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(54) Reel for winding and unwinding a fire hose and the like

(57) A reel (1) for winding and unwinding a fire hose and the like comprising a core (2) that can be rotatably connected to a water supply coupling and which forms means (16, 17) for snap coupling to a rear flange (14) and a front flange (15).

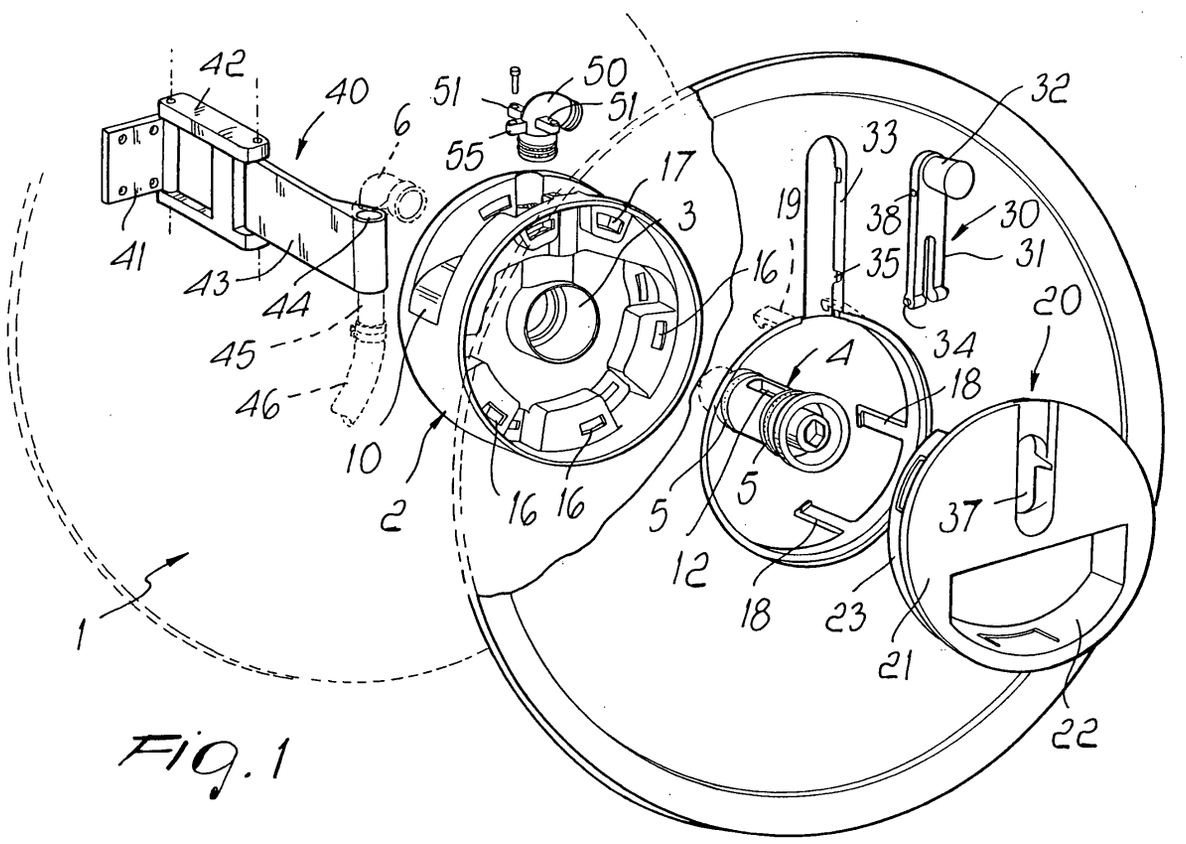

Fig. 1

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Description

[0001] The present invention relates to a reel for winding and unwinding a fire hose and the like.

[0002] As is known, fire hoses and the like are generally wound onto a flanged roller that is supported inside an appropriately provided cabinet or optionally in recessed areas.

[0003] Typically, the flanged roller that supports the wound-up hose is constituted by metallic disks welded to the hub or by metallic disks screwed onto the hub that acts as a core.

[0004] According to some embodiments, the reel formed with the flanged roller on which the hose is wound is connected to an oscillating arm that allows to extract the flanged roller from the containment area, or optionally the reel is in a fixed position and appropriate hose guiding rollers are provided.

[0005] All these known solutions entail providing a reel that is particularly heavy and expensive and which furthermore is not capable of adapting easily to the various requirements of use.

[0006] The aim of the invention is to eliminate the drawbacks noted above, by providing an improved reel for winding and unwinding a fire hose and the like that can be obtained with components that have a simple structure, can be manufactured by molding plastic material and can be assembled depending on the type of reel to be provided.

[0007] Within this aim, a particular object of the invention is to provide a reel that can be extracted easily and rapidly from its containment area and is also easy to position and orientate according to the requirements of use.

[0008] Another object of the present invention is to provide a reel that allows to optimize use of the available spaces while allowing immediate availability when needed.

[0009] Another object of the present invention is to provide a reel that can be easily obtained starting from commonly commercially available elements and materials and is also competitive from a merely economical point of view.

[0010] This aim and these and other objects that will become better apparent hereinafter are achieved by a reel for winding and unwinding a fire hose and the like according to the invention, characterized in that it comprises a core that can be rotatably connected to a water supply coupling and which forms means for the snap coupling of a rear flange and a front flange.

[0011] Further characteristics and advantages of the invention will become better apparent from the description of a preferred but not exclusive embodiment of an improved reel for winding and unwinding a fire hose and the like, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a schematic exploded perspective view of the reel according to the invention;

Figure 2 is a schematic perspective view of the reel, with a fire hose applied thereto;

Figure 3 is a schematic plan view of the reel in a retracted position;

Figure 4 is a top plan view of the reel in an extracted position;

Figure 5 is a sectional view of the reel, taken along a vertical axial plane;

Figure 6 is a sectional view of the reel, taken along a horizontal axial plane;

Figure 7 is a schematic view of an elbow for connection to the hose;

Figure 8 is a perspective view of an adapter for varying the axial length of the core.

[0012] With reference to the figures, the reel for winding and unwinding a fire hose and the like according to the invention, generally designated by the reference numeral 1, comprises a core 2 that is substantially cylindrical and forms axially a hub 3 in which it is possible to accommodate a coupling 4 that is provided with sealing gaskets 5 and is connected to an elbow 6 for connection to the water mains, as described in greater detail hereinafter.

[0013] The core 2 is peripherally provided with a recessed region 10, in which a port 11 is provided for connection to the radial opening 12 formed by the coupling 4 that remains in a fixed position and in practice provides a rotary connection to the core.

[0014] An important feature of the invention consists in that snap coupling means respectively for a rear flange 14 and a front flange 15 are provided on the core 2 .

[0015] Such snap coupling means are constituted by recessed seats 16 that are distributed circumferentially on each axial end of the core and by raised seats 17 that are provided correspondingly on both axial ends.

[0016] Correspondingly, the flanges 14 and 15 have long toothed wings 18 and short toothed wings 19 that enter the respective seats with a snap action, accordingly allowing to assemble the flanges 14 and 15 to the core 2 in a given angular position of the flanges.

[0017] The front or forward flange 15 has, at the axial end in the core 2, a grip element, generally designated by the reference numeral 20, that is constituted by a disk-like body 21 that defines a recess 22 in order to act as a handle that allows to extract the reel from its containment seat.

[0018] The grip element 20 is provided with a central body 23 having elastic teeth 24 that engage within the central rim of the flange 15, consequently achieving a coupling.

[0019] The reel is provided with a folding handle 30 for winding that is provided with a connecting plate 31 that ends with a knob 32.

[0020] The plate 31 can be accommodated in a radial recess 33 that is formed in the flange 15 and has pins

34 that enter holes 35 formed by the flange 15 in order to provide a pivoting element that allows to arrange, when in a folded position, the crank 30, accommodating the knob 32 in a recessed seat 37 provided in the grip element 20.

[0021] In the active condition, the plate 31 enters the recess 33 and the knob 32 can be accessed toward the outside.

[0022] On the plate 30 there are lateral protrusions 38 that, by producing friction against the surface of the recess 33 or the seat 37, provide a stable coupling.

[0023] In order to allow extraction of the reel, there is an articulated element, designated by the reference numeral 40 and constituted by a plate 41 that can be fixed to the wall and on which it is possible to position a box-like arm 42 that is articulated at the plate 41 at one end and to an external arm 43 at the other end. The external arm is arrangeable inside the arm 42, so as to achieve, in the closed position, a reduction in space occupation and allow, upon extraction, a sufficiently long useful arm in order to facilitate use of the reel.

[0024] The outer arm 43 has, at its free end, a cylindrical seat 44 that rotatably accommodates a tubular portion 45 that is connected to a flexible hose 46 for connection to the water mains and is connected to the fixed elbow 6 on the opposite side.

[0025] The tubular portion 45 provides in practice a hinge element that allows to orientate at will the position of the roller in order to facilitate its use.

[0026] In order to facilitate connection of the hose to the core there is an elbow coupling 50 that enters hermetically the opening 11 and is provided with two opposite perforated lugs 51, which are arranged diametrically with respect to the elbow and allow the passage of screws that can be inserted in positioning holes 53 formed at the recess 10. The holes 53 allow to arrange the elbow coupling 50 in two different angular positions, so as to arrange the first turn of the hose always at the axial end of the core whatever the direction in which the hose is wound onto the core.

[0027] Moreover, the elbow coupling has a rear protrusion 55 in which there is a threaded hole 56 in which it is possible to insert an abutment screw 57, which by acting on the abutment plane 58 formed in the recess 10 facilitates axial extraction of the elbow coupling 50 when required.

[0028] In order to facilitate correct positioning of the hose 60 and prevent the end nozzle 61 from falling, there is a bridge 62 that fits with a snap action on the peripheral rim of the flanges 14 and 15 and thus constitutes an element for retaining the nozzle 61, which remains firmly in position.

[0029] If it is necessary to have a longer hose, it is possible to increase the axial length of the core, and for this purpose there is an adapter, designated by the reference numeral 70 and shown in Figure 8, which is provided with teeth 71 of the adapter that enter the seats 16 and 17 of the core. The adapter 70, in turn, forms corresponding receptacles 72 for coupling to the flanges.

[0030] From what has been described above it is therefore evident that the invention achieves the proposed aim and objects, and in particular the fact is stressed that an improved reel for winding and unwinding a fire hose and the like is provided by means of components that are particularly functional and effective and allow to assemble the unit easily, obtaining an article that is highly functional and practical.

[0031] Another important aspect is further constituted by the fact that the components can be assembled easily and rapidly, obtaining a reel that is particularly effective, since it allows to optimize all functions and to provide a grip element for extracting the reel from its containment seat and also allows to have a crank for rewinding the hose, differently from the solutions of the background art, in which the reel is rewound by acting on the peripheral region of the flanges.

[0032] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0033] All the details may further be replaced with other technically equivalent elements.

[0034] In practice, the materials used, as well as the contingent shapes and dimensions, may be any according to requirements.

[0035] The disclosures in Italian Patent Application no. MI2003A000405, from which this application claims priority, are incorporated herein by reference.

[0036] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A reel for winding and unwinding a fire hose and the like, **characterized in that** it comprises a core that can be rotatably connected to a water supply coupling and which forms means for the snap coupling of a rear flange and a front flange.

2. The reel according to claim 1, **characterized in that** said core is provided peripherally with a recessed region in which a port is provided for connection to a radial opening formed by said coupling that can be rotatably engaged in a hub that is formed axially by said core.

3. The reel according to claims 1 and 2, **characterized in that** said snap coupling means comprise recessed seats that are distributed circumferentially on each axial end of said core and raised seats that

are provided correspondingly on both axial ends of said core, said flanges being provided with long toothed wings and short toothed wings that can engage said seats.

4. A reel for winding and unwinding a fire hose, **characterized in that** it comprises a grip element that can be coupled to the axial end of the core of the reel, said grip element being provided with a disk-like body that forms a recess that is adapted to act as a handle for extracting the reel from its containment seat.

5. The reel according to claim 4, **characterized in that** said grip element has a central body with elastic teeth that can engage within the central rim formed by the flange associated with the core.

6. A reel for winding and unwinding a fire hose, **characterized in that** it comprises a folding wind-up handle that is connected to one of the flanges of said reel.

7. The reel according to claim 6, **characterized in that** said folding wind-up handle comprises a connecting plate that ends with a knob, can be accommodated in a radial recess formed in the flange, and is provided with lateral pins that can be inserted in holes formed correspondingly in said flange in order to provide a pivoting element for positioning said folding handle in a recessed position and in an active position.

8. The reel according to claim 7, **characterized in that** it comprises, on said plate, lateral protrusions that produce friction against the surface of said recess or against a recessed seat that is provided on a grip element that is connected axially to the core in order to provide stable coupling respectively in the active position and in the folded position.

9. A reel for winding and unwinding a fire hose, **characterized in that** it comprises an articulated element for connecting the reel to a fixed structure that comprises a plate that can be fixed to the wall and on which it is possible to position a box-like arm that is articulated at one end to said plate and at the other end to an outer arm that can be folded inside said arm, said outer arm having a cylindrical seat at its free end.

10. The reel according to claim 9, **characterized in that** it comprises a tubular portion that is rotatably accommodated in said cylindrical seat and is connected to a flexible hose for connection to the water supply mains, said tubular portion being connected to a fixed elbow that can engage said water supply coupling.

11. A reel for winding and unwinding a fire hose, **characterized in that** it comprises, on the surface of the core, in the region comprised between a front flange and a rear flange, an elbow coupling that can be inserted hermetically in a port for connection to a radial opening of a water supply coupling, said elbow coupling being provided with pairs of opposite lugs that are positioned diametrically and can be engaged by screws that can be inserted in positioning holes that are offset in order to position said elbow coupling in two different angular positions depending on the winding direction of said hose.

12. The reel according to claim 11, **characterized in that** said elbow coupling has a rear protrusion in which there is a threaded hole for engagement with an abutment screw that acts on an abutment plane that is formed by said core for the axial extraction of said elbow coupling.

13. A reel for winding and unwinding a fire hose, **characterized in that** it comprises a bridge that can engage with a snap action the peripheral rim of the flanges in order to keep in position the end nozzle of the hose wound on said reel.

14. A reel for winding and unwinding a fire hose comprising a core to which it is possible to detachably couple a front flange and a rear flange respectively, **characterized in that** it comprises an adapter that can axially engage said core in order to increase its axial length, said adapter forming seats for coupling to the respective flange.

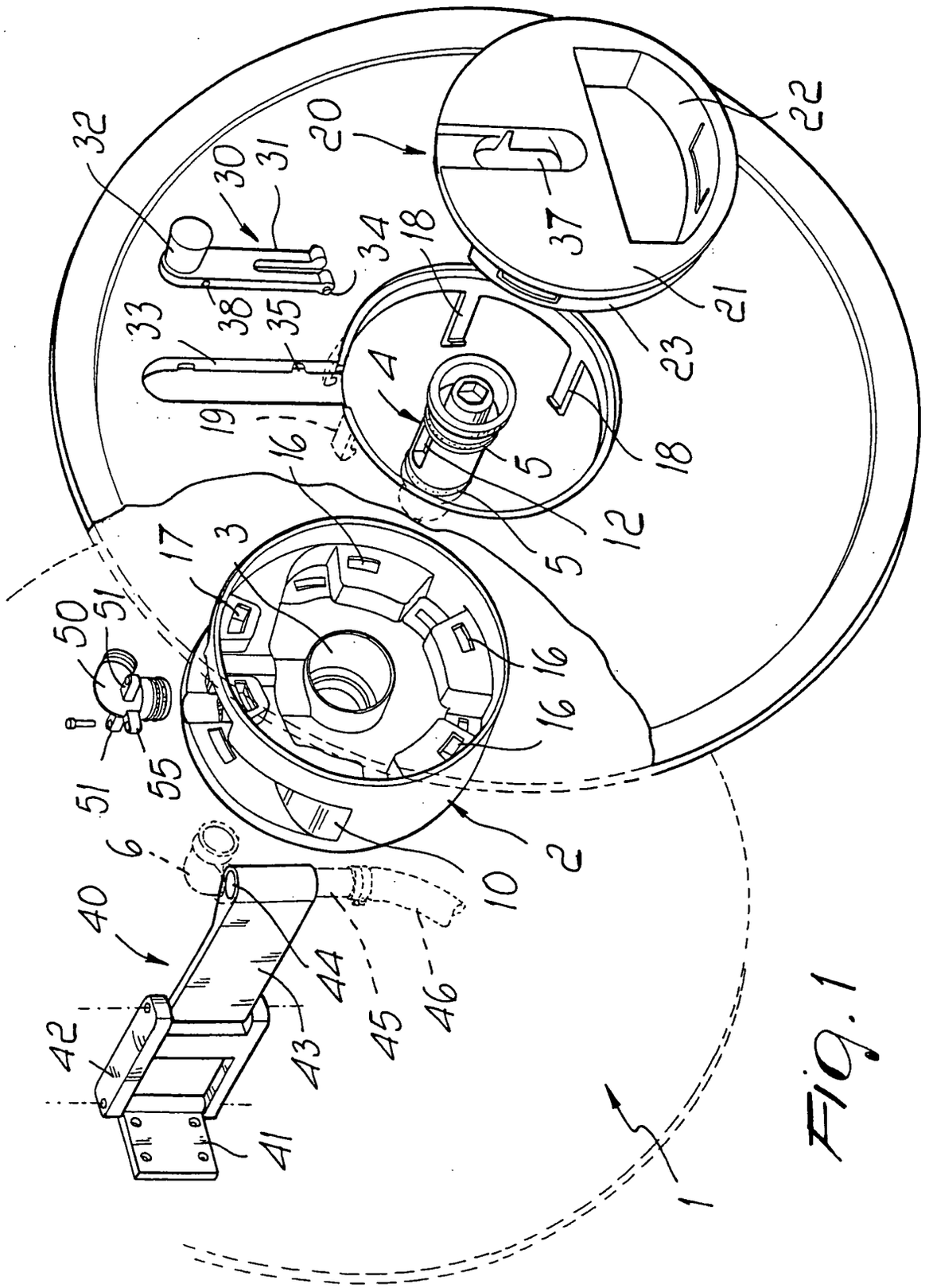
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Fig. 1

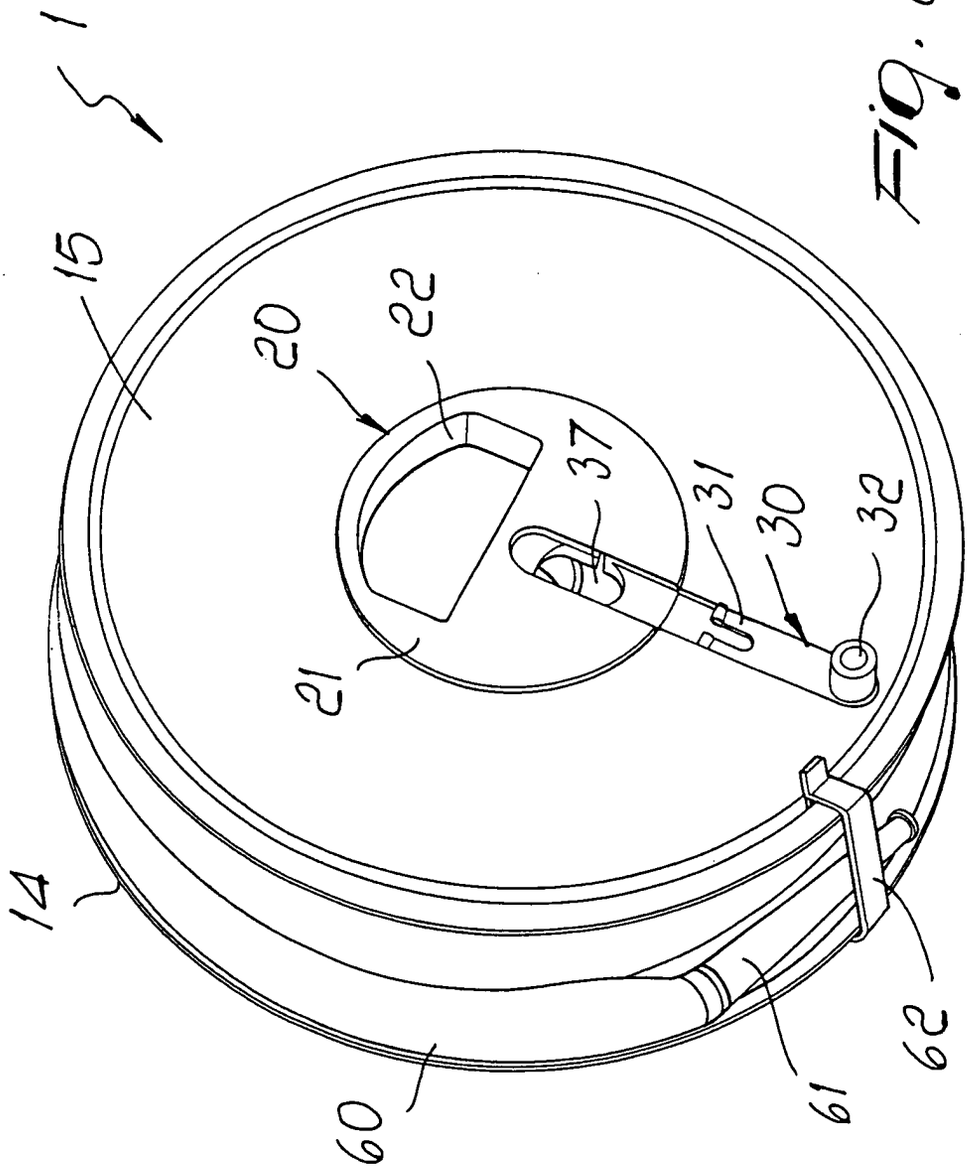

Fig. 2

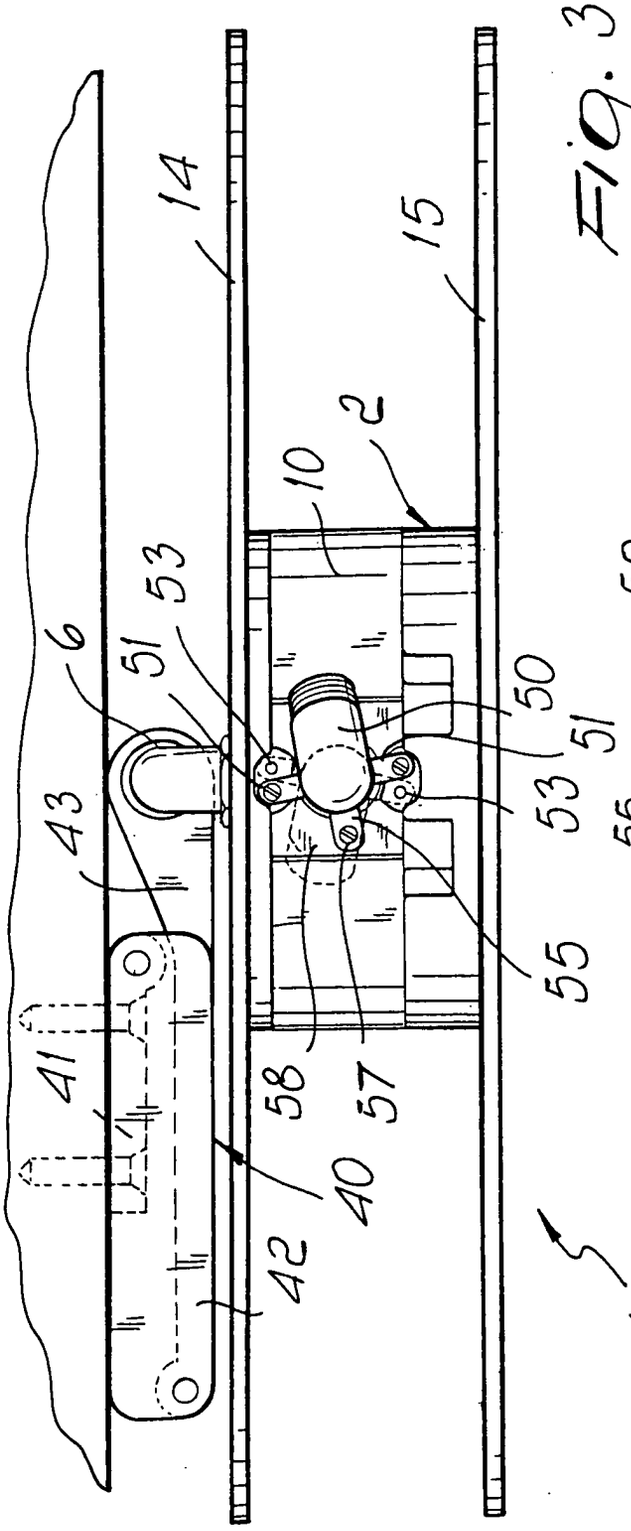
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Fig. 3

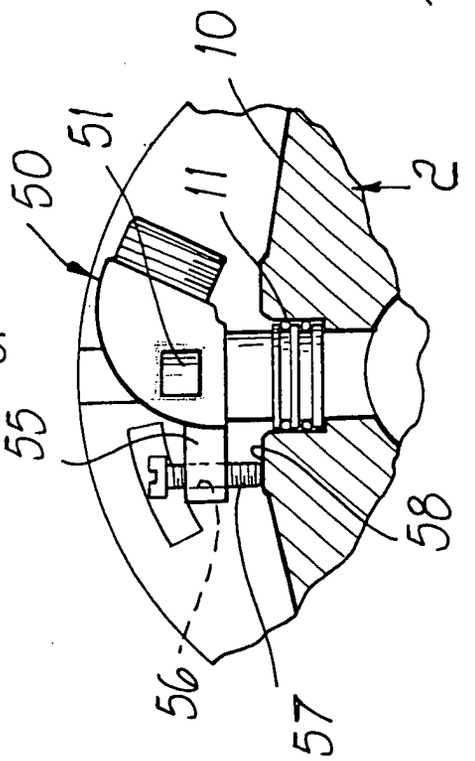
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Fig. 7

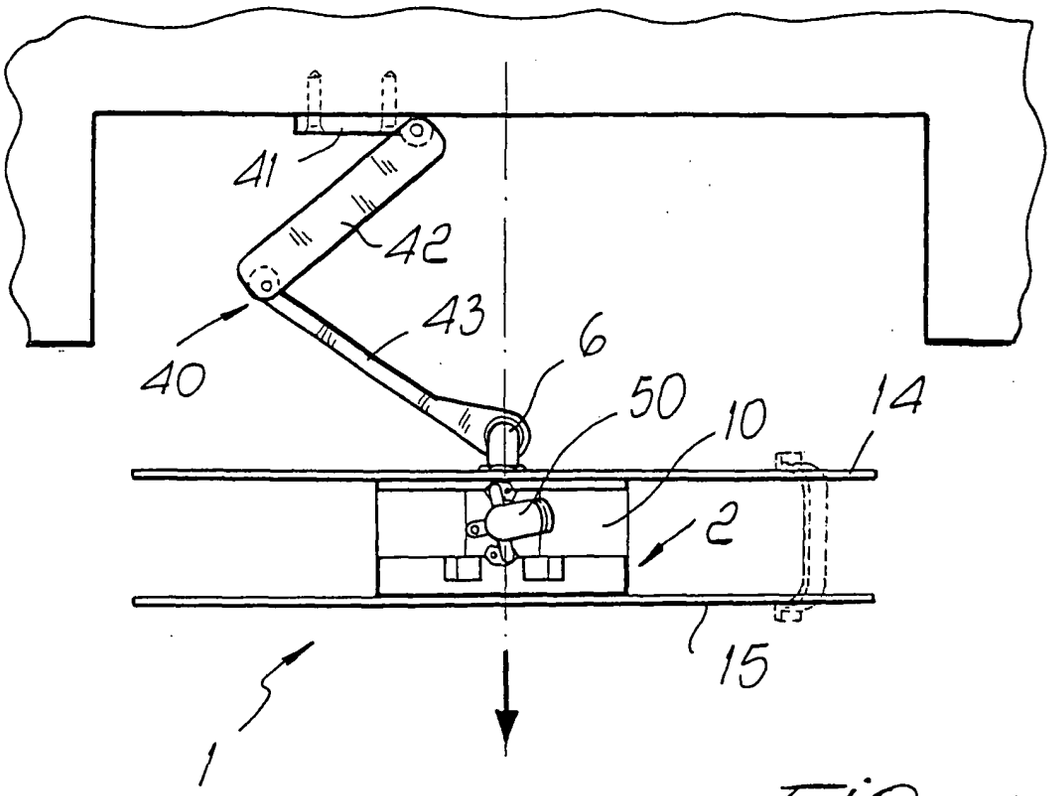

Fig. 4

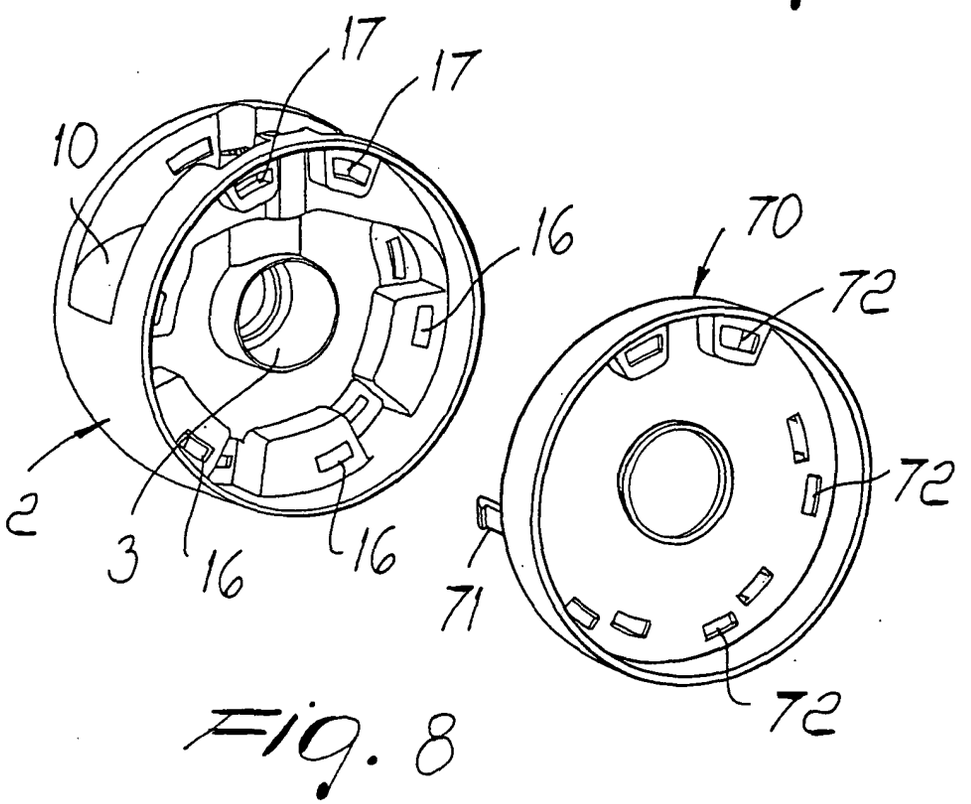

Fig. 8

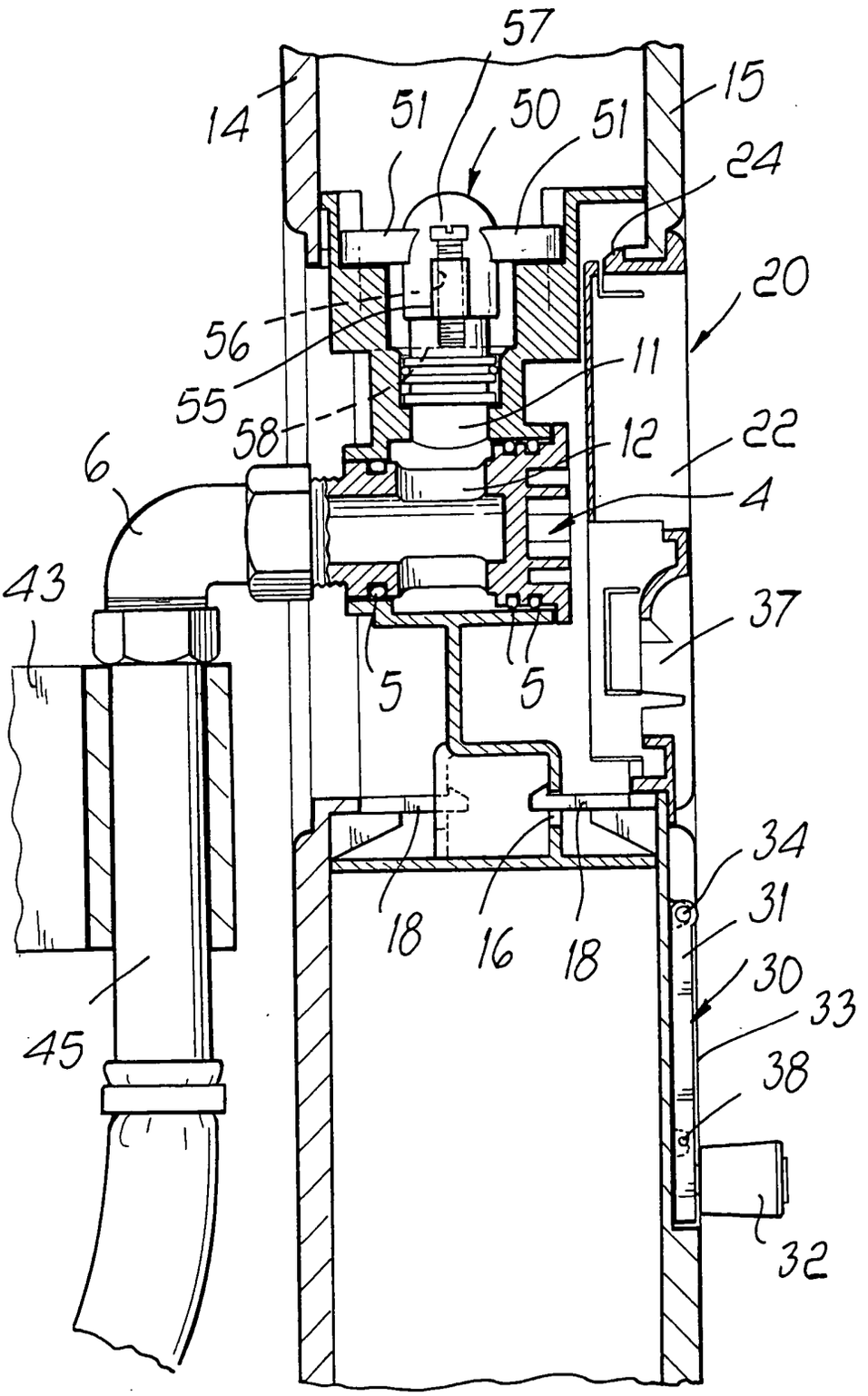
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Fig. 5

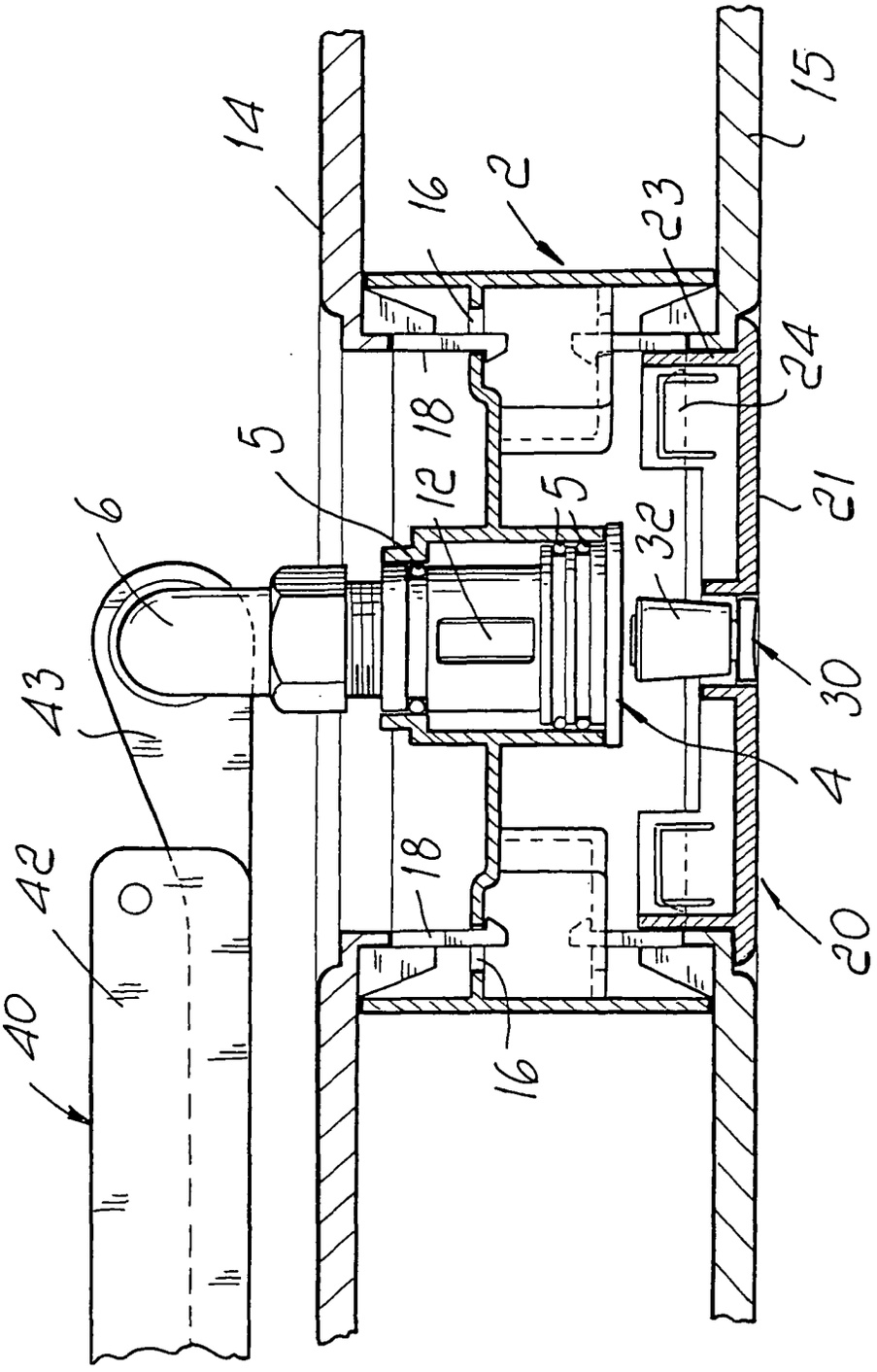

Fig. 6

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 04 00 4680

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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TECHNICAL FIELDS SEARCHED (Int.Cl.7)

A62C
B65H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	3 May 2004	Neiller, F

CATEGORY OF CITED DOCUMENTS

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