(No Model.)

A. J. ARNOLD.

FISHING REEL.

No. 546,633. Patented Sept. 17, 1895.

Fig. 1.

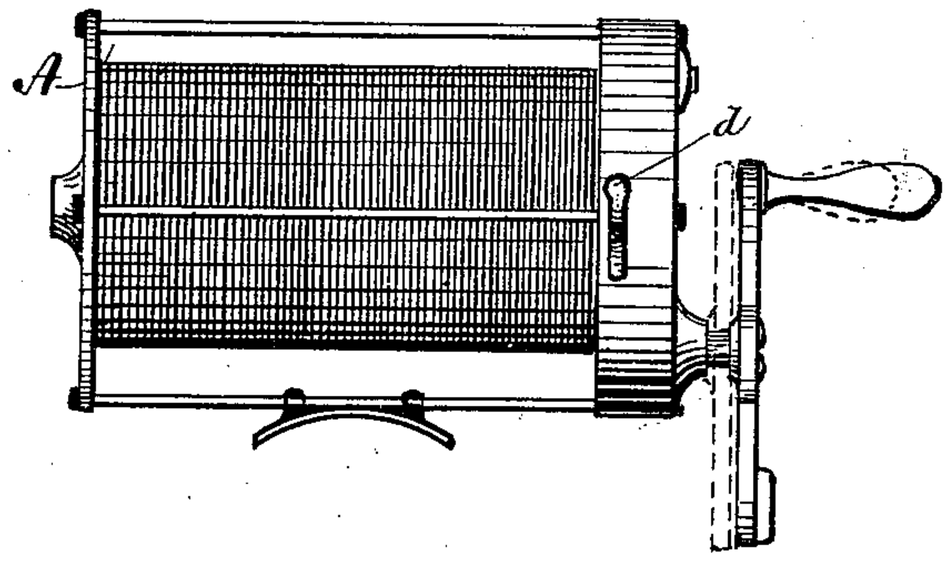


Fig. 2.

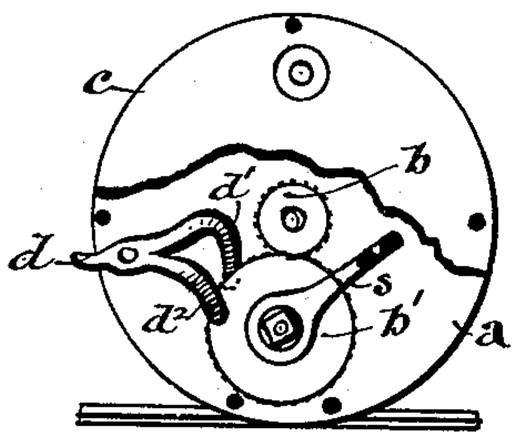


Fig. 3.

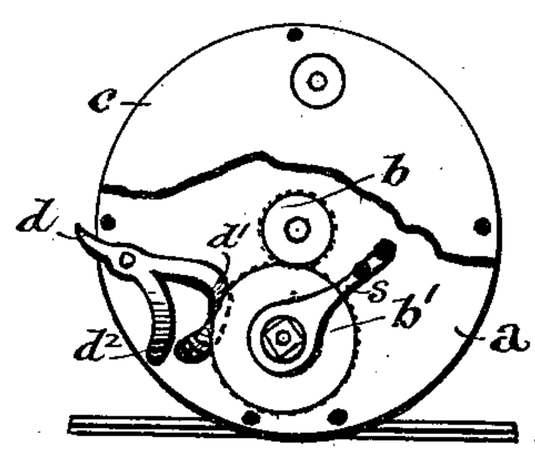


Fig. 4.

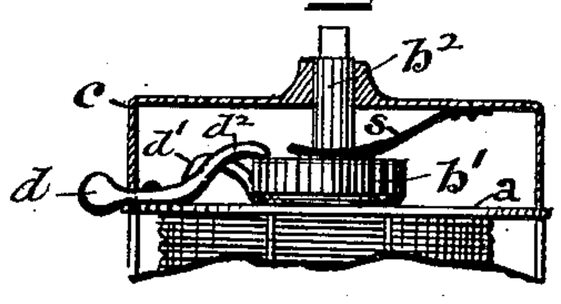


Fig. 5.

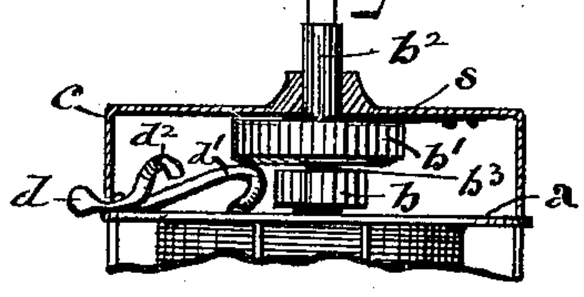
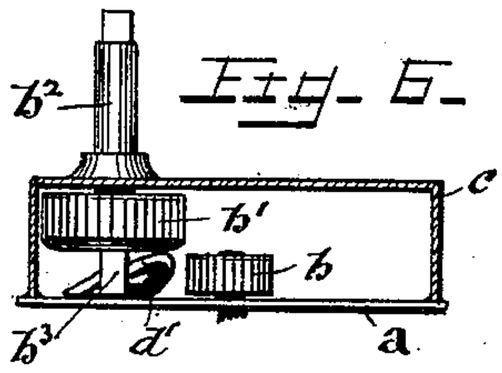


Fig. 6.



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UNITED STATES PATENT OFFICE.

ALBERT J. ARNOLD, OF NATIONAL CITY, CALIFORNIA.

FISHING-REEL.

SPECIFICATION forming part of Letters Patent No. 546,633, dated September 17, 1895.

Application filed June 24, 1895. Serial No. 553,842. (No model.)

To all whom it may concern:

Be it known that I, ALBERT J. ARNOLD, a citizen of the United States, residing at National City, California, have invented new and useful Improvements in Fishing-Reels, of which the following is a specification.

My invention relates to reels—such, for example, as those adapted to be attached to and used with ordinary fishing-rods—and is designed to provide a means of freeing the reel, upon occasion, of its driving mechanism, so as to facilitate manipulations with the line, as in casting, and avoid unnecessary wear of parts.

To this end my invention consists in an improved construction of the driving mechanism of the reel and the combination therewith of a pivoted cam movable to ultimate positions, in one of which it acts to detach and maintain the driving-gear and crank away from the driven gear upon the reel-arbor.

It also consists in the construction and combination, with the detaching-cam, of a movable finger, serving to lock the driving-gear in mesh when the cam is out of use.

It consists, further, in the constructive arrangement of parts, whereby the gears may be either thrown into mesh by reversal of the cam position or caused to re-engage automatically by manipulation of the winding-crank.

Mechanism embodying my invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of a fishing-reel, complete, with my invention attached. Figs. 2 and 3 are end views of the reel with part of the cover removed, showing the cam in its two ultimate positions. Figs. 4 and 5 are cross-sections corresponding with Figs. 2 and 3, respectively, showing the cam and gears in elevation in the positions indicated; and Fig. 6 is a cross-section giving a side elevation of the gears in detached position.

Referring now to the drawings, A designates a reel of the usual description adapted to be attached to a fishing-rod in the usual manner. As my invention is an addition or an attachment, only such parts will be referred to as by addition or alteration are concerned with my invention. In the preferred form of the invention here shown the small driven pinion b is permanently attached to the arbor of the reel. The driving-gear b' is usually journaled in its extended hub b^2 (to the end of which the manipulating crank is attached) upon a stud b^3, rigidly set in the reel-casing a, and such is the construction shown. The cover c of the casing is sufficiently raised to allow the gear b' to be moved outward upon its stud b^3, so as to disengage the pinion b, as indicated in Figs. 5 and 6; and to limit the movement necessary to accomplish this and facilitate the action of the cam presently to be described the under surface of the gear b' is coned to a frustum, as shown. A spring s is provided to bear constantly against the upper surface of the gear b' to return the gear b' back to its position of engagement when permitted. These alterations in the usual construction being provided, a pawl-cam d is pivoted to the casing c in such relations that when oscillated in the plane of the casing in one direction it inserts its inclined terminal d' as an inclined plane or wedge beneath the gear b', and elevates it on its stud out of mesh with the gear b. In the return movement the wedge-terminal is withdrawn, and the spring s operates to return the gear to its engaging position. With the parts thus constructed, the device will be operative to a useful degree, inasmuch as the gears will remain out of mesh, and no action of the reel tends to draw them into mesh again. Upon operating the gear b' by its crank, however, the friction of the gear against the wedge-terminal d' tends to move it outward and to allow the gear to be forced downward by its spring into re-engagement. It is found, however, desirable to possess a more positive and reliable means of retaining the gear in mesh than the spring s, and to this end I attach to the oscillating pawl d a second terminal d^2 in such relations that when the wedge-terminal d' is withdrawn from engagement with the gear b' the terminal d^2 is brought into position immediately over the gear b' and serves as a stop to prevent the gear from leaving its engagement with the pinion. The movement of the pawl d to elevate the gear b' also removes the terminal d' away from and releases the gear. The remote end of the bifurcated pawl projects through a suitable slot in the casing, by

which it may be manipulated, and sufficient friction is allowed to retain it in ultimate positions. The tangential relations of the terminal d' to the gear b' and the relative direction of rotation of the latter, together with the constant downward pressure of the spring upon the gear, produces sufficient friction to displace the wedge and allow the gears to reengage almost immediately upon manipulating the crank to wind up the reel. The functional advantage of this is illustrated in fishing—for example, for river bass—where it is extremely desirable to allow the utmost freedom in paying out the line while the fish is "running," or in making long casts, but where it is equally necessary to have the reel in winding condition the instant the fish is "struck." The rod may thus be set, with the gears detached and the reel free, and may be again taken in hand in this condition, but may instantly and by the act of reeling be put into winding condition without any attention being required in the way of resetting.

Those skilled in the "gentle art of angling" will readily appreciate the importance of the facilities thus afforded in adapting the described functions of the reel to the exigencies of the occasion so as to insure its operation without failure through excitement or forgetfulness of the angler at a critical moment.

I claim as my invention and desire to secure by Letters Patent of the United States—

1. In a fishing reel, in combination with a driving gear, adapted to be moved in the prolongation of its axis out of mesh with the driven gear or pinion, a bifurcated lever pivoted to the casing, having one terminal wedge shaped, adapted to swing beneath the gear and elevate the same out of mesh, and a second terminal adapted to swing into contact to hold the gear in mesh as the lifting terminal is withdrawn, substantially as set forth.

2. In a fishing reel in combination with the movable driving gear, its retaining spring, and the pivoted lever, the wedge shaped lifting terminal of the lever having a tangential movement in relation to the gear, whereby the rotation of the gear tends to displace the wedge and restore the gear into mesh with the driven pinion, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence two subscribing witnesses.

ALBERT J. ARNOLD.

Witnesses:

ARTHUR M. ARNOLD,

M. PLATT, Jr.