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(54) **HOSE REELS**

SCHLAUCHWINDEN

DÉVIDOIRS

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## Description

**[0001]** This invention relates to hose reels, in particular hose reels having rewind mechanisms for automatically driving the drum of the hose reel to rewind hose onto the drum.

**[0002]** Such auto rewind hose reels generally include an internal spring mechanism for driving the reel in a rewind direction. Tension and energy is stored up in the spring as the hose is drawn out of the reel and this can be used to draw the hose back into the reel after use. As hose reels become larger then the amount of force required to draw in the hose and the total amount of energy which needs to be stored to fully rewind the reel becomes larger. This means that there is a danger that a rewinding hose may reach a high speed and cause injury or damage during rewind. Thus control of the hose is desirable.

**[0003]** EP 0 934 899 describes a hose reel having a viscosity brake for slowing the rotary speed of the drum during automatic rewind.

**[0004]** DE 203 13 853 U describes a dog lead with a centrifugally actuated braking system for slowing the rotary speed of a lead reel when the speed with which the lead is drawn out of the reel exceeds a set speed.

**[0005]** Various embodiments of the present invention are aimed at providing a more convenient hose reel.

**[0006]** According to a first aspect of the present invention there is provided a hose reel as claimed in claim 1.

**[0007]** The centrifugally operated actuator may comprise an arm which is pivotally mounted to the drum and which carries a counterweight. The counterweight will tend to be forced outwards by centrifugal effects as the drum is rotated.

**[0008]** The centrifugally operated actuator and drive gear may comprise respective engaging portions which engage with one another when the centrifugally operated actuator is in the second position and the drive gear is driving the drivable part of the resistance means. The drive gear may comprise a ratchet and the centrifugally operated actuator may be arranged as a pawl when in the second position.

**[0009]** The damping arrangement may comprise disengaging means for causing or allowing the respective engaging portions of the centrifugally operated actuator and drive gear to disengage from one another at at least one point in a complete revolution of the drive gear whilst driving the drivable part of the resistance means.

**[0010]** The drive gear may comprise a series of teeth arranged around the drive gear for meshing with corresponding teeth on the drivable part of the resistance means and hence driving the drivable part as the drive gear rotates, there being at least one break in the series of teeth, such that as the break in the teeth passes the resistance

**[0011]** means, the drive gear is not under load so facilitating disengaging of the respective engaging portions of the centrifugally operated actuator and drive gear.

**[0012]** The damping arrangement may comprise bias-

ing means for biasing the centrifugally operated actuator towards the first position. The biasing means may comprise a spring.

**[0013]** The disengaging means may comprise the arrangement of the teeth on the drive gear and/or the biasing means.

**[0014]** It will be appreciated that the centrifugally operated actuator will tend to move towards the second position when the drum is rotating at above a predetermined speed.

**[0015]** The resistance means may comprise a rotatably operable dashpot.

**[0016]** Any hose reel defined above may further comprise a carrying handle which is moveable between a stowed position and an operative position and comprising camming engagement portions that may be inserted through receiving apertures in a casing of the hose reel when the handle is at a position away from the operative position, but which engage with an internal surface of the casing when the handle is in its operative position preventing removal of the engaging portions and hence the handle when in the operative position.

**[0017]** Any hose reel defined above may further comprise a casing within which the drum is mounted and having an external recess in a sidewall of the casing adjacent a sidewall of the drum for storing accessories. A cover may be provided to cover the external recess in use.

**[0018]** According to another aspect of the invention there is provided a hose reel assembly comprising a hose reel as defined in any aspect above and a length of hose carried on the drum.

**[0019]** Embodiments of the present invention will now be described by way of example only with reference to the accompanying drawings in which:

Figure 1 schematically shows a hose reel arrangement including a mounting system whilst an external storage compartment is exposed;

Figure 2 shows a side view of the hose reel arrangement of Figure 1 with a cover over the storage compartment;

Figure 3 schematically shows the hose reel arrangement of Figure 2 with various parts removed to schematically show internal parts of the hose reel arrangement;

Figure 4 shows a rewind speed damping arrangement of the hose reel arrangement shown in Figures 1-3 whilst that arrangement is disabled;

Figure 5 shows the rewind speed dampening arrangement of Figure 4 whilst enabled;

Figure 6 schematically shows a locking mechanism of the hose reel arrangement shown in Figure 1;

Figure 7 shows part of a guide arm, guide pin and guide of the locking arrangement shown in Figure 6;

Figure 8 shows a handle of the hose reel arrangement of Figure 1 in more detail; and

Figure 9 shows the hose reel arrangement of Figure 1 with the mounting system in an unlocked state.

**[0020]** Figures 1 and 2 show a hose reel arrangement comprising a hose reel 1, a length of hose 2 carried in the hose reel 1, and a wall mount 3 which can be used to mount the hose reel arrangement to a wall or other structure.

**[0021]** The hose reel has a casing 4 within which the hose 2 is stored. This casing 4 has defined in one side wall 41, a storage cavity 42 which may be used to hold accessories for use with the hose reel arrangement as it is delivered to the customer. This storage compartment 42 is shown exposed in Figure 1 whereas in Figure 2 it is covered by a respective cover 43. Also provided in the storage compartment 42 is a hose connector 44 for connecting the leader hose to the hose reel 1 which in turn can be used to connect the hose reel 1 to a tap.

**[0022]** Referring also now to Figure 3, the hose reel 1 comprises a drum 5 which is rotatably mounted within the casing 4 and which carries the hose 2. The hose reel comprises a auto rewind mechanism for driving the drum 5 relative to the casing 4 in a rewind direction to wind hose 2 back onto the drum after use. This hose rewind mechanism is of a generally conventional kind comprising a spring arrangement. Such rewind mechanisms are found for example in commercially available products of the applicant amongst others. As this rewind mechanism is conventional it will not be described in detail in the present application. The rewind mechanism 6 (only generally indicated in Figure 1) is provided within the casing 4 on the side of the drum 5 which is opposite to that on which the storage compartment 42 is provided.

**[0023]** The hose reel 1 further comprises a rewind speed damping mechanism 7 and a locking mechanism 8 for controllably locking the drum 5 against automatic rewind.

**[0024]** As shown most clearly in Figures 3, 4 and 5 the rewind speed damping arrangement 7 comprises a dashpot 71 to act as a resistance means, a drive gear 72 which is arranged for driving the dashpot 71 and a centrifugally operated actuator 73 in the form of a centrifugal pawl which is arranged for selective engagement and disengagement with the drive gear 72. The dashpot 71 is mounted to the casing 4 (an external part of the dashpot 71 can be seen in Figure 1). The dashpot 71 is arranged to resist rotation of its gear 71 a which is arranged so that its teeth can mesh with teeth 72a of the drive gear 72. The drive gear 72 is mounted on a hub 51 of the drum 5 such that absent anything else, it may rotate freely relative to the hub 51 and hence drum 5 as a whole.

**[0025]** The centrifugal pawl 73 is pivotally mounted to the drum 5 via a mounting 52 midway along the length of the pawl 73. The pawl 73 has at one end a counter weight 73a which will tend to move outward under centrifugal effects as the drum 5 and pawl 73 are rotated together and has at its other end an engaging portion 73b which is arranged for engaging with ratchet portions 72b provided around the drive gear 72. A biasing spring 73c is provided to act on the centrifugal pawl 73 such as to tend to pull the counter weight 73a inwards and the

engaging portion 73b out of engagement with the ratchet portions 72b. Figure 4 shows the centrifugal pawl in this unengaged position which is the position it will tend to adopt when the drum 5 is stationery. In the position shown in Figure 4 it will be noted that the centrifugal pawl 73 rests against a support portion 53 of the drum. On the other hand, Figure 5 shows the centrifugal pawl 73 in an engaged position where, due to centrifugal effects, the counter weight 73a has been forced outwards and the engaging portion 73b has been forced into engagement with the ratchet portions 72b of the drive gear.

**[0026]** As the drum 5 rotates relative to main body of the reel 1, ie the casing 4, with the centrifugal pawl 73 in the position shown in Figure 4 the drive gear 72 is free to rotate relative to the drum 5 and thus the drive gear 72 tends to be held against rotation by the dashpot 71. Of course, because the drive gear 72 is free to rotate relative to the drum 5 this just means that the drive gear 72 stays still with the casing 4 whilst the drum rotates and the dashpot 71 provides no resistance to the motion of the drum 5. However, as the drum 5 begins to rotate at higher speeds the counter weight 73a will move out away from the axis of the drum under centrifugal effects and against the action of the biasing spring 73c. This will cause the centrifugal pawl 73 to adopt the position shown in Figure 5 where the engaging portion 73b engages with the ratchet portions 72b of the drive gear. In this state, whilst the drum 5 is in rewind mode, the interaction of the engaging portion 73b of the pawl and the ratchet portions 72b is such as to prevent rotation of the drive gear 72 relative to the drum 5. Thus now there is a situation where as the drum 5 continues to rotate in the rewind direction, the drive gear 72 rotates with the drum 5. This means that the teeth 72a on the drive gear 72 engage with, and drive, the gear 71 a of the dashpot 71. Thus, since rotation of this gear 71 a is resisted by the dashpot 71, continued rotation of the drum 5 in the rewind direction is resisted. This has the effect of damping the speed of rotation of the drum 5 in the rewind direction to provide a desirable damping of the speed of the hose 2 as it is wound onto the drum 5.

**[0027]** It will be noted that there is a break 72c in the teeth 72a provided around the periphery of the drive gear 72. This break in the teeth 72c is provided to allow the centrifugal pawl 73 to disengage from the drive gear 72 should the rewind speed fall sufficiently. As the drive gear 72 is rotating and the break in the teeth 72c reaches the gear 71 a of the dashpot 71, the load on the drive gear 72 is removed such that the engaging portion 73b of the pawl 73 may be disengaged from the ratchet portions 72b provided that the centrifugal force acting on the arm is smaller than the biasing force provided by the spring 73c. This means that every time the drum 5 completes a revolution whilst being damped, there is an opportunity for the damping mechanism to be disabled and it will be so disabled once the speed of rewind has fallen to an acceptable level. Of course if speed builds up again then the damping mechanism will be re-enabled by the cen-

trifugal pawl 73 reengaging with the drive gear 72 and so starting the process over again.

**[0028]** Thus, this arrangement allows for damping of rewind to be applied only where necessary as determined by the set up of the centrifugal pawl 73 and further allows the damping mechanism to be automatically disengaged if the rewind speed drops to an appropriate level and/or if unwinding is commenced.

**[0029]** Of course if the hose 2 goes from being rewound to be unwound, then as the drum slows down the centrifugal effects on the counter weight will reduce and the centrifugal pawl 73 will tend to be returned to the position shown in Figure 4 by the action of the biasing spring 73c. Further, as the load is taken from the drive gear 72 due to the change of direction, the engaging portion 73b will tend to be able to disengage from the ratchet portion 72b of the drive gear 72 to allow the pawl to be disengaged.

**[0030]** Note further that if the reel is unwound (ie hose 2 is withdrawn) at very high speed such that the centrifugal pawl 73 moves towards the position shown in Figure 5 then due to the arrangement of the engaging portion 73b of the pawl and the ratchet portions 72b of the drive gear, the pawl 73 will simply ratchet over the ratchet portions 72b so not applying any damping effect to the withdrawal of the hose 2.

**[0031]** The locking mechanism 8 for controllably locking the drum 5 against automatic rewind is described in more detail below with particular reference to Figures 3, 6 and 7. The locking mechanism comprises a guide follower 81 which is pivotally mounted to the casing 4 (ie the main body) of the hose reel 1 (the end of this mounting can be seen in Figure 1) and a series of guides 82 in the form of channels which are moulded into a side wall of the drum 5. The guide follower 81 comprises a guide arm 81 a which carries a resiliently mounted guide pin 81 b (see Figure 7) at an end which is remote from the end which is pivotally mounted to the casing 4. The guide arm 81 a has two main portions 81c, 81d. The first of these 81c carries the guide pin 81b and terminates in an abutment portion 81 e. The other portion 81 d of the guide arm 81 a is mounted to the casing 4. Shock absorbing means in the form of a deformable hinge portion 81 f, a spring 81 g and a tying portion 81 h are provided between the two portions 81c and 81d of the guide arm 81a. This means that any shock occurring due to impact of the abutment portion 81 e or guide pin 81 b with another surface can be absorbed to help prevent damage to the guide arm 81a and other components of the hose reel.

**[0032]** The guide channels 82 comprise a main unwind guide channel 83 and concentrically within this a main rewind guide channel 84. If the guide pin 81b is located in the main unwind channel 83 then the drum 5 can rotate uninhibitedly and continuously with the guide pin 81b (and hence guide follower 81 as a whole) following the main unwind guide 83. Similarly if the guide pin 81b is located in the main rewind channel guide 84 the drum 5 may rotate uninhibitedly and continuously in the rewind direction with the guide pin 81 b (and hence guide follower

81 as a whole) following the rewind guide 84. In either of these two states then the locking mechanism 8 has no significant effect on the unwinding or rewinding operation of the hose reel 1. In the orientation shown in Figures 3 and 6, clockwise movement of the drum 5 (and hence the guide channels 82) corresponds to an unwinding rotation of the drum 5 and anticlockwise rotation of the drum 5 (and hence the guide channels 82) corresponds to rewinding rotation of the drum.

**[0033]** The guide channels 82 in the drum 5 also comprise three unwind to rewind transfer guides 85 which are arranged to guide the guide pin 81 b (and hence guide follower 81 as a whole) from the main unwind guide 83 towards the main rewind guide 84 if the sense of rotation of the drum 5 changes from unwind to rewind whilst the guide follower 81 is following the main unwind guide 83.

**[0034]** Each of the unwind to rewind transfer guides 85 comprises a stop portion 86 midway along its length. Each unwind to rewind transfer guide 85 is generally V shaped with the stop 86 provided at the point of the V and the arms of the V leading respectively towards the main unwind guide 83 and main rewind guide 84. Further there is a step 85a in each unwind to rewind transfer guide 85 in the region of the stop 86. This step 85a is such that as the guide pin 81 b traverses along the unwind to rewind guide 85 towards the stop 86 the pin 81 b goes down this step 85a which will serve to resist movement of the guide pin (and hence guide follower 81) back along this portion of the unwind to rewind guide 85 towards the main unwind guide 83. On the other hand there is no such step resisting movement of the guide pin 81 b away from the stop and into the main rewind guide 84. Similar steps 83a are provided in the main unwind guide 83 at the entrance to each unwind to rewind guide 85 to encourage the guide follower 81 into the unwind to rewind guide 85.

**[0035]** The guide channels 82 also comprise a rewind to unwind transfer channel 87 leading from the main rewind channel 84 to the main unwind channel 83. Again this is bounded by a step 84a where this transfer guide 87 leaves the main rewind guide 84 such that the pin 81 b will abut against the step 84a and be guided into the transfer guide 87 when passing through this region with the drum having the correct sense of rotation.

**[0036]** The bottoms of the guide channels 82 have appropriate inclines to allow the production of these steps 85a, 83a, 84a.

**[0037]** When the drum 5 is rotating in the unwind direction due to hose 2 being pulled out of the reel 1, the guide pin 81 b and hence guide follower 81 as a whole will generally be following the main unwind guide 83. As explained above, in this configuration the drum 5 may continue to turn unhindered by the locking mechanism 8. However, if the user allows the rewind mechanism 6 to pull the hose back into the reel 1 then, of course, the sense of rotation of the drum 5 will change. At this time, once one of the unwind to rewind transfer guides 85 is reached, the guide pin 81 b will follow this guide 85 as

indicated by the arrow T1 in Figure 6. When this occurs the drum 5 will continue to rotate (rewind) whilst the guide pin 81 b travels along the first part of the transfer guide 85 so that the pin 81 b drops off the step 85a and then the abutment portion 81 e of the guide follower 81 impacts with the stop 86. At this point further rewind rotation of the drum 5 is stopped and the shock absorbing elements 81f, 81 g and 81 h of the guide follower 81 absorb the resulting shock. In order to unlock the drum from this locked position the user then has to again pull the hose 2 from the reel 1. This will cause the guide pin 81 b and guide follower 81 as a whole to follow the path of arrow T2 shown in Figure 6 such that the guide pin 81 b and abutment portion 81 e move away from the stop 86 and into the main rewind channel 84. The drum 5 is now unlocked. If the user wishes to allow rewind to occur then the hose 2 can be released and the drum will continue to rewind until all of the hose 2 has been wound back into the drum 5 with the guide pin 81 b following the main rewind channel 84.

**[0038]** However if rotation in the unwinding sense is continued from the locked position or if unwinding is commenced at any time later, then whilst the guide pin 81 b is travelling around the rewind channel 84 it will be transferred back to the unwind channel 83 once it meets the rewind to unwind transfer channel 87. At this point the guide pin 81b and guide follower 81 as a whole will follow the path of arrow T3 in switching from the main rewind channel 84 to the main unwind channel 83. Once the guide pin 81 b and guide follower 81 are back in this position then the reel is back in its starting position. This means that unwinding may be continued uninhibited until the hose is fully unwound or if the reel is allowed to rewind at any stage then as the guide pin 81 b meets one of the unwind to rewind transfer guides 85 it will again be guided into the stop position as described above.

**[0039]** Thus the present locking mechanism provides a convenient way by which a user may remotely (from the reel 1) lock and unlock the hose 2 with a desired amount of the hose extracted from the reel. Further the design of the guide follower 81 is arranged to cope with the significant loads which may be incurred in stopping a relatively large and heavy drum.

**[0040]** The hose reel 1 also includes a handle 9 as shown for example in Figures 1, 2, 3 and 8. The portion of the casing 4 to which the handle is mounted is shown cut away in Figure 8 so that details of the handle fixing arrangement can be seen. The handle 9 has an upright operative position as shown in Figures 1, 2 and 8, but may also be folded down and stowed as -shown in, for example, Figure 3 and Figure 9. The handle 9 is generally U shaped with the open ends of the U being mounted to the casing 4. Appropriate apertures 45 are provided in the casing 4 and camming engagement portions 91 are provided at the ends of the handle 9. The apertures 45 and engagement portions 91 are arranged so that with the handle 9 in the stowed position as seen for example in Figures 3 and 9, the camming engagement portion 91

can pass through the respective aperture 45 in the casing 4 so that the handle may be mounted onto the casing 4. However with the handle 9 moved to its operative position as shown in Figure 8, the camming portions 91 and apertures 45 no longer register with one another so that respective projecting portions 91a of the camming engagement portions 91 abut against the internal wall of the casing 4 and prevent the respective engagement portions 91 and handle as a whole 9 from being removed. This means that when the handle 9 is in its upright and operative position, removal of the handle (either accidentally or deliberately) is very difficult or impossible. It will be recognised that it would be in this operative position that there could be some risk of the handle coming away from the reel 1 and the arrangement of the handle 9 and the camming portions 91 help to stop this happening.

**[0041]** As mentioned above the hose reel arrangement comprises a wall mount 3 via which the hose reel 1 may be mounted to a wall or another structure. The wall mount 3 comprises two projecting portions 31 such that it is generally T shaped. The wall mount 3 will be mounted to a wall so that these projections 31 run in a generally vertical direction. The hose reel 1 has a corresponding mounting portion 46 including an upper engaging portion 46a for mounting on the upper projection 31 and a moveable and lockable yoke portion 46b for engaging around the lower projection 31. The moveable and lockable yoke portion 46b is shown in the unlocked and disengaged position in Figure 9 and in its locked and engaged position in Figure 1 and Figure 2. A padlock loop 32 is provided on the lower projection 31 which can accept a padlock to keep the lockable yoke 46b in its locked position and so secure the hose reel 1 against theft. When it is desired to install the hose reel 1 then first of all the wall mount 3 will be secured to a wall. Then with the lockable yoke 46b in the unlocked position as shown in Figure 9 the upper engaging portion 46a is located over the upper projection 31 of the wall mount 3 so positioning the hose reel 1 in the correct position. The moveable and lockable yoke 46b is then closed around the lower projection 31 and locked in position using a padlock if desired.

## Claims

1. A hose reel (1) comprising a drum (5) for carrying hose, a main body (4) on which the drum is rotatably mounted and a hose rewind mechanism (6) for automatically driving the drum relative to the main body to rewind hose onto the drum (5), wherein the hose reel comprises a rewind speed damping arrangement (7) comprising resistance means (71) for resisting rotation of the drum (5) relative to the main body (4) during rewind, the resistance means (71) comprises a drivable part (71a), movement of which is resisted by a remainder of the resistance means, **characterised in that** the rewind speed damping arrangement (7) comprises a centrifugally operated

actuator (73) for controlling enablement of the damping arrangement which actuator (73) is moveable under centrifugal effects due to rotation of the drum (5) relative to the main body (4) from a first position in which the damping arrangement (7) is disabled to a second position in which the damping arrangement is enabled, wherein the damping arrangement comprises a drive gear (72) which is arranged to drive the driveable part of the resistance means when the centrifugally operated actuator (73) is in the second position, and the drive gear (72) is free to rotate relative to the drum (5) when the centrifugally operated actuator is in the first position and held against rotation relative to the drum by the centrifugally operated actuator (73) when the centrifugally operated actuator is in the second position.

2. A hose reel according to claim 1 in which the centrifugally operated actuator (73) comprises an arm which is pivotally mounted to the drum and which carries a counterweight.
3. A hose reel according to any preceding claim in which the drive gear (72) comprises a ratchet and the centrifugally operated actuator is arranged as a pawl (73) when in the second position.
4. A hose reel according to any preceding claim in which the centrifugally operated actuator (73) and drive gear (72) comprise respective engaging portions (73b, 72b) which engage with one another when the centrifugally operated actuator is in the second position and the drive gear is driving the driveable part of the resistance means.
5. A hose reel according to claim 4 in which the damping arrangement comprises disengaging means (72c) for causing or allowing the respective engaging portions of the centrifugally operated actuator and drive gear to disengage from one another at at least one point in a complete revolution of the drive gear (72) whilst driving the driveable part of the resistance means.
6. A hose reel according to claim 4 or claim 5 in which the drive gear comprises a series of teeth (71 a) arranged around the drive gear for meshing with corresponding teeth on the driveable part (71 a) of the resistance means and hence driving the driveable part as the drive gear rotates, there being at least one break (72c) in the series of teeth, such that as the break in the teeth passes the resistance means, the drive gear (72) is not under load so facilitating disengaging of the respective engaging portions of the centrifugally operated actuator and drive gear.
7. A hose reel according to any preceding claim in which the damping arrangement comprises biasing

means (73c) for biasing the centrifugally operated actuator towards the first position.

8. A hose reel according to any preceding claim in which the resistance means (71) is mounted on the main body (4) of the hose reel rather than on the drum.
9. A hose reel according to any preceding claim in which the driveable part (71 a) is rotatable relative to the remainder of the resistance means with such rotation being resisted.
10. A hose reel according to any preceding claim in which the driveable part (71a) is rotatable relative to the remainder of the resistance means and the drive gear (72) is arranged to rotatably drive the driveable part.
11. A hose reel according to claim 9 in which the driveable part (71 a) is mounted on the main body of the hose reel, via the remainder of the resistance means, rather than on the drum.
12. A hose reel arrangement comprising a hose reel according to any preceding claim and a length of hose (2) carried on the drum (5).

### 30 Patentansprüche

1. Schlauchaufroller (1) umfassend eine Trommel (5) zur Aufnahme eines Schlauchs, einen Hauptteil (4), auf dem die Trommel rotierbar montiert ist, und einen Schlauchaufwicklungsmechanismus (6), um die Trommel relativ zum Hauptteil anzutreiben, um den Schlauch auf der Trommel (5) aufzurollen, wobei der Schlauchaufroller eine Dämpfungseinrichtung (7) für die Aufrollgeschwindigkeit aufweist mit einem Widerstandsmittel (71), um einer Rotation der Trommel (5) relativ zum Hauptteil (4) beim Aufrollen Widerstand entgegenzusetzen, wobei das Widerstandsmittel (71) ein antreibbares Teil (71a) aufweist, dessen Bewegung von einem übrigen Teil des Widerstandsmittels Widerstand geleistet wird, **dadurch gekennzeichnet, dass** die Dämpfungseinrichtung (7) für die Aufrollgeschwindigkeit einen zentrifugal betätigten Aktor (73) aufweist, um ein Aktivieren des Dämpfungsmechanismus zu kontrollieren, dessen Aktor (73) durch zentrifugale Wirkung infolge Rotation der Trommel (5) relativ zum Hauptteil (4) aus einer ersten Position, in der die Dämpfungseinrichtung (7) deaktiviert ist, zu einer zweiten Position, in der die Dämpfungseinrichtung aktiviert ist, beweglich ist, wobei die Dämpfungseinrichtung ein Antriebsrad (72) aufweist, das angeordnet ist, um das antreibbare Teil des Widerstandsmittels anzutreiben, wenn der zentrifugal betätigte Aktor (73) sich

in der zweiten Position befindet, und das Antriebsrad (72) relativ zur Trommel (5) frei rotierbar ist, wenn der zentrifugal betätigte Aktor sich in der ersten Position befindet und durch den zentrifugal betätigten Aktor (73) gegen eine Rotation relativ zur Trommel festgehalten wird, wenn sich der zentrifugal betätigte Aktor in der zweiten Position befindet.

2. Ein Schlauchaufroller gemäß Anspruch 1, in dem der zentrifugal betätigte Aktor (73) einen Arm aufweist, der schwenkbar an der Trommel montiert ist und ein Gegengewicht trägt. 10
3. Ein Schlauchaufroller gemäß einem vorangehenden Anspruch, in dem das Antriebsrad (72) eine Klinke aufweist und der zentrifugal betätigte Aktor als eine Raste (73) angeordnet ist, wenn er sich in der zweiten Position befindet. 15
4. Ein Schlauchaufroller gemäß einem vorangehenden Anspruch, worin der zentrifugal betätigte Aktor (73) und das Antriebsrad (72) Eingriffsteile (73b, 72b) aufweisen, die aneinander angreifen können, wenn der zentrifugal betätigte Aktor sich in der zweiten Position befindet und das antreibbare Teil des Widerstandsmittels antreibt. 20 25
5. Ein Schlauchaufroller gemäß Anspruch 4, in dem die Dämpfungseinrichtung eine Löseeinrichtung (72c) aufweist, um es den betreffenden Eingriffsteilen des zentrifugal betätigten Aktors und dem Antriebsrad zu ermöglichen oder sie dazu zu zwingen, sich voneinander an zumindest einem Punkt in einer vollständigen Umdrehung des Antriebsrads (72) zu lösen, während das antreibbare Teil der Widerstandsmittels angetrieben wird. 30 35
6. Ein Schlauchaufroller gemäß Anspruch 4 oder 5, worin das Antriebsrad eine Reihe von Zähnen (71 a) aufweist, die um das Antriebsrad herum angeordnet sind, um mit entsprechenden Zähnen auf dem antreibbaren Teil (71 a) des Widerstandsmittels in Eingriff zu stehen und damit das antreibbare Teil anzutreiben, wenn das Antriebsrad rotiert, wobei es zumindest eine Bremse (72c) in der Abfolge von Zähnen gibt, sodass das Antriebsrad (72) nicht belastet wird, wenn die Bremse in den Zähnen das Widerstandsmittel passiert, was ein Lösen der entsprechenden Eingriffsteile des zentrifugal betätigten Aktors und des Antriebsrad erleichtert. 40 45 50
7. Ein Schlauchaufroller gemäß einem vorangehenden Anspruch, worin die Dämpfungseinrichtung eine Vorspanneinrichtung (73c) umfasst, um den zentrifugal betätigten Aktor in Richtung auf die erste Position vorzuspannen. 55
8. Ein Schlauchaufroller gemäß einem vorangehenden

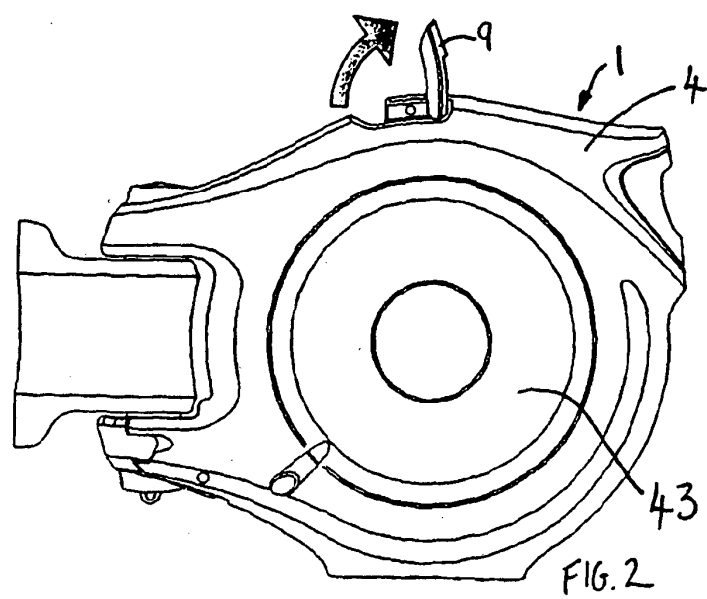
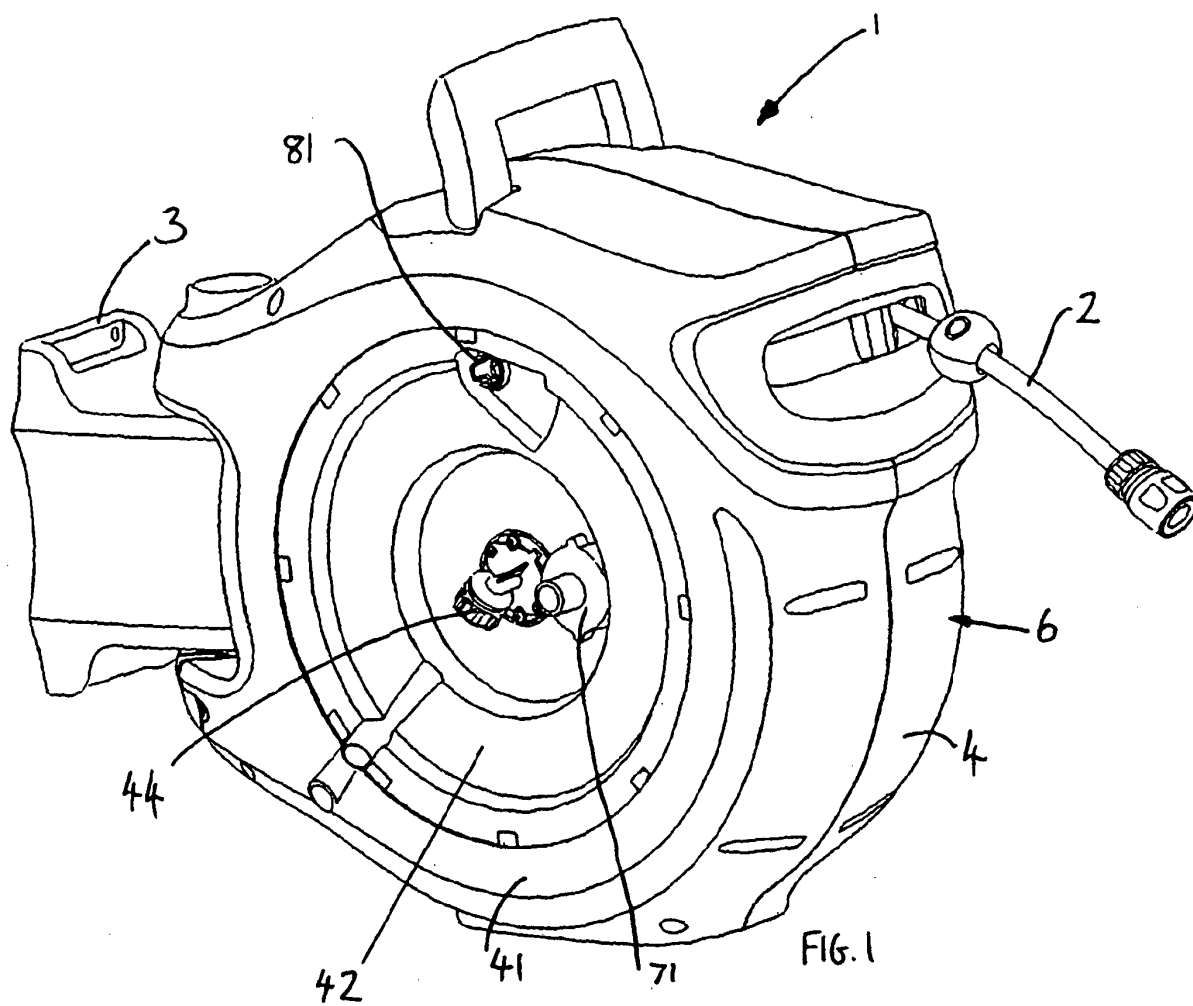
Anspruch, worin das Widerstandsmittel (71) auf dem Hauptteil (4) des Schlauchaufrollers anstatt auf der Trommel befestigt ist.

9. Ein Schlauchaufroller gemäß einem vorangehenden Anspruch, worin das antreibbare Teil (71a) relativ zum Restteil des Widerstandsmittels rotierbar ist, wobei einer solchen Rotation Widerstand entgegengesetzt wird. 5 10
10. Ein Schlauchaufroller gemäß einem vorangehenden Anspruch, worin das antreibbare Teil (71a) relativ zum übrigen Teil des Widerstandsmittels rotierbar ist, und das Antriebsrad (72) angeordnet ist, um das antreibbare Teil rotierend anzutreiben. 15
11. Ein Schlauchaufroller gemäß Anspruch 9, in dem das antreibbare Teil (71a) auf dem Hauptteil des Schlauchaufrollers befestigt ist über den verbliebenen Teil des Widerstandsmittels anstatt auf der Trommel. 20
12. Anordnung zum Aufrollen eines Schlauchs, umfassend einen Schlauchaufroller gemäß einem vorangehenden Anspruch und eine Länge eines Schlauchs (2), der von der Trommel (5) getragen wird. 25

## Revendications

1. Enrouleur de tuyau (1) comprenant un tambour (5) pour supporter le tuyau, un corps principal (4) sur lequel le tambour est monté en rotation et un mécanisme d'enroulement (6) du tuyau pour piloter de manière automatique le tambour par rapport au corps principal pour enrouler le tuyau sur le tambour (5), dans lequel l'enrouleur de tuyau comprend une installation (7) d'amortisseur de vitesse d'enroulement comprenant un moyen de résistance (71) pour résister à la rotation du tambour (5) par rapport au corps principal (4) durant l'enroulement, le moyen de résistance (71) comprend une partie pilotable (71a) dont le mouvement est freiné par un reste de moyen de résistance, **caractérisé en ce que** l'installation (7) d'amortisseur de vitesse d'enroulement comprend un actuateur centrifuge (73) pour contrôler la disponibilité de l'installation d'amortisseur dont l'actuateur (73) est déplaçable sous les effets centrifuges induits par la rotation du tambour (5) par rapport au corps principal (4), d'une première position dans laquelle l'installation (7) d'amortisseur est hors de service, vers une deuxième position dans laquelle l'installation d'amortisseur est en service, dans lequel l'installation d'amortisseur comprend un engrenage de commande (72) qui est arrangé pour conduire la partie pilotable du moyen de résistance lorsque l'actuateur centrifuge (73) est dans la deuxième

- position, et l'engrenage de commande (72) est libre de rotation par rapport au tambour (5) lorsque l'actuateur centrifuge est dans la première position, et est retenu d'être mis en rotation par rapport au tambour par l'actuateur centrifuge (73) lorsque l'actuateur centrifuge est dans la deuxième position.
2. Enrouleur de tuyau selon la revendication 1, dans lequel l'actuateur centrifuge (73) comprend un bras qui est monté de manière pivotante sur le tambour et qui supporte un contrepoids. 10
  3. Enrouleur de tuyau selon l'une quelconque des revendications précédentes, dans lequel l'engrenage de commande (72) comprend une roue d'engrènement et l'actuateur centrifuge est arrangé en cliquet (73) lorsqu'il est dans la deuxième position. 15
  4. Enrouleur de tuyau selon l'une quelconque des revendications précédentes, dans lequel l'actuateur centrifuge (73) et l'engrenage de commande (72) comprennent respectivement des parties d'engagement (73b, 72b) qui s'engagent l'une dans l'autre lorsque l'actuateur centrifuge est dans la deuxième position et l'engrenage de commande commande la partie pilotable du moyen de résistance. 20 25
  5. Enrouleur de tuyau selon la revendication 4, dans lequel l'installation d'amortisseur comprend un moyen de débrayage (72c) pour provoquer ou permettre que les parties d'engagement respectives de l'actuateur centrifuge et de l'engrenage de commande se désengagent l'un de l'autre à au moins un point de la révolution complète de l'engrenage de commande (72) tout en commandant la partie pilotable du moyen de résistance. 30 35
  6. Enrouleur de tuyau selon la revendication 4 ou la revendication 5, dans lequel l'engrenage de commande comprend une série de dents (71a) arrangées autour de l'engrenage de commande pour s'engrèner avec les dents correspondantes sur la partie pilotable (71a) du moyen de résistance et donc commander la partie pilotable lorsque l'engrenage de commande est mis en rotation, étant présent au moins un frein (72c) dans la série de dents, de sorte que lorsque le frein des dents passe le moyen de résistance, l'engrenage de commande (72) n'est pas chargé de sorte à faciliter le désengagement des parties d'engagement respectives de l'actuateur centrifuge et de l'engrenage de commande. 40 45 50
  7. Enrouleur de tuyau selon l'une quelconque des revendications précédentes, dans lequel l'installation d'amortisseur comprend un moyen de biaisement (73c) pour biaiser l'actuateur centrifuge vers la première position. 55
  8. Enrouleur de tuyau selon l'une quelconque des revendications précédentes, dans lequel le moyen de résistance (71) est monté sur le corps principal (4) de l'enrouleur de tuyau plutôt que sur le tambour.
  9. Enrouleur de tuyau selon l'une quelconque des revendications précédentes, dans lequel la partie pilotable (71a) est rotative par rapport au reste du moyen de résistance dont la rotation est freinée.
  10. Enrouleur de tuyau selon l'une quelconque des revendications précédentes, dans lequel la partie pilotable (71a) est rotative par rapport au reste du moyen de résistance et l'engrenage de commande (72) est arrangé pour commander de manière rotative la partie pilotable.
  11. Enrouleur de tuyau selon la revendication 9, dans lequel la partie pilotable (71a) est montée sur le corps principal de l'enrouleur de tuyau, par l'intermédiaire du reste du moyen de résistance, plutôt que sur le tambour.
  12. Installation d'enrouleur de tuyau comprenant un enrouleur de tuyau selon l'une quelconque des revendications précédentes et une longueur de tuyau (2) supportée sur le tambour (5).



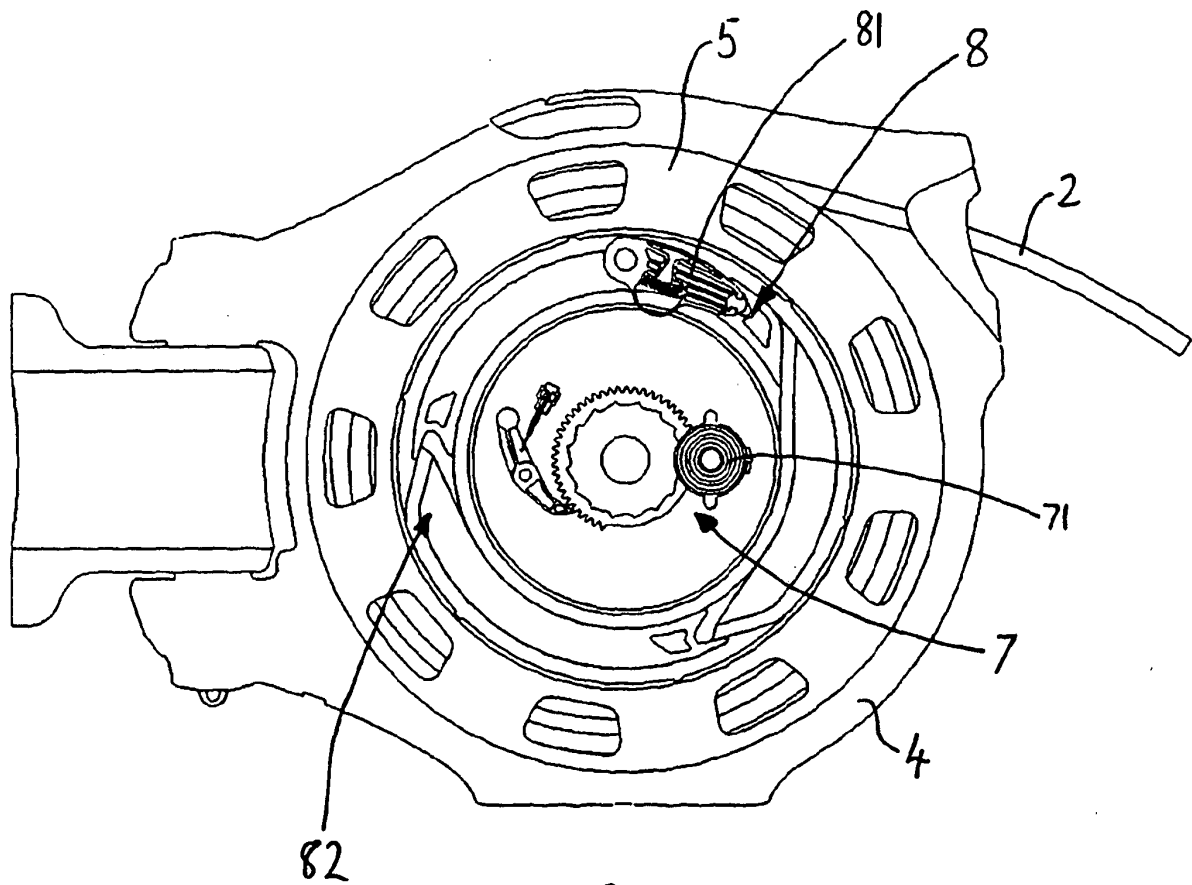


FIG. 3

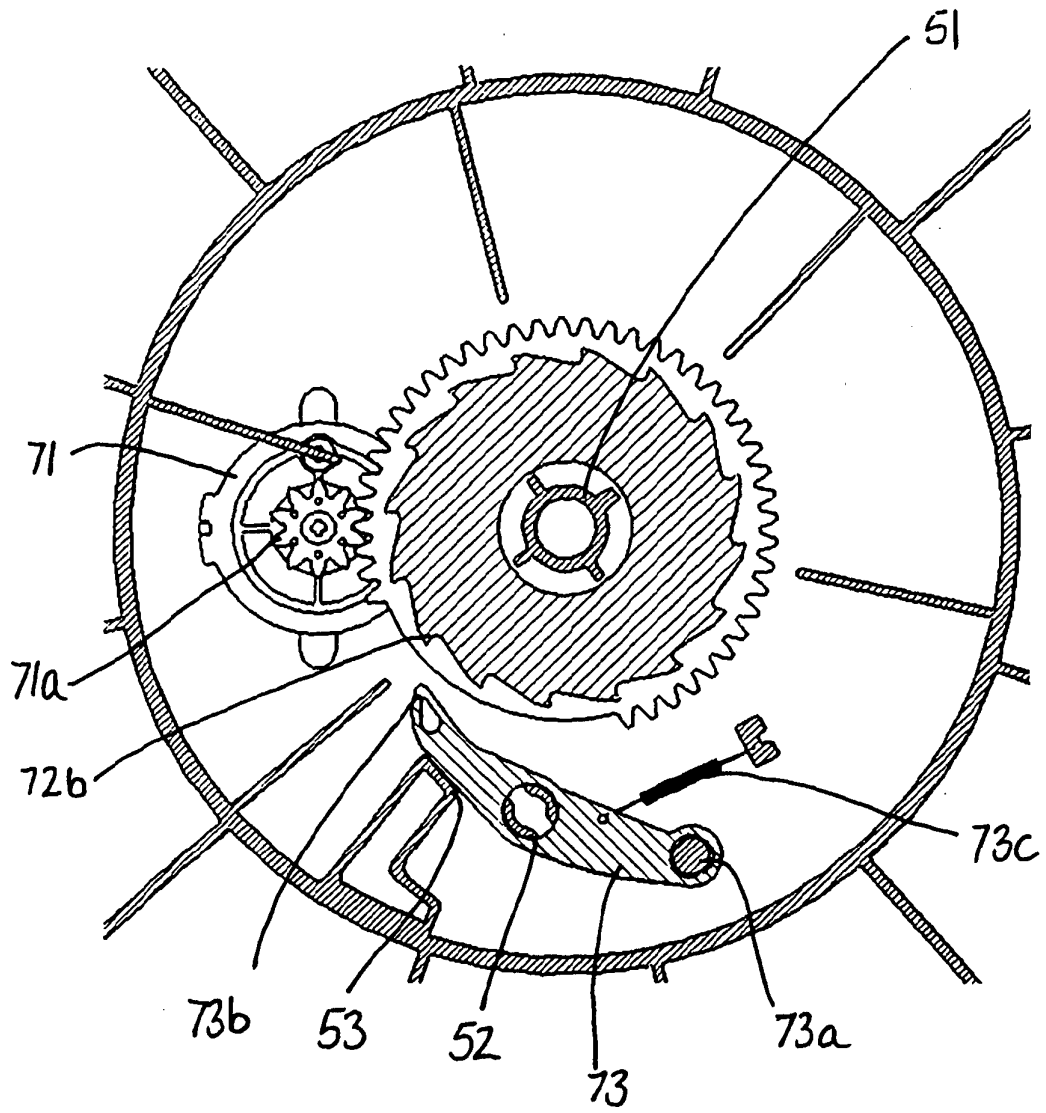


FIG. 4

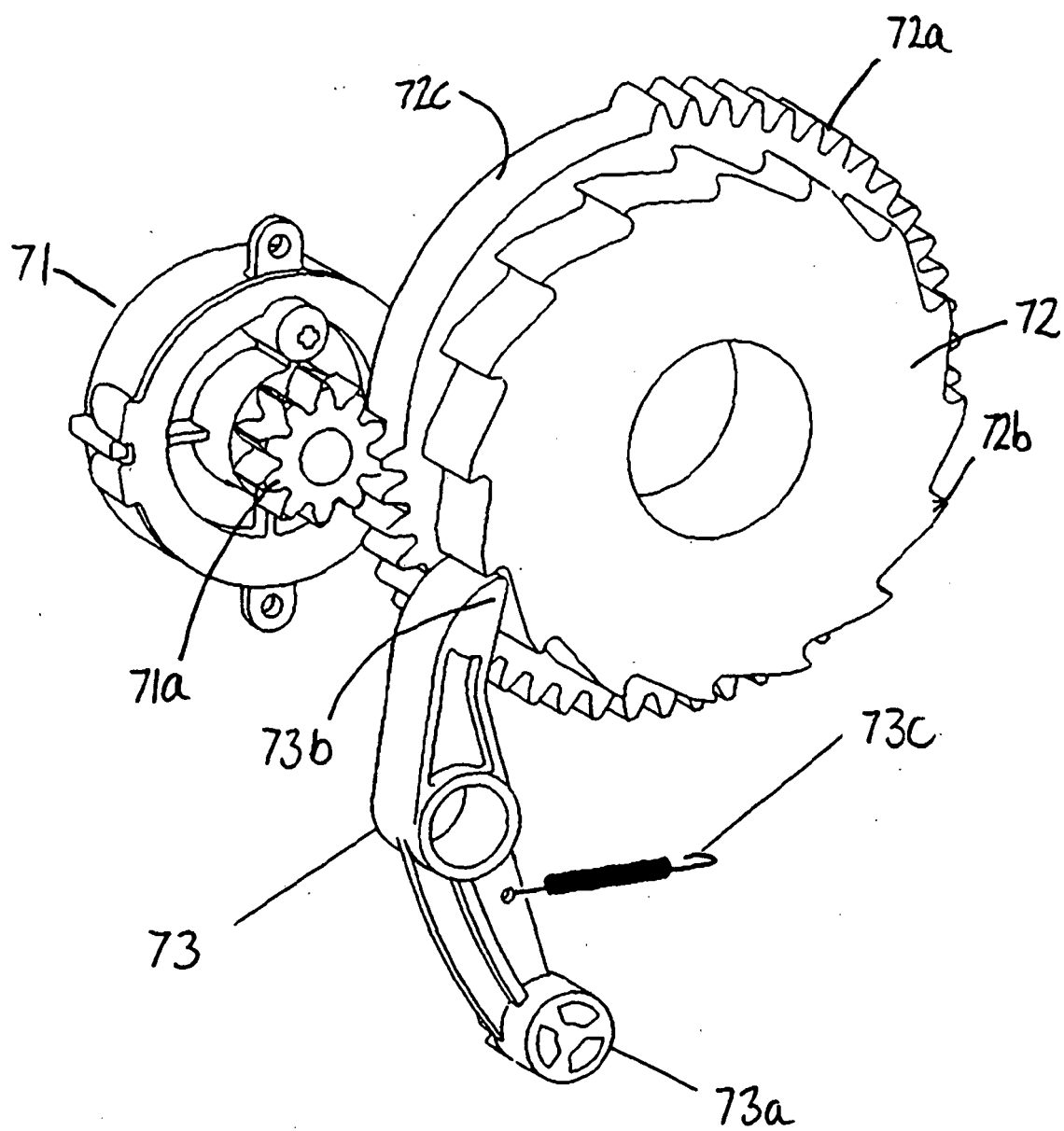


FIG. 5

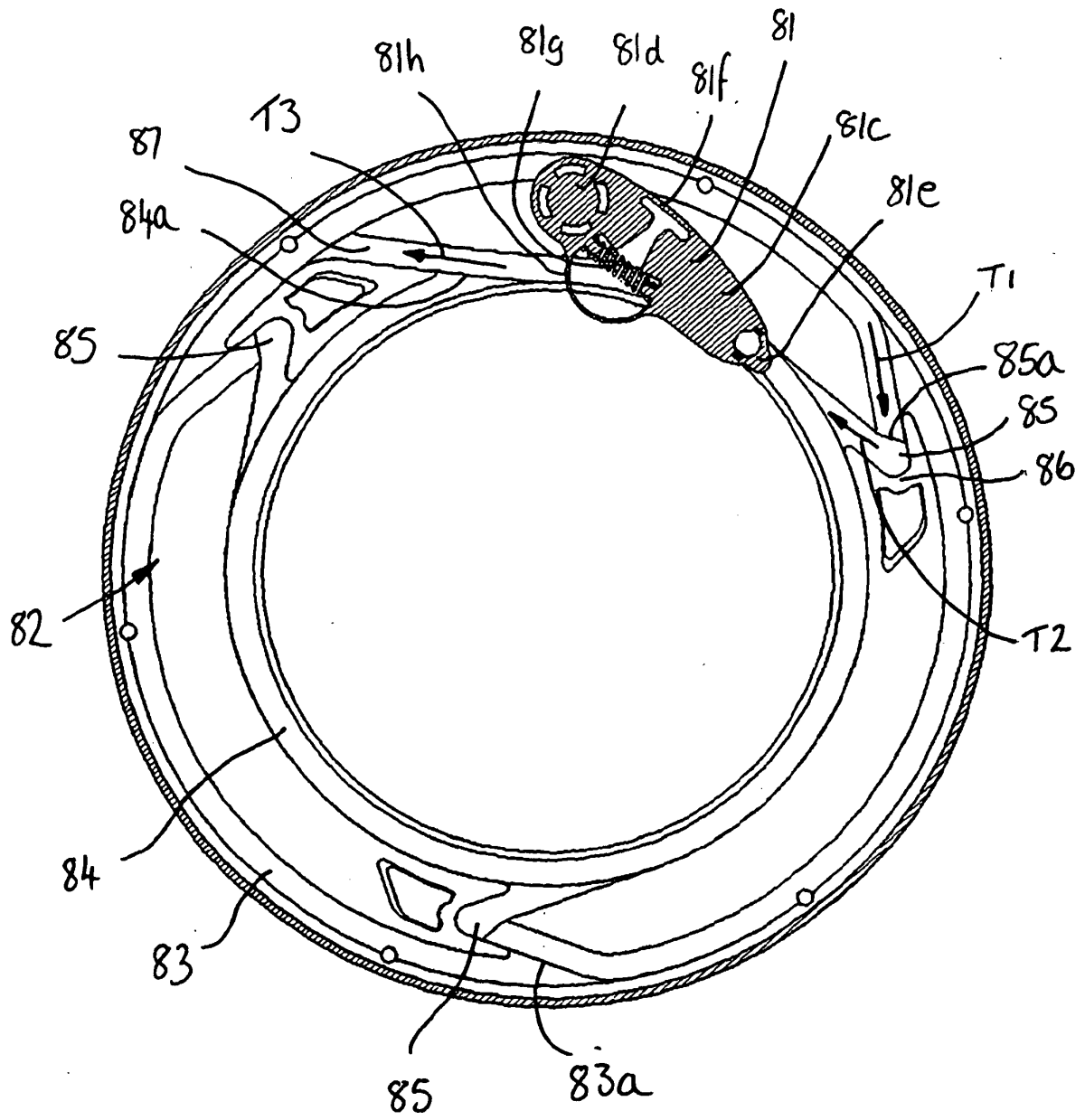


FIG. 6

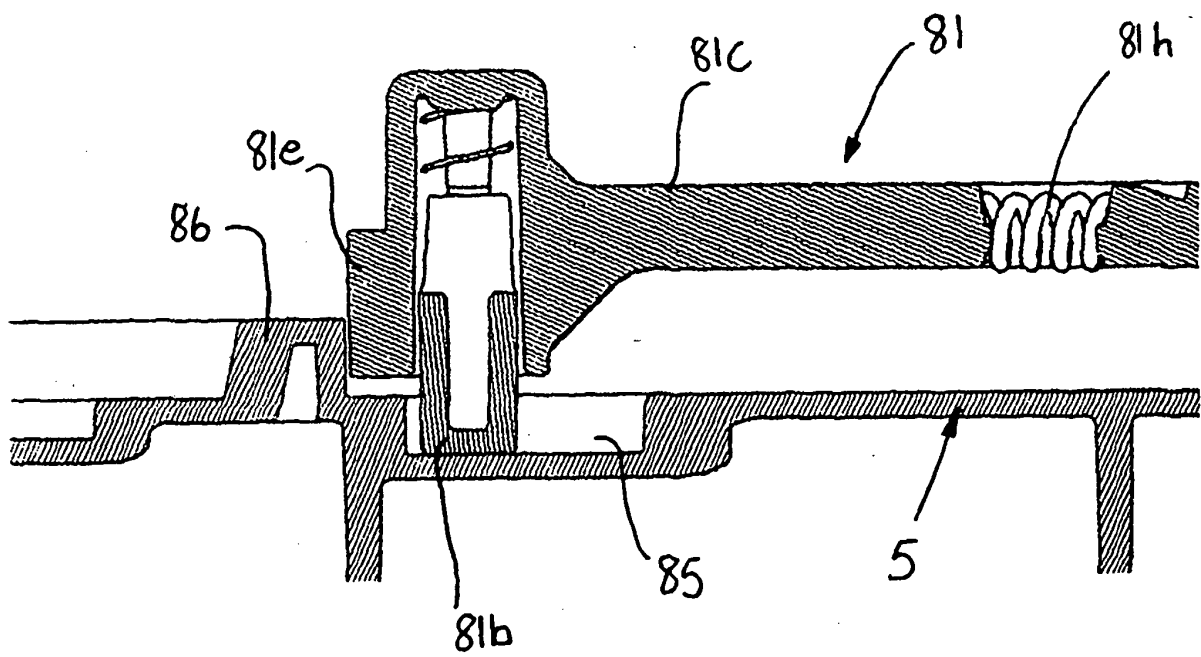


FIG. 7

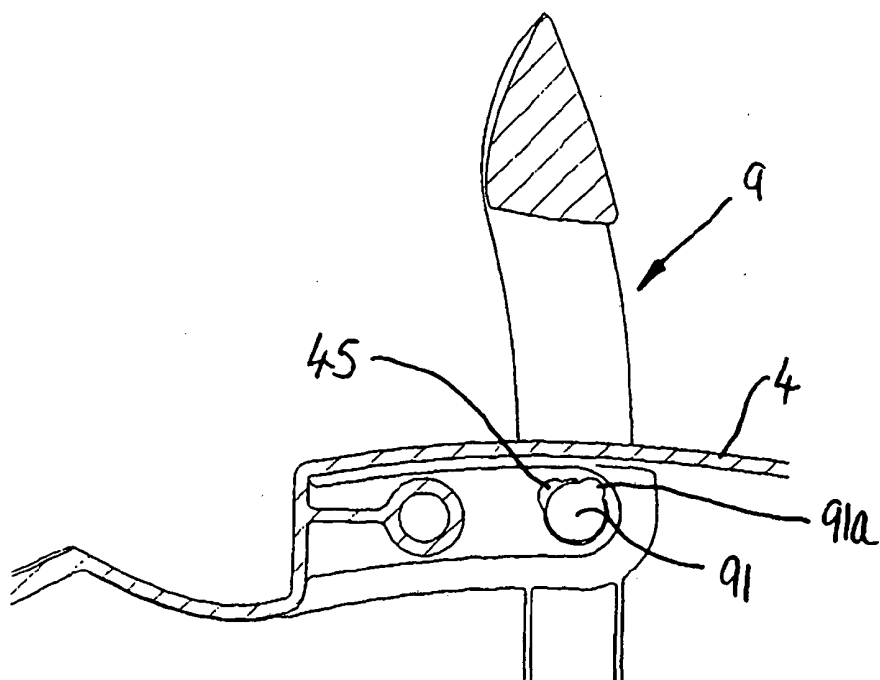


FIG. 8

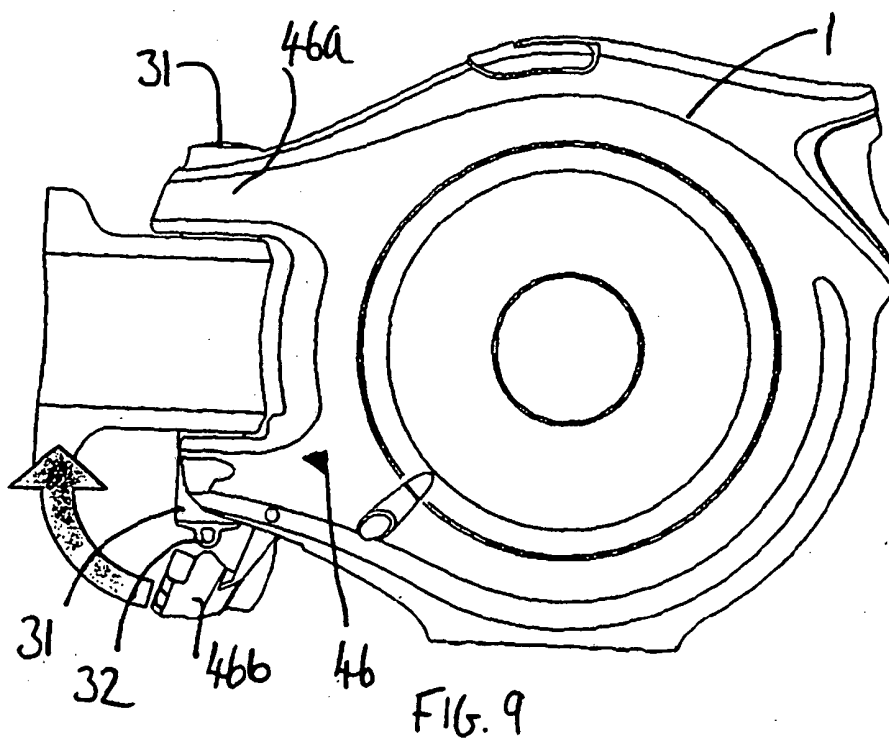


FIG. 9

**REFERENCES CITED IN THE DESCRIPTION**

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