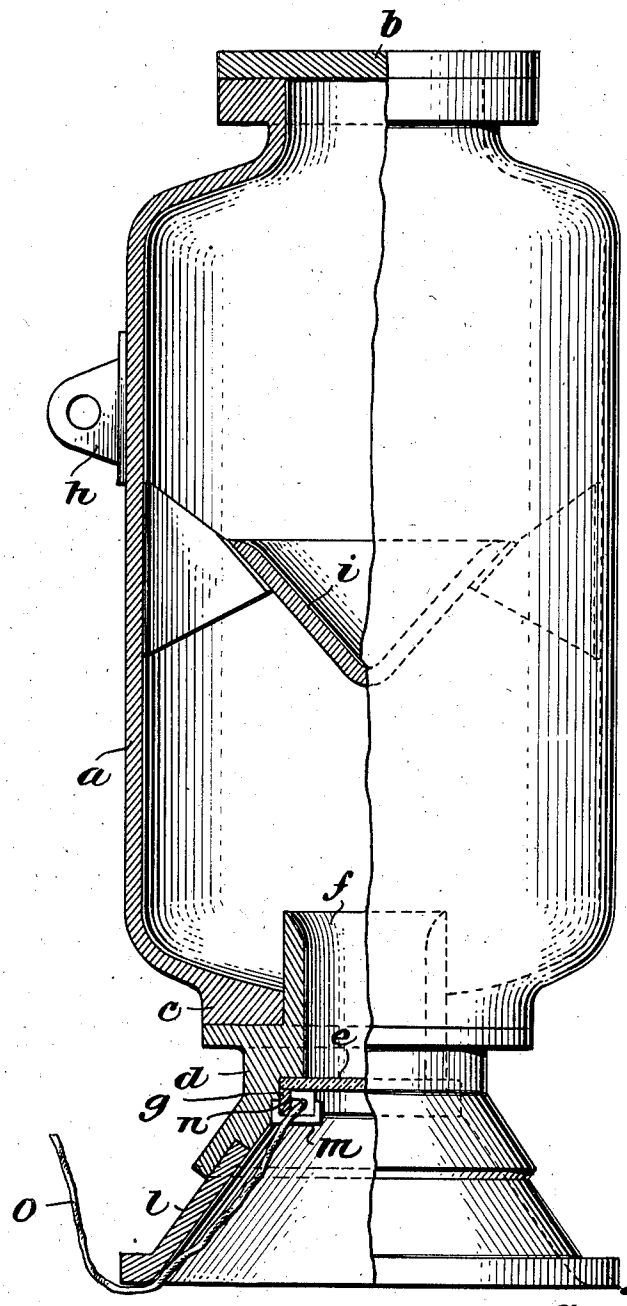
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APPARATUS FOR THE RECOVERY OF OBJECTS

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APPARATUS FOR THE RECOVERY OF OBJECTS

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2 Claims. (Cl. 294—86)

The apparatus forming the subject matter of this invention is for the purpose of recovering solid objects lying on the seaground at great water depths by causing the said objects to be entrained into the hollow space or within the reach of a reservoir, by the surrounding sea water forming a violent current that carries them along with itself in its turbulent motion.

This current is caused by the reservoir itself which, after being filled with air at atmospheric pressure, is lowered to the spot where the objects lie and is provided with one or more apertures permitting the inrush of the seawater from the outside into the inside of the reservoir as soon as a crystal valve hermetically closing the passage is suddenly opened at the operator's will.

The sudden opening of the crystal valve permits the water with entrained solid objects to rush into the reservoir with a velocity corresponding to the pressure-difference between the surrounding water and the inside of the reservoir, this difference depending on the depth at which the objects to be recovered lie.

An embodiment of the invention is illustrated, merely by way of example, in the accompanying drawing one half of which shows the apparatus in vertical section while the other half shows it in external view.

The apparatus comprises a reservoir *a*, the dimensions and wall-thickness of which are so designed as to enable the reservoir to withstand the deep sea pressure; the form of the reservoir, especially in the aperture or apertures for passage of the water, is such as to enable the water to entrain the solid objects into the reach of the reservoir.

The reservoir *a* is fitted with an inspection door *b* and with a bottom flange *c* for connecting thereto the crystal valve *d*.

The crystal valve *d*, in its main portion, comprises a crystal disc *e*, the diameter of which may vary according to the unitary amount of water which it is desired to let into the hollow space of the reservoir and which is determined from case to case according to the existing requirements.

This crystal body, of great diameter and small thickness, is made of a glass material which, while possessing a high resistance against hydraulic pressure, can be readily destroyed and reduced into minute splinters by the action of a simple impact. Material may be used in practice, for instance, such as the crystal of the kind known in the trade under the name of "Securit."

The said crystal disc tightly closes the aperture *f* for the water passage and is held in place by a disc-carrying ring *g* and, besides, by the pressure of the outer water which forces the disc into contact with the said aperture.

The opening of the valve is brought about by smashing the crystal disc; this smashing is effected by the explosion of a charge *n* held in contact with the crystal by a holder *m* the explosion being brought about electrically by current supplied over suitable conductors *o*.

The kind of the crystal is such that, after the explosion, the whole of the reservoir-aperture is suddenly opened for passage of water, which entrains in its turbulent motion the solid material to be recovered.

The crystal disc *e* rests against a bearing surface of the box *d*, the said box extending into the reservoir so as to retain the recuperated materials, while outside of the reservoir the box extends with surfaces designed to fix thereupon a leading-in cone.

Besides, inside of the reservoir, a stop lettered *i* in the drawing is arranged, which may also serve to collect the in-rush materials and may be of any form preferred.

The rings *h* provided in the upper portion of the reservoir serve to connect a cable to the apparatus for bringing the latter to the water surface.

The operation of the apparatus can be readily gathered from the above description.

After fitting the valve crystal in place, the apparatus is lowered to the depth of the objects to be recovered, the crystal disc is broken by causing the charge to explode, and the water entrains the objects to be recovered within the reach of the reservoir.

The apparatus is now hoisted up to the water surface and emptied, the fresh crystal disc is fitted in place and a new cycle of operations can be commenced.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a device of the character described, comprising a receptacle having an opening at one end, a crystal valve normally closing said opening and adapted to withstand hydrostatic pressure, means arranged externally of said receptacle for breaking said valve, and a cup-like member supported in said receptacle above said opening and adapted to retain a portion of the material entering said receptacle subsequent to the breaking of said valve.

2. A device as claimed in claim 1 characterized by the provision of means for attaching the upper part of said receptacle to a supporting member.

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