

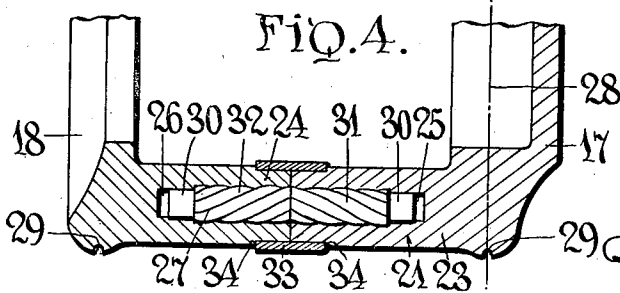
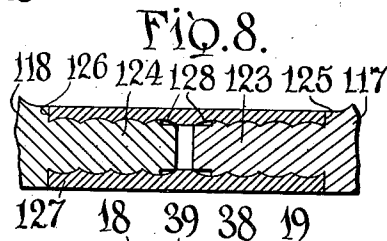
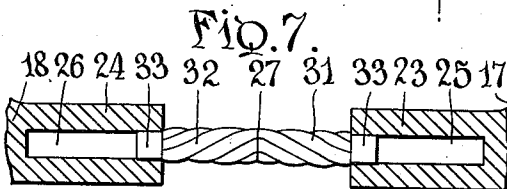
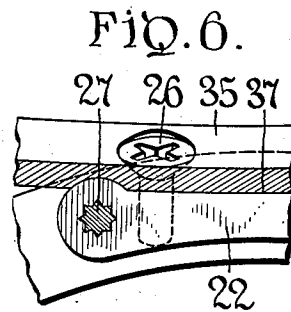
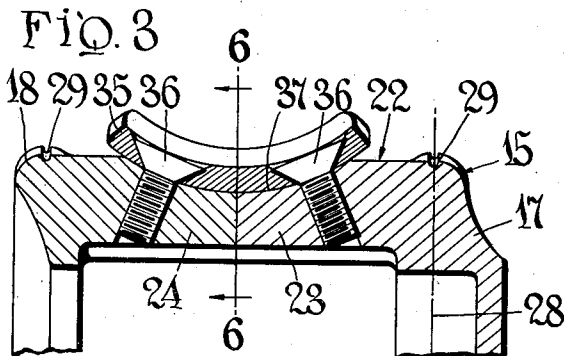
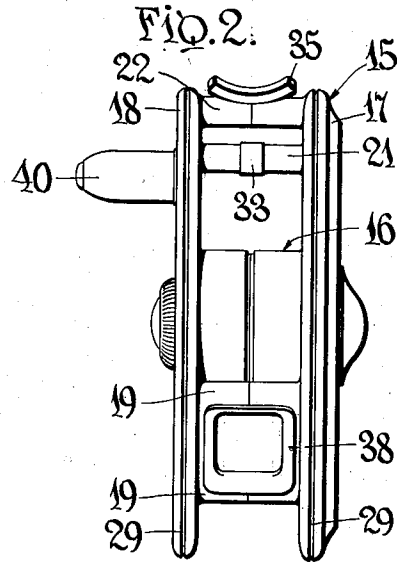
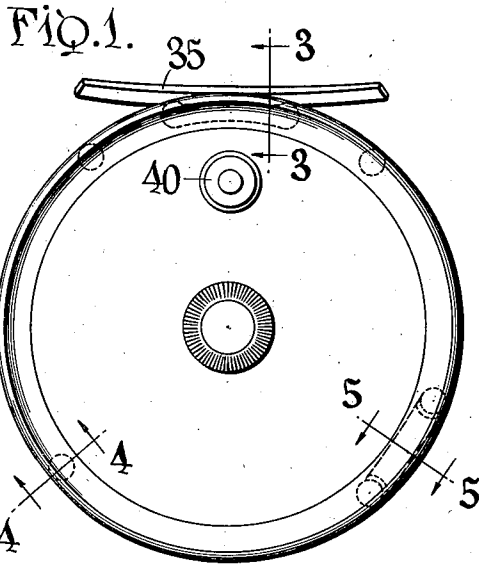
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2,232,253

FISHING REEL

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2,232,253

FISHING REEL

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9 Claims. (Cl. 242—84.1)

The present invention relates to fishing reels and the like, having particular relation to the frames of the reels.

It is desirable from the standpoints of strength, appearance and economy of manufacture to form the frames of certain types of fishing reels by die-casting operations, from which the parts emerge in a substantially finished condition, requiring no machining or finishing operations except removal of the fins produced in the die-casting operation.

For such operations, however, the dies required have been complex and expensive because they must have been made of numerous parts in order to form the castings to the desired shape and yet have been capable of being drawn from the casting when the latter has hardened. Furthermore, fins are usually formed on the castings at the junctures of the die parts, so that with dies having numerous parts a great amount of labor and expense attended removal of the fins.

According to the present invention these difficulties are obviated by die-casting the parts in plural units requiring relatively simple and inexpensive dies for their production and leaving a minimum quantity of fin material to be removed after the casting operation.

In practicing the invention the end parts of the structure are separately formed with integral projections, the projections subsequently being secured together to constitute connecting pillars for the end parts of the frame.

The projections may be secured rigidly together by double screw threaded fasteners, which, at least when such fasteners are externally threaded, may be entirely concealed, so that the finished frame appears integral, and for all practical purposes is as strong and rigid as though integral.

These and other objects and advantages will become apparent from the following description of the typical embodiments of the invention shown in the accompanying drawing, wherein:

Fig. 1 is a side elevational view of the reel;
Fig. 2 is a front elevational view thereof;

Figs. 3, 4 and 5 are fragmentary sectional views of the reel frame structure taken respectively upon lines 3—3, 4—4 and 5—5 of Fig. 1;

Fig. 6 is a fragmentary sectional view taken along lines 6—6 of Fig. 3;

Fig. 7 is a sectional view similar to Fig. 4 but illustrating a fragmentary part of the reel frame in the process of assembly; and,

Fig. 8 is also a sectional view similar to Fig. 4 but illustrating a modified structure of reel frame.

As shown in Figs. 1 and 2, the fishing reel includes a stationary frame 15 and a rotatable winding spool 16 provided with a handle 40. The frame 15 has opposite end parts 17 and 18 con-

nected by pillars 19, 21 and 22, the end part 17 being in the form of a flanged plate and end part 18 being an annulus extending about one flange of the winding spool. Each of pillars 19, 21 and 22 consists of a projection 23 formed on end part 17, and an abutting projection 24 formed on end part 18. Aligned openings 25 and 26 in the respective projections extend from the abutting surfaces, and fasteners 27 engaging in the openings secure the parts together.

The end part 17 having integral projections 23 with openings 25 therein may be die-cast in a two part die set, the parts of which are separable in the plane indicated by line 28 in Figs. 3 and 4, so that a die-casting formed therein has its surface finished except for a fin around the periphery of the end parts. This fin and the metal beneath it may be easily ground or cut away to leave a finishing groove 29 around the end part. End part 18 with integral projections 24 having openings 26 therein may be similarly formed and, if desired, provided with a finishing groove 29.

The screw fasteners 27, preferably formed of hardened steel, have oppositely screw threaded parts 31 and 32 whose cross-sectional area is very slightly larger than the cross-sectional area of openings 25 and 26, and cylindrical end portions 30 which have a sliding fit with the openings.

In joining end parts 17 and 18, the screw fasteners 27 have their ends 30 inserted in aligned openings 25 and 26 in the relationship shown in Fig. 7 and the end parts are then pressed together by a suitable press or clamp means, thereby driving the screw threaded parts 31, 32 of the fasteners into the openings 25 and 26, until the end faces of the projections 23 and 24 abut as shown in Figs. 3 and 4. During this operation the fasteners 27 rotate and the metal of the projections is forced to conform to the threaded formation of screw parts 31 and 32 of the fasteners. This deformation of the metal results in a tight frictional contact between the fasteners and projections 23 and 24, so that the parts are rigidly and permanently joined together.

If desired the junctures of the projections 23 and projections 24 may be covered by a sleeve or ferrule 33. Preferably shoulders 34 are formed on the projections which constitute pillars 21 and the ferrule is made of such length that its ends will be closely adjacent the shoulders when the end faces of the projections are in abutment. In assembly of reel frames with such ferrules the latter are preferably telescoped over the ends of either projections 23 or projections 24 before the assembly of the parts into the relationship shown in Fig. 7.

A saddle 35 for fastening the reel to a fishing rod may be secured to pillar 22 by screw threaded

fasteners 36, one or more of which engage each projection constituting the pillar 22, thereby further strengthening the assembly. The screws 36 incline away from the end faces of the projections 23, 24 so that as they are driven they tend to draw the end faces into abutment, and to secure them in such abutting relationship. As clearly shown in Fig. 3 the pillar 22 is formed with a depression 37, preferably during the die-casting operation, for receiving the abutting curved face of the saddle.

Fishing line wound on the spool 16 enters the reel between pillars 19, and in order to prevent them or the adjacent end parts of the frame from being worn by the line, a sheath of wear resisting material is provided thereover. The sheath may, as shown in Figs. 2 and 5, be a ring 38 of hard metal or similar material curved to interlockingly engage over a bead 39 formed on each of the end members 17 and 18, and also interlockingly engage over the pillars 19. The ring 38 is inserted in place when the parts 17 and 18 are being joined.

In the modified reel frame structure illustrated in Fig. 8, the end parts 117 and 118 have pillar constituting projections 123 and 124, respectively, integrally formed thereon, the projections being of substantially cylindrical form when die-cast, with shoulders 125 and 126, respectively, adjacent their inner ends. The parts are joined by fasteners 127, which are tubular in form and threaded internally, the screw threads at one end being of opposite hand from those at the other end.

To join the parts the fastener 127 are telescoped over the ends 128 of the projections 123, 124 (the ends being of such diameter as to have a sliding fit with the fasteners 127) and the parts 117 and 118 are then pressed together, driving the fasteners 127 into screw threaded engagement over the projections until the ends thereof abut the shoulders 125 and 126. It will be understood that the metal of the projections will be deformed into conformity with the thread of the fasteners during this operation.

It will be understood that the structures shown and described herein are merely illustrative of the inventive principles involved, and that these principles may be otherwise embodied without departing from the spirit of the invention or the scope of the appended claims.

I claim:

1. In a fishing reel frame, a pair of end members and a plurality of pillars therebetween, said pillars comprising projections formed integrally upon each end member, the end faces of the projections upon one end member abutting the end faces of the projections on the other end member, and screw threaded means securing said projections in such abutting relationship.

2. In a fishing reel frame, a pair of end members and a plurality of pillars therebetween, said pillars comprising projections formed integrally upon one of said end members with the end faces of said projections abutting face portions of the other one of said end members, the abutting end faces having aligned openings extending therefrom, and double threaded screws in said openings securing the faces in abutting relation.

3. In a fishing reel, a pair of end members and a plurality of pillars therebetween, said pillars comprising projections formed integrally

upon each end member, the end faces of projections on one end member opposing the end faces of projections on the other end member, shoulders formed upon said projections, and sleeves telescoped over the adjacent ends of said projections with the ends of the sleeves disposed adjacent said shoulders.

4. In a fishing reel, a pair of end members connected by spaced pillars and a ring of wear resisting material interlockingly engaged between adjacent spaced pillars and between said end members, said pillars comprising projections formed integrally upon at least one of said end members, and screw threaded means engaging said projections and adjacent parts of the other member.

5. In a fishing reel frame, a pair of end members and connecting pillars therebetween, said pillars each comprising a projection formed integrally upon each end member, the end faces of the projections being in adjacency, the projections each having an opening therein, and a fastener for securing said end members together disposed in said openings.

6. In a fishing reel frame, a pair of end members and a pillar therebetween, said pillar comprising a projection formed integrally upon each of said members with the ends of the projections in abutment, a saddle upon said pillar overlying the juncture of the pillar forming projections, and a screw threaded fastener extending through said saddle into each of said projections, said fasteners diverging to draw the projections together.

7. In a fishing reel frame, a pair of end members and a plurality of pillars therebetween, said pillars comprising projections formed integrally upon each end member, the end faces of the projections of one member being in adjacency with the end faces of the projections of the other member, said projections having blind openings therein extending from their end faces, and fasteners in said openings joining adjacent projections.

8. In a fishing reel, a frame comprising a plate, an annulus spaced therefrom and a plurality of pillars connecting the annulus with the plate, each of said pillars comprising an extension formed integrally with said plate and an extension formed integrally with the annulus, said pillar extensions abutting and having aligned openings extending therein from the abutting surfaces thereof, and a fastener in said openings having screw threads engaging in the opening in one extension and opposing screw threads engaging in the opening in the abutting extension.

9. In a fishing reel, a frame having end parts and a plurality of connecting pillars therebetween, each of said connecting pillars comprising an extension die-cast integrally with each end part, said extensions abutting and having aligned openings die-cast therein and extending from the abutting faces of the extensions, and a double threaded screw fastener in each aligned pair of openings, said fastener having the screw threads on one end thereof interengaged with the walls of the opening in one extension and the screw threads on the opposite end thereof of opposite hand interengaged with the walls of the opening in the abutting extension.

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