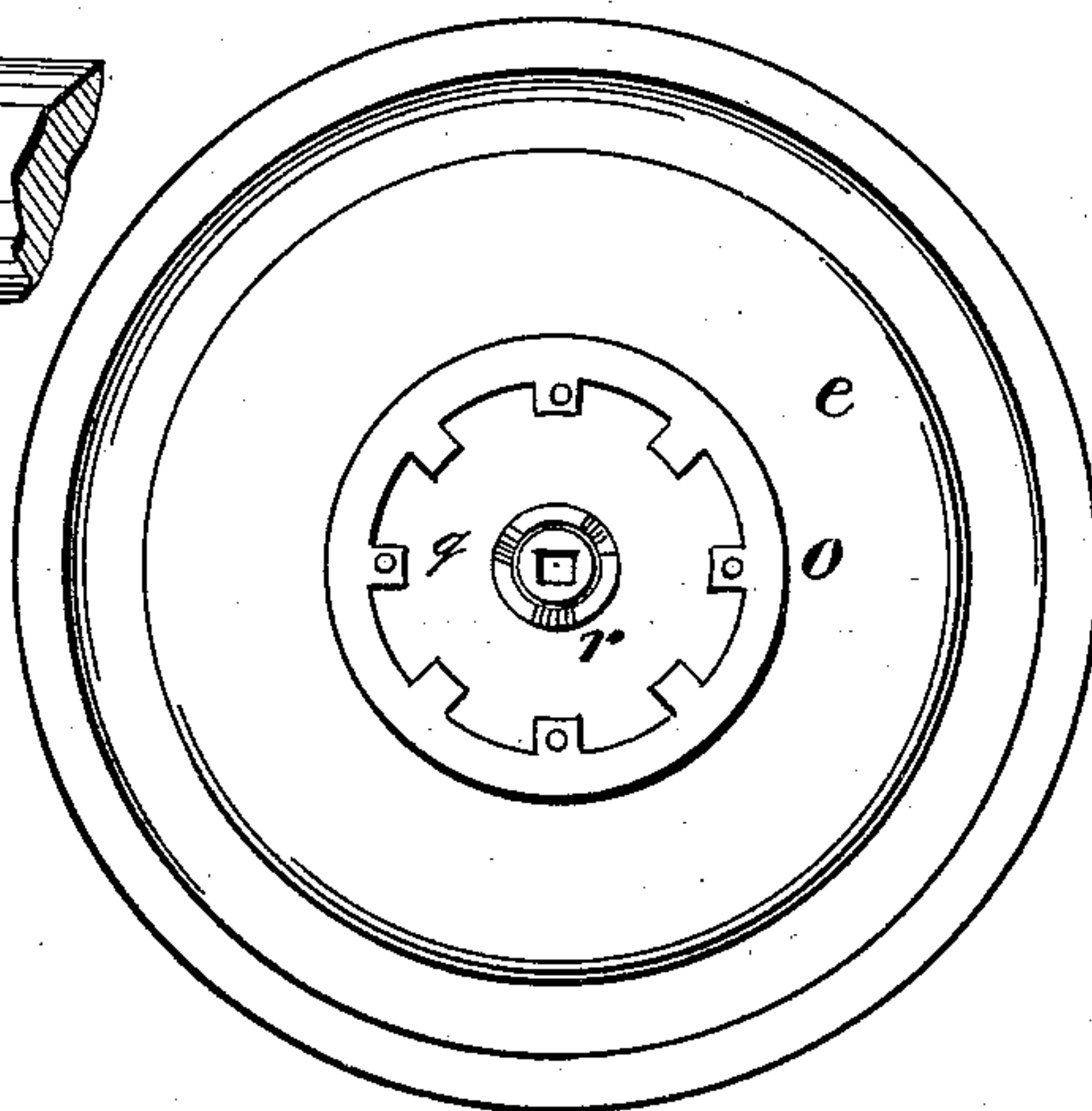
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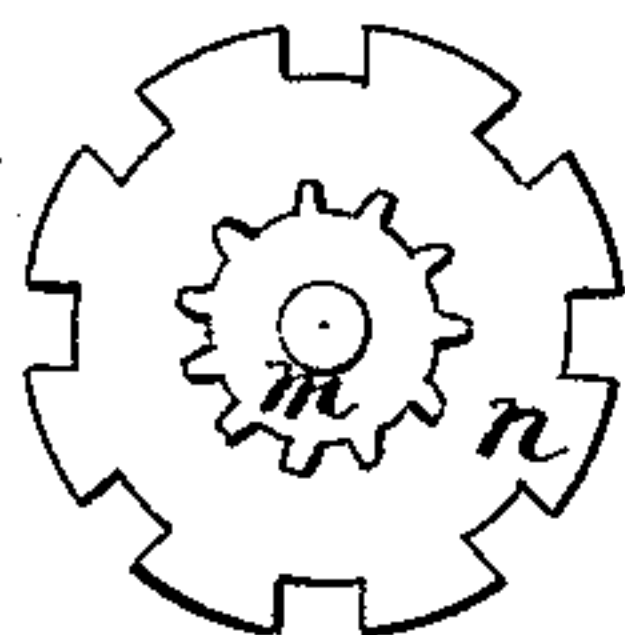
*Fig. 4.*



*Fig. 5.*



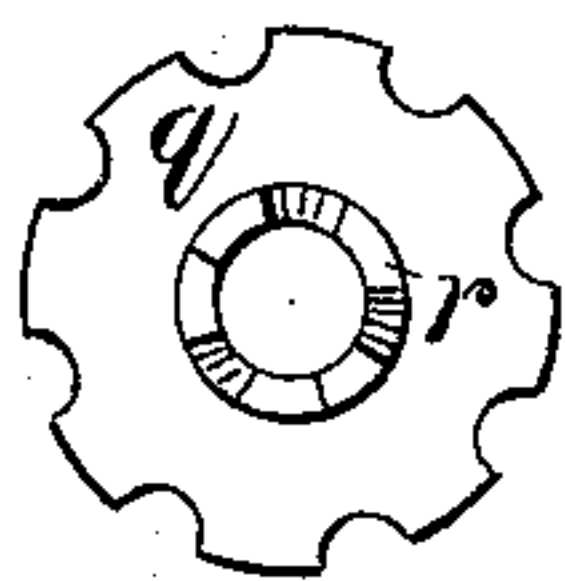
*Fig. 7.*



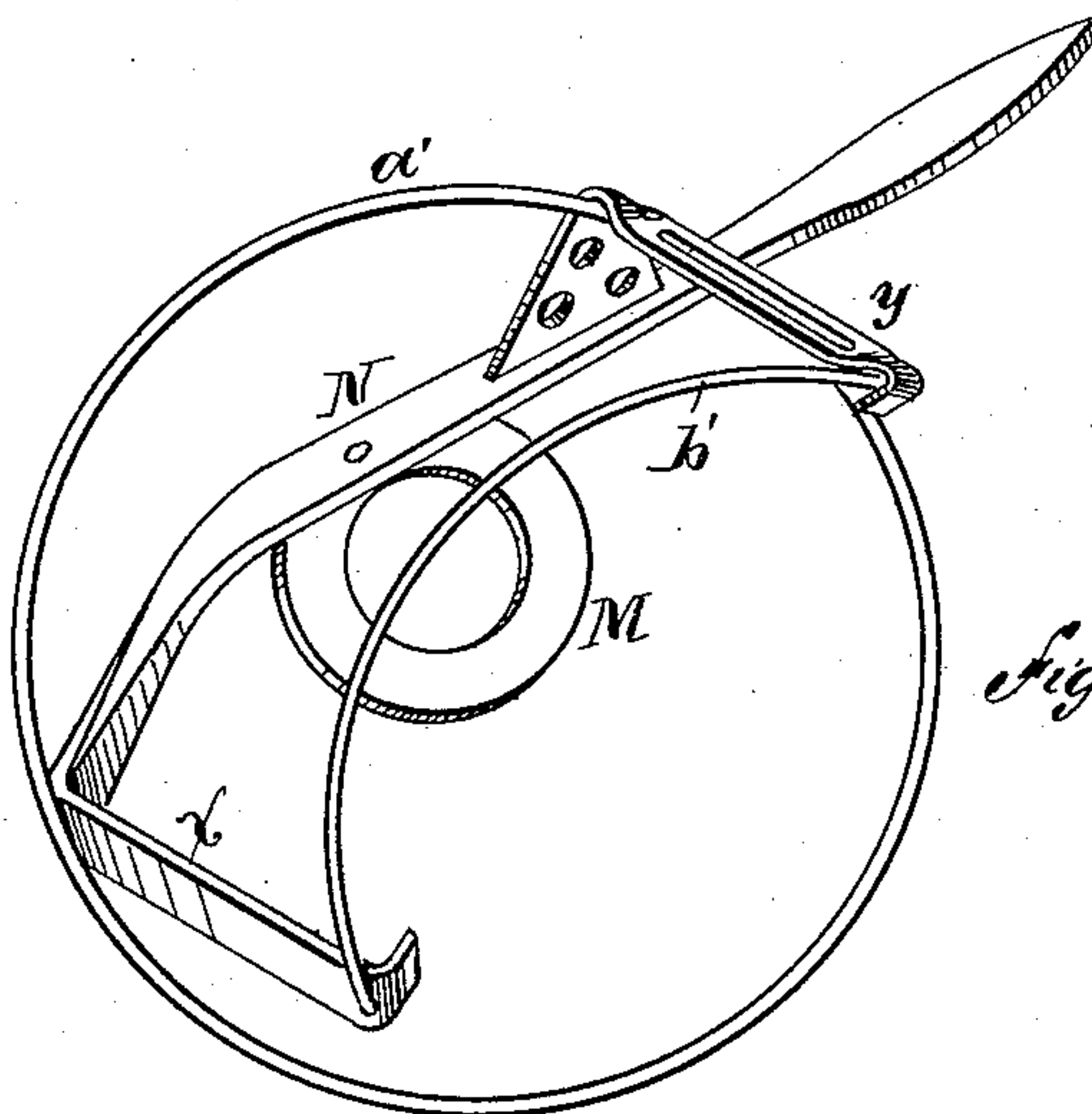
*Fig. 9.*



*Fig. 8.*



*Fig. 10.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ELBERT BALL PORTER, OF PENN YAN, NEW YORK.

## FISHING-REEL.

SPECIFICATION forming part of Letters Patent No. 478,713, dated July 12, 1892.

Application filed August 22, 1888. Serial No. 283,432. (No model.)

*To all whom it may concern:*

Be it known that I, ELBERT BALL PORTER, of Penn Yan, in the county of Yates and State of New York, have invented a new and  
5 Improved Fishing-Reel, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a plan view of my improved  
10 fishing-reel. Fig. 2 is a rear elevation. Fig. 3 is a diametrical section. Fig. 4 is a front elevation with the cover removed. Fig. 5 is an inside view of the cover. Fig. 6 is a face view with the driving spur-wheels and center wheel removed. Fig. 7 is a side elevation  
15 of the central pinion. Fig. 8 is a side view, and Fig. 9 is an edge view, of the pinion-moving cam; and Fig. 10 is a perspective view of the brake and line guide.

20 Similar letters of reference indicate corresponding parts in all the views.

My present invention is an improvement upon the fishing-reel for which Letters Patent No. 374,319 were granted to me December  
25 6, 1887. In the fishing-reel described in my present specification I omit the beveled friction-wheels used for regulating the speed of the reel. I also use a different form of brake for retarding or stopping the reel and improved mechanism for throwing the center  
30 pinion into and out of gear.

To these ends my invention consists in improved mechanism for disconnecting the reel-body from the driving-spring and in means  
35 for locking the driving and winding mechanism when disconnected from the reel-body.

It consists, further, in an improved form of brake for controlling the movement of the reel-body, and it consists, further, in the novel  
40 arrangement and combination of parts hereinafter set forth, and specifically pointed out in the claims.

Referring to the drawings, the curved plate A, which supports the reel, is arranged to be  
45 attached to the pole B by means of sliding rings *a* in the usual way. To the plate A, at or near the center thereof, is secured a stud C, upon which is fastened the spring-drum D and which extends through said drum to a point near the top. Between the drum D and  
50 the plate A are placed the back part *b* of the reel F and the eccentric G. The reel F ex-

tends over the outside of the drum D and is provided with a wide flaring groove *c* for receiving the line *d*. To the face of the reel F  
55 is secured the reel-head *e*.

In the axially-bored end of the stud C is journaled the winding arbor or shaft E, which extends beyond the head *e* and is squared. Upon the stud C is placed the sleeve H, pro-  
60 vided with a hook *f* for receiving the inner end of the spiral spring I, the outer end of the said spring being connected to the friction brake-spring I'. As this arrangement is like that described in connection with the  
65 former invention, (No. 374,319,) I will omit the detailed description of it here.

To the open side of the drum D is secured a ring K, having internal teeth *i*, and in the internally-toothed ring J' are inserted studs  
70 *j*, upon which are placed the pinions *k*, which are in engagement with the teeth *i* of the ring K. The pinions *k* carry spur-wheels *l*, which engage a spur-wheel *m*, which acts as the driving-pinion of the reel, and which is placed  
75 loosely upon the shaft E. To the spur-wheel or pinion *m* is attached a disk *n*, notched or provided with radial arms, the arms or notches of which are adapted to engage with projections on the under or inner face of the reel-  
80 head *e*. As shown, these projections are formed by securing to the inner face of the reel-head an internally-notched ring *o*, and upon the side of the notched disk *n* opposite the spur-wheel *m* is formed a cam *p*, having  
85 a series of inclined teeth with plain apices.

Upon the shaft E, outside of the head *e*, is placed a loose sleeve or disk *q*. This sleeve is preferably provided with a notched or milled head or flange, and carries on its inner  
90 end a cam *r*, having depressions or V-shaped notches corresponding with the cam *p*, so that by turning the sleeve or disk *q* the engagement of the cam *p* will push the notched disk *n* out of engagement with the ring *o*, when it  
95 is so desired, to shift the gear, in the manner presently to be described. Upon the shaft E, outside of the sleeve or disk *q*, is placed a hand-crank L. Upon the disk *s* is secured a detent *t*, which, as shown, consists of a curved  
100 rack. The disk *s* is apertured and slipped down over the tops of the studs *u*, which are inserted in the flange J of the sleeve H, thus holding the winding-wheels *j'*, which are



mounted on said studs, and the clicks  $j^2$  in place.

Between the tops of the four studs  $u$  and the ends of the curved rack  $t$  is placed a cushion-spring  $v$ , having a central eye  $w$  for receiving the shaft  $E$ . The said cushion-spring rests on the disk  $s$  and presses the spur-wheel  $m$  and the notched disk  $n$  and cam  $p$  outward against the reel-head and into engagement with the internally-notched ring  $o$ . When the sleeve or disk  $q$  is turned so as to disengage the notched disk  $n$  from the notched ring  $o$ , it pushes the spur-wheel or pinion  $m$  inwardly into engagement with the curved rack  $t$ , carried by the disk  $s$ . Upon the eccentric  $G$  is placed a ring  $M$ , to which is attached a brake-lever  $N$ , one end of which extends beyond the body of the reel  $F$ , so as to form a handle. To the opposite of the lever  $N$  is secured a brake, which is preferably formed by bending the lever  $N$  at right angles, so that the bent portion  $x$  thereof, which forms the brake, will extend across the edge of the reel. To the handle end of the lever  $N$  is attached a slotted arm  $y$ , to which is attached a wire ring  $a'$ , which forms a guard for preventing the line from passing over the edge of the reel. To the extremities of the arms  $x y$  is secured a curved wire  $b'$ , which partially encircles and serves as a guard for the front edge of the reel. The slot of the arm  $y$  may be omitted and the wires  $a' b'$  may extend wholly or only partly around the reel, as may be found advisable in practice, and the line may be taken from or wound upon the reel between the arms  $x y$  and the wires  $a' b'$ . By depressing the lever  $N$  the arm  $x$  is brought away from contact with the periphery of the reel, allowing the reel to run free. The small curved spring (shown best in Fig. 2) engaging the plate  $A$  and secured to the ring  $M$  on the eccentric  $G$  is intended to hold the arm  $x$  in contact with the edges of the reel  $F$ , so that it will act as a brake except when the lever  $N$  is depressed. The arm  $x$  acts as a brake or drag to retard the motion of the reel or to stop it altogether, as circumstances may require.

The operation of my improved reel is as follows: By turning the sleeve or disk  $q$  to the left a part of a revolution, so as to disengage the notched disk  $n$  from the notched ring  $o$  on the head  $e$  of the reel, thus disconnecting the reel, the spur-wheel or pinion  $m$  is brought into engagement with the detent or rack  $t$ , thereby locking the said spur-wheel, so that it turns with the disk  $s$ . This operation locks the mechanism, with the spring wound, when the reel is disengaged to pay out line. A forward movement of the crank  $L$  turns the spur-wheel with its notched disk  $n$ . The teeth of the cam  $p$  fall into the notches of the outside cam  $r$  at the same time the spur-wheel  $m$  is released from the rack  $t$  and its notched disk  $n$  engages the notched ring  $o$  and the reel is connected with the spring mechanism. This happens only when the shaft  $E$  and

pinion thereon are turned by means of the crank  $L$ , which, operating through the winding-wheels carried by the flange  $J$ , moves it forward. This operation tends to wind the spring  $I$  at the same time it reconnects the reel with the driving-spring. The disk  $s$  is turned independently of the said spur-wheel  $m$ , and the winding is effected through the spur-wheel  $h$  on the shaft  $E$  and the planet-wheels  $j'$  engaging the toothed rim  $J'$ , turning the sleeve  $H$ , thus winding the spring at any time. The reel may be moving in either direction at the same time or stopped, or the crank may be held when the spring is partly or wholly wound without in any way interfering with its taking in line. It will be observed that the spring can be wound at any time, and if it is desired to wind it when the reel is disengaged to pay out line by simply taking hold of the crank it is instantly connected again. For example, if when paying out line a fish strikes the bait and runs with the line the most natural thing to do would be to hook the fish by a gentle pull and, in fishing with a reel, to wind in the fish. A touch on the crank-handle and a fourth turn or less of the crank reconnects the reel with the mechanism and very quickly recovers the line with the full force of the spring acting on the reel. By pressing backward on the crank the pulling force of the reel can be doubled or trebled, acting through the winding-pinion and winding-wheels on the flange of sleeve  $H$  and the clicks which engage the internally-toothed driving-ring, by which are carried the studs supporting driving-wheels  $l$  and pinions  $k$ .

The term "detent" is employed by me here-in and in the claims to designate any suitable mechanism for engaging with and locking or arresting the movement of the driving-pinion when the winding and driving mechanism is disconnected from the reel-body, the curved rack  $t$  being but one form of such a "detaining" or locking device of which many modifications are obvious.

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

1. In a reel of the character described, a device for disconnecting the winding and driving mechanism, consisting of the following elements, in combination: a reel-head provided with projections on its inner face, a sleeve journaled loosely on the winding-arbor and provided with the cam  $r$ , a disk carried by the reel-driving pinion and provided with a cam  $p$  and with radial arms or projections adapted to engage with the projections on the reel-head, a spring arranged to normally hold said arms in engagement with said projections, and a detent secured to the winding mechanism for engaging with and locking the driving-pinion when the projections on the disk are carried out of engagement with the projections on the reel-head, substantially as shown and described.



2. In a fishing-reel, the combination of the reel-driving pinion, a reel-head having a notched ring secured to its inner face, a disk carried by said pinion and provided with radial arms and inclined teeth, a sleeve having a notched end adapted to engage the inclined teeth of said disk, a spring arranged to press said disk outwardly so as to normally hold said radial arms in engagement with the notches in the ring on the inner face of the reel-head, and a rack carried by the driving mechanism of the reel and adapted to engage with and lock said pinion when the driving mechanism is disconnected from the reel-head, substantially as shown and described.

3. In a fishing-reel, the combination of the reel F, the stud C, the drum D, the spring-actuated sleeve H, mounted on the stud, the disk s, carried by said sleeve, the rack t, carried by the disk s, the spring v, the spur-wheel or pinion m within the reel-head and pressed outwardly by said spring, the disk n, carried by the spur wheel or pinion m and provided with radial arms or notches and with the cam p, the notched ring o, secured to the inner face of the reel-head, and the sleeve q, extending above the reel-head and provided with the cam r, substantially as described.

4. In a fishing-reel, the combination, with the reel F, the stud C, the drum D, the spring-actuated sleeve H, mounted on the stud, an internally-toothed ring secured to the drum, pinions meshing with said ring and spur-wheels carried by said pinions, of disk s, carried by said sleeve and provided with the rack t, the shaft E, journaled in the end of the stud and projecting through the reel-head, the pinion m, loosely mounted on the shaft, the disk n, carried by said pinion and provided with radial projections or notches and with the cam p, the spring v between the disk s and pinion m, the sleeve q, journaled loosely on the shaft E, extending above the reel-head and provided with cam r, substantially as shown and described.

5. In a fishing-reel, the combination of the reel F, the stud C, the drum D, the spring-actuated flanged sleeve H, mounted on the stud, said sleeve being provided with the disk s, the rack t, carried by the disk s, said disk being mounted on the flange J of the sleeve by means of the studs u, inserted in said flange, the four-armed spring v, the spur-wheel m within the reel-head and pressed outward by said spring, the notched disk n, carried by the spur-wheel and provided with the cam p, the notched ring o, secured to the inner face of the reel-head, and the notched disk q outside of the reel-head and provided with the cam r, substantially as described.

6. In a fishing-reel, the combination, with

the reel F, the stud C, the drum D, the spring-actuated sleeve H, mounted on the stud, an internally-toothed ring secured to the drum, pinions meshing with the internally-toothed ring, and spur-wheels carried by said pinions, of disk s, carried by the said sleeve and provided with the rack t, the shaft E, journaled in the end of the stud and projecting through the reel-head, the spur-wheel m, loosely mounted on the shaft, the notched disk n, carried by the spur-wheel and provided with the cam p, the four-armed spring v between the disk s and the wheel m, the notched ring o, secured to the inner face of the reel-head, and the notched disk q on the shaft E outside of the reel-head and provided with the cam r, substantially as herein shown and described.

7. In a fishing-reel, the combination of a swinging lever N, mounted eccentrically with the center of the reel and having one end extended beyond the reel-body, a brake secured to said lever and adapted to be swung into and out of engagement with the reel-body by the movement of said lever on its axis, and a spring secured to said lever and adapted to normally hold the brake in contact with the reel-body, whereby the brake may be released from engagement with the reel-body by pressure on the extended end of the lever, substantially as shown and described.

8. The combination, with the reel F and stud C, of the eccentric G, secured to the upper part of the reel seat or plate and forming a portion of the same, the ring M, placed on the eccentric G, the ring or washer to hold the eccentric in place, and the brake-lever N, provided with the arms x y, substantially as specified.

9. The combination, with the reel F and stud C, of the eccentric G, secured to the reel-plate and encircling the stud C, the ring M, placed on the eccentric G, the brake-lever N, provided with arms x y, and the guard-ring a' and curved wire b', substantially as specified.

10. In a fishing-reel, the combination of the curved plate A, the stud C, the eccentric G, the ring M, the brake-lever N, the flanged sleeve H, carrying the toothed driving and friction rings J' K, the spring I, the friction-spring I', pressing against the inner side of a fixed spring-barrel, the pinions k, the spur-wheel l, spur-wheel m, and the shifting mechanism for moving the spur-wheel m, and the disk s, with curved rack t attached thereto for locking spur-wheel m, substantially as specified.

ELBERT BALL PORTER.

Witnesses:

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ULYSSES S. SOUTHERLAND.