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(54) Benevnelse **FISHING REEL, ESPECIALLY FOR FLY FISHING**

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Fishing reel, especially for fly fishing

15 The present invention relates to a fishing reel, especially for fly fishing, comprising a spool, whose annular or tubular hub part (core) is removably mounted on a shaft.

It is often needed with fishing reels that the spools for receiving the line are designed replaceable for diverse modes of operation. With known reels, particularly of the special type, involving the dual-mode system, either costly replacement spools have to be used
20 or spool bodies having a very large inner diameter (large core spools) are needed so that the spool can be slipped over the mechanical assembly. Separating these replacement spools from the mechanical assembly is usually highly complicated and/or only possible with some special tool. Document WO 03/061372 A2 discloses a fishing reel according to the preamble of independent claim 1.

25 The present invention is based on the object of providing a fishing reel which does away with the drawbacks associated with prior art reels. The present invention is especially based on the object of providing a fishing reel which makes it possible to reduce the costs of replacement spools whilst making use of small spool bodies.

This object is achieved by a fishing reel of the aforementioned kind characterized in that
30 said removable shaft is axially fixed in the hub part by means of at least one releasable detent connection and is non-rotatably retained in the body of the spool by means of at least one positive connection.

The reel in accordance with the invention facilitates removing the spool simply by removing it from its supporting shaft. In the reel in accordance with the invention the shaft comprises at least one elastically pretensioned detent element, preferably at least one detent recess being provided in the inner circumferential surface of the hub part of
5 the body of the spool to lock the detent element into place.

According to the invention at least one detent element is a ball (pressurized ball) loaded in its guide by a compression spring. Such elastically pretensioned detent elements make it possible to change the spool in a very comfortable manner since little force is needed to withdraw the spool from the shaft or to mount the spool on the shaft (until it
10 locks into place).

To advantage the at least one detent recess is a groove, preferably an annular groove. Machining such a groove in the inner circumference of the core of the spool is simple when manufacturing the body of the spool. In addition to this such a groove has the advantage that the detent elements, particularly pressurized balls can be locked into
15 place anywhere in the groove.

In a preferred embodiment of the reel in accordance with the invention the shaft comprises at least one driver element, preferably a key, tang or pin, which engages into a depression, preferably a groove running in the longitudinal direction of the hub part, in the inner circumferential surface of the hub part for a positive connection with the
20 body of the spool. The driver element may be, for example, releasably connected to the shaft (e.g. screw-threaded). The depression cooperating with the driver element preferably extends to an outer end of the inner circumferential surface of the hub part up to roughly the middle of the hub part. The width of the depression is dimensioned so that the driver element has minimal or even zero play therein.

25 Preferably the hub part has at one end a larger inner diameter than at the other end, the inner circumference of the hub part being preferably configured stepped. As a rule the inner diameter of the hub part is stepped from one end to the other end by at least one, preferably three steps. The inner diameter may also be tapered. Reducing the inner diameter from one end to the other end achieves, among other things, that the shaft can
30 be inserted from one side of the hub part only since the outer diameter of the shaft at its

widest location exceeds the inner diameter of the hub part at one of the two ends. There is thus never the risk of the shaft being inserted into the body of the spool the „wrong way round“.

To advantage the shaft comprises a housing accommodating the reel mechanical assembly and on which preferably the male connection parts for the detent or positive connection with the body of the spool are arranged. The shaft or its housing must not necessarily be configured enclosed, i.e. the shaft or housing may have material cut-outs. This helps to reduce the weight.

To advantage the shaft comprises at least one stabilizing ring. Such a stabilizing ring may be arranged for example substantially in the middle of the shaft. As a rule such a ring is engineered in one piece with the body or housing of the shaft. Such stabilizing rings serve as a support for the body of the spool in preventing bending thereof, for instance, when rolling up the fishing line loaded onto the spool (for example when landing a fish).

As a rule a handle is fitted to one end of the shaft for actuating the reel. The handle may be fitted replaceable to the shaft.

As a rule the shaft is releasably connected, preferably screw-threaded at one end with a spool housing. As a rule the spool housing comprises a foot connecting the reel as a whole to the rod and interconnecting the two elements. Engineering the shaft in releasable connection with the spool housing greatly facilitates fitting and removing the reel.

Preferably the spool comprises at the outer side of a spool wall a spacer ring. This spacer ring is particularly arranged at the outer side of the spool at which the shaft is connected to the spool housing. The cited spacer ring limits the body of the spool relative to the rigid housing in case of excessive axial pressure so that the detent elements always return the body of the spool to the wanted axial position. It is this spring that greatly restricts the play of the spool in the structure as a whole so that the detent elements remain in their locked position even in case of excessive axial pressure.

Preferably the shaft has a larger diameter in an inner portion than in the region of the end which is releasably connected to the spool housing, which, as already indicated

above, results in the advantage that the shaft can only be inserted from one side into the spool housing.

Further features of the invention read from the following description of preferred embodiments of the invention in conjunction with the drawing and the dependent
5 claims. Each of the individual features may be achieved by itself or in any combination with one another.

In the drawing:

Figure 1: shows a longitudinal section view of a fishing reel in accordance with the invention.

10 Figure 1 shows a longitudinal section view of a fishing reel 1 in accordance with the invention including a spool 2 removably mounted with its hollow core 3 on a shaft 4. In this drawing the spool 2 is depicted without a line. When the spool is ready for use the line is wound around the core 3 of the spool. The spool 2 comprises an outer spool wall 5 and an inner spool wall 6. In its inner circumferential surface the core 3 of the spool
15 features a longitudinally oriented U-shaped groove 7 configured bevelled at its inner end 8. At one end 9 (opening 9) the core 3 of the spool features a larger inner diameter than at the opposite end 10. The inner circumference of the core 3 of the spool is configured stepped by three steps 11a – 11c, i.e. the inner circumference of the core 3 of the spool is divided into three zones 11a – 11c, the step 11a having the largest inner
20 diameter and step 11c having the smallest inner diameter. Machined in zone 11a of the inner circumferential surface of the core 3 of the spool is an annular groove 12 extending annularly over the full inner circumferential surface up to the U-shaped groove 7.

The shaft 4 comprises the reel mechanical assembly 13 of the reel enclosed by a substantially roller-shaped housing 14. At one end 15 the housing 14 of the shaft 4
25 features a larger outer diameter than at the other end 16. The outer diameter of the housing 14 is divided into three steps 17a – 17c each with a different outer diameter. Due to the different inner circumferences of the zones 11a – 11c of the core 3 of the spool and the different outer diameters of the housing 14 of the shaft 4 the shaft 4 can only be inserted into the end 9 of the core 3 of the spool from one end 16. When mated,

the different inner diameters of the core 3 of the spool mate with the different outer diameters of the housing 14 so that the shaft 4 can be positively fitted in the core 3 of the spool.

5 Arranged at the housing 14 is a key-shaped element 18 protruding from the outer circumference of the housing 14. When the shaft 4 is inserted into the core 3 of the spool the key-shaped element 18 engages the groove 7 in the core 3 of the spool positively connecting the spool body 2 to the shaft 4. It is this positive connection that retains the shaft 4 non-rotatably in the spool body 2. The shaft 4 can be inserted in the core 3 of the spool only so that the key-shaped element 18 engages the groove 7. There
10 is no other way of inserting the shaft 4 since the key-shaped element 18 protrudes from the outer circumference of the housing 14 of the shaft 4 and the inner diameter of the core 3 of the spool is also dimensioned in such a manner in the region of the larger opening 9 of the core 3 of the spool that the key-shaped element 18 cannot be inserted into the core 3 of the spool in any other way.

15 The housing 14 of the shaft 4 comprises furthermore a resilient detent element in the form of a ball 19 which is loaded in its guide 20 by a compression spring 21. The annular groove 12 in the core 3 of the spool serves to lock the detent ball 19 into place.

At one face 24 the shaft 4 is releasably connected by a screw 22 to a spool housing 23. Not shown is a reel foot connected to the spool housing 23 for securing to a fishing rod.

20 Likewise not shown is a handle arranged at the face of the shaft 4 opposite the cited face 24.

The outer side of the inner spool wall 6 features a spacer ring 25. The spacer ring 25 is made of a plastics material. By means of the spacer ring 25 the spool body 2 is limited in the direction of the rigid spool housing 23 when the pressure in the axial direction is excessive so that the pressurized balls 19 (three in all) always position the spool body 2
25 as wanted axially. Due to the spacer ring 25 the play of the spool in the structure as a whole is greatly restricted so that the pressurized balls 19 remain locked in place even in case of high axial pressure.

Disposed between the housing 14 and the reel mechanical assembly 13 is a bearing 26

so that the spool 2 can rotate on the reel mechanical assembly 13. Also provided are sealing rings 27 so that no water can find its way into the bearings whilst preventing grease weepage from the bearings.

5 All that is needed to disassemble the reel 1 or to change the spool 2 is to remove the screw 22 to separate the reel 1 from the spool housing 23. Then all that is required is to push the face 24 of the shaft 4 from the right-hand end 16 of the shaft 4 or to pull on the same from the opposite side of the shaft 4 to release the locking connection between the pressurized balls 19 and the annular groove 12 and to remove the shaft 4 from the spool housing 2.

10 It is understood that instead of the configuration of the housing 14 of the shaft 4 as shown with a triple stepped outer diameter it is just as possible to engineer the basic housing with a smaller outer diameter, a stabilizing ring then being formed roughly at the middle of the housing which has a larger outer diameter than a finishing ring arranged at the right-hand end 16 of the shaft 4. With this embodiment too, it is assured
15 that the shaft 4 can be inserted into the spool housing 2 from one side only.

Krav

1. Fiskesnelle, særlig for fluefiske, omfattende en spole (2) som er montert avtakbart med sin ringformede eller rørformede nav (3) på en aksel (4), nevnte fjernbare akse er aksialt festet i det rørformede navet via minst en løsbar
5 låseforbindelse, og er ikke-roterbart fastholdt i navhuset ved hjelp av i det minste en positiv kobling, k a r a k t e r i s e r t v e d at akselen (4) har minst en fjærende forspent sperreelement (19), hvori i den indre omkretsflate av navet (3) av spolen (2) minst en låsebeholder (12) er anordnet for å låse låseelementet, hvori det minst ene låseelement er en kule (19) i føringen (20) ved en trykkfjær
10 (21) er satt inn.
2. Fiskesnelle ifølge krav 1, karakterisert ved at den minst ene fangst utsparring, et spor, fortrinnsvis et ringformet spor (12).
3. Fiskesnelle ifølge hvilket som helst av de foregående krav, karakterisert ved at akselen (4) minst en driverelementet (18), fortrinnsvis en kilestift eller en tapp
15 som har, som for den positive forbindelse med spolen (2) i en utsparring, fortrinnsvis en som strekker seg i lengderetningen av navsporet (7), griper inn i den indre perifere overflate av navet (3).
4. Fiskesnelle ifølge hvilket som helst av de foregående krav, karakterisert ved at navet (3) ved en ende (9) har en større indre diameter enn i den andre enden
20 (10), hvori den indre omkrets av navet delen er fortrinnsvis utformet i flere trinn.
5. Fiskesnelle ifølge hvilket som helst av de foregående krav, karakterisert ved at akselen (4) omfatter et hus (14) som rommer den rullemekanisme (13) og som fortrinnsvis hannforbindelsesdeler (19,18) for sperreforbindelse eller positiv tilkobling er anordnet med spolelegemet (2).
- 25 6. Fiskesnelle ifølge hvilket som helst av de foregående krav, karakterisert ved at akselen (4) omfatter i det minste en stabiliserende element, fortrinnsvis en stabiliserende ring.
7. Fiskesnelle ifølge hvilket som helst av de foregående krav, karakterisert ved at en hånd sveiv er anordnet ved en ende (15) av akselen (4).

8. Fiskesnelle ifølge hvilket som helst av de foregående krav, karakterisert ved at akselen (4) ved en ende (16) løsbart forbundet med spolehuset (23) er fortrinnsvis skrudd.
9. Fiskesnelle ifølge hvilket som helst av de foregående krav, karakterisert ved at spolen (2) på den utvendige veggen av en spole (6) omfatter en avstandsring (25).

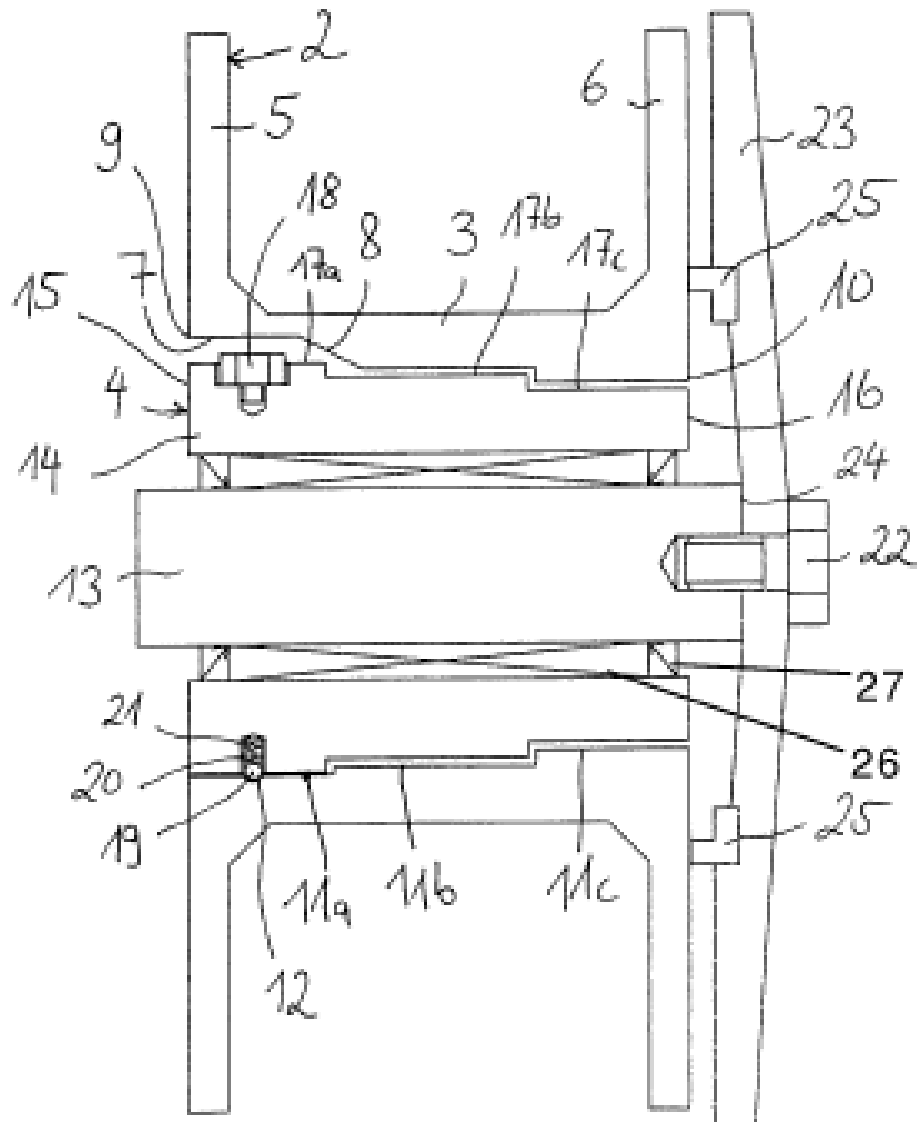


Fig. 1