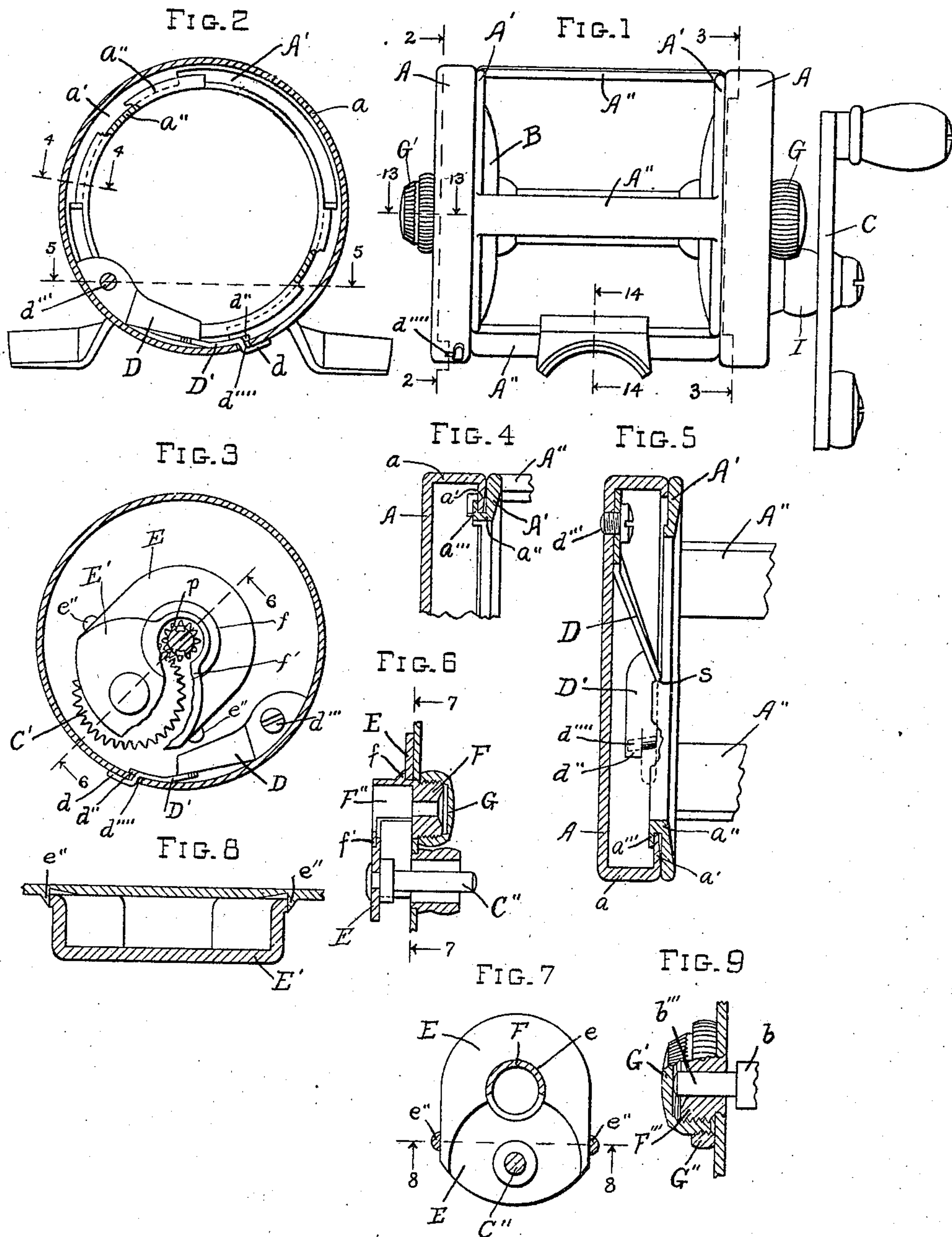


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PATENTED MAR. 19, 1907.

W. E. MARHOFF.
FISH LINE REEL.

APPLICATION FILED MAR. 6, 1906.



Witnesses:

Lulu G. Greenfield
A. F. Thomas

Inventor,

Walter E. Marhoff
By *Chapell & Co.*
Att'ys.

UNITED STATES PATENT OFFICE.

WALTER E. MARHOFF, OF KALAMAZOO, MICHIGAN, ASSIGNOR TO MARHOFF REEL CO., OF KALAMAZOO, MICHIGAN, A CORPORATION.

FISH-LINE REEL.

No. 847,350.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed March 6, 1906. Serial No. 304,514.

To all whom it may concern:

Be it known that I, WALTER E. MARHOFF, a citizen of the United States, residing at Kalamazoo, county of Kalamazoo, State of Michigan, have invented certain new and useful Improvements in Fish-Line Reels, of which the following is a specification.

This invention relates to improvements in fish-line reels.

The objects of this invention are, first, to provide an improved frame for fish-line reels which may be very quickly assembled or disassembled to afford access to all parts; second, to provide an improved frame for fish-line reels which is attractive in appearance and at the same time economical in structure and a frame which is rigid and durable; third, to provide an improved frame for fish-line reels the parts of which may be stamped up from sheet metal; fourth, to provide in a fish-line reel an improved gear-supporting means; fifth, to provide in a fish-line reel an improved means for securing the pinions upon the spool-shaft; sixth, to provide in a fish-line reel an improved structure in which the necessity for accurate-fitting spool-shaft is overcome.

Further objects and objects relating to structural details will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined, and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which—

Figure 1 is a side elevation of my improved fishing-reel. Fig. 2 is a transverse section through one of the frame-heads, taken on a line corresponding to the broken line 2 2 of Fig. 1. Fig. 3 is a transverse section through the other frame-head, taken on a line corresponding to the broken line 3 3 of Fig. 1. Fig. 4 is an enlarged detail section taken on a line corresponding to line 4 4 of Fig. 2, showing the means for securing the head-plates. Fig. 5 is an enlarged detail section taken on a line corresponding to line 5 5 of Fig. 2, showing the structural details of the frame. Fig. 6 is an enlarged detail section taken on a line corresponding to line 6 6 of Fig. 3, showing

structural details of the bridge-plate E. Fig. 7 is a section taken on a line corresponding to line 7 7 of Fig. 6. Fig. 8 is an enlarged section taken on a line 8 8 of Fig. 7. Fig. 9 is an enlarged detail, partially in section, on a line corresponding to line 9 9 of Fig. 1, showing the details of the shaft-bearings and means for adjusting the same longitudinally.

In the drawing the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the drawing, each of the head-caps A are preferably formed of a single piece of metal. The rim portions *a* of the head-caps are provided on their inner edge with inturned flange-like engaging members *a'*. The engaging members *a'* extend only partially around the caps, being in sections or having open spaces between them. The head-rings A' are secured upon the pillars A'', being preferably formed integral therewith. The rings A' are provided with outturned radial retaining members *a''* thereon, forming grooves or channels to receive the engaging members *a'* of the head-caps A. (See Figs. 2, 4, and 5.) The engaging members *a'* are preferably made yielding or spring-like, so that the head-plates are held firmly in position.

To prevent the accidental disengagement of the head-plates, I provide catches D. These catches are formed of spring material and are secured within the plates by suitable screws, as *d'''*, these catches projecting inwardly and arranged to bear against the head-rings A'. When a head-cap is turned into position, the catch engages behind the shoulder or stop *s*, as clearly appears in Fig. 5, locking the cap in position.

The catches D are provided with extensions D', having upturned finger-pieces *d* thereon, which are arranged through the slots *d''''* in the bands or rims of head-caps. (See Figs. 1, 2, and 3.) This slot is closed or covered by an extension *d''* when the catch is in its engaging position. (See Fig. 5.)

With the parts thus arranged when it is desired to release or remove a head-cap it is only necessary to disengage the catch by swinging it outwardly and turn the head-cap slightly to disengage it from the ring.

The pillars and head-rings A' are preferably

formed integral, the same being made from a piece of tubing turned in at the ends to form head-rings and cut away between the rings to form the pillars. While I prefer to form the head-caps A and head-rings A' with only two oppositely-arranged engaging and retaining members a' and a'' , it is evident that any number desired may be provided. The catch D is preferably formed from a single piece of sheet metal, although it is evident that its form might be very greatly varied and still secure satisfactory results.

The crank-shaft or spindle C'', on which the gear C' turns, is mounted upon the bridge-plate E. This bridge-plate is provided with an offset portion E' to hold and support the crank-shaft C'' and to provide room for the gear C'. (See Figs. 3, 6, and 7.) The body portion of the bridge-plate E lies flat against the inner face of the head-plate, as clearly illustrated in Figs. 3 and 6. The gears are not shown in Figs. 6 and 7. The bridge-plate is provided with an opening e , adapted to receive the bearing-block F for the spool-shaft. On the inner end of this bearing-block is a shell-like extension F''. This bearing-block is provided with a shoulder f and a flange f' , which engage the plate when the bearing is drawn into position. (See Fig. 6.) The bearing-block is arranged through an opening provided therefor in the head-cap and is secured therein by the cap G, which is threaded thereon.

To prevent the bridge-plate from turning or swinging upon the bearing-block, lugs e'' are punched up from the head-plate to engage the sides thereof. (See Figs. 3, 7, and 8.) The crank C is secured to the gear C', which provides a means of driving. The extension is cut away on the side toward the gear, thus allowing the gears to mesh properly, as clearly appears in Fig. 6. By thus forming and arranging the parts the bridge-plate is secured without screws other than the threaded bearing-block and cap. The parts are formed so that they can be readily assembled or disassembled should occasion require. It is also evident that it is impossible to assemble them in any other than the correct manner.

The journal portions b''' of the shaft b of the spool B project through the bearing-block F'' and are held in longitudinal adjustment therein by the cap G'. This cap is threaded to screw onto the bearing-block F''' and is held in its adjusted positions by the lock-nut G'', which is threaded to screw onto the bearing-cap G' for the purpose of adjusting the cap G' longitudinally, as clearly appears in Fig. 9. By this means the spool-shaft is held in its proper longitudinal adjustment. This also obviates the requirement of the accurate fitting of the parts which would otherwise be necessary. The lock-nut G'' is ring-like in form and suitably knurled, so that it presents an attractive appearance

when the parts are assembled, as a part of the cap.

I have illustrated and described the parts of my improved fishing-reel in detail in the form preferred by me on account of the structural economy of the parts and the convenience with which they may be assembled. If it is desired to disassemble the parts—as, for instance, to remove the spool—it is only necessary to remove one of the heads, when the spool may be withdrawn from the frame.

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

1. In a fishing-reel, the combination of the head-caps having inturned flange-like rims thereon, each of said rims having a slot therein and inturned engaging flanges extending partially about the same; head-rings connected by pillars formed integrally therewith and located at the outer edges thereof, said head-rings having outturned flanges on their inner edges, with outwardly-facing grooves therein to receive the said engaging flanges of the head-caps; spring-catches secured to said head-caps arranged to bear against said head-rings; stops on said rings for said catches; finger-pieces arranged through said slots in the rims of said head-caps; and extensions on said catches adapted to normally close said slots, for the purpose specified.

2. In a fishing-reel, the combination of the head-caps having inturned flange-like rims thereon, each of said rims having a slot therein and inturned engaging flanges extending partially about the same; head-rings connected by pillars formed integral therewith and located at the outer edges thereof, said head-rings having outturned flanges on their inner edges with outwardly-facing grooves therein to receive the said engaging flanges of the head-caps; spring-catches secured to said head-caps arranged to bear against said head-rings; stops on said rings for said catches; and finger-pieces arranged through said slots in the rims of said head-caps, for the purpose specified.

3. In a fishing-reel, the combination of the head-caps having inturned flange-like rims thereon, said rims having inturned engaging flanges extending partially about the same; head-rings connected by pillars formed integral therewith and located at the outer edges thereof, said head-rings having outturned flanges on their inner edges with outwardly-facing grooves therein to receive the said engaging flanges of the head-caps; spring-catches secured to said head-caps arranged to bear against said head-rings; and stops on said rings for said catches, for the purpose specified.

4. In a fishing-reel, the combination of the head-caps having inturned flange-like rims thereon, said rims having inturned engaging flanges extending partially about the same;

and head-rings connected by pillars formed integral therewith and located at the outer edges thereof, said head-rings having outwardly-facing grooves therein to receive the said engaging flanges of the head-caps, for the purpose specified.

5. In a fishing-reel the combination of a head-cap having a slot therein and an intumed flange-like rim thereon, said rim having intumed engaging flanges extending partially about the same; a head-ring having an outturned flange on its inner edge, with outwardly-facing grooves therein to receive the said engaging flanges of the head-cap; a spring-catch secured to said head-cap arranged to bear against the said head-ring; a stop on said ring for said catch; a finger-piece arranged through said slot in the rim of said head-cap; and an extension on said catch adapted to normally close said slot, for the purpose specified.

6. In a fishing-reel, the combination of a head-cap having a slot therein and an intumed flange-like rim thereon, said rim having intumed engaging flanges extending partially about the same; a head-ring having an outturned flange on its inner edge, with outwardly-facing grooves therein to receive the said engaging flanges of the head-cap; a spring-catch secured to said head-cap arranged to bear against said head-ring; a stop on said ring for said catch; and a finger-piece arranged through said slot in the rim of said head-cap, for the purpose specified.

7. In a fishing-reel, the combination of the head-cap having an intumed flange-like rim thereon, said rim having intumed engaging flanges extending partially about the same; a head-ring having an outturned flange on its inner edge, with outwardly-facing grooves therein to receive the said engaging flanges of the head-cap; a spring-catch secured to said head-cap arranged to bear against said head-ring; and a stop on said ring for said catch, for the purpose specified.

8. In a fishing-reel, the combination of a head-cap having an intumed flange-like rim thereon, said rim having intumed engaging flanges extending partially about the same; and a head-ring having an outturned flange on its inner edge, with outwardly-facing grooves therein to receive the said engaging flanges of the head-cap, for the purpose specified.

9. In a fishing-reel, the combination of a head-cap having an intumed flange-like rim with engaging members thereon; a head-ring having engaging members thereon adapted to be engaged by the said engaging member of said head-cap; a spring-catch secured to said head-cap arranged to bear against said head-ring; a stop on said head-ring for said catch; a finger-piece arranged through a suitable slot in the rim of said head-

cap; and an extension on said catch adapted to normally close said slot, for the purpose specified.

10. In a fishing-reel, the combination of a head-cap having a slot therein and an intumed flange-like rim with engaging members thereon; a head-ring having an outturned engaging member on its inner edge with an outwardly-facing groove therein adapted to receive the said engaging member of said head-cap; a spring-catch secured to said head-cap, arranged to bear against said head-ring; a stop on said head-ring for said catch; and a finger-piece arranged through said slot in the rim of said head-cap, for the purpose specified.

11. In a fishing-reel, the combination of a head-cap having an intumed flange-like rim with engaging members thereon; a head-ring having an outturned engaging member on its inner edge with an outwardly-facing groove therein adapted to receive the said engaging member of said head-cap; a spring-catch secured to said head-cap, arranged to bear against said head-ring; and a stop on said head-ring for said catch, for the purpose specified.

12. In a fishing-reel, the combination of a head-cap having an intumed flange-like rim with engaging members thereon; and a head-ring having an outturned engaging member on its inner edge with an outwardly-facing groove therein adapted to receive the said engaging member of said head-cap, for the purpose specified.

13. In a fishing-reel, the combination of a head-cap having an intumed flange-like rim thereon, said rim having intumed spring-like flanges extending partially about the same; a head-ring having an outturned flange on its inner edge, with outwardly-facing grooves therein to receive the said engaging flanges of the head-cap; and a spring-catch for locking said cap in position, for the purpose specified.

14. In a fishing-reel, the combination of a head-cap having an intumed flange-like rim thereon, said rim having intumed spring-like flanges extending partially about the same; and a head-ring having an outturned flange on its inner edge, with outwardly-facing grooves therein to receive the said engaging flanges of the head-cap, for the purpose specified.

15. In a fishing-reel, the combination of a head-cap having an intumed flange-like rim with spring engaging members thereon; a head-ring having engaging members thereon adapted to be engaged by the said spring engaging members of said head-cap; and a spring-catch for locking said head-cap, for the purpose specified.

16. In a fishing-reel, the combination of a head-cap having an intumed flange-like rim with spring engaging members thereon; and

a head-ring having engaging members thereon adapted to be engaged by the said spring engaging members of said head-cap, for the purpose specified.

5 17. In a fishing-reel, the combination of a head-cap; a crank-shaft; a gear thereon; a bridge-plate having an offset portion adapted to receive said gear; a spool-shaft having a pinion thereon with which said gear is arranged to mesh; a threaded bearing for said
10 spool-shaft, having an extension on its inner end arranged to engage said bridge-plate, arranged through said head-cap; a cap threaded upon said bearing, whereby said bearing
15 and bridge-plate are clamped in position; and inwardly-projecting lugs on said cap-plate, for the purpose specified.

18. In a fishing-reel, the combination of a head-cap; a crank-shaft; a gear thereon;
20 a bridge-plate having an offset portion adapted to receive said gear; a spool-shaft having a pinion thereon with which said gear is arranged to mesh; a threaded bearing for said spool-shaft, having an extension on its inner
25 end arranged to engage said bridge-plate, arranged upon said head-cap; and a cap

threaded upon said bearing, whereby said bearing and bridge-plate are clamped in position, for the purpose specified.

19. In a fishing-reel, the combination of a head-cap; a crank-shaft; a gear thereon; a bridge-plate having an offset portion adapted to receive said gear; a spool-shaft having a pinion thereon with which said gear is arranged to mesh; and a bearing for said spool-shaft arranged to secure said bridge-plate in position, for the purpose specified. 30 35

20. In a fishing-reel, the combination of a head-cap; a crank-shaft; a gear thereon; a bridge-plate; a spool-shaft having a pinion thereon with which said gear is arranged to mesh; and a bearing for said spool-shaft arranged to secure said bridge-plate in position, for the purpose specified. 40

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses. 45

WALTER E. MARHOFF. [L.S.]

Witnesses:

OTIS A. EARL,

LULA G. GREENFIELD.