

No. 675,125.

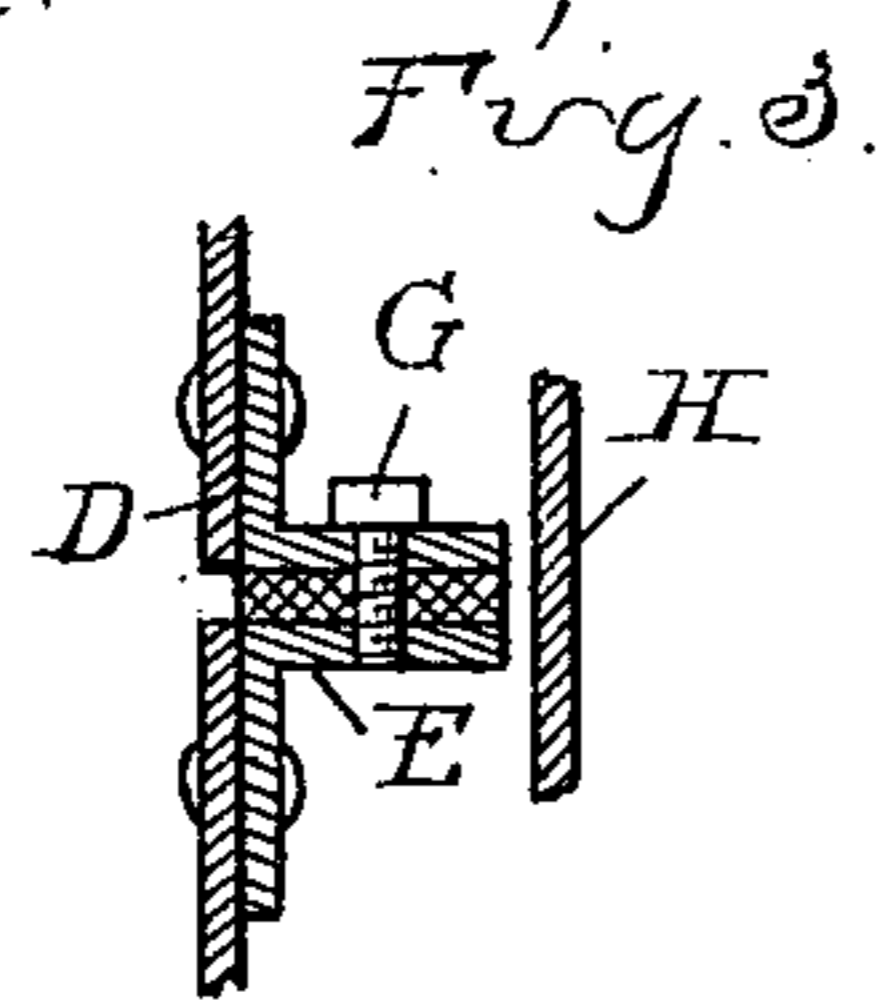
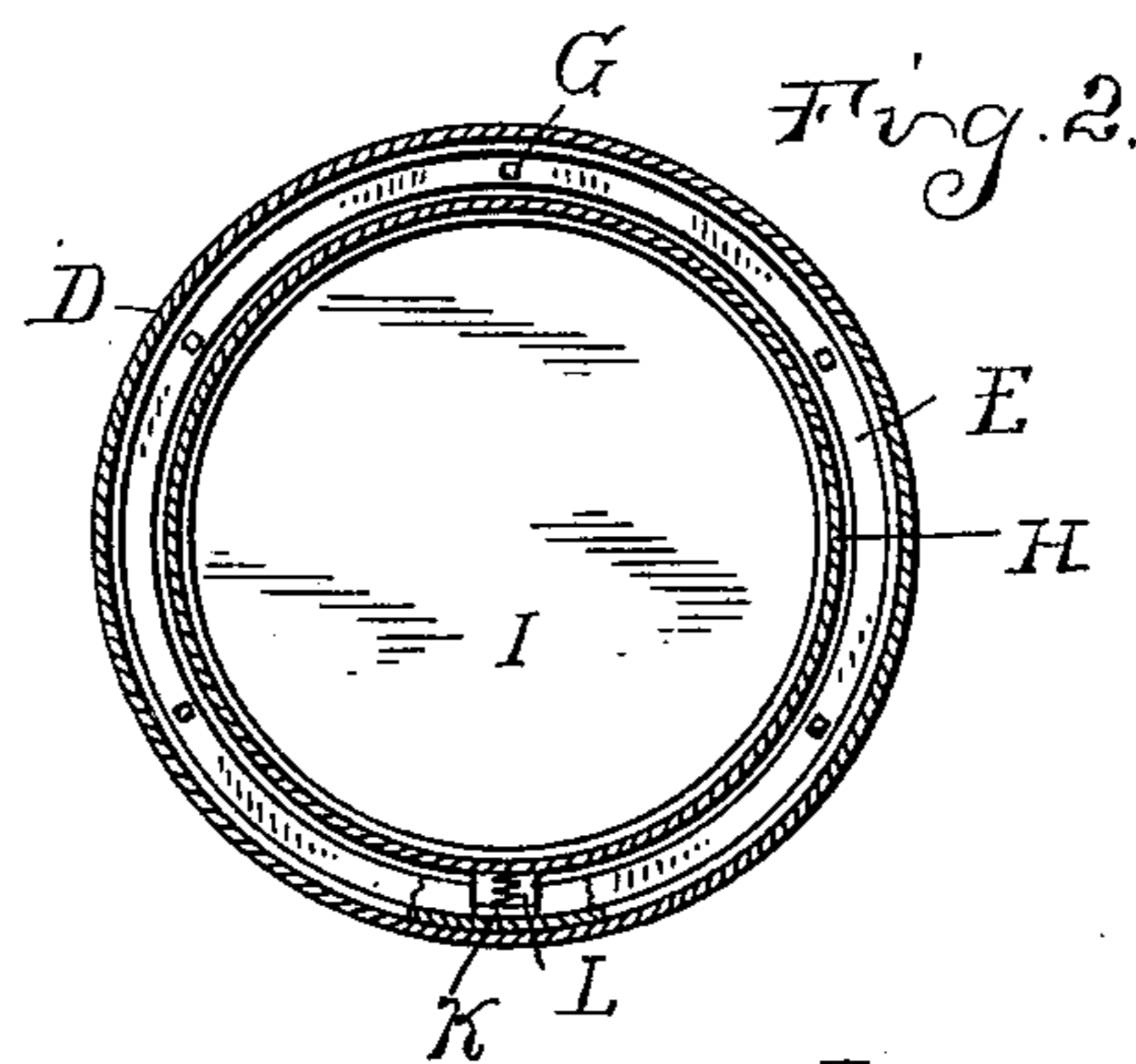
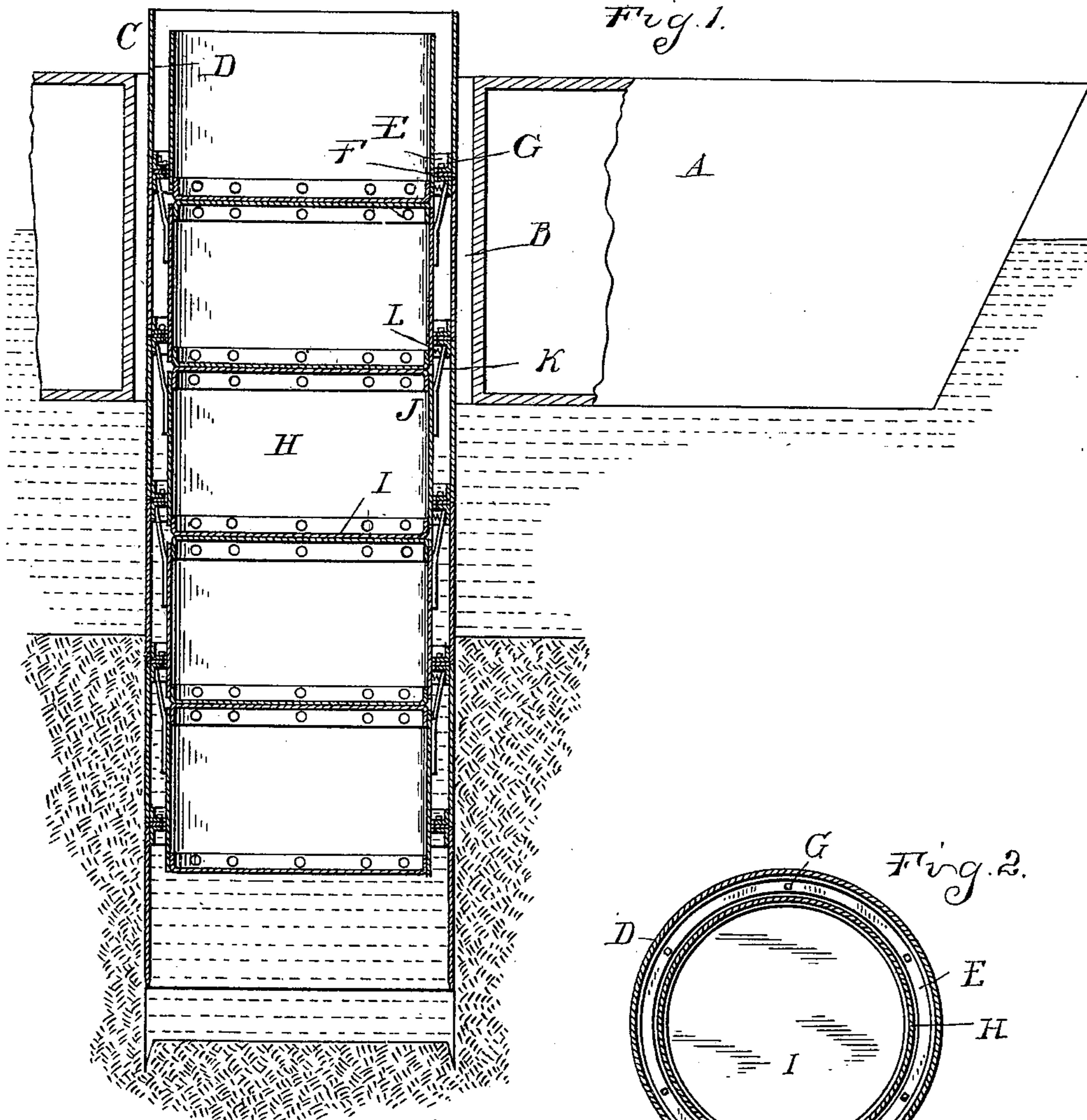
Patented May 28, 1901.

C. H. BROWN.

APPARATUS FOR SUBMARINE OPERATIONS.

(Application filed Sept. 4, 1900.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES H. BROWN, OF PORT HURON, MICHIGAN, ASSIGNOR OF ONE-HALF
TO STEPHEN G. MARTIN AND ABRAHAM S. MARTIN, OF SAME PLACE.

APPARATUS FOR SUBMARINE OPERATIONS.

SPECIFICATION forming part of Letters Patent No. 675,125, dated May 28, 1901.

Application filed September 4, 1900. Serial No. 28,933. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. BROWN, a citizen of the United States, residing at Port Huron, in the county of St. Clair and State of Michigan, have invented certain new and useful Improvements in Apparatus for Submarine Operations, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention has reference to an improved apparatus for excavating from the bottoms of bodies of water; and it consists in the peculiar construction of the apparatus and in the peculiar arrangement and combination of the various parts thereof, as will be more fully hereinafter described, and shown in the drawings, in which—

Figure 1 is a vertical central section through the apparatus, showing the construction of the various parts and the connecting mechanism therefor; and Fig. 2 is a horizontal section therethrough, and Fig. 3 is an enlarged section through the joint between sections.

The reference-letter A designates a float in the form of a scow, which is provided with a well B.

C designates a caisson formed, preferably, in sections, which is adapted to extend through the well to and to be sunk within the river-bed in the usual manner. In construction the caisson comprises a series of sections, such as D, preferably cylindrical in configuration and each provided at its top and bottom edges with inwardly-extending annular flanges E.

F designates gaskets adapted to be arranged between the flanges of the adjoining sections, and G designates securing-bolts passing through the flanges and gaskets to secure the sections together.

In arranging the parts for operation the caisson is formed section by section and lowered within the well until the lower end rests upon the river-bed. The excavating is then effected and the caisson sunk in the usual manner. To raise the caisson within the well after the excavating has been effected, I employ a simple mechanism by means of which the raising can be effected in a rapid and convenient manner. In construction the

raising mechanism referred to comprises one or more pontoons or drums, such as H, adapted to be lowered within the sunken caisson, and mechanism for locking each drum to the interior of the caisson-sections.

In construction each drum comprises a cylindrical casing similar to that of the caisson-sections, of substantially the same length as the latter, but of considerably less diameter. At the opposite ends of the drum are arranged the heads I, secured to the cylindrical drum-wall in such manner as to form an air-tight compartment within. Upon the exterior of each drum thus described is one or more spring-catches, such as J, composed of the bar K and the laterally-extending spring L, arranged intermediate the free end of the bar and the drum-wall for the purpose of holding the bar normally outward. These drums are lowered one by one within the sunken caisson and water is subsequently pumped within the latter. The upward movement of the drums caused by the admission of the water is limited by the drum locks or catches, which engage beneath the inwardly-extending annular flanges of the caisson-sections, and the caisson is caused to rise within its well in the desired manner.

From the description of my invention as thus set forth it will be readily seen that I provide a simple and effective means for raising the caisson and that while I have shown the preferable form of apparatus for this purpose and a particular type of lock various other modifications could be made without in any manner departing from the spirit of my invention.

It will be understood that although the drums or pontoons loosely fit within the caisson they do not form a water-tight joint therewith, so that when water is admitted from above it will force its way downward between the walls of the caisson and the drums and will exert its hydrostatic pressure to lift the caisson.

What I claim as my invention is—

1. In an apparatus for submarine operations, the combination with a caisson of a pontoon adapted to be lowered within said caisson, and means for locking said pontoon

to said caisson whereby upon the admission of water beneath said pontoon said caisson will be raised.

2. In an apparatus for submarine operations, the combination with a caisson of a pontoon of slightly less diameter than said caisson adapted to be lowered therein and to be locked thereto, whereby water admitted to said caisson above said pontoon will pass below the same and exert its hydrostatic pressure to lift said pontoon and caisson.

3. In an apparatus for submarine operations, the combination with a caisson, of a multiple of pontoons loosely fitting within said caisson and adapted to be successively lowered therein, and means for automatically locking said pontoons in their lowest positions to the walls of the caisson, for the purpose described.

4. In an apparatus for submarine operations, the combination with a float and a sectional caisson adapted to be lowered to extend downward from said float, to the bottom, of a plurality of pontoons, loosely fitting and adapted to be lowered within said caisson, each corresponding in size substantially to one section of the caisson, and adapted to automatically lock thereto, whereby upon the admission of water into the caisson the latter will be raised and the raised sections may be successively removed from the upper end.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES H. BROWN.

Witnesses:

H. C. SMITH,

P. M. HULBERT.