No. 724,208. PATENTED MAR. 31, 1903.

E. D. ROCKWELL.

FISHING REEL.

APPLICATION FILED JULY 29, 1902.

NO MODEL.

Fig. 1.

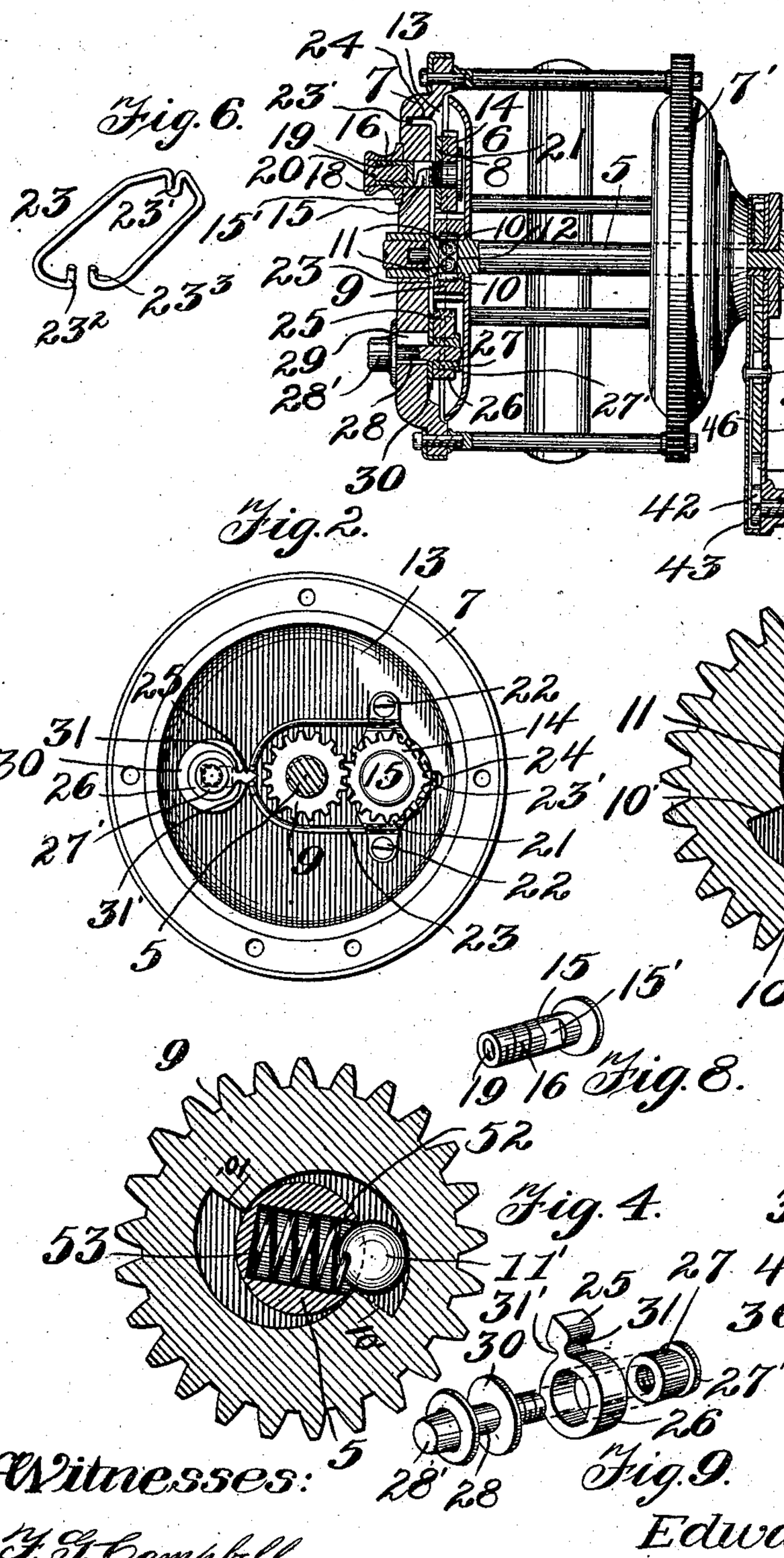

Fig. 6.

Fig. 2.

Fig. 7.

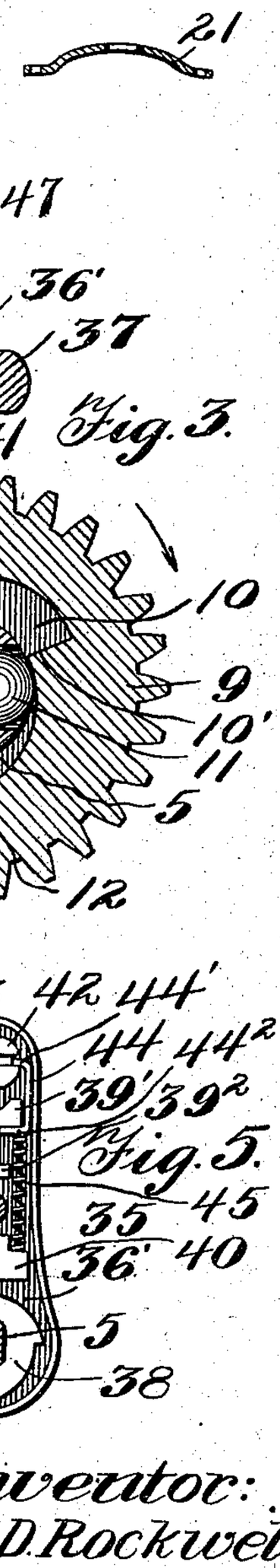

Fig. 3.

Fig. 8.

Fig. 4.

Fig. 9.

Fig. 5.

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UNITED STATES PATENT OFFICE.

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FISHING-REEL.

SPECIFICATION forming part of Letters Patent No. 724,208, dated March 31, 1903.

Application filed July 29, 1902. Serial No. 117,435. (No model.)

To all whom it may concern:

Be it known that I, EDWARD D. ROCKWELL, a citizen of the United States, residing at Bristol, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Fishing-Reels, of which the following is a specification.

My invention relates to fishing-reels.

One of the main objects of my invention is the provision of means whereby the brake and click devices will have no effect upon the reel while winding the line, but will instantly be brought into use when said line is pulled out should a "strike" have been made.

A further object of the invention is the provision of a fishing-reel having a handle so constructed that the reel may rotate free of said handle while the line is being drawn out, but will be automatically connected thereto when it is turned to wind in the line.

Further objects and advantages of the invention will be set forth in the detailed description which now follows.

In the accompanying drawings, Figure 1 is a plan view of the reel, partially in section. Fig. 2 is an elevation of the side or cap plate comprising a part of the frame of the reel, on which the brake and click devices are mounted. Fig. 3 is a vertical section of the spindle of the winding-reel and the gear-wheel through which the connection between said spindle and the brake and click devices is made. Fig. 4 is a view similar to Fig. 3, illustrating a modification. Fig. 5 is an elevation of the handle with the spindle of the winding-reel in section. Fig. 6 is a perspective view of a click-spring which may be employed. Fig. 7 is a longitudinal vertical section of the brake-plate. Fig. 8 is a perspective representation of the bolt upon which the brake or drag wheel is mounted, and Fig. 9 is a perspective view of the click devices detached.

Like numerals indicate similar parts throughout the several views.

Referring to the drawings, the numeral 5 indicates the spindle of a reel of any desired construction, which reel is designated by 6, said spindle being journaled in the side or cap plates 7 7′, as illustrated in Fig. 1. Mounted upon said spindle between the cap-plate 7 and one of the end flanges 8 of the reel is a gear-wheel 9, having eccentrically-disposed recesses 10, with shoulders 10′ formed therein for the reception of balls 11, which are normally carried in a transverse bore 12 of spindle 5, said balls being when the reel is turned in one direction centrifugally thrown into the recesses 10 and bearing against said shoulders 10′ to lock the gear 9 to the spindle 5 and permitting the spindle to rotate idly without turning said gear 9 while being turned in the opposite direction to wind the line.

Located in a recess 13 in the side or cap-plate 7 are the brake and click devices of the reel, which comprise a brake-gear 14, mounted upon a headed stud 15, exteriorly threaded at 16 for the reception of a thumb-nut 18 and interiorly threaded at 19 to receive a retaining-screw 20, as shown in Fig. 1. This gear meshes with the gear-wheel 9, and it bears against a slightly-bowed friction-plate 21, secured by screws 22 to the cap-plate 7, said friction-plate also serving to aid in retaining in position a click-spring 23, which passes under it, and the bent end 23′ of which is then inserted in a recess 24 of the cap-plate 7. The headed stud 15 has a squared portion 15′ where it passes through the friction-plate 21, and in virtue of this construction said stud is prevented from turning when the thumb-nut 18 is rotated, thereby serving to clamp the gear 14 between the head of stud 15 and the friction-plate 21 to give a frictional resistance to the rotation of gear 14 necessary to cause the desired degree of "drag" upon the line. The free ends of the click-spring 23 are upturned at 23^2 23^3 and bear upon either side of an extension 25 of the click. This click comprises a hub 26, having the pawl 25, said hub being mounted upon a sleeve 27, which in turn is threaded upon a stud 28, passing through a slot 29 of the cap-plate 7 and headed at 28′ upon the exterior thereof, a washer 30 being interposed between said cap-plate and the click 26. In Figs. 1 and 2 the click is shown in its retracted position or out of engagement with the teeth of

the gear 9, and when it is desired to throw said click into its operative position the head 28′ is forced toward the gear 9, the barrel of the stud 28 sliding in the slot 29. This action serves to bring the pawl 25 into engagement with the teeth of the gear 9, all of the click devices being held against accidental displacement by the upturned ends 23^2 23^3 of the click-spring, which enter recesses 31 31′, formed at the juncture of hub 26 with said pawl 25. To prevent accidental displacement of the hub 26 from the sleeve 27, said sleeve is flanged at 27′.

Loosely mounted upon the spindle 5 at its end opposite the gear 9 is a handle 35, comprising a crank-arm 36 and the knob 37. This crank-arm is longitudinally recessed or channeled at 36′ to receive the elements for locking the handle to the spindle of the reel when it is desired to wind in the line or for automatically disconnecting said handle from the spindle when it is desired to employ a "free" reel, said locking elements comprising a ratchet-wheel 38, mounted upon a squared portion of the spindle 5, which coöperates with a locking-slide 39, having the extensions 39′ 39^2 and the pawl-extension 40. A stud 41, upon which the knob 37 is threaded, has a head 42, having recesses or notches 43 formed therein, and said stud is located in the outer end of the recess 36′.

Designated by 44 is a link having hooked ends 44′ 44^2, said hooked end 44′ engaging the notches 43, while the end 44^2 engages the under side of the projection 39′ of the locking dog or slide 39, as best illustrated in Fig. 5. Bearing against the link 44 and the pawl 40 of slide 39 is a spring 45, said spring serving a purpose hereinafter described.

After the parts just described have been assembled in the handle they are secured in the channel 36′ thereof by a plate 46, which may be of transparent material, said plate being fastened to the handle by a rivet 47.

The operation of my improved reel is as follows: Should the line have been run out at the start and a fish have taken the hook and started to run with it, the click, which has been moved into its operative position, will sound the alarm, and then the desired tension or drag may be placed upon the line by tightening the thumb-screw 18, thereby binding the gear 14 against the friction-plate 21, as hereinbefore described. As soon as the fish starts to run with the line the handle 36 is moved backward, or to the right in Fig. 5, which causes the knob 37 and the stud 41 to turn to the left in said figure in relation to the handle. When this is done, the link 44, through its engagement with the notches 43 of said stud, will withdraw the locking dog or slide from its engagement with the ratchet 38, thereby permitting the reel to rotate freely while the handle remains stationary, and as soon as the fish ceases to run the first movement of the handle (to the left in Fig. 5) preparatory to winding in the line will, through the mechanism described, connect the handle to the spindle of the reel, and the line may then be wound in as rapidly as desired. By exerting a lateral pressure upon the handle 36 said handle is to a certain extent bound between the ratchet 38 and a washer 50, which is secured to the spindle 5 by a screw 51, this binding action serving to produce a drag upon the reel through the handle 36.

Heretofore with some constructions it has been necessary to wind in the line against the tension of whatever drag may have been applied to it while the fish was running out, and the present invention is particularly designed to obviate this objectionable feature of fishing-reels as at present constructed, and to this end I have provided the hereinbefore-described means of locking the spindle 5 to the gear-wheel 9. Whenever the line is running out, the spindle 5 is turning in the direction of the arrow in Fig. 3, and the ball 11 is centrifugally thrown into recess 10 and bearing against the shoulder 10′ of gear-wheel 9 carries it also in the same direction, and since the click and brake devices are both operated through said gear-wheel it will be seen that singly or together they will be effective as the line runs out whenever operatively connected. When, however, the operator starts to wind in the line while the click and brake, or either of them, may be operatively connected, the balls 11 roll along the inclined walls of the recess 10, thus leaving the spindle 5 free to rotate without carrying the gear-wheel 9 with it, and thereby preventing the resistance of said click or brake during the winding in of the line. It will be seen that although the handle may be suddenly dropped there will be no necessity for "thumbing" the line, as the fish will not be able to get any slack line while said brake and click are operatively connected. By this automatic clutch-and-release device the main object of my invention is accomplished—viz., a brake and click that will continue to operate after being once connected while the line is running out, but neither of which will offer any resistance while the line is coming in.

In Fig. 4 of the drawings I have illustrated a modified form of means for locking the gear-wheel 9 to the spindle 5. In this form said spindle is provided with a recess 52, in which is seated a spring 53, bearing against a ball 11′, and in virtue of this construction the ball is thrown out by the spring no matter what may be the position of the reel.

It will be seen that by providing the spring 45 in the handle 35 said spring will serve to force the locking slide or dog into engagement with the ratchet 38 when the link 44 is thrown downward by the turning of the stud 41.

From the foregoing description it will be seen that I have provided simple and efficient means for automatically connecting the click and brake devices to the spindle of the reel when the line is running out and for likewise

disconnecting said click and brake devices from the spindle when said line is being wound in, and while the combination of elements herein shown and described accomplishes this purpose very efficiently it is to be distinctly understood, as before stated, that my invention is not limited to the exact construction illustrated, for it includes within its purview modified means for automatically connecting or disconnecting the click and brake devices to or from the spindle of the winding-reel, and, if desired, the brake may be applied direct to gear-wheel 9 instead of having a separate gear-wheel for that purpose. Likewise other forms of click and click-springs may be substituted for those shown without departure from the invention.

Having thus described my invention, what I claim is—

1. The combination with a fishing-reel having a chambered spindle, of a gear loosely mounted upon said spindle and provided with a recess having a wall eccentric to the axis thereof, said recess terminating in a shoulder; a device mounted in the spindle, and adapted automatically to engage the shoulder of the gear-recess when the spindle is rotated in one direction, and to be disengaged from said shoulder when the spindle is rotated in an opposite direction; and means for applying resistance to said gear.

2. The combination, with a fishing-reel, of a spindle having a bore at one of its ends; a roller mounted in said bore; a device sleeved upon the bored end of the spindle and having a recess of greater amplitude than the spindle, said recess having a shoulder with which the roller is adapted to engage when the spindle is rotated by the running out of the line; and click and brake elements coöperating with said device.

3. In a fishing-reel, the combination, with a spindle having a bore, of a roller mounted in said bore; a gear element loose upon the spindle and having a recess of greater amplitude than the diameter of said spindle, said recess having a shoulder with which the roller is adapted to engage; a wheel in engagement with said gear element; and a click adapted to be actuated by the gear element.

4. In a fishing-reel, the combination with the reel-spindle having a bore, of a toothed gear loose on the spindle and having a chamber surrounding the bore, said chamber being of greater amplitude than the diameter of the spindle; a device fitted in the bore of the spindle; means on the gear-wheel for engaging said device when the spindle is rotated in one direction; a toothed brake-wheel in engagement with the gear of the spindle; a click actuated by said spindle gear-wheel; and means for applying pressure to said brake-wheel when it is desired to resist the movement of the reel-spindle.

5. In a fishing-reel, the combination, with a reel-spindle having a bore in its end, of a toothed gear provided with recesses, each of said recesses having a shoulder; a device mounted in the bore of the spindle and adapted to be thrown out to engage one of the shoulders when the spindle is actuated in a certain direction, and to recede from said shoulder when the spindle is actuated in an opposite direction; a brake-wheel in engagement with the gear of the spindle; a brake; means for applying the brake to said brake-wheel; and a click in engagement with said gear-wheel.

6. The combination, with a reel, of a reel-spindle, a gear loose upon said spindle; means for automatically connecting said gear to the spindle when the latter is turned in one direction, and for automatically disconnecting it therefrom when rotated in an opposite direction; and a brake-wheel in engagement with said gear.

7. In a fishing-reel, the combination, with a reel-spindle, of a gear loose on said spindle; a gear-wheel engaging said gear; means for automatically connecting said gear with the spindle when it is turned in one direction, and for disconnecting it therefrom when it is rotated in an opposite direction; and a brake device effective upon said gear-wheel.

8. In a fishing-reel, the combination, with a reel-spindle, of a gear loose upon said spindle; means for automatically connecting said gear with the spindle when it is turned in one direction, and for disconnecting it therefrom when it is turned in an opposite direction; a brake-wheel in engagement with said gear; and a click controlled by said gear.

9. In a fishing-reel, the combination, with a reel-spindle, of a gear-wheel loose thereon and having an eccentric recess provided with a shoulder; means operative in said recess for automatically connecting and disconnecting said gear-wheel to the spindle; a click coöperating with said gear-wheel; and a brake for controlling, through said gear-wheel, the motion of the spindle.

10. In a fishing-reel, the combination, with a chambered reel-spindle, of a gear-wheel loose on said spindle, and having an eccentric recess provided with a shoulder; a ball seated in a chamber of said spindle, and adapted to engage said shoulder of the recess in the gear-wheel when the spindle is turned in one direction, and to permit the spindle to rotate without actuating the gear-wheel when it is turned in an opposite direction; and a brake for retarding the movement of said spindle.

11. In a fishing-reel, the combination, with a chambered reel-spindle, of a gear-wheel loose on said spindle, and having an eccentric recess provided with a shoulder; a ball seated in a chamber of said spindle and adapted to engage said shoulder of the recess in the gear-wheel when the spindle is turned in one direction, and to permit the spindle to rotate without actuating the gear-wheel when it is turned in an opposite direction; a brake for retarding the movement of said spindle; and a click coöperating with the gear-wheel.

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

a reel-spindle, of a gear-wheel loosely mounted on said spindle; means for automatically connecting and disconnecting said gear-wheel to the spindle; and a brake-wheel in engagement with said gear-wheel.

13. In a fishing-reel, the combination, with a reel-spindle, of a gear-wheel loosely mounted on said spindle; means for automatically connecting and disconnecting said gear-wheel to the spindle; a brake-wheel in engagement with said gear-wheel; and a click also engaging the gear-wheel.

14. In a fishing-reel, the combination, with a spindle, of a friction-plate; a click-spring secured to the reel-frame by said plate; a click coöperating with said spring; and a click-wheel.

15. In a fishing-reel the combination, with a reel-spindle, of a gear-wheel carried by said spindle; a click in engagement with said gear-wheel on one side of said spindle; a brake-wheel in engagement with said gear-wheel on the other side of said spindle; a friction-plate; means for securing said friction-plate to the frame of the reel; and a click-spring held in place by said friction-plate.

16. In a fishing-reel, the combination, with a reel-spindle having a chamber, of a ball located in said chamber; a gear-wheel loose upon the spindle and provided with eccentric recesses having shoulders; and a brake-wheel in engagement with said gear-wheel.

17. In a fishing-reel, the combination, with a chambered spindle, of a ball seated in the chamber of said spindle; a gear-wheel loose upon the spindle, and having an eccentric recess, the recess of said gear-wheel terminating in a shoulder or abutment; and a spring in the chamber pressing against the ball.

18. In a fishing-reel, the combination, with a chambered spindle, of a gear-wheel having an eccentric recess terminating in a shoulder or abutment; a ball located in the chamber of the spindle, and adapted to engage with said shoulder when the spindle is turned in one direction; a brake-wheel in engagement with the gear-wheel of the spindle; and a movable click also adapted to engage with the spindle-gear.

19. In a fishing-reel, the combination, with a reel-spindle, of a toothed wheel secured to said spindle; a handle; a movable pawl carried by the handle and adapted to engage said toothed wheel to rotate the spindle in one direction; a gear loosely mounted upon the spindle; means for automatically connecting said gear to and disconnecting it from the spindle; and brake and click devices coöperating with said gear.

20. In a fishing-reel, the combination, with a winding-spindle, of a gear-wheel loose on said spindle; a brake for restraining the motion of said gear-wheel; means for automatically connecting said gear-wheel to and disconnecting it from the spindle; a handle loose upon the spindle; means for connecting said handle to the spindle upon one motion thereof; and means carried by the spindle, and against which the handle may be forced, to also restrain the motion thereof.

21. In a fishing-reel, the combination, with a spindle, of a click-wheel carried by said spindle; a stud movable in a slot of the spindle-frame; an interiorly-threaded cylinder upon said stud; a click-sleeve located on said cylinder, and having a pawl or click adapted to engage the click-wheel; and a spring bearing against said click-sleeve.

22. In a fishing-reel, the combination, with a winding-spindle, of a gear-wheel loose on said spindle; means for automatically connecting and disconnecting said gear-wheel to and from the spindle; a brake-wheel in engagement with the gear-wheel; a friction-plate or brake bearing against said wheel; means for securing said friction-plate to the reel-frame; a click-spring held in position by said friction-plate; and a click controlled by said click-spring.

23. In a fishing-reel, the combination, with a chambered spindle to which the end plates of the reel are secured, of a device mounted in the chamber of said spindle; an element loose upon the spindle, said element having an eccentric recess provided with a shoulder adapted to be engaged by said device when the spindle is rotated in one direction and to be disengaged therefrom when the spindle is rotated in the opposite direction; a retarding device coöperating with said element; and means for actuating said retarding device to throw it into and out of action.

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

EDWARD D. ROCKWELL.

Witnesses:

EMMA W. FISH,

RUTH MCPHERSON.