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(54) **Prop for construction work**

(57) The prop comprises a device for the quick decoupling of the lower portion which rests on the ground and the upper portion which supports the load, consisting of a part carrying stepped recesses in the form of castellated parts on its upper edge and another part carrying stops which can be supported on the bottom of said stepped grooves or on the upper steps thereof, in which the stepped recesses are produced on the upper edge of the screw nut, which adjusts the height of the prop, and the stops which can rest the bottom of the grooves or on the upper steps thereof are produced on a rotating part which receives the load of the upper portion of the prop and which similarly receives the action of an internal spring.

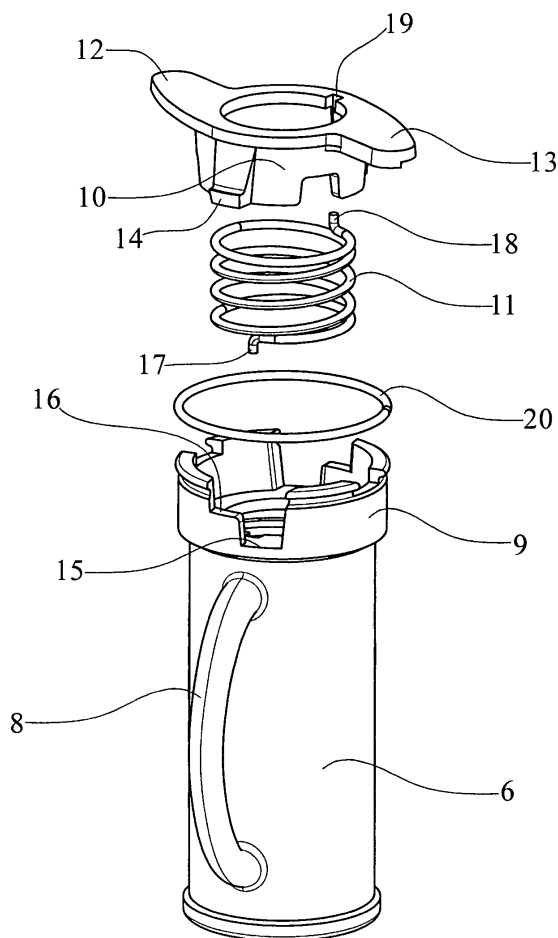


FIG.4

Description

[0001] The present invention relates to a prop for construction work which has substantial features of novelty and inventive step in relation to those currently known.

[0002] The prop for construction work according to the present invention belongs to the type of easily disassembled props which are used preferably with reinforced concrete structures to support elements of the formwork structure which should make the partial disassembly thereof possible, in such a way that after a short period in which the concrete structure sets, a substantial number of the formwork support elements can be disassembled for use in other places which are usually on the said construction work.

[0003] For quick handling when disassembling props, the same inventor of the current invention has previously developed other devices for said purpose, such as was disclosed in the Spanish Patent, application number 200401355, for example.

[0004] The present invention is intended to allow quick decoupling of the prop, thereby providing particular functional safety features. The present invention directly relates to the aforementioned invention, in which an intermediate rotating part carries a castellated bushing with stepped grooves, resulting in two regions for coupling a second part, which is mounted above the first part and transmits the prop load, in such a way that in the working position it must abut against the high portion of the steps and at the moment of disassembly it must abut against the bottom of the openings of said castellated part, once the castellated part has been rotated.

[0005] The prop which is the subject of the present invention belongs to the aforementioned type but has substantial safety features with regard to preventing errors when positioning the parts. This is because the parts are automatically arranged in the given way so that they function without the possibility of error being made on the part of the operator who positions the prop, since the prop has its own means to automatically place into the appropriate operating positions the two aforementioned parts, i.e. the part carrying the castellated part and the vertically displaceable upper part.

[0006] The present invention specifically proposes that the castellated part be incorporated into the internally-threaded bushing or "screw nut", which adjusts the height of the prop, whilst the rotating upper part carries the stops to be aligned with the step of the grooves of the castellated part, as well as the rotationally-actuating wings and the internal stops which prevent said part from exiting upwards. The device comprises a helical spring which works under simultaneous torsion and compression and drives the displaceable upper part in rotation to position it in the appropriate abutment position on the upper steps of the castellated part.

[0007] For a better understanding, a preferred embodiment of the present invention is illustrated, by way of an explanatory but not limiting example, in the accompany-

ing drawings, in which:

Fig. 1 shows a perspective view of an entire prop produced according to the present invention.

Figs. 2 and 3 show perspective views of the device which allows quick disassembly of the prop, in the working position and the disassembly position respectively.

Fig. 4 shows an exploded view of the device of Figures 2 and 3.

Figs. 5 and 6 show perspective views of the device for quick lock release which correspond to the positions shown in Figs. 2 and 3 respectively.

[0008] As is seen in Fig. 1, the prop comprises a lower element 1 for resting on the ground and an upper element 2 against which a part of the formwork support structure abuts. Said portion 2 of the prop has orifices 3 for adjusting the height of the prop by means of a ring-shaped pin 4. A device 5 for quick decoupling is incorporated into the upper part of the element 1 of the prop and comprises an internally-threaded bushing 6 or "screw nut" fitted with handles 7 and 8 for manipulation thereof, and an integral upper ring 9 which carries a castellated part formed by at least two diametrically opposed stepped grooves, in which the abutting region of the upper part 10 is accommodated. Said upper part 10 transmits the prop load and, in the working position, rotates under the action of an internal torsion-compression spring 11 shown in Fig. 4, and, in the release position, is vertically displaced under the action of said load, which is transmitted by the upper element of the prop 2.

[0009] The upper part 10 carries the wings 12 and 13 which allow easy rotational manipulation thereof and, in addition, on their lower edge, have projecting stops 14, only one of which can be seen in Fig. 4. Said projecting stops 14 are intended to abut by one portion against the bottom 15 of the stepped openings of the upper part 9 of the screw nut 6 in the disassembly position, and against the upper steps 16 of said part in the working position.

[0010] As indicated, the working position, in other words, that position in which the stops 14 abut against the steps 16, is achieved under the action of an internal torsion-compression spring 11 having terminals 17 and 18 for coupling in an internal groove of the screw nut 6 and a groove 19 of the part 10 respectively.

[0011] It can therefore be observed that the positioning of the part 10 in relation to the screw nut 6 occurs automatically under the action of the spring 11 corresponding to the raised position of said part in which the stops 14 are arranged on the upper steps 16, (figure 5). In this way, there is no possibility of error when positioning the prop. Quick decoupling is carried out by rotation of the part 10 acting on the small wings 12 and 13, possibly by means of impact, and therefore, after partial rotation of said part 10, when the stops 14 are brought face-to-face with the recesses which have the bottom 15, the load which acts on the upper part of the prop causes the prop

to descend, overcoming the action of the spring and remaining in the release position, (figure 6).

[0012] To prevent the part 10 from detaching upwardly under the action of the spring 11, the stops 14 project slightly towards the exterior, i.e. radially, and therefore about in their upper position against a collar 20 incorporated into the upper ring 9 of the part 6. 5

[0013] As will be understood, although the invention has been illustrated and described with reference to a specific example, the example is not limiting and a number of modifications are possible, provided that they are within the scope of the following claims. 10

Claims

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1. Prop for construction work, of the type which comprises a device for quick decoupling between the lower portion which rests on the ground and the upper portion which supports the load, consisting of a part carrying the recesses, which are stepped in castellation form on their upper edge, and another part carrying stops which are capable of abutting against the bottom of said stepped grooves or on the upper steps of said stepped grooves, **characterised in that** the stepped recesses are produced on the upper edge of the screw nut, which adjusts the height of the prop, and the stops which can rest on the bottom of the grooves or on their upper steps are produced on a rotating part which receives the load of the upper portion of the prop and which similarly receives the action of an internal spring, which, in the rest position, brings about the automatic arrangement of said rotating part with the stops thereof abutting against the upper steps of said grooves. 20 25 30 35
2. Prop for construction work according to claim 1, **characterised in that** the spring for automatically placing the rotating part into position consists of a helical spring with end terminals accommodated in the screw nut and the rotating part respectively, simultaneously producing compression and torsion stress on said rotating part. 40
3. Prop for construction work according to claim 1, **characterised in that** the rotating part is fitted with stops for alignment with the bottom of the stepped grooves or with the upper steps thereof, depending on the position of rotation, and which in addition have outwardly radial projections for abutment against a fixed part connected to the screw nut, in order to prevent the rotating part from being expelled under action of the spring, once said rotating part is automatically arranged in the working position. 45 50 55
4. Prop for construction work according to claim 3, **characterised in that** the fixed part for receiving the radial projections of the rotating part, which prevent

it from coming out, consists of a resilient ring incorporated into a peripheral groove of the screw nut, which adjusts the height of the prop.

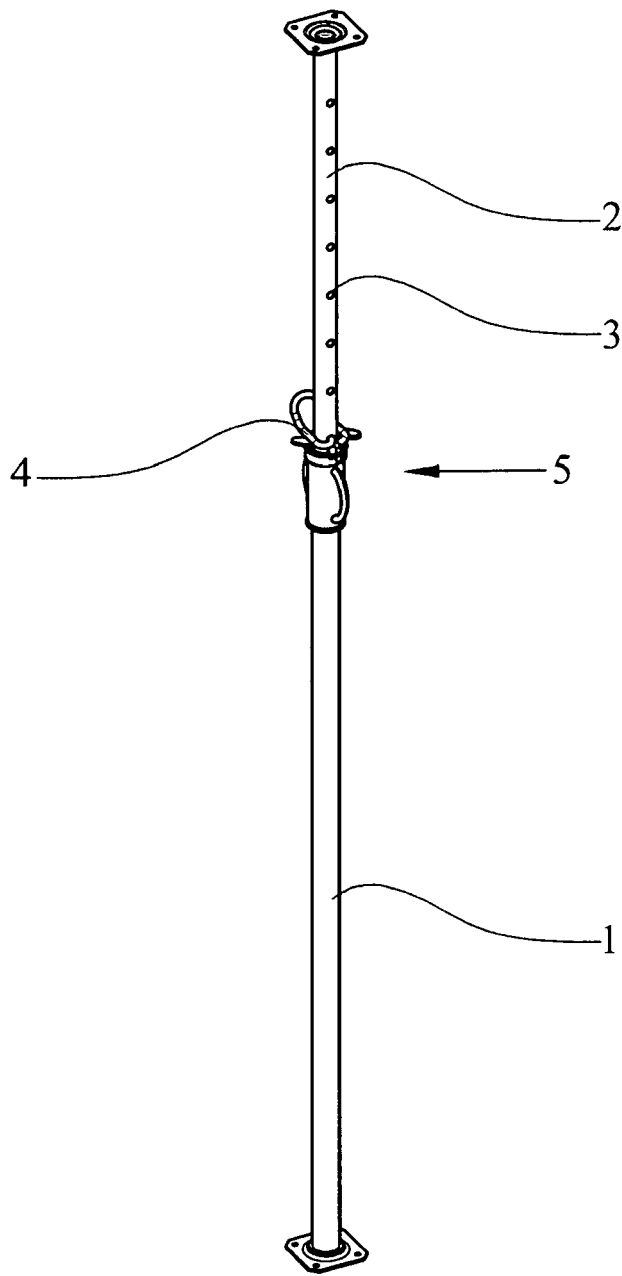


FIG.1

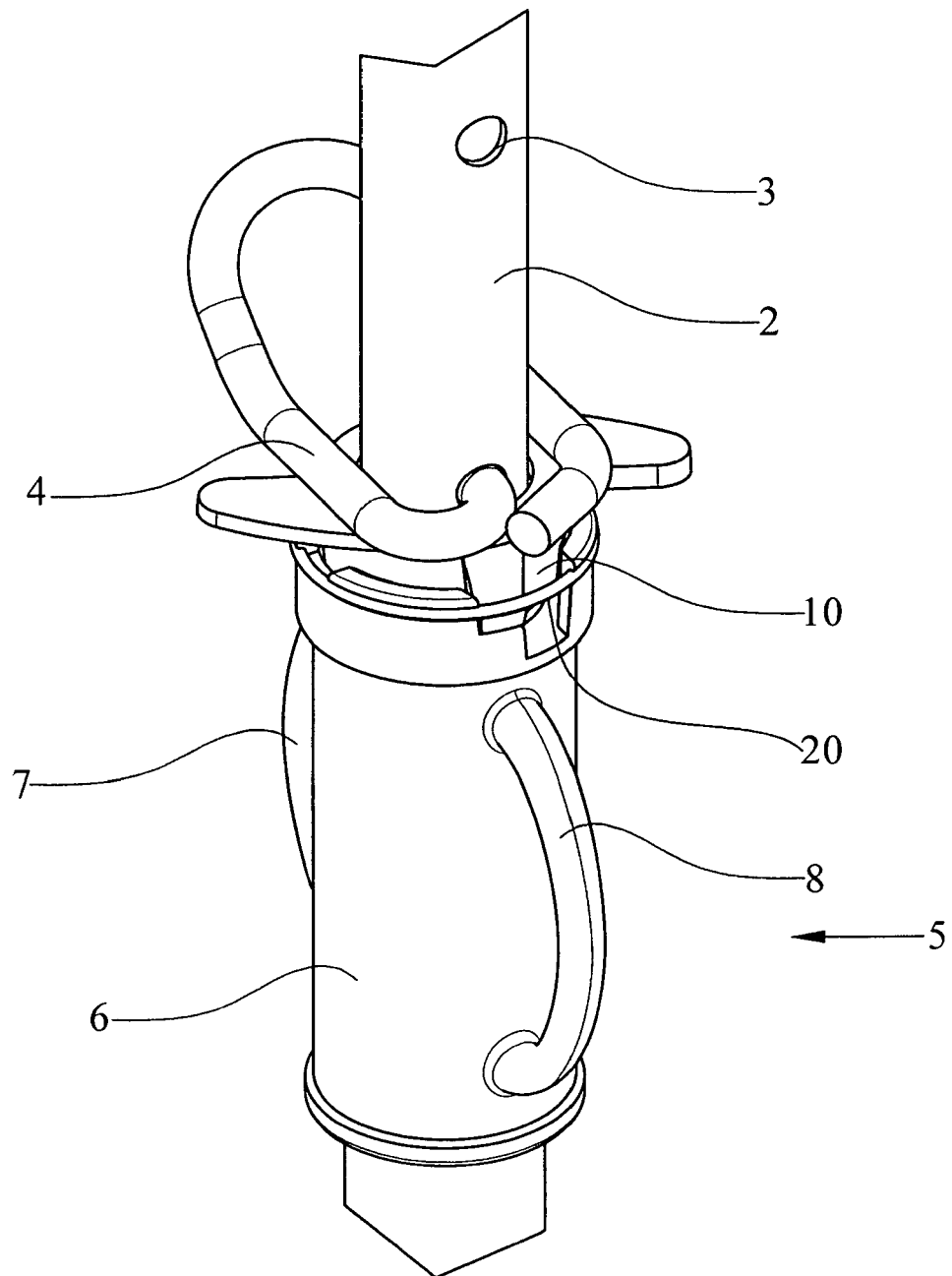


FIG.2

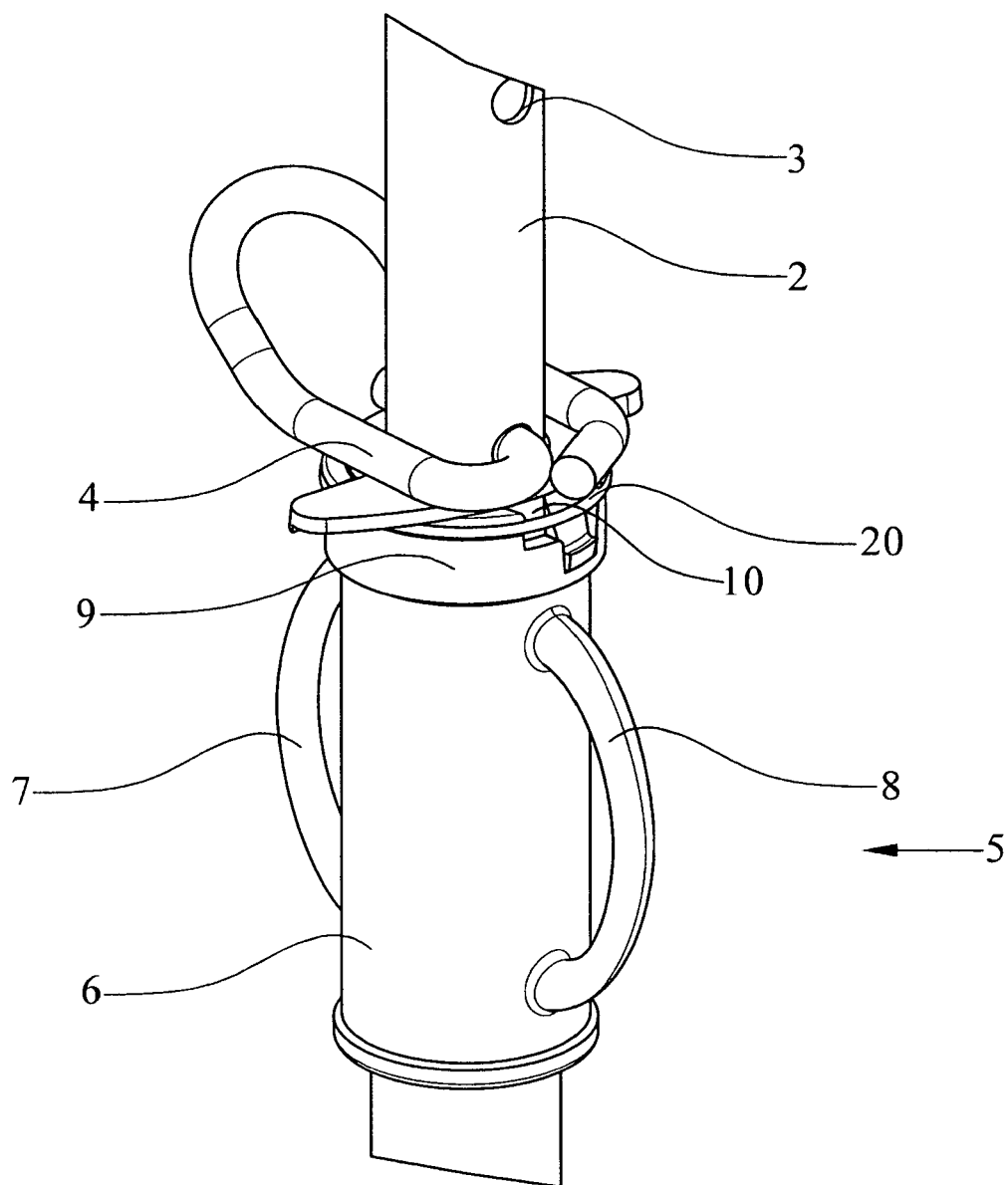


FIG.3

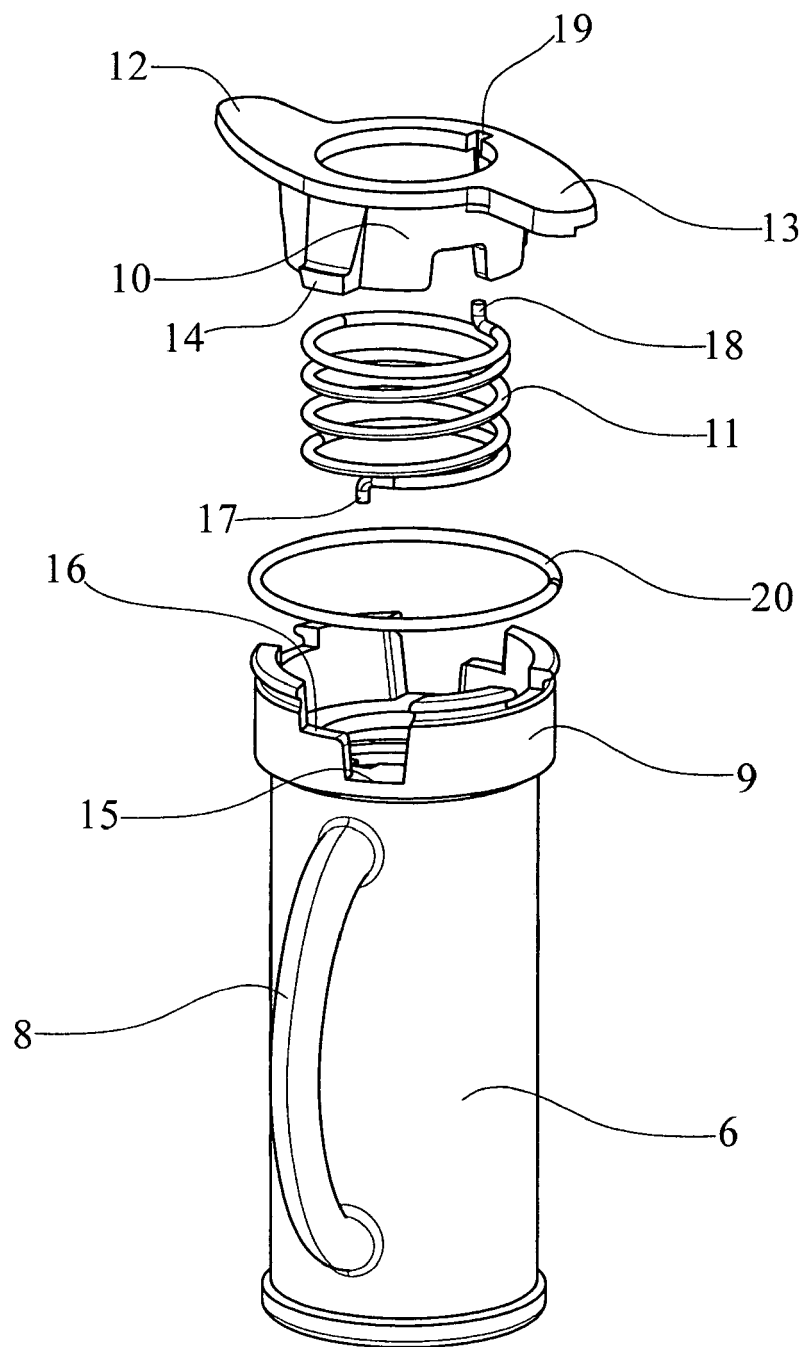


FIG.4

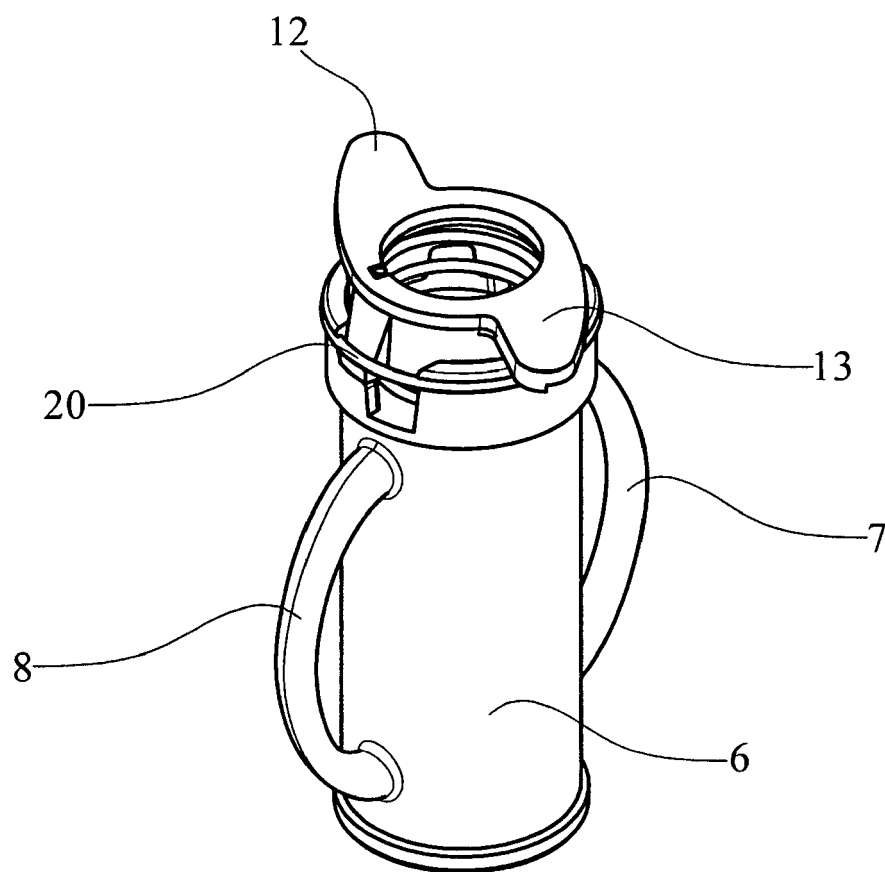


FIG.5

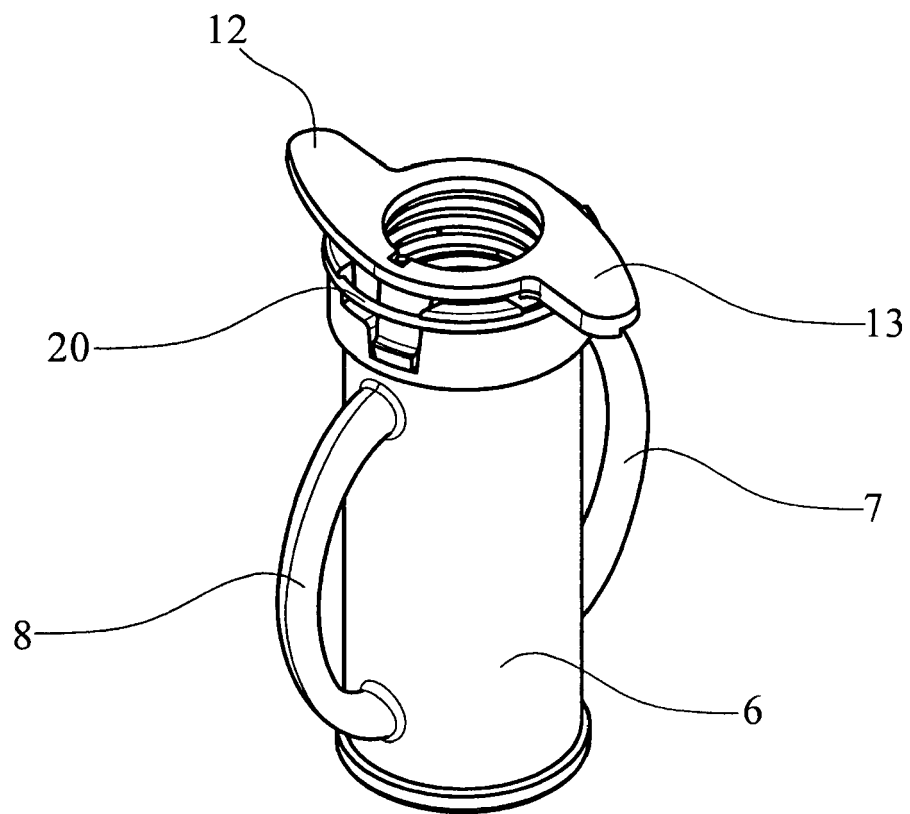


FIG.6

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- ES 200401355 [0003]