

(No Model.)

W. MCGREGOR.

SECURING MATERIALS AND OBJECTS FROM SUBAQUEOUS BOTTOMS.

No. 582,828.

Patented May 18, 1897.

Fig. 1.

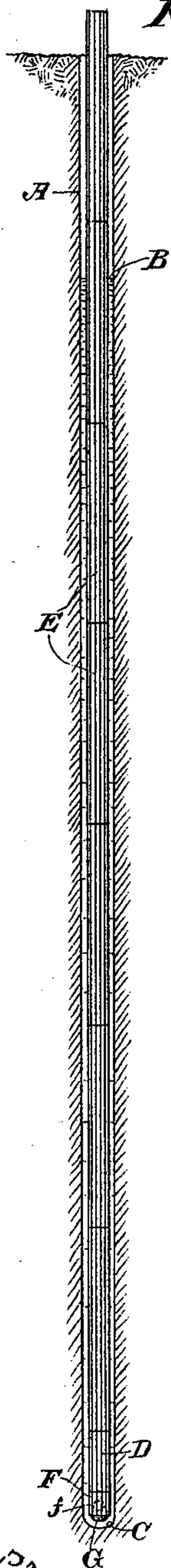
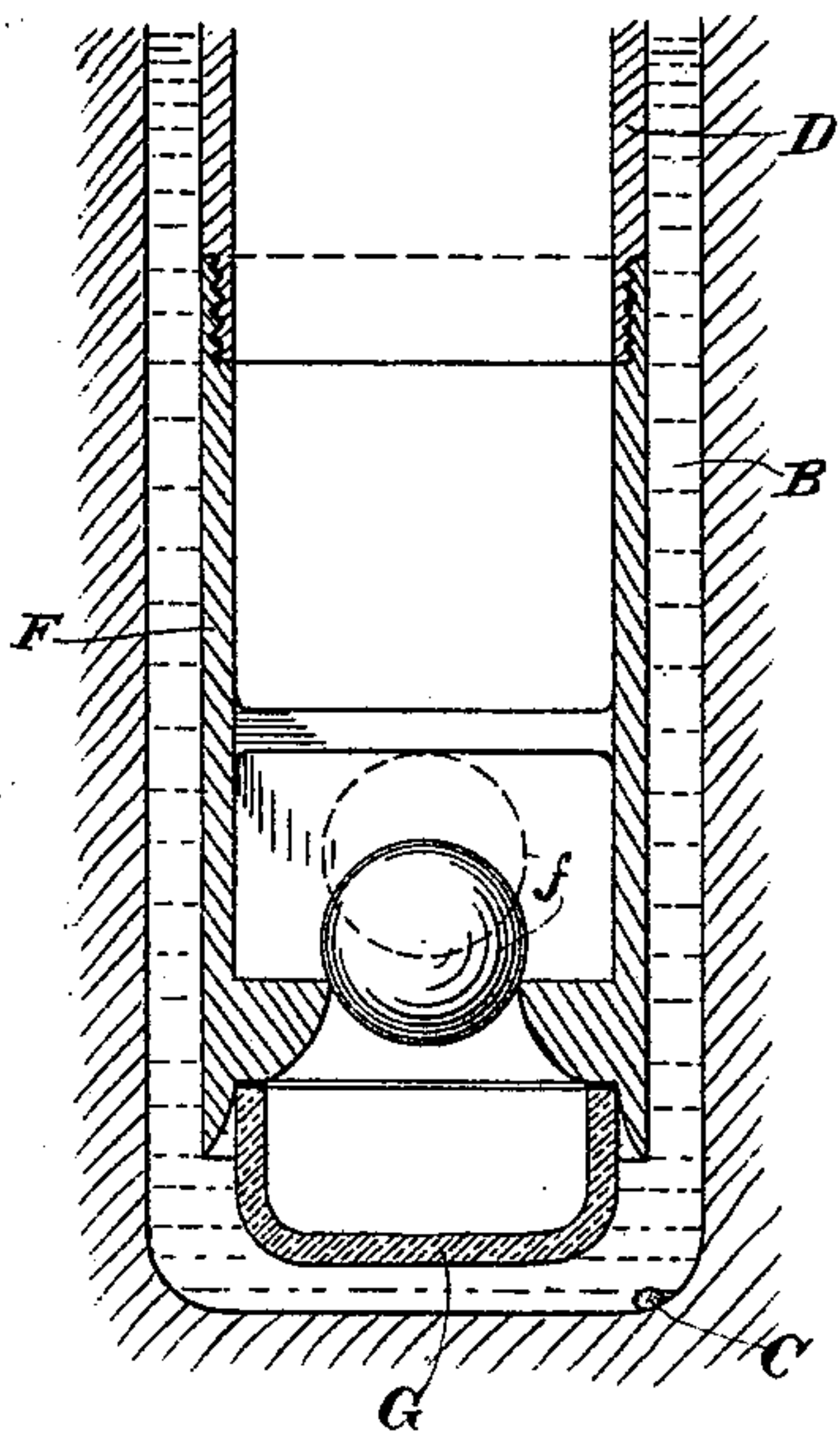


Fig. 2.



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SECURING MATERIALS AND OBJECTS FROM SUBAQUEOUS BOTTOMS.

SPECIFICATION forming part of Letters Patent No. 582,828, dated May 18, 1897.

Application filed October 29, 1896. Serial No. 610,457. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MCGREGOR, a citizen of Canada, residing at Nanaimo, British Columbia, Canada, have invented an Improvement in Securing Materials and Objects from Subaqueous Bottoms; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to means for securing materials and objects from bottoms under water.

It consists of a vessel adapted to be lowered into the water, a valve in said vessel, and a frangible cap or cover forming a closure for the lower end of the vessel and temporarily excluding the water therefrom and when broken permitting the water under its hydrostatic head to rush into the vessel and carry the materials and objects from the bottom with it into the vessel.

The object of my invention, broadly stated, is to secure materials and substances lying at a depth. These materials or substances may be samples of a subaqueous bottom, as in "sounding" or in prospecting for precious metals or stones or other natural objects, or they may be foreign to the locality and dropped or lost therein accidentally, in which case their recovery may be of great importance; but in order to better give an understanding of my invention I will state that its special object is to recover from the bottoms of prospecting holes or borings in mining operations such foreign objects as diamonds dropped from the crown-heads of diamond drills, or metallic pieces or objects broken from the boring-tools, or nails, or spikes, or other objects dropped into the hole or into an abandoned hole to which attention is again directed, or any other objects or substances which, as in the case of lost diamonds, are worth recovering, or which in any case would impede progress or injure the tools or apparatus. The removal of such objects is highly important, in that in addition to the direct loss, as in the case of a dropped diamond, their continued presence in the hole often means an abandonment of a bore which has cost a great deal of money.

In the present case I have deemed it sufficient to illustrate my invention in detail in

connection with mining prospecting holes or bores from the bottoms of which foreign objects have to be removed or recovered, though it is to be understood that I do not confine my invention to this use, for, as I shall hereinafter explain, it may be used to obtain samples of any subaqueous bottom.

Referring to the accompanying drawings, Figure 1 is a vertical section of a bore or hole, showing the parts therein. Fig. 2 is the section of the lifter F.

A represents a hole or bore. In boring this hole a diamond-drill crown may be supposed to be in use. It is carried on the lower end of a core-barrel, which is itself carried on a continuous series of connected pipes called "rods." These are turned or rotated by suitable mechanism at the surface, and as the diamond-crown cuts the material the latter is forced up into the core-barrel and then the whole apparatus is drawn up and the core-barrel relieved of its contents. The apparatus is once more introduced and the operation repeated. During the operation water is pumped down through the rods to keep the parts cool, and in cases where there is a tendency to cave the water keeps the bore intact. Thus the hole or bore A has water in it, which in the drawings I have designated by B. Now let it be supposed that during the operation one of the diamonds has become loose and has dropped from the crown into the bottom of the hole. I have here designated it by C. This must be recovered. Accordingly the apparatus is lifted out of the hole and the diamond-crown is removed. In its place there is fitted to the core-barrel D, which is carried by the rods E, what may be termed a "lifter." It consists of a short cylinder F, having within it an upwardly-opening valve f. Then the rods, the core-barrel, and the lifter are dropped down into the hole.

In carrying out my invention I rely upon the pressure or hydrostatic head of the column of water B in the hole, and in order to make use of this I must keep the water out of the lifter, the barrel, and the rods until ready to admit it, so that its rush will carry the lost diamond up into the lifter and past the valve. It will be seen that I fit to the lower end of the lifter F a bottom G. This is water-tight

and must be made of some breakable or frangible material. Glass will be found to answer the purpose. This breakable bottom may be fitted to the lifter in any suitable manner.

5 Now as the parts are lowered into the hole the water cannot enter the lifter nor its connected barrel and rods, and therefore the level of the water in the hole rises by displacement due to the entering tools until the

10 water-column stands at a considerable height. When the lifter nearly reaches the bottom of the hole, the parts are dropped with sufficient suddenness to cause the bottom G of the lifter to break against the bottom of the hole.

15 Thereupon the water B rushes in through the broken bottom G, and in its rush it carries the diamond C into the lifter and up past the valve *f* therein by which it is retained. Then the parts are lifted and the diamond is

20 recovered. The valve *f* may be of any suitable character, such as a hinged valve or, as I have shown, a ball-valve, which is best adapted for recovering stones, while a hinged valve is for use where a piece of the core may

25 have been left in the hole, allowing it to freely pass up into the core-barrel.

It will be seen from the foregoing that any foreign objects in the hole may thus be removed or recovered. In the case of a large

30 object—such, for example, as the core-barrel itself—all that is necessary is to cut it up into

small fragments and then remove the fragments with my apparatus.

Other cases to which this invention may be applied suggest themselves—such, for example, as prospecting gravel deposits or beds 35 of rivers for precious metals or deep-sea dredging and sounding, in all of which uses the provision for the inrush of water at the proper time under its hydrostatic head could 40 be provided for by simple means, such as that heretofore suggested, or others of like nature.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is— 45

An apparatus for securing materials and objects from bottoms under water, consisting of a vessel adapted to be lowered into the water, a valve in said vessel, and a frangible cap or cover forming a closure for the lower 50 end of the vessel and temporarily excluding the water from said vessel and, when broken, permitting the water under its hydrostatic head to rush into the vessel, and carry the materials and objects from the bottom with 55 it into the vessel.

In witness whereof I have hereunto set my hand.

WILLIAM MCGREGOR.

Witnesses:

JAMES MCGREGOR,
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