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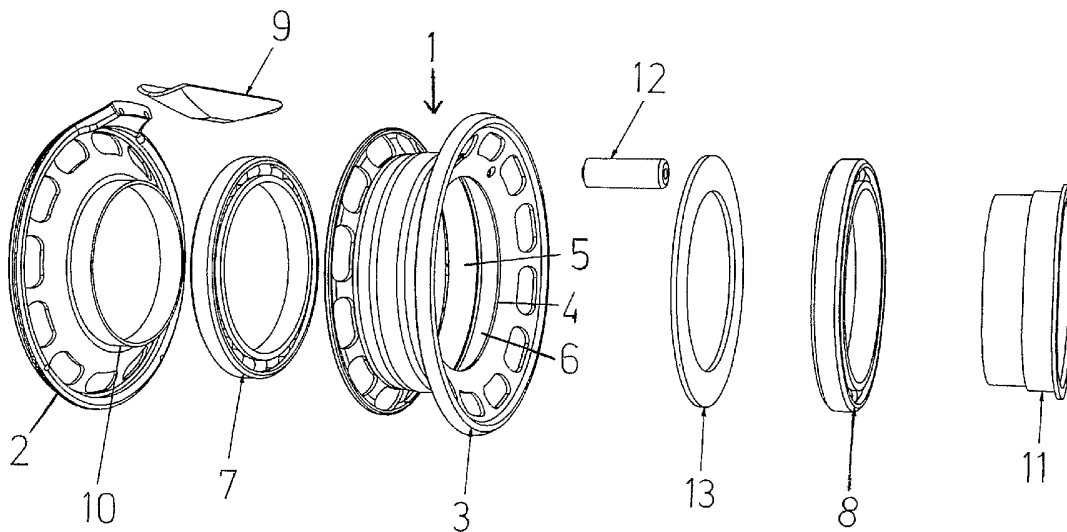
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For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: FISHING REEL



(57) Abstract: It is described a reel for fly fishing comprising a line drum (1) with two peripheral edges (2,3) preventing line from falling off the line drum (1) and wherein the reel comprises a foot (9) which may be mounted onto a fishing pole/rod, and wherein the line drum (1) comprises along its internal surface at least one track (5,6) for a ball bearing or a slide bearing (7,8), at least one ball bearing or slide bearing (7,8) running in their respective tracks (5,6), the peripheral edge (2) comprising an internal ring (10) running through the internal hole of the line drum (1), wherein the opposing side of the line drum (1) includes a tightening ring (11) for tightening the bearing resistance in the line drum (1).

Fishing reel.

The present invention concerns a fishing reel being suitable for fly fishing. The construction of the present fly-fishing reel allows a simpler design, lower production costs, a simpler assembly, fewer parts that may lead to wear or which may be damaged, and gives a simpler access to the fishing line when throwing fly lures. In addition a construction of a fly reel having a large line drum ("large reel") is sought wherein the rotational resistance in the drum may be adjusted and wherein the rotation of the drum may be controlled manually by braking the rotation of the drum with a finger. These goals are obtained by constructing a fly fishing reel according to the invention and the features of which are given in claim 1.

Within the fly fishing art it is important that it is possible to extend the line from a reel in an easy and uncomplicated way since the throw itself when fly-fishing requires that it is possible to keep much of the line in the air at the same time. This is because the lure in itself is so light that it is not possible to throw very far, and that is the reason why the length of the throw itself is dependent on the length of the line flying in the air so that the length of the throw may be dictated by this air-borne length of line. When throwing out line it is consequently common to lead the fishing pole/rod in a pendular movement while simultaneously pulling line from the reel and feeding it to the throwing movement.

Additionally the drum of the reel where the line is stored is required to have a free rotation. The reason for this is that the line drum, when pulling out the line, receives a rotation which may lead to "backlash" and knotting if the reel drum is able to run freely when unrolling the line.

Another consideration is that the reel may be equipped with a clutch in the form of a tightening screw so that the

line does not break if a large fish is caught. In such an occasion it is customary to tire the fish by letting the fish pull out line when it swims away from the fisher, and then reeling in line when it swims towards the fisher. By being able to adjust the resistance acting on the line it will at any given time be possible to obtain optimal conditions for reeling in the fish. In the relevant types of reels the rotation of the line drum is regulated through the use of a clutch handle being assembled directly thereon, and this will give a control of the in-reeling force. Such clutch devices are normally present on other types of fishing reels such as multiplier reels and haspel reels and provides control of the resistance when reeling in the line. The clutch function is, however, in such reels disabled when line is thrown out.

Since there exists a wish for fly reels having a direct drive of the line drum, i.e. the in-reeling function is not being disabled when throwing out the line, and since the line drum must rotate freely when throwing out the line on account of the throwing technique described supra in fly fishing, it would be an advantage to be able to regulate the in-reeling resistance of the drum and alternatively to be able to break the out-reeling of the drum in a controlled manner if so large fish are caught that the line would break if the fish was to be reeled in directly. Such a control of the out-running of the line will be possible by breaking the rotation of the reel drum manually, e.g. through the use of the thumb, being possible in multiplier reels, but on account of the construction of fly reels with a direct in-reeling of the line drum, this has been attempted with varying luck.

Also on account of the throwing technique in fly fishing it is preferred to have a breaking function of the line drum that may be regulated while additionally not displaying any noticeable initial resistance at the start of the in-reeling movement. This may be done by equipping the

movable parts of the reel with ball bearings, but an appropriate location thereof has been difficult on account of the above mentioned considerations in constructing the fly reels. This is also solved through a construction of a fly reel according to the present invention.

According to the state of the art existing today the tightening of the line drum of a fly reel is performed through a number of rotating wheels running in a track located inside the periphery of the drum. Such rotational wheels are made of rubber to ensure sufficient friction between the drum and the rotational wheel, and the tightness of the rotational wheels may be regulated through the action of a central tightening screw. The track wherein the running wheels are moving have a conic edge so that the running wheels are pressed harder against this edge when the running wheels are tightened through the action of the tightening screw.

In this embodiment of a previously known reel the line drum may be rotated through the use of a handle being located directly on the reeling drum. This makes it unnecessary to regulate the free rotation and the pulling strength of the line from such a drum. There are, however, present in such a drum six rubber wheels with internal bearings that complicate the construction and function of the reel to an inordinate degree. Additionally, the bearings and the wheels being open will be exposed to wear, tear and the weather, and additionally unwanted bodies like grass, leaves, sea grass etc. may easily get caught in the wheel mechanism.

Consequently there is a need for a fly fishing reel displaying a minimal number of open moving parts and which has a tightening function being hidden, and which simultaneously allows a clutch mechanism being connected to a direct operation of the line drum, and which additionally allows a large diameter of the line drum ("large reel").

According to the present invention it is thus constructed a reel for fly fishing being displayed in Figs. 1, 2 and 3 wherein Fig. 1 shows such a reel in an exploded view. The reel comprises a line drum 1 on which there may be stored a line (not shown) along the periphery of the drum. The drum 1 comprises peripheral edges 2,3 which prevent the line to fall off the drum 1. Such edges may optionally be constructed with a coning/slanting angle towards the bottom of the drum 1 so that a auto-rewinding of line is avoided. The drum 1 comprises along its internal periphery 4 two opposite tracks 5,6 forming grooves for balls in two opposing ball bearings 7,8 (or optionally, but not preferred) sliding bearings 7,8. A foot 9, which may be assembled onto a fishing pole/rod (not shown) is mounted onto the peripheral ring 2, and the peripheral ring 2 comprises an internal ring 10 fitting inside the internal aperture of the line drum 1, and about this internal ring 10 the ball or sliding bearings 7,8 may run. Towards the opposite end of the internal ring 10 there may be mounted an opposing ring 11 so that the bearings 7,8 are forced against their respective tracks 5,6 when the opposing ring 11 is mounted onto the internal ring 10. When mounting/tightening the opposite ring 11 onto the internal ring 10 the rotational resistance of the bearings 7,8 may be regulated. Such a regulation may be provided e.g. through external threads on the internal ring 10, and cooperating internal threads on the opposite ring 11. The opposing ring 11 may be equipped with handles (not shown) to facilitate the regulation of the tightening power and the rotational resistance of the line drum 1. The opposing 11 ring may also in an alternative embodiment display a coning or slightly slanting (0,001-2°) outer surface expanding slightly the diameter of the bearings 7,8, and thus increasing the resistance of the bearings 7,8, when tightening the opposing ring 11 onto its cooperating member 10 on the reel. The reel may also be equipped with a reeling handle 12 for rotating the reel. An internal

washer 13 may be mounted inside the drum 1 for separating the two bearings 7,8.

Fig. 2 shows a side view of an embodiment of the reel according to the invention, indicating a sectional line BB relating to the sectional view depicted in Fig. 3. The external parts of the reel are indicated with reference numbers according to the reference numbers relating to Fig. 1.

Fig 3 shows the construction of a reel according to the invention in a sectional view, wherein the reference numbers for the separate parts are as explained for figs. 1 and 2.

It is preferred that the material in the bearing parts of the ball bearing or ball bearings 7,8 (or sliding bearings where this is used) according to the invention, are of a partially resilient material, e.g. a plastic material such as PVC or polyethylene, whereas the balls in the bearings 7,8 are made of metal so that the periphery of the ball bearing may be varied somewhat for adjusting the resistance of the bearing.

The internal surface of the line drum 1 may comprise a down reaching edge which may accomodate and lead the respective bearings 7,8.

By providing the fly reel with such a bearing the number of movable parts will be reduced, the bearings may lie hidden and this will represent a simpler construction than the previously known reels.

Furthermore it is preferred to make the reel according to the invention of a non-corroding material such as plastic or a non-corroding metal, preferably aluminum.

C l a i m s

1. A reel for fly fishing comprising a line drum (1) with two peripheral edges (2,3) preventing line from falling off the line drum (1) and wherein the reel comprises a foot (9) which may be mounted onto a fishing pole/rod,

c h a r a c t e r i z e d i n that the line drum (1) comprising along its internal surface at least one track (5,6) for a ball bearing or a slide bearing (7,8), at least one ball bearing or slide bearing (7,8) running in their respective tracks (5,6), the peripheral edge (2) comprising an internal ring (10) running through the internal hole of the line drum (1), wherein the opposing side of the line drum (1) includes a tightening ring (11) for tightening the bearing resistance in the line drum (1).

2. Reel according to claim 1,

c h a r a c t e r i z e d i n that the tightening ring (11) comprises threads cooperating with corresponding threads in the internal ring (10) for regulating the resistance in the ball/sliding bearings (7,8).

3. Reel according to claim 2,

c h a r a c t e r i z e d i n that the tightening ring (11) comprises an external coning surface.

4. Reel according to any of the claims 1 - 3,

c h a r a c t e r i z e d i n that the reel includes a washer (13) separating the bearings (7,8) from each other.

5. Reel according to claims 1 - 4,

c h a r a c t e r i z e d i n that the tightening ring (11) comprises at least handle for tightening the ring (11).

6. Reel according to claims 1 - 5,

c h a r a c t e r i z e d i n that the material of the

reel is made of a corrosion-free material such as plastic or a rust-free metal, e.g. aluminum.

1/2

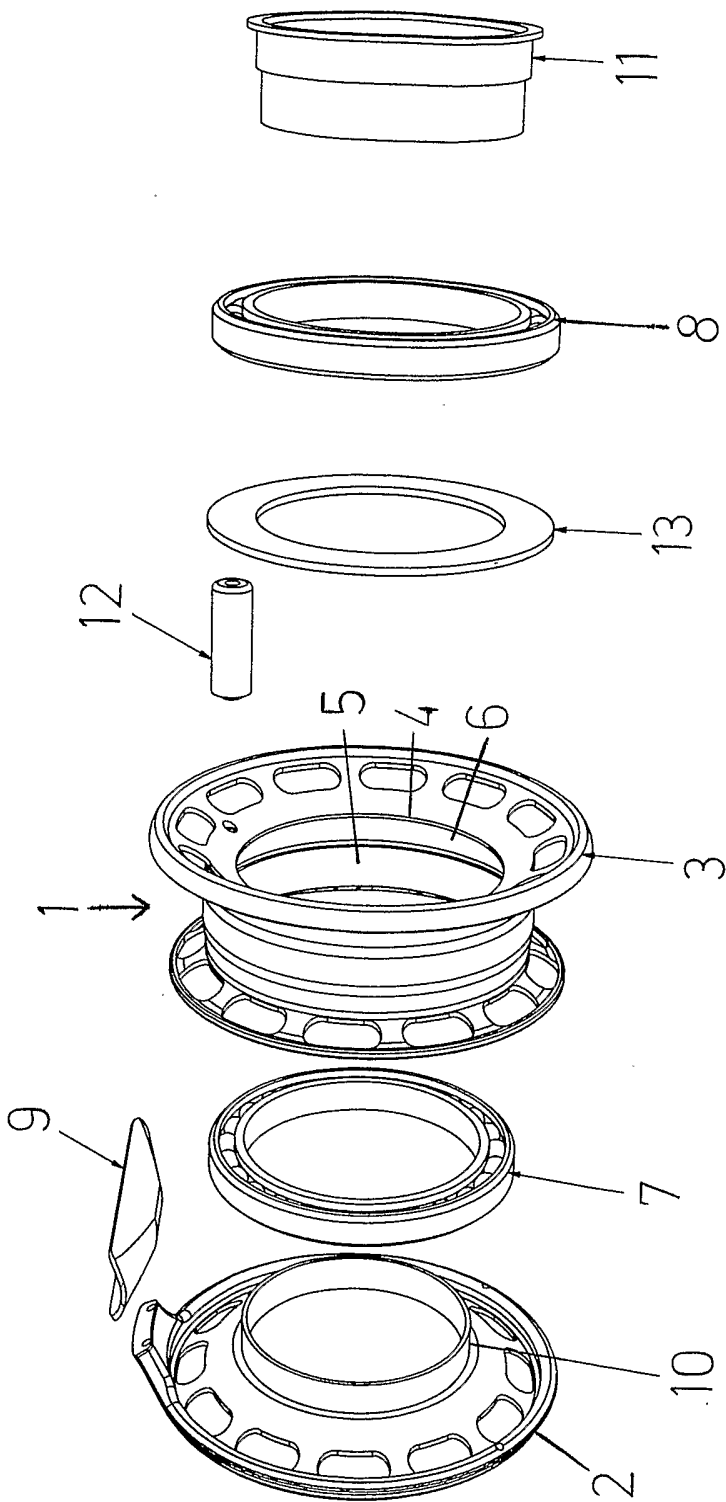


Fig.1

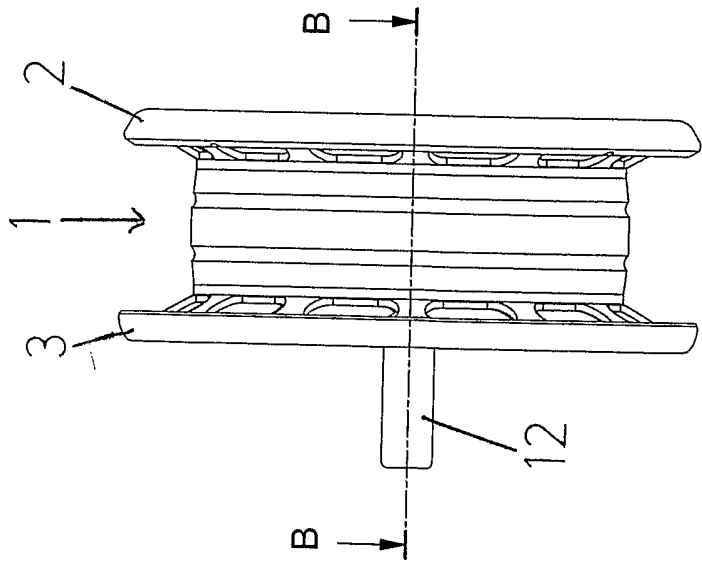


Fig. 2

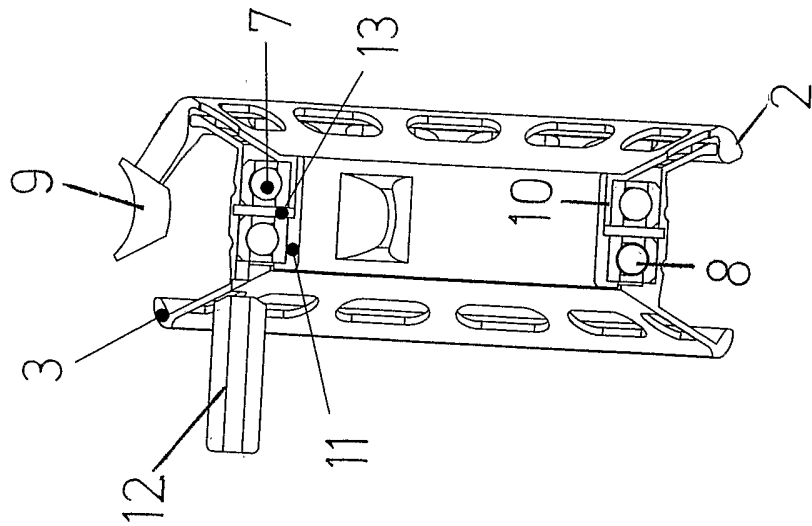


Fig. 3

INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A01K 89/016 // A01K 89/033

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6267312 B1 (M.S. FARRIS ET AL), 31 July 2001 (31.07.2001), figure 14, abstract --	1-6
A	US 5407144 A (J.J. RYALL), 18 April 1995 (18.04.1995), figure 4, abstract --	1-6
A	SE 516598 C2 (M. GUSTAVSSON), 5 February 2002 (05.02.2002), figure 4, abstract -- -----	1-6

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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US 6267312 B1 31/07/2001

US	6073871 A	13/06/2000
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