

(19)



(11)

**EP 2 977 342 B1**

(12)

**EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention  
of the grant of the patent:  
**28.12.2016 Bulletin 2016/52**

(51) Int Cl.:  
**B65H 75/40 (2006.01) B65H 75/44 (2006.01)**

(21) Application number: **15169822.2**

(22) Date of filing: **29.05.2015**

(54) **A SUPPORTING DEVICE FOR A PIPE**  
**STÜTZVORRICHTUNG FÜR EIN ROHR**  
**DISPOSITIF DE SUPPORT POUR UN TUYAU**

(84) Designated Contracting States:  
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB**  
**GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO**  
**PL PT RO RS SE SI SK SM TR**

(30) Priority: **21.07.2014 IT MO20140025 U**

(43) Date of publication of application:  
**27.01.2016 Bulletin 2016/04**

(73) Proprietor: **G.F. S.r.l.**  
**42015 Correggio (Reggio Emilia) (IT)**

(72) Inventor: **RIGHI, Cesare Mattia**  
**41017 Ravarino, Modena (IT)**

(74) Representative: **Paparo, Aldo**  
**Bugnion S.p.A.**  
**Via Vellani Marchi, 20**  
**41124 Modena (IT)**

(56) References cited:  
**EP-A1- 0 243 884 EP-A1- 2 397 432**  
**WO-A1-2011/141050 DE-U1-202010 013 463**  
**JP-U- S4 718 814 US-A1- 2005 247 345**

**EP 2 977 342 B1**

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

## Description

**[0001]** The invention relates to a supporting device for a pipe.

**[0002]** A supporting device is understood to be a device for winding and unwinding a pipe, more precisely a watering pipe.

**[0003]** Said device applies to the hobbies and gardening sector.

**[0004]** In the prior art there are provided several pipe supporting devices, all sharing the presence of a reel for winding and/or unwinding a pipe, manual or automated means for winding and/or unwinding a pipe, as well as a support base enabling to stabilize the reel on the ground, at the same time keeping it raised therefrom (thereby favouring operations of pipe unwinding /winding).

**[0005]** In the prior art, the design of pipe supporting devices has increasingly focused its efforts to achieve two main objectives i.e. improving functionality and use flexibility of the device and reducing the overall sizes as far as possible.

**[0006]** It very often happens that those who tend to prefer flexibility of use, are then forced to give up to space-savings. Indeed, the more the reel increases in size, the more device flexibility is improved; in this way different types of pipes watering can be housed within the reel, which require the adoption of larger support bases to the detriment of the overall space occupied by the device.

**[0007]** Conversely where the supporting device is the most compact possible, use of different pipe sizes is not possible, hence flexibility in use is penalized; furthermore said device is not even easy to carry under certain conditions.

**[0008]** Examples of prior art supporting devices for pipes are known from documents US2005/247345 and EP2397432.

**[0009]** In this context, the technical task at the base of the present invention is to provide a device for supporting a pipe which obviates the drawbacks of the prior art as mentioned above.

**[0010]** In more detail, it is an object of the present invention to provide a device for supporting a pipe capable of improving use flexibility.

**[0011]** A further object of the invention herein, is to provide a device for supporting a pipe which is able to reduce the overall sizes when not in use.

**[0012]** The technical task mentioned and the aims specified are substantially attained by a supporting device for a pipe comprising the technical characteristics described in one or more of the appended claims. Further characteristics and advantages of the present invention will become more apparent from the indicative, and therefore non-limiting, description of a preferred but non-exclusive embodiment of a supporting device for a pipe as illustrated in the accompanying drawings wherein:

- Figure 1 is a side view of the supporting device for a pipe herein disclosed, in a first operational configuration;

uration;

- Figure 2 is a front view of the device of Figure 1;
- Figure 3 is a rear view of the device of Figure 1 always in the first operational configuration;
- Figure 4 is a perspective view of the device of Figure 1;
- Figure 5 is a rear view of the device of figure 1 in a second operational configuration;
- Figure 6 is a perspective view of the device of Figure 5 in the second operational configuration;
- Figure 7 is an enlarged view partially in section of a constructive detail of the device.

**[0013]** By the numeral 1, it is indicated a supporting device for a pipe T.

**[0014]** A supporting device is understood to be a device for winding and unwinding a pipe, more precisely a watering pipe.

**[0015]** When mentioning the concept of winding described hereinafter, reference will also be made to the concept of unwinding, in that it deals with the reverse operation.

**[0016]** The supporting device 1 macroscopically comprises a reel 2, a base surface 5 and a gripping element 7.

**[0017]** The reel 2 consists of a pair of corresponding and opposite flanges 3, 3', which are connected one to another by a roller 4.

**[0018]** The roller 4 extending along an axis X-X parallel to the ground and preferably horizontal, acts as a winding base of the pipe T. In other words the pipe T, being wound on the reel, forms a coil whose innermost layer is resting on the roller 4, whereas the outermost layers thereof are in mutual contact.

**[0019]** The pair of flanges 3, 3', preferably arranged perpendicularly to the axis X-X, act as a lateral restraint of the wound coil of the pipe T. Since the flanges 3, 3' are identical to one another, only one of them will be described hereinafter. The numerical references below adopted for a flange, are also valid for the other (for the twinned flange 3', the reference numbers are followed by a superscript).

**[0020]** Said flange 3 exhibits a central region 19 which is preferably disc-shaped. Four arms 30 forming a cradle, develop from the central region 19, moving away therefrom. Said arms 30 are then connected to one another by a ring 31.

**[0021]** On one of the pairs of flanges 3, 3', a crank 29 is arranged, which is suitable for enabling winding and unwinding operations of the pipe T. By acting on the crank 29, the reel 2 is in fact made to rotate on the axis X-X of the roller 4, thus allowing winding or unwinding of the pipe T according to the direction of rotation impressed to the reel 2.

**[0022]** Each central region 19 exhibits a first, second and third seat 20, 21, 22. Since the three seats are present in the central twinned region 19' as well, the overall seat number within the reel 2 is six.

**[0023]** Preferably each seat is defined by a hole.

**[0024]** Locking means 23 are placed relative to the first and third seat 20, 21. Said locking means 23 comprises a leaf spring 24 ending with a protrusion 25.

**[0025]** Operation of the locking means will be better explained here below.

**[0026]** By the reference number 5 it is indicated the base surface.

**[0027]** Said base surface 5 provides a supporting plane P for the reel 2.

**[0028]** Said base surface 5 comprises a plurality of tubular elements.

**[0029]** On the front there are afforded a first and a second tubular element, respectively referred to with 6 and 8. Said first and second tubular elements 6 and 8 extend along a respective first axis V-V and second axis W-W parallel to one another.

**[0030]** Each tubular element has an upper portion 6a, 8a connected to the reel 2. More precisely, the upper portion 6a is connected to the central region 19 of the flange 3.

**[0031]** Similarly the upper portion 8a is connected to the central region 19' of the flange 3'.

**[0032]** Each upper portion 6a, 8a has a hole 26 adapted to enter into contact with the corresponding protrusion 25 of the leaf spring 24, which leaf spring 24 belongs to the locking element 23.

**[0033]** The coupling between the first and second tubular element 6, 8 with the respective first seats 21, 21', occurs owing to the snap coupling between the tubular element, 6 or 8, and the respective first seat 21 or 21'.

**[0034]** When inserting, by way of example, the tubular portion 6 into the corresponding first seat 21, the leaf spring 24 flexes while moving away from the central region 19, so as to allow passage of the tubular portion 6. As soon as the hole 26 of the tubular portion matches with the protrusion 25, a snap coupling occurs therebetween, thus favoring the blocking of the tubular portion 6 inside the seat 2 of the reel.

**[0035]** This coupling occurs in a similar manner between the tubular element 8 and the respective first seat 21'.

**[0036]** Each tubular element has then a lower portion 6b, 8b ending relative to the ground S, thereby defining a respective support point Q, Q'.

**[0037]** As shown in the accompanying figures, the lower portions 6b, 8b are connected to one another by a third crosspiece 32.

**[0038]** Said base surface 5 exhibits, on the rear side thereof, a third tubular element 9 and a fourth tubular element 10.

**[0039]** Said third and fourth tubular elements have a respective first upper terminal end 9a, 10a connected to the reel 2. The connection is particularly formed at the central region 19 by means of respective second seats 22, 22'.

**[0040]** Each upper terminal end 9a, 10a further exhibits a hole 26 so as to go to strike onto the corresponding protrusion 25 which is part of the locking element 23.

**[0041]** This coupling mode is quite similar to the one previously described.

**[0042]** Said third and fourth tubular element 9, 10 further exhibit a respective second lower terminal end 9b, 10b.

**[0043]** The respective lower terminal ends 9b, 10b are connected together by a first crosspiece 11.

**[0044]** Said first transverse 11 is then connected, preferably by welding, with an axis 12, at the ends of which a pair of wheels 13, 14 are mounted rotatably idle. Each wheel defines a respective third and fourth support point Q", Q'''.

**[0045]** The first, second, third and fourth support point Q, Q', Q", Q''', all lie on the supporting plane P.

**[0046]** Above the reel 2 there is provided the gripping element 7.

**[0047]** Said gripping element 7 enables movement of the device 1 by lifting it at least partially.

**[0048]** By keeping the pair of wheels 13, 14 resting, the supporting device 1 can be moved through inclination, i.e. through a partial lifting.

**[0049]** Likewise, the supporting device 1 can be fully raised from the ground S by acting on the gripping element 7.

**[0050]** Said gripping element 7 is movable from an extended position to a retracted position.

**[0051]** When in the extended position thereof, the gripping element 7 reaches an elongation height from the ground S equal to H, while in the retracted position, said gripping element has a distance from the ground S corresponding to an overall size height h.

**[0052]** When the gripping elements 7 are at a height H, displacement of the device 1 is facilitated according to the methods indicated above. Conversely, when the gripping elements 7 are at the overall size height h, which is lower than the elongation height H, the device can be stored.

**[0053]** In this contracted position, the gripping element 7 is at least partially nested inside the base surface 5.

**[0054]** In other words, the gripping element 7 is coupled telescopically inside the base surface 5 and can be moved from the outside towards the inside of the base surface and vice versa.

**[0055]** Said gripping element 7 comprises a fifth and a sixth tubular element 15, 16 which are connected together by a second crosspiece 17.

**[0056]** Said fifth and sixth tubular element 15, 16 extend along a third and fourth axis K-K, Y-Y which are parallel to one another.

**[0057]** In particular, the third axis K-K turns out to be an extension of the first axis V-V, whereas the fourth axis Y-Y is an extension of the second axis W-W. Said fifth and sixth tubular element 15, 16 each have a first lower end 15a, 16a, and a second upper end 15b, 16b.

**[0058]** The first lower ends 15a, 16a are connected to the reel 2, while the second upper ends 15b, 16b are connected together by the second crosspiece 17. A handle 18 is provided relative to said second crosspiece,

which handle 18 is defined by a soft coating of a middle portion of the second crosspiece 17, so that gripping and procedures for operating the supporting device 1 can be improved.

**[0059]** Said first ends 15a, 16a are connected to the flanges 3, 3' by means of the respective third seats 22, 22'.

**[0060]** More in particular, each seat 22, 22' has an extension 27 externally threaded, inside of which portions of the fifth and sixth tubular element 15, 16 freely translate.

**[0061]** Coupled on said extension 27 there is provided a ring nut 28, switchable from an open position to a close position and vice versa.

**[0062]** In the open position the gripping element 7, namely the fifth and sixth tubular element 15 and 16, can slide internally of the base surface 5, i.e. inside the first and second tubular element 5, 6, whereas in the close position, the gripping element 7 is stationary relative to the base surface 5. With the ring nut 28 in the open position thereof, the gripping element 7 can be switched from the extended position to the contracted position and vice versa.

**[0063]** Switching of the ring nut 18 occurs by screwing/unscrewing the same on the threaded extension 27 obtained on the third seat 22, 22'.

**[0064]** The device 1 of the invention herein, attains the proposed object. Indeed, a high reduction of the overall sizes can be obtained owing to the present invention, wherein the functionalities typical of the pipe T supporting devices are maintained unchanged.

**[0065]** When the device is in use, the operator, by acting on the ring nuts 28 (i.e. by loosening the same), can promote sliding of the fifth and sixth tubular element 15, 16 in extension from the first and second tubular element 6, 8. In doing so, the gripping element 7, particularly the handle 18, can reach the elongation height H from the ground S so as to enable a smoother movement of the device 1 from the ground.

**[0066]** Similarly, when the device in use is to be stored, the operator, by loosening the ring nut 28 in this case as well, can promote sliding of the fifth and sixth tubular element 15, 16 by exerting a compression on the first and second tubular element 6, 8. In doing so, the gripping element 7, particularly the handle 18, can reach the minimum overall size height h from the ground S so that storage of the device in the desired space can be performed.

## Claims

1. A supporting device for a pipe (T) of the type comprising:

- a reel (2), whereon the pipe (T) can be wound, which reel (2) is defined by a pair of flanges (3, 3') opposed and joined by a winding roller (4);
- a base surface (5), superiorly connected to the

reel (2) and ending inferiorly in contact with the ground (S), which base surface (5) defines a supporting plane (P) for the reel (2) on the ground (S);

- a gripping element (7), which is free on the upper part thereof and inferiorly connected to the reel for moving the supporting device (1) by lifting it, at least partially, from the ground (S); said gripping element (7) being movable from an extended position, in which it reaches an elongation height (H) from the ground (S), to a contracted position, wherein it reaches an overall size height (h) from the ground (S), being the elongation height (H) greater than the overall size height (h);
- said gripping element (7), when in the contracted position thereof, is at least partially nested inside the base surface (5); said base surface (5) comprising:

- at least a first and second tubular element (6, 8), each comprising an upper portion (6a, 8a) connected to the respective flange (3, 3') of the reel (2), and a lower portion (6b, 8b) ending relative to the ground (S), so as to define a respective first and second support point (Q, Q');
- a third and fourth tubular element (9, 10) each having a first upper terminal end (9a, 10a) connected to the reel (2) and a second lower terminal end (9b, 10b) which is free;
- a first crosspiece (11) connecting the second lower terminal ends (9b, 10b);
- an axis (12), permanently connected to the first crosspiece (11), rotatably coupled to a pair of wheels (13, 14) each defining a third and a fourth support point (Q'', Q''') on the ground (S);

said gripping element (7) comprising:

- a fifth and sixth tubular element (15, 16), each having a respective first lower end (15a, 16a) connected to the respective flange (3, 3') of the winding reel (2) and a respective second upper end (15b, 16b) which is free; said fifth and sixth tubular element (15, 16) being telescopically movable within the corresponding first and second tubular element (6, 8) from a fully extended position, wherein the gripping element (7) is in the extended position thereof, to a fully inserted position, wherein the gripping element (7) is in the retracted position thereof;
- a second crosspiece (17) connecting said second upper ends (15b, 16b);

characterized in that said reel (2) comprises, for each flange (3, 3'), a central region (19, 19') compris-

ing:

- a first seat (20, 20') for receiving respectively the first upper portion (6a, 8a) of the first and second tubular elements (6,8); 5
  - a second seat (21,21') for receiving respectively the first upper terminal end (9a, 10a) of the third and fourth tubular element (9,10);
  - a third seat (22,22') for receiving respectively the first lower end (15a, 16a) of the fifth and sixth tubular element (15,16). 10
2. A device according to claim 1 **characterized in that** said gripping element (7) is telescopically coupled within said base surface (5). 15
3. A device according to claim 1 **characterized in that** each first and third seat (20,20', 22,22') comprise a locking element (23) comprising a leaf spring (24) ending with a protrusion (25); said leaf spring fitting into a hole (26) formed within a respective tubular element (6,8,9,10) belonging to the base surface (5). 20
4. A device according to claim 1 **characterized in that** each second seat (21,21') includes a threaded extension (27) which can be coupled to a ring nut (28); said ring nut (28) being switchable from an open position, wherein sliding of the fifth and sixth tubular element (15,16) inside the first and second tubular elements (6,8) is allowed, to a close position, in which said sliding is inhibited. 25 30
5. A device according to claim 1 **characterized in that** it further comprises a crank (29) in order to facilitate rotation of the reel (2) about an axis (X-X) of the roller (4). 35

#### Patentansprüche

1. Stützvorrichtung für ein Rohr (T) vom Typ umfassend: 40
- eine Spule (2), auf die das Rohr (T) gewickelt werden kann, wobei die Spule (2) definiert ist durch ein Paar Flansche (3,3'), entgegengesetzt und verbunden durch eine Aufwickelrolle (4); 45
  - eine Basisoberfläche (5), oberseitig an der Spule (2) angeschlossen, und die unterseitig in Kontakt mit dem Boden (S) endet, wobei Basisoberfläche (5) eine Stützebene (P) für die Spule (2) auf dem Boden (S) definiert; 50
  - ein Greifelement (7), das auf der Oberseite frei ist und unterseits an der Spule angeschlossen ist, um die Stützvorrichtung (1) durch Anheben derselben, mindestens teilweise, vom Boden (S) zu bewegen; wobei genanntes Greifelement (7) bewegbar ist von einer ausgezogenen Posi-

tion, in der es eine Verlängerungshöhe (H) vom Boden (S) erreicht, zu einer zurückgezogenen Position, wo es eine Gesamtgrößenhöhe (h) vom Boden (S) erreicht, wobei die Verlängerungshöhe (H) größer ist als die Gesamtgrößenhöhe (h);  
genanntes Greifelement (7) ist, wenn in zurückgezogener Position, mindestens teilweise innerhalb der Basisoberfläche (5) eingenistet; genannte Oberfläche (5) umfassend:

- mindestens ein erstes und zweites rohrförmiges Element (6, 8), jedes umfassend einen oberen, am entsprechenden Flansch (3, 3') der Spule (2) angeschlossenen Abschnitt (6a, 8a), und einen unteren Abschnitt (6b, 8b), der relativ zum Boden (5) endet, um einen entsprechenden ersten und zweiten Stützpunkt (Q, Q') zu definieren;
- ein drittes und viertes rohrförmiges Element (9, 10), wobei jedes ein erstes oberes, an der Spule (2) angeschlossenes Endstück (9a, 10a) und ein zweites unteres Endstück (9b, 10b), das frei ist, hat;
- ein erstes Kreuzstück (11), das die zweiten unteren Endstücke (9b, 10b) verbindet;
- eine Achse (12), die am ersten Kreuzstück (11) permanent angeschlossen ist, drehbar gekoppelt mit ein paar Rädern (13, 14), wobei jedes einen dritten und einen vierten Stützpunkt (Q'', Q''') auf dem Boden (5) definiert;

genanntes Greifelement (7) umfassend:

- ein fünftes und sechstes rohrförmiges Element (15, 16), wobei jedes ein entsprechendes erstes unteres, am entsprechenden Flansch (3, 3') der Aufwickelspule (2) angeschlossenes Ende (15a, 16a) und ein entsprechendes zweites oberes Ende (15b, 16b), das frei ist, hat; wobei genanntes fünftes und sechstes rohrförmiges Element (15, 16) in Übereinstimmung mit dem ersten und zweiten rohrförmigen Element (6, 8) teleskopisch bewegbar sind, von einer völlig ausgezogenen Position, wo das Greifelement (7) in der ausgezogenen Position davon ist, zu einer völlig eingezogenen Position, wo das Greifelement (7) in der zurückgezogenen Position davon ist;
- ein zweites Kreuzstück (17), das genannte zweite obere Enden (15b, 16b) verbindet;

**dadurch gekennzeichnet, dass** genannte Spule für jeden Flansch (3,3') eine zentrale Region (19, 19') umfasst, umfassend:

- einen ersten Sitz (20, 20') zum Aufnehmen jeweils des ersten oberen Abschnitts (6a, 8a) des ersten und zweiten rohrförmigen Elements (6, 8);
  - einen zweiten Sitz (21, 21') zum Aufnehmen jeweils des ersten oberen Endstücks (9a, 10a) des dritten und vierten rohrförmigen Elements (9, 10);
  - einen dritten Sitz (22, 22') zum Aufnehmen jeweils des ersten unteren Endes (15a, 16a) des fünften und sechsten rohrförmigen Elements (15, 16).
2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** genanntes Greifelement (7) mit genannter Basisoberfläche (5) teleskopisch gekoppelt ist.
3. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** jeder erste und dritte Sitz (20, 20', 22, 22') ein Verriegelungselement (23) umfasst, umfassend eine Blattfeder (24), die mit einem Vorsprung endet (25); wobei genannte Blattfeder in ein Loch (26) passt, das innerhalb eines entsprechenden rohrförmigen, der Basisoberfläche (5) gehörenden Elements (6, 8, 9, 10) geformt ist.
4. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** jeder zweite Sitz (21, 21') eine Gewindevorlängerung (27) umfasst, die an eine Ringmutter (28) gekoppelt werden kann; wobei genannte Ringmutter (28) umschaltbar ist von einer offenen Position, wo das Gleiten des fünften und sechsten rohrförmigen Elements (15, 16) in die ersten und zweiten rohrförmigen Elemente (6, 8) erlaubt ist, zu einer geschlossenen Position, wo genanntes Gleiten verhindert ist.
5. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** es außerdem eine Kurbel (29) umfasst, um die Drehung der Spule (2) um eine Achse (X-X) der Rolle (4) zu erleichtern.

## Revendications

1. Dispositif de support pour un tuyau (T) du type comprenant:
- un enrouleur (2), sur lequel peut être enroulé le tuyau (T), l'enrouleur (2) étant défini par une paire de brides (3, 3') opposées et unies par un rouleau d'enroulement (4);
  - une surface de base (5), raccordée dans le haut à l'enrouleur (2) et terminant dans le bas en contact avec le sol (S), la surface de base (5) définissant un plan d'appui (P) pour l'enrouleur (2) sur le sol (S);

- un élément de préhension (7), qui est libre sur sa partie supérieure et raccordé dans le bas à l'enrouleur pour déplacer le dispositif de support (1) en le soulevant, au moins partiellement, du sol (S); ledit élément de préhension (7) étant mobile d'une position de développement dans laquelle il atteint une hauteur d'élongation (H) depuis le sol (S), à une position de contraction dans laquelle il atteint une hauteur d'encombrement (h) depuis le sol (S), la hauteur d'élongation (H) étant supérieure à la hauteur d'encombrement (h);

ledit élément de préhension (7), dans sa position de contraction, est au moins partiellement emboîté dans la surface de base (5);

ladite surface de base (5) comprenant:

- au moins un premier et un second éléments tubulaires (6, 8), comprenant chacun une partie supérieure (6a, 8a) raccordée à la bride respective (3, 3') de l'enrouleur (2), et une partie inférieure (6b, 8b) se terminant au niveau du sol (5), de sorte à définir un premier et un second points de support (Q, Q') respectifs;
- un troisième et un quatrième éléments tubulaires (9, 10), ayant chacun une première extrémité terminale supérieure (9a, 10a) raccordée à l'enrouleur (2) et une seconde extrémité terminale inférieure (9b, 10b) qui est libre;
- une première traverse (11) raccordant les secondes extrémités terminales inférieures (9b, 10b);
- un axe (12), raccordé en permanence à la première traverse (11), accouplé de façon rotative à une paire de roues (13, 14), définissant chacune un troisième et un quatrième points de support (Q", Q''') sur le sol (5);

ledit élément de préhension (7) comprenant:

- un cinquième et un sixième éléments tubulaires (15, 16), ayant chacun une première extrémité inférieure respective (15a, 16a) raccordée à la bride respective (3, 3') de l'enrouleur (2) et une seconde extrémité supérieure respective (15b, 16b) qui est libre; lesdits cinquième et sixième éléments tubulaires (15, 16) étant mobiles de manière télescopique à l'intérieur du premier et second éléments tubulaires correspondants (6, 8) d'une position de développement total, dans laquelle l'élément de préhension (7) se trouve dans sa position de développement, à une position de contraction totale, dans laquelle l'élément de préhension (7) se trouve dans sa position rentrée;
- une seconde traverse (17) raccordant lesdites

secondes extrémités supérieures (15b, 16b);

**caractérisé en ce que** ledit enrouleur (2) comprend, pour chaque bride (3, 3'), une région centrale (19, 19') comprenant:

5

- un premier logement (20, 20') pour recevoir respectivement la première partie supérieure (6a, 8a) du premier et du second éléments tubulaires (6, 8);

10

- un second logement (21, 21') pour recevoir respectivement la première extrémité terminale supérieure (9a, 10a) du troisième et du quatrième éléments tubulaires (9, 10);

- un troisième logement (22, 22') pour recevoir respectivement la première extrémité inférieure (15a, 16a) du cinquième et du sixième éléments tubulaires (15, 16).

15

2. Dispositif selon la revendication 1, **caractérisé en ce que** ledit élément de préhension (7) est accouplé de manière télescopique à l'intérieur de ladite surface de base (5).

20

3. Dispositif selon la revendication 1, **caractérisé en ce que** chaque premier et troisième logement (20, 20', 22, 22') comprend un élément de verrouillage (23) comportant un ressort à lames (24) se terminant par une saillie (25); ledit ressort à lames étant placé dans un trou (26) formé à l'intérieur d'un élément tubulaire respectif (6, 8, 9, 10) appartenant à la surface de base (5).

25

30

4. Dispositif selon la revendication 1, **caractérisé en ce que** chaque second logement (21, 21') comprend un prolongement fileté (27) qui peut s'accoupler à un écrou à boucle (28); ledit écrou à boucle (28) pouvant passer d'une position d'ouverture, où le coulisement du cinquième et du sixième éléments tubulaires (15, 16) à l'intérieur du premier et du second éléments tubulaires (6, 8) est permis, à une position de fermeture dans laquelle ledit coulisement est interdit.

35

40

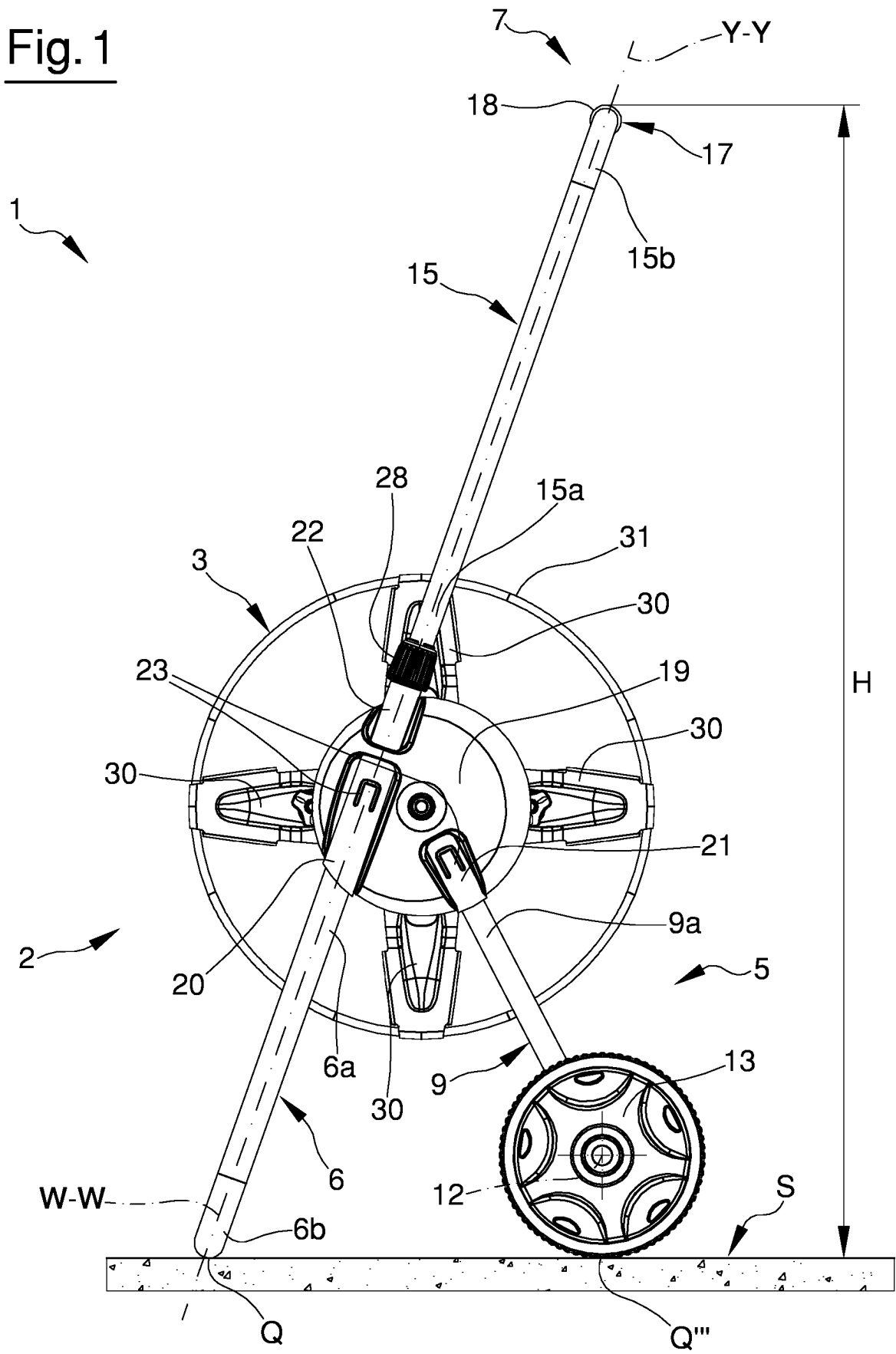
5. Dispositif selon la revendication 1, **caractérisé en ce qu'il** comprend aussi une manivelle (29) pour faciliter la rotation de l'enrouleur (2) autour d'un axe (X-X) du rouleau (4).

45

50

55

Fig. 1





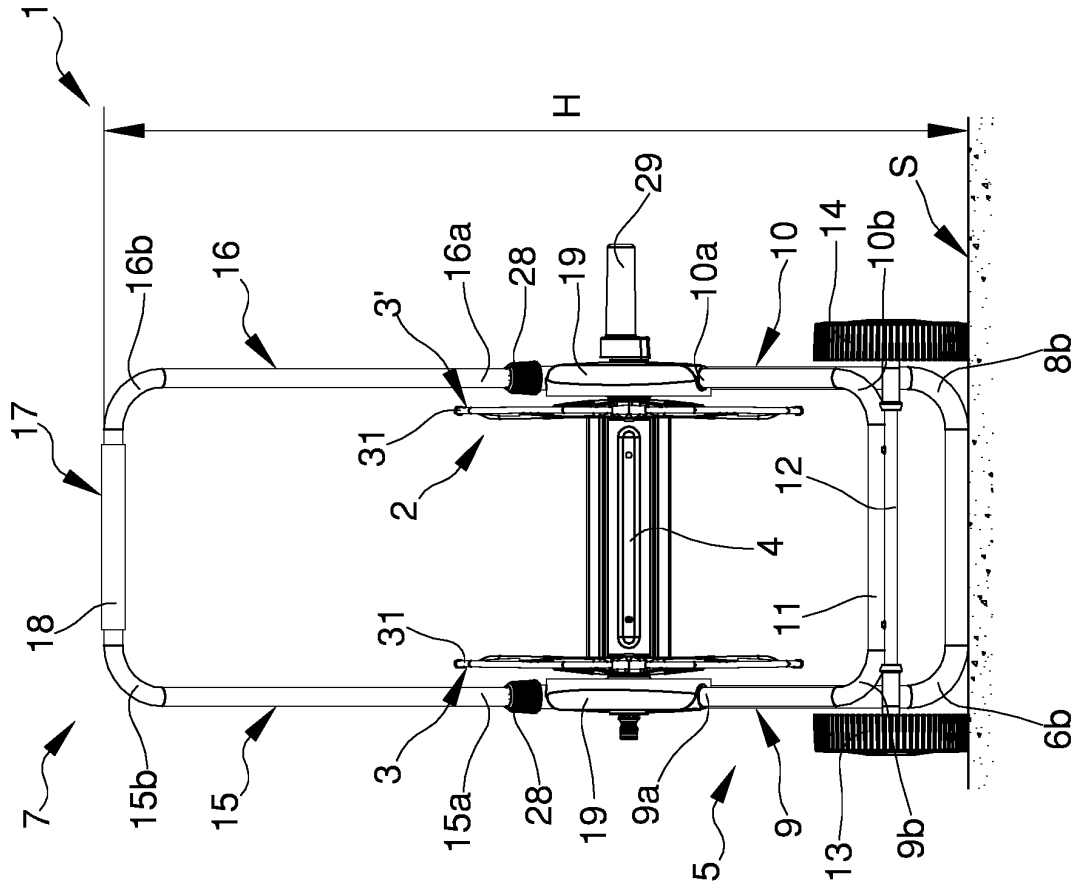


Fig. 3

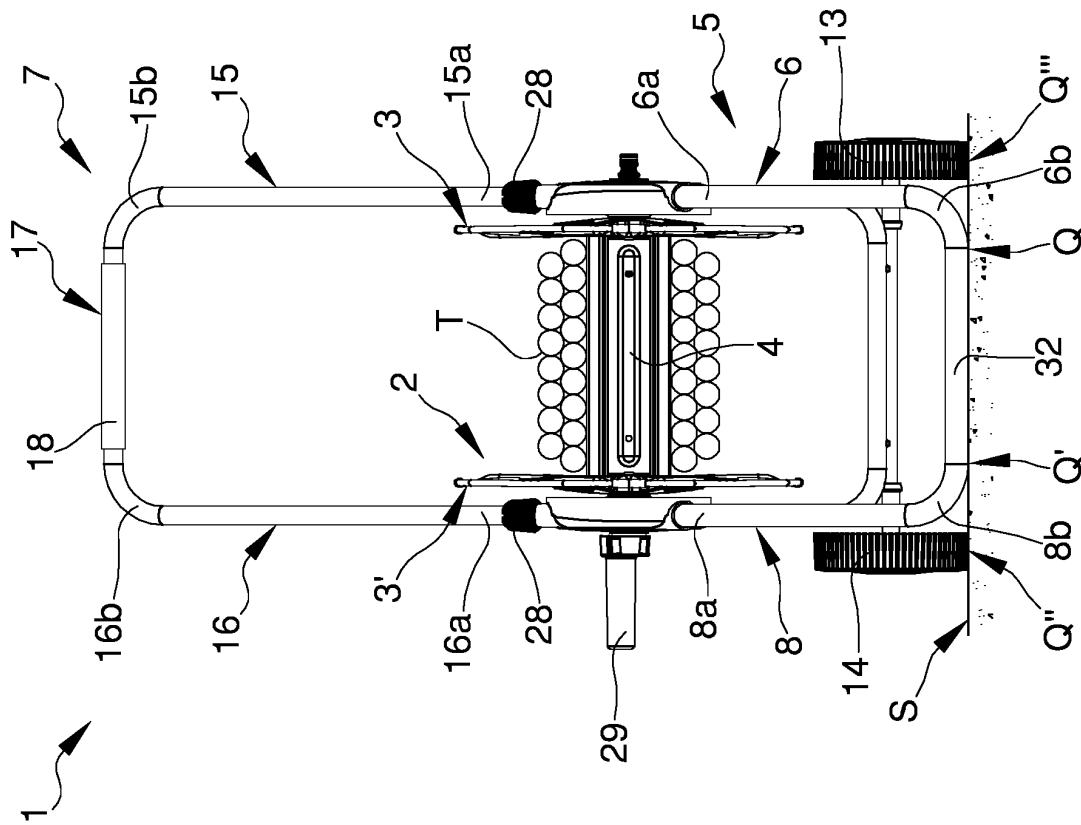
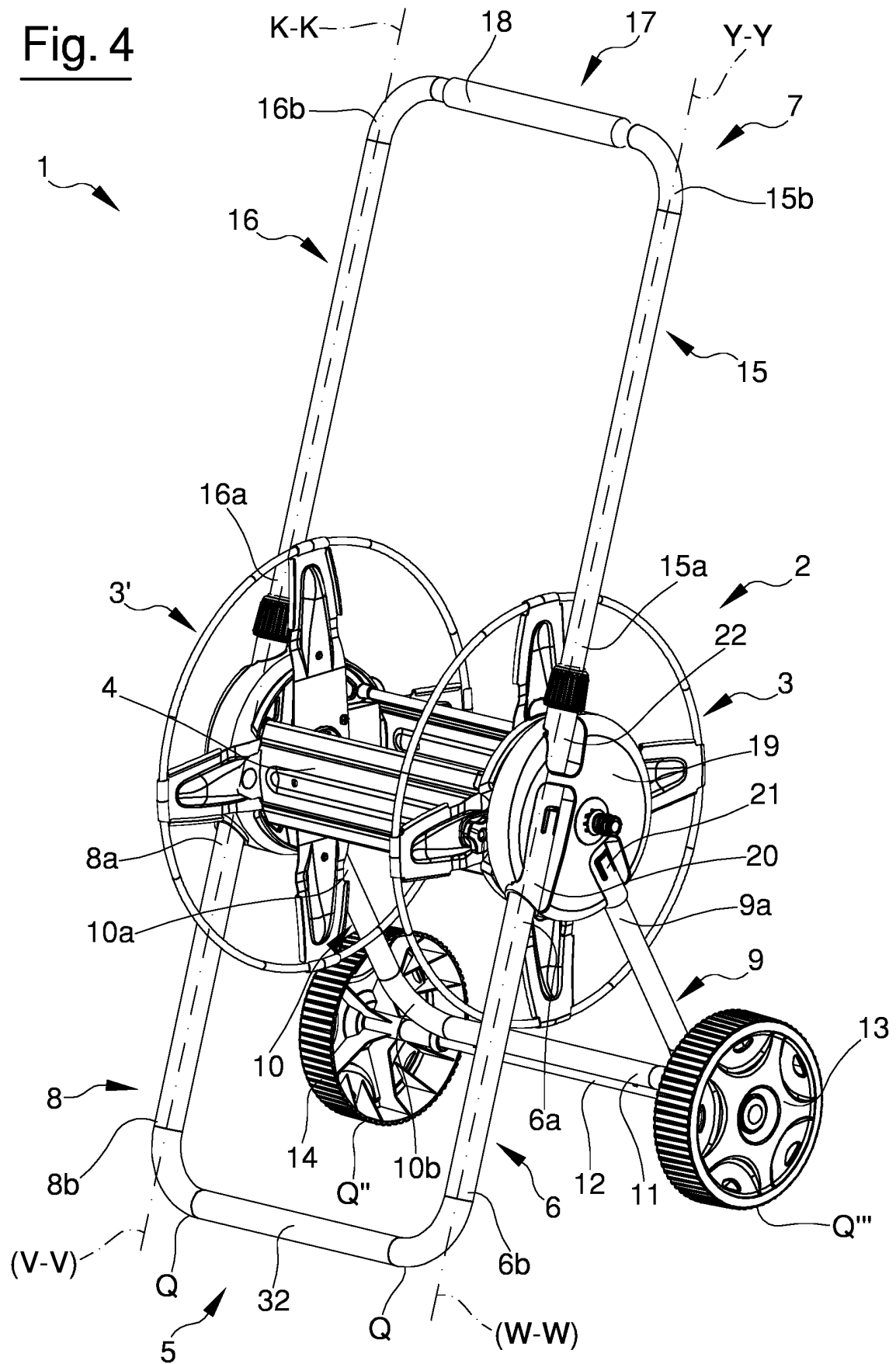


Fig. 2

**Fig. 4**



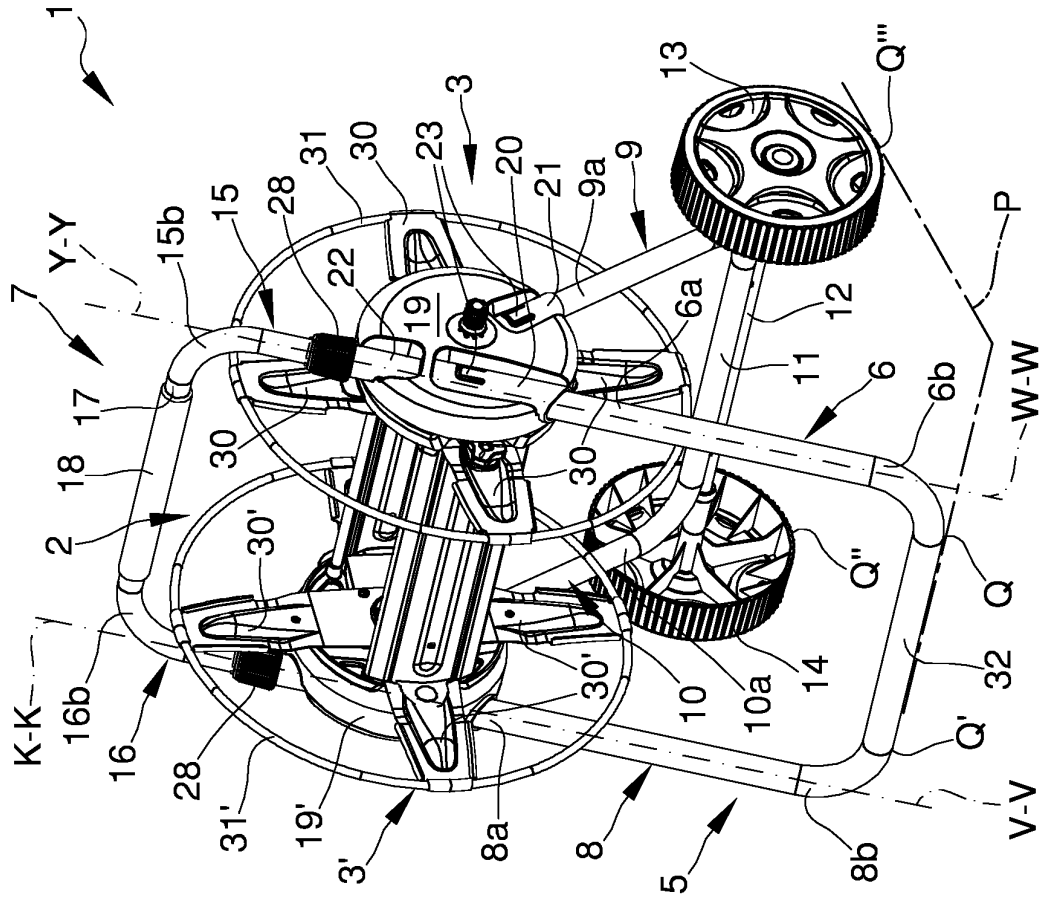


Fig. 6

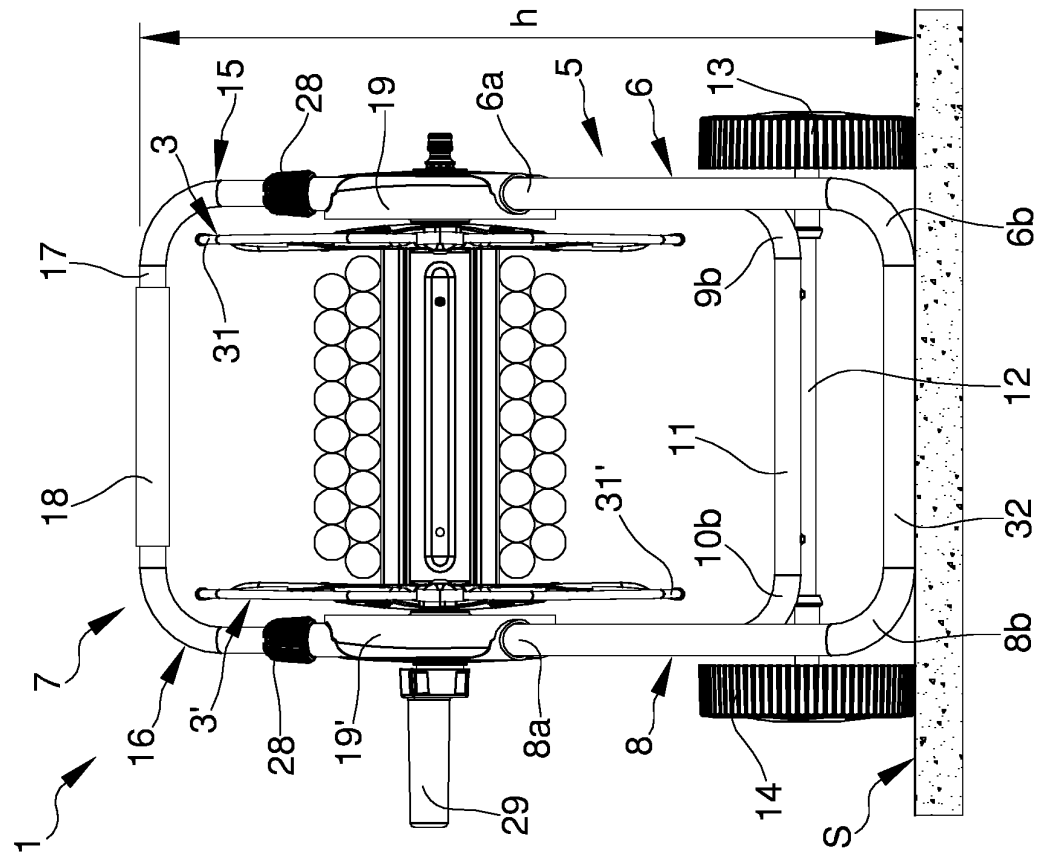
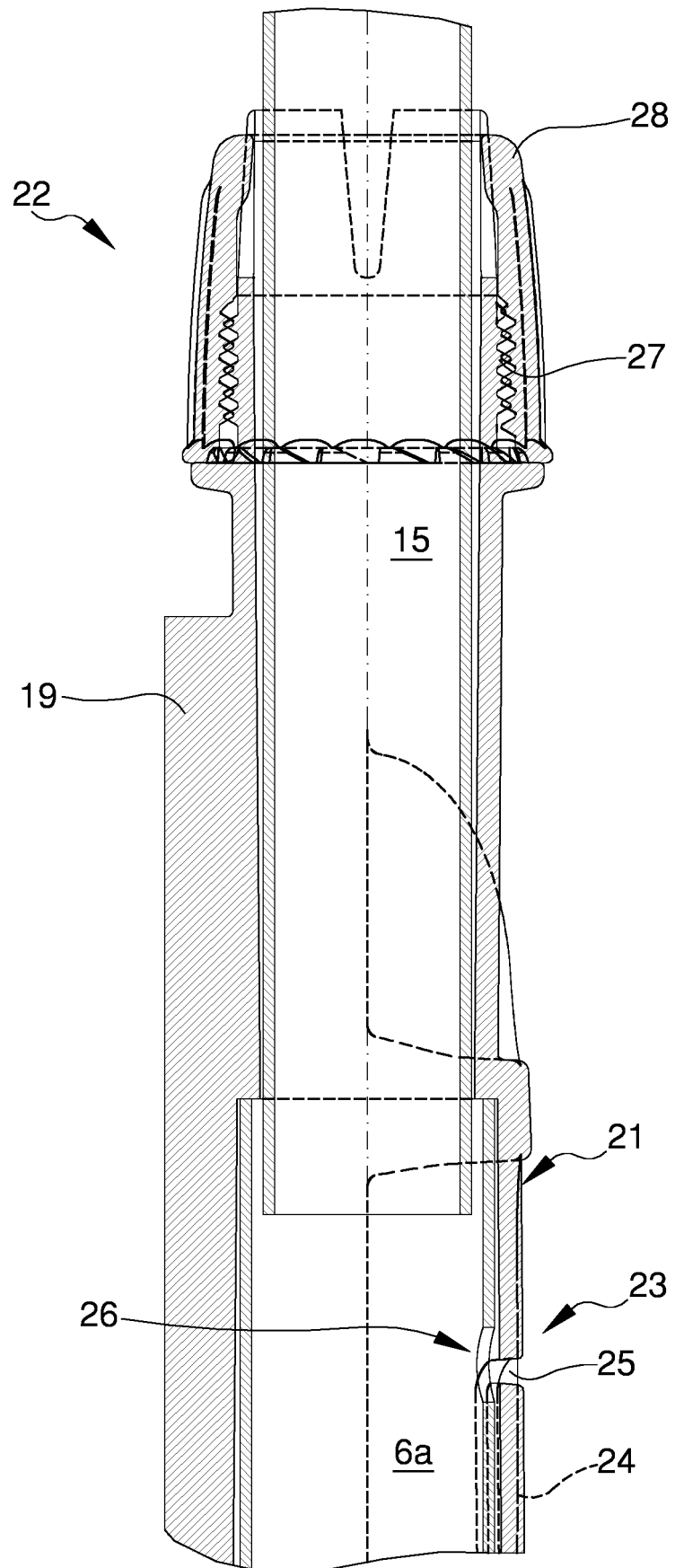


Fig. 5

Fig. 7



**REFERENCES CITED IN THE DESCRIPTION**

*This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.*

**Patent documents cited in the description**

- US 2005247345 A [0008]
- EP 2397432 A [0008]