(12) UK Patent Application (19) GB (11) 2 291 663 (13) A

(43) Date of A Publication 31.01.1996

(21) Application No 9513495.3

(22) Date of Filing 03.07.1995

(30) Priority Data
(31) 9413363 (32) 02.07.1994 (33) GB
9505979 24.03.1995

(71) Applicant(s)
John Hazeldine Shipsides
16 Gossamer Lane, Aldwick, BOGNOR REGIS,
West Sussex, PO21 3AY, United Kingdom

(72) Inventor(s)
John Hazeldine Shipsides

(74) Agent and/or Address for Service
Nigel Brooks
Hill Hampton, East Meon, PETERSFIELD, Hampshire,
GU32 1QN, United Kingdom

(51) INT CL^6
E02F 3/02

(52) UK CL (Edition O)
E1F FWGC
A4F FD11 FSSC

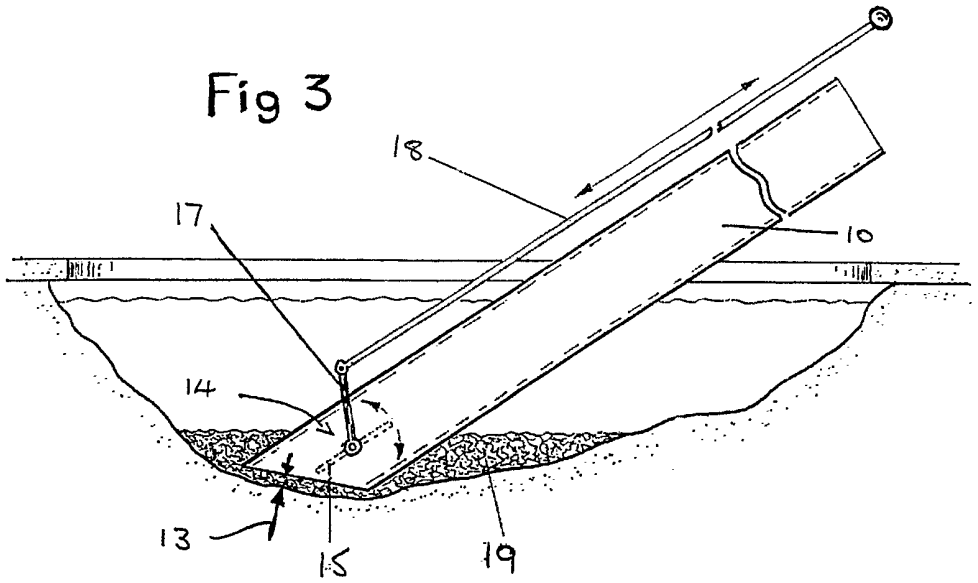
(56) Documents Cited
None

(58) Field of Search
UK CL (Edition N) A4F FNS FSSC , E1F FWGC FWHAQ
INT CL^6 E02F 3/02
Online: WPI

(54) Material remover

(57) A sludge remover comprises a plastics tube 10 having an obliquely cut end, whereby it can be lowered to the bottom of a pond at an oblique angle to provide a small gap 13 between the edge of the tube and the bottom of the pool. Within the end of the tube there is provided a butterfly valve 14, comprising a flap 15 mounted on a pivot pin. The pin is provided with a crank 17 outside the tube, to which is attached a rod 18 extending along the tube for operating the valve.

In use, the rod is pushed forwards to close the valve. The sludge remover is then pushed to the bottom of the pond, into the sludge 19 to be removed. The valve keeps the tube free of water. The rod is pulled back allowing the water to flow into the tube from the region occupied by the sludge. The water and with it the sludge will tend to flow right up the tube, to the surface level of the pond. Once the tube is full, the valve can be closed, and the tube removed with the water and the sludge.



GB 2 291 663 A

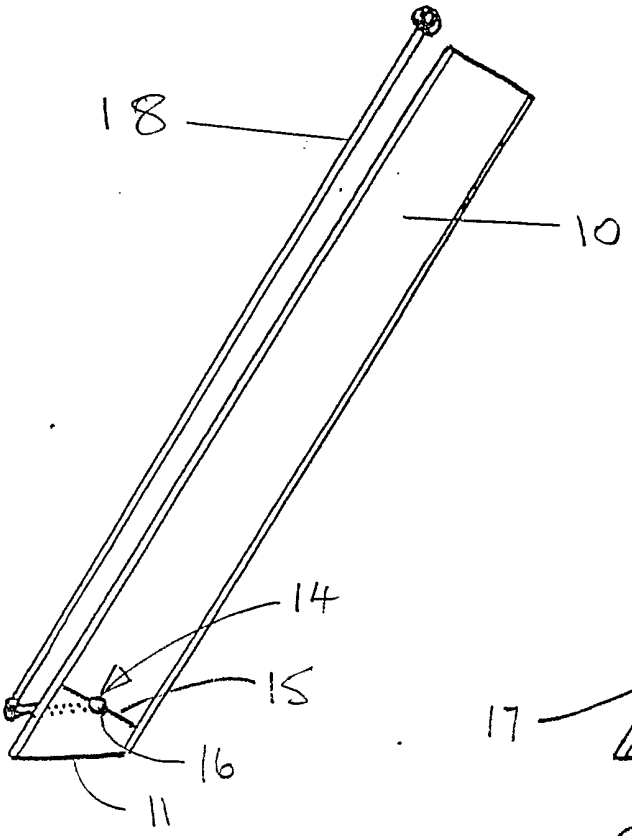


FIGURE 1

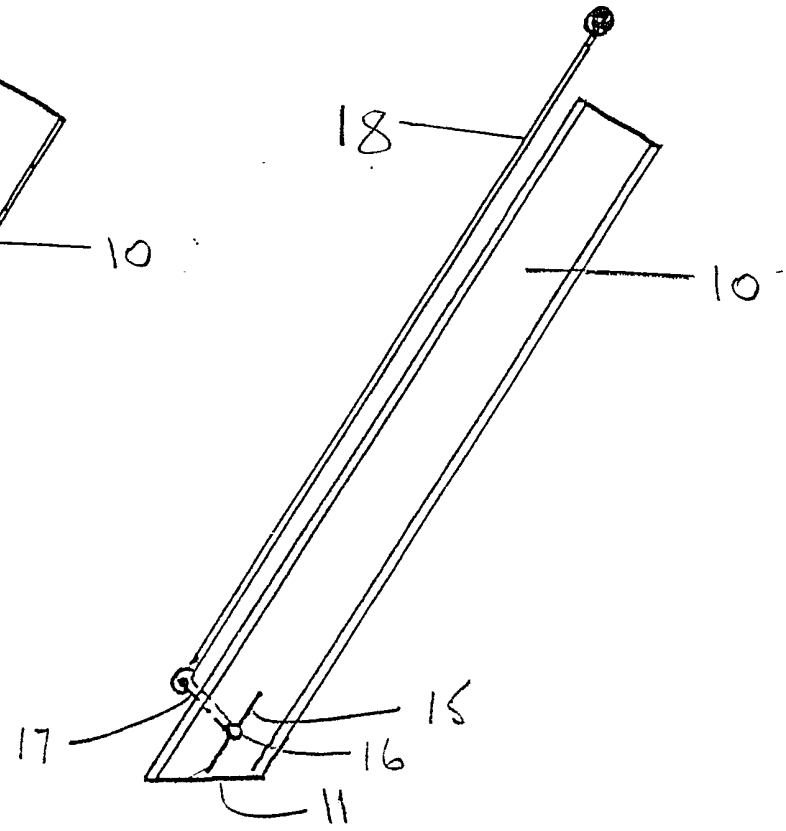


FIGURE 2

214

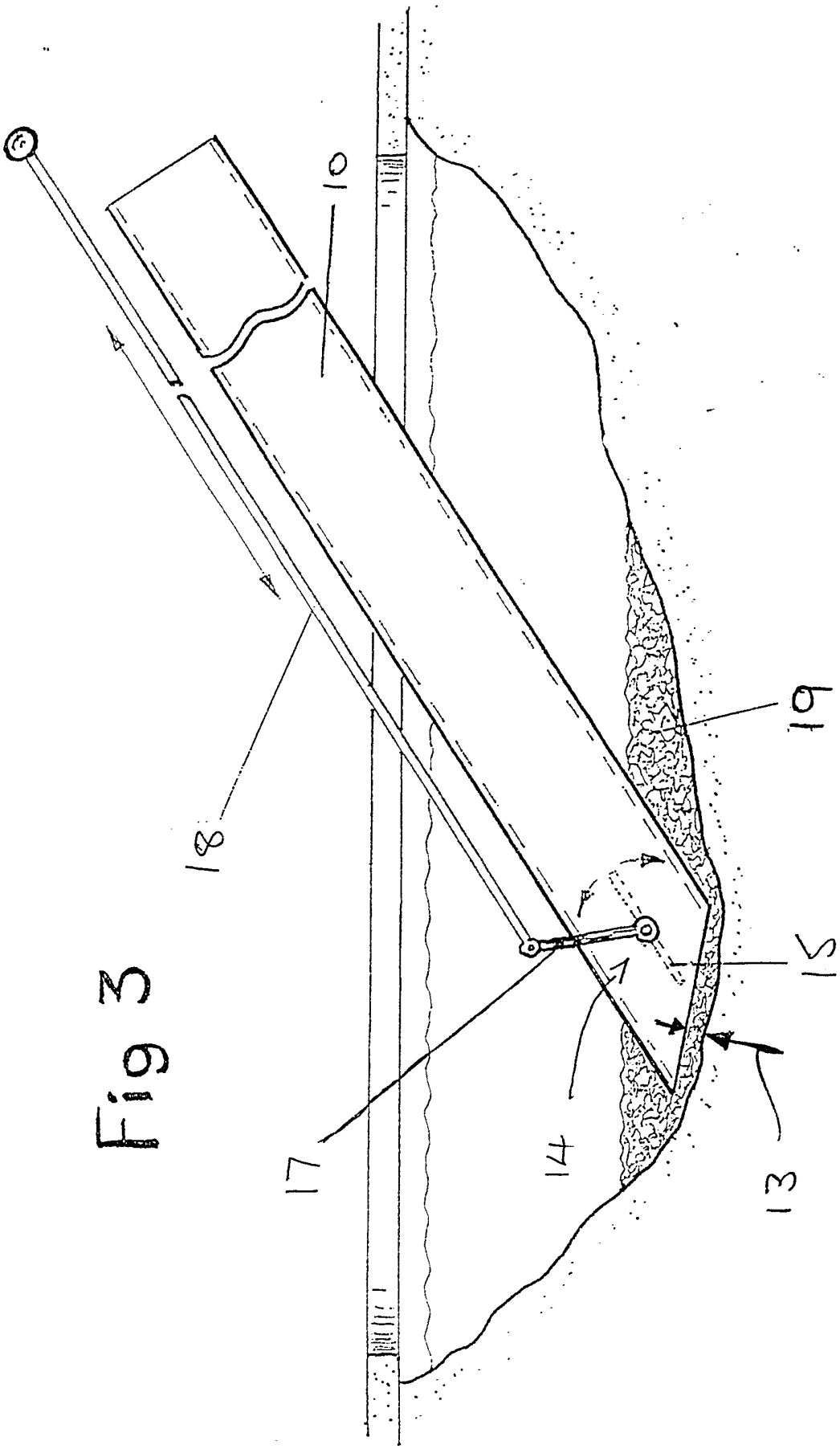
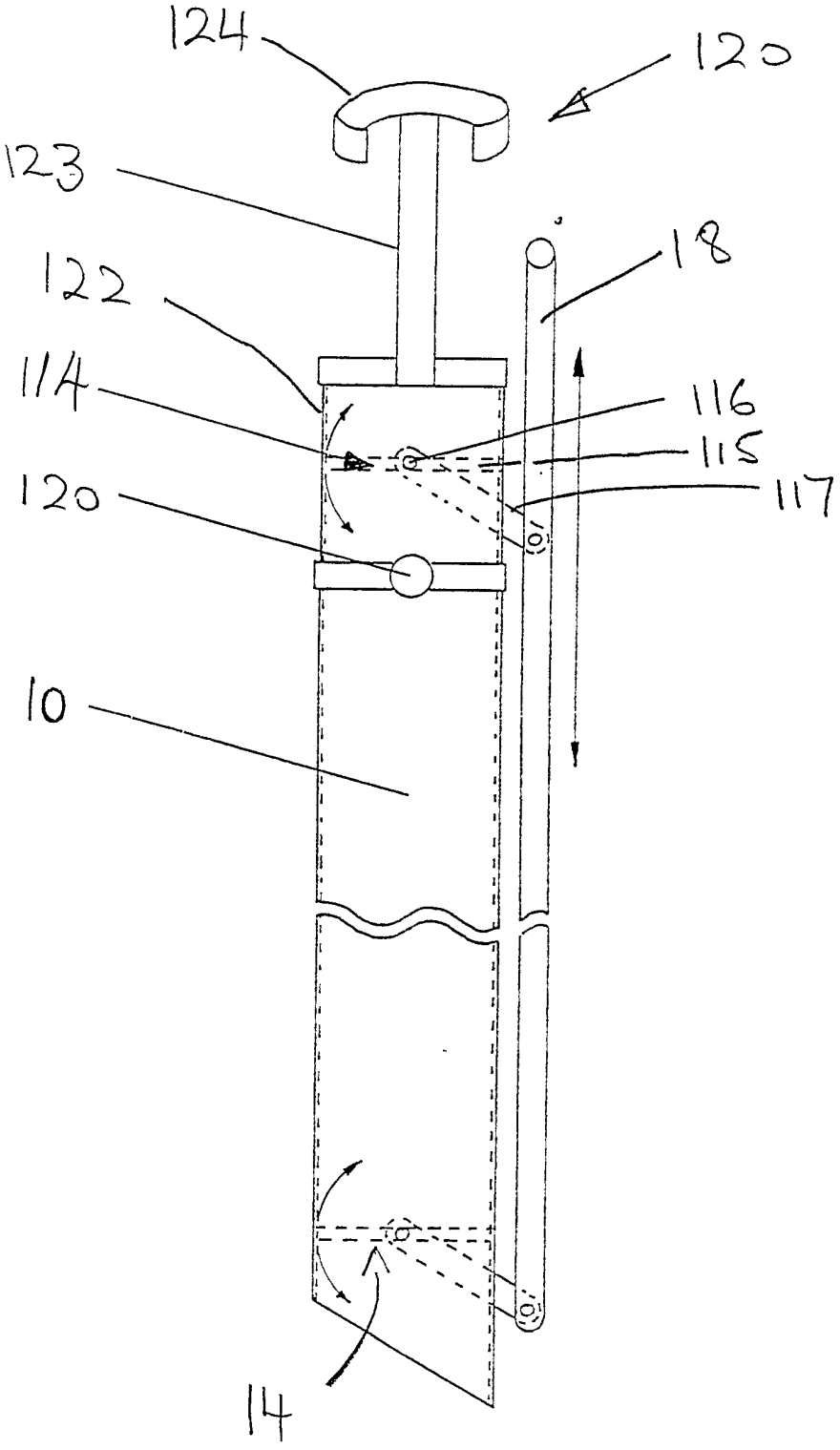
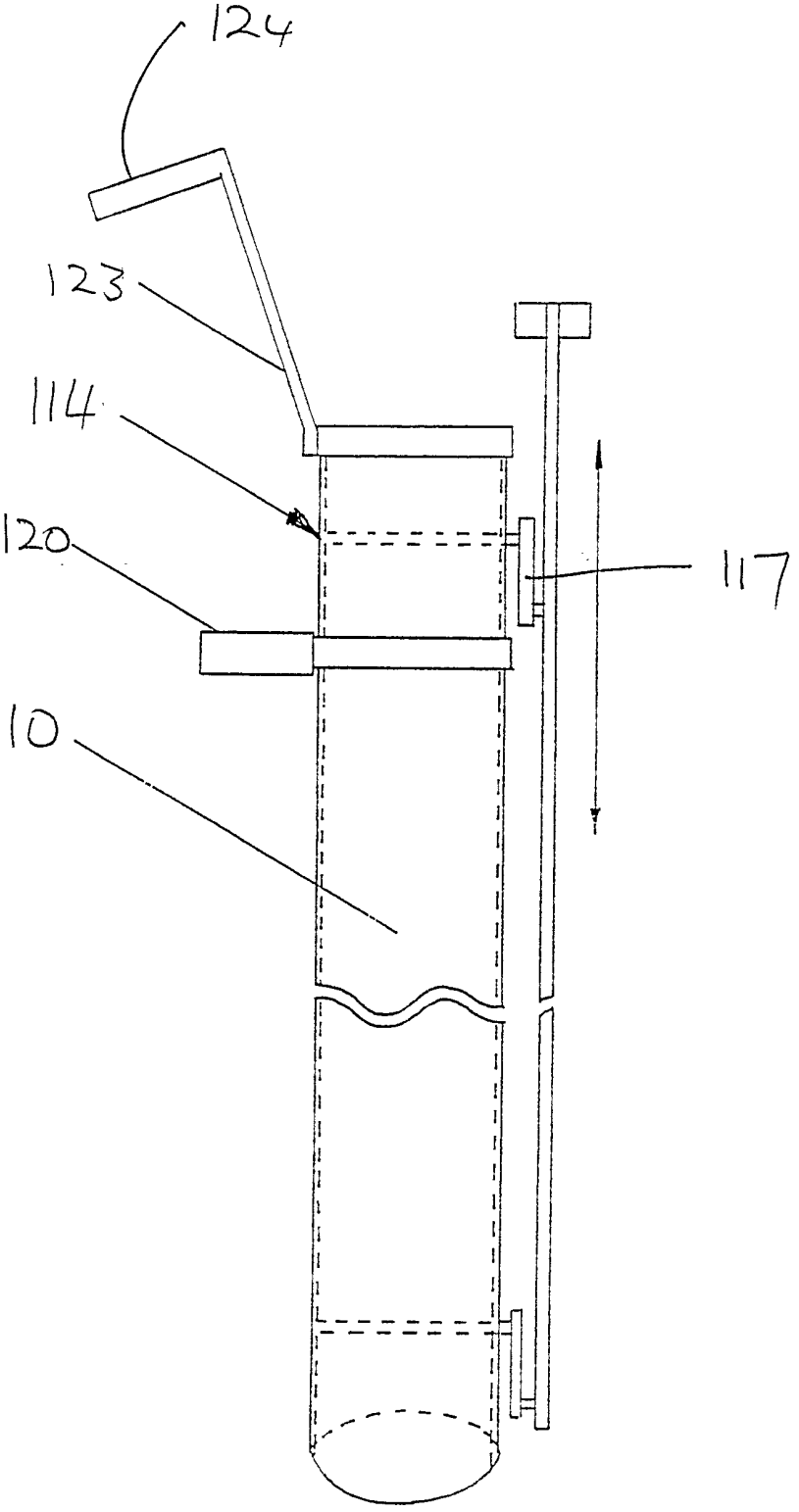


Fig 3


124
120
123
18
122
114
116
115
117
120
10
14


124
123
114
120
117
10

MATERIAL REMOVER

The present invention relates to a device for removing material from liquid, in particular but not exclusively, sludge from water.

Water-sludge removers are known for removing unwanted material from the bottom of garden ponds and the like. Usually they take the form of a pump and a filter. Various filter media are available.

These devices are relatively expensive to purchase and in most cases costly to run. Further it is unusual to be able to remove thick deposits of sludge and/or silt from the bottom of a pond.

The object of the invention is to provide an improved sludge remover.

According to the invention there is provided a material remover comprising a tube, closure means at one of the tube for opening and closing of the end for admission and retention of a flow of liquid and material to be removed into the tube at the immersed end and means extending to the other end of the tube for operating the closure means.

To enhance retention of the liquid - usually water - water and removed material, a second closure means may be provided at the other end of the tube. Whilst the closure means may take a variety of forms, it or they are preferably butterfly valve(s). Conveniently the flap(s) of the valve(s) are fixed to shaft(s) extending across the tube. In this case, the operating means includes a crank attached to the or each shaft and a rod connected to the crank and extending along the tube for remote turning of the crank and

its flap.

Since the device operates by displacement of air in the tube by water - and the material to be removed - flowing into the bottom of the tube a handle is preferably provided for holding the tube down into the water. Conveniently a second tube guidance element, usually in the form of an arm support is provided for controlling direction of the tube, when forced into the water.

To help understanding of the invention, two specific embodiments of it will now be described by way of example and with reference to the accompanying drawings, in which:

Figure 1 is a cross-sectional side view of a sludge remover of the invention, with its closure valve closed,

Figure 2 is a similar view of the remover with the valve open,

Figure 3 is a further similar view of the remover in use,

Figure 4 is a similar, side view of another remover of the invention and

Figure 5 is a side view of the second remover turned through 90°.

Turning first to Figures 1, 2 & 3, the sludge remover there shown comprises a plastics tube 10 having an obliquely cut end 11, whereby it can be lowered to the bottom 12 of a pond at an oblique angle, allowing the user ready visual control yet maintaining a small gap 13 between the edge of the tube and the bottom 12 of the pool. Within the end of the tube there is provided a butterfly valve 14, comprising a flap 15 mounted on a pivot pin 16. The pin is provided with a crank 17 outside the tube, to which is attached a rod 18 extending along the tube for operating the valve.

In use, the rod is pushed forwards to close the valve. The sludge remover is then pushed to the bottom of the pond, into the sludge 19 to be removed. The valve keeps the tube free of water. The rod is pulled back allowing the water to flow into the tube from the region occupied by the sludge. The water and with it the sludge will tend to flow right up the tube, to the surface level of the pond. Once the tube is full, the valve can be closed, and the tube removed with the water and the sludge. This can then be deposited wherever convenient, for instance on a compost heap.

The water in the pond will have been little disturbed by the sludge removal - because of the local movement of it only at the end of the tube - and the operation can be repeated. Although the disturbance of the water is local, the water flow can be sufficiently strong to pick up relatively heavy objects such as coins.

It is envisaged that the device may find other uses, such as for instance biological sampling.

Turning now to Figures 4 and 5, the modified sludge remover there shown has a second butterfly valve 114, with a flap 115, pin 116 and crank 117, at the upper end of the tube. The crank is connected to the rod 18 for operation ganged together operation of the valves 14,114. Provision of the second valve enables the water contained in the tube to be held there with less risk of spilling.

The modified device also has a handle 120 and arm support 121. The former is connected some way down the tube 110 towards its oblique end 11 from its top end 122. The arm support 121 comprises a bar 123 and a clevis 124 of a size to fit the user's arm. It will be appreciated that with the clevis on the user's lower arm and the handle

gripped, the tube can be manipulated as an extension of the user's arm and readily positioned in the water before opening of the valves, when the tube is buoyant. Further, handling of the tube when full of water is eased.

CLAIMS:

1. A device for removing material from liquid comprising a tube, closure means at one of the tube for opening and closing of the end for admission and retention of a flow of liquid and material to be removed into the tube at the immersed end and means extending to the other end of the tube for operating the closure means.

2. A device as claimed in claim 1, including a second closure means at the other end of the tube.

3. A device as claimed in claim 1 or claim 2, wherein the or each closure means is a butterfly valve.

4. A device as claimed in claim 3, wherein the flap(s) of the valve(s) are fixed to shaft(s) extending across the tube.

5. A device as claimed in claim 4, wherein the operating means includes a crank attached to the or each shaft and a rod connected to the crank(s) and extending along the tube for remote turning of the crank(s).

6. A device as claimed in any preceding claim, including a handle for holding the tube down into the water.

7. A device as claimed in claim 6, including a second tube guidance element spaced from the handle for controlling the direction of the tube.

8. A device as claimed in claim 7, wherein the second tube guidance element is adapted to engage the user's arm.

9. A device as claimed in any preceding claim, wherein the end of the tube is obliquely cut.

10. A device for removing material from liquid substantially as hereinbefore described with reference to Figures 1,2 & 3 of the accompanying drawings or as modified in Figures 4 & 5.

The Patent Office

6

Application No: GB 9513495.3
Claims searched: '1 to 10

Examiner: D.B.Pepper
Date of search: 15 August 1995

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.N): A4F FNS, FSSC; E1F FWGC, FWHAQ

Int Cl (Ed.6): E02F 3/02

Other: Online: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
	None	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.