(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 147 997**
A2

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **84308881.6**

(22) Date of filing: **19.12.84**

(51) Int. Cl.⁴: **E 03 C 1/304**

(30) Priority: **23.12.83 GB 8334395**

(43) Date of publication of application:
10.07.85 Bulletin 85/28

(84) Designated Contracting States:
AT BE CH DE FR GB IT LI LU NL SE

(71) Applicant: **Drummond, Desmond Charles**
Harlech House Bury Road
Newmarket Suffolk CB8 7BY(GB)

(72) Inventor: **Drummond, Desmond Charles**
Harlech House Bury Road
Newmarket Suffolk CB8 7BY(GB)

(74) Representative: **Stringer, David Hiram et al,**
W.P. THOMPSON & CO Coopers Building Church Street
Liverpool L1 3AB(GB)

(54) Apparatus for use in unblocking waste outlets and the like.

(57) Apparatus comprises a body (1), handle (3) and a nozzle or cap (5). In order to direct fluid under pressure accurately into a waste outlet for the purpose of removing a blockage, the body (1) is hollow and has a bellows section (7) which is expansible and compressible in an axial direction. The body including the bellows is made from a plastics material. The nozzle (5) is adapted to fit on the body in one of two positions. One face (19) of the nozzle is convex and the other face is recessed to define a lip (21) and an inner co-axial shoulder which carries projections (25).

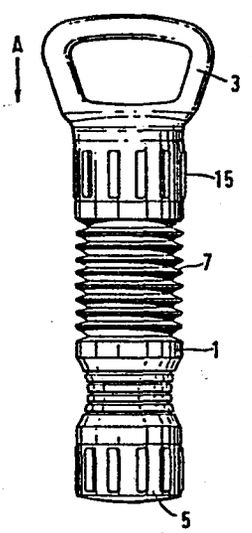

FIG.1

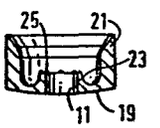

FIG.4

EP 0 147 997 A2

DESCRIPTION

"APPARATUS FOR USE IN UNBLOCKING WASTE OUTLETS AND THE LIKE"

The present invention relates to apparatus for use in unblocking waste outlets of sanitary systems, and in particular to a pump like device for use in unblocking sink, basin or bath outlets.

A simple and efficient device is required for unblocking waste outlets. A known apparatus comprises a rubber cup attached to a handle which is placed over the waste outlet and depressed in an effort to clear the drain. Unless the drain is completely blocked, such that liquid is retained in the sink or other such item, the known device can only produce low air pressure to assist in the unblocking.

It is an aim of the present invention to provide a more efficient device for unblocking drains.

According to the present invention there is provided apparatus for use in unblocking waste outlets of sanitary systems, comprising a hollow plastics body provided with a handle, an orifice leading from the hollow body and a cap or nozzle surrounding the orifice, the body having a bellows section which is expandable and collapsable respectively to draw fluid into the body and force fluid out of the body.

The body is formed by blow moulding and the handle may form an integral part of the body and is formed during the blow moulding. In an alternative construction, the handle is formed as a separate blow moulding and is adapted to be secured to the body. Preferably the handle is formed with an internal thread for mating engagement with a complimentary thread formed on the exterior of the body. The body is preferably formed with a reduced diameter section which is shaped like a

venturi. This serves to improve the hydraulic characteristics of the pump. Furthermore this section of the mould is reinforced to serve as a hand hold. The venturi is co-axial with the outlet orifice.

The cap or nozzle is preferably formed as a separate component which is arranged to be either threaded or or a push fit onto the end of the body. A threaded neck may be arranged to surround the outlet orifice for this purpose. The cap can be fitted onto the neck in either of two orientations and the shape of the cap is such as to enable it to mate with the outlets of sanitary wares such as sinks, wash hand basins, baths etc. One face of the cap has a convex surface which renders it particularly suitable for mating with conventional sink outlets, whilst the other face is recessed to render it suitable for mating with a rising plug waste outlet. Thus, the other face has a circumferential sealing lip and an inner co-axial part having a plurality of circumferentially spaced projections. The cap or nozzle is preferably formed as an injection moulding from a rubber type material having good sealing properties.

The apparatus of the present invention has the advantage that liquid can be drawn into the body of the device and subsequently forced out and into the drainage system. The reversible nozzle makes the apparatus readily adaptable for numerous outlet configurations.

The present invention will now be described with reference to the accompanying drawings; in which:-

Figure 1 is an elevation of the apparatus according to the present invention;

Figure 2 is an end view in the direction of the arrow A on Figure 1;

Figure 3 is an elevation of the pump body of a preferred embodiment, and

Figure 4 is a sectional view of the nozzle.

Referring more particularly to the drawings the apparatus of the invention comprises a hollow plastics body 1 which is provided with a handle 3 and a nozzle or cap 5. The body is conveniently formed by blow moulding and has a bellows section 7 which can be collapsed and expanded. An orifice leads into the interior of the body and a neck 9 surrounds the orifice. The neck is threaded externally to receive the nozzle or cap 5 which has a complimentary thread 11. Alternatively, the nozzle or cap is a push fit onto the neck which may be provided with circumferential projections for retaining purposes. The body has a reduced diameter portion 13 which is shaped like a venturi and which is reinforced to serve as a hand hold. The body is provided with axially spaced circumferential ribbing defining the reduced diameter portion 13. This portion is relatively rigid.

The handle 3 may be formed integrally with the body 1 during the moulding process, or alternatively, as shown in the illustrated embodiment may be formed separately and preferably as a blow moulding. The handle grip 17 is D-shaped which enables it to be gripped firmly for the purpose of expanding and collapsing the bellows section.

The end of the body is provided with a threaded portion, formed during the moulding operation and this is shaped to compliment an internal thread formed on the handle 3. The internal thread on the handle is formed by moulding an external thread on the handle and carefully controlling the wall thickness so that

an internal thread is formed simultaneously. To improve the finished appearance, the exterior is milled to produce the external circumferentially spaced longitudinal ribbing 15 and so disguise the thread. The thread form may be visible between the longitudinal ribs. As illustrated the longitudinal ribs are substantially rectangular and project perpendicular from the outer circumference of the handle. Other forms of ribs may be employed. Similarly shaped ribs are provided on the external circumference of the nozzle 5.

By making the handle as a separate component different colours of plastic can be used for the handle and body. Furthermore, more appropriate materials can be used for handle and body. Since the bellows section of body is required to concertina - Polypropylene or Polyethelene are suitable materials. The handle can also be made from these materials but cheaper P.V.C. can also be used if desired.

The nozzle or cap 5 is preferably made by injection moulding from a rubber like material exhibiting good sealing properties. One face 19 is convex which renders it suitable for mating with a plain circular outlet. The other face is recessed to define a circumferential lip 21. The lip is tapered away towards its sealing edge so as to produce a progressive resilience to the lip. The base of the recess is formed by a shoulder 23 which is co-axial with the thread 11. The shoulder carries circumferentially spaced projections 25. As shown, the nozzle is cut away from the shoulder 23. This is done to reduce the quantity of material employed. If necessary radial strengthening ribs may be provided between the central part defining the shoulder 23 and the outer circumferential wall 21.

The wall thickness of the body 1 varies along its length. For example, the bellows section will be approximately half the thickness of the remaining sections. The inclination of the bellows section determines the collapse. The body can be blow moulded from a 1" (25.4 mm) tube. A larger diameter tube is used in blow moulding the handle.

The apparatus acts as either a water or air pump when the bellows section is axially compressed. The fluid is forced out from the orifice during the depression stroke. The body is made from a plastic which is sufficiently durable and elastic to withstand the concertina action in use. The material naturally returns to its moulded shaped after compression.

The device is suitable for unblocking sink units, wash hand basins, baths, bidets, shower outlets and other types of water outlets fixed to water closet furnishings and water operated appliances, by fitting directly into or with adaption, over the waste pipes of the sanitary system. The method of unblocking the trap and adjacent pipework is to fill the device with water, place it in position and whilst holding firmly in position, operate the bellows section by use of the handle so exerting delivery of the water and any air under pressure and alternate suction to the blockage in the pipe work.

The recessed face of the nozzle is particularly useful for rising plug outlets and the projections prevent the rising plug from blocking off the orifice on the suction stroke of the bellows.

.....

CLAIMS

1. Apparatus for use in unblocking waste outlets of sanitary systems, characterised by a hollow plastics body (1) provided with a handle (3), an orifice (9) leading from the hollow body, and a cap or nozzle (5) surrounding the orifice, the body having a bellows section (7) which is expandable and collapsable respectively to draw fluid into the body and force fluid out of the body.

2. Apparatus as claimed in claim 1 in which the handle (3) is a separate component adapted to be secured to the body.

3. Apparatus as claimed in claim 2 in which the body (1) is formed with an external screw thread and the handle (3) is formed with an internal screw thread for mating engagement with the thread on the body.

4. Apparatus as claimed in claims 1, 2 or 3 in which the body and/or handle are formed from a plastics material by blow moulding.

5. Apparatus as claimed in any preceding claim in which the handle has a D-shaped grip.

6. Apparatus as claimed in any preceding claim in which the cap (5) is a separate component adapted to be fitted around the orifice (9) in either of two orientations.

7. Apparatus as claimed in claim 6 in which one face (19) of the cap (5) is convex and the other face is recessed.

8. Apparatus as claimed in claim 7 in which the recessed face comprises an outer sealing lip (21) and an inner co-axial part having a plurality of circumferentially spaced projections (25).

9. Apparatus as claimed in any preceding claim in which the cap or nozzle (5) is formed from a rubber type material which is resilient to provide good sealimg qualities.

10. Apparatus as claimed in any preceding claim in which the bellows section (7) is expansible and contractible in the axial direction.

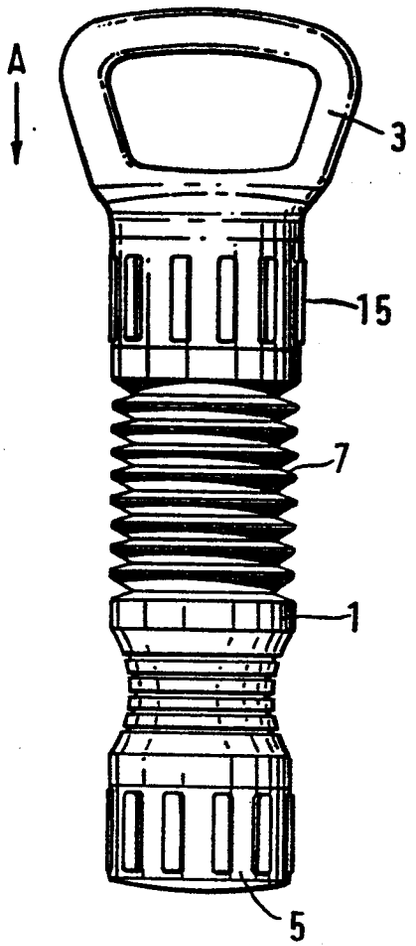

FIG.1

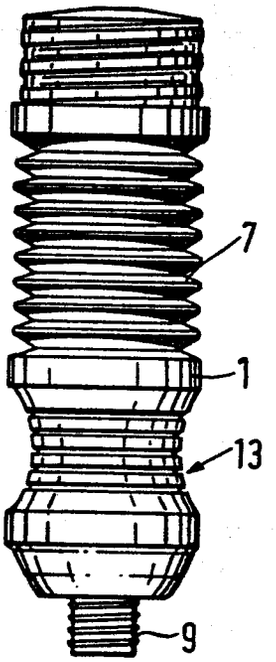

FIG.3

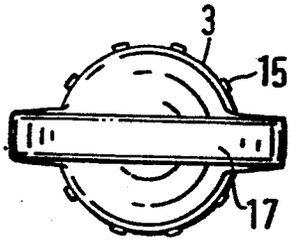

FIG.2

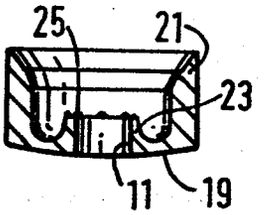

FIG.4