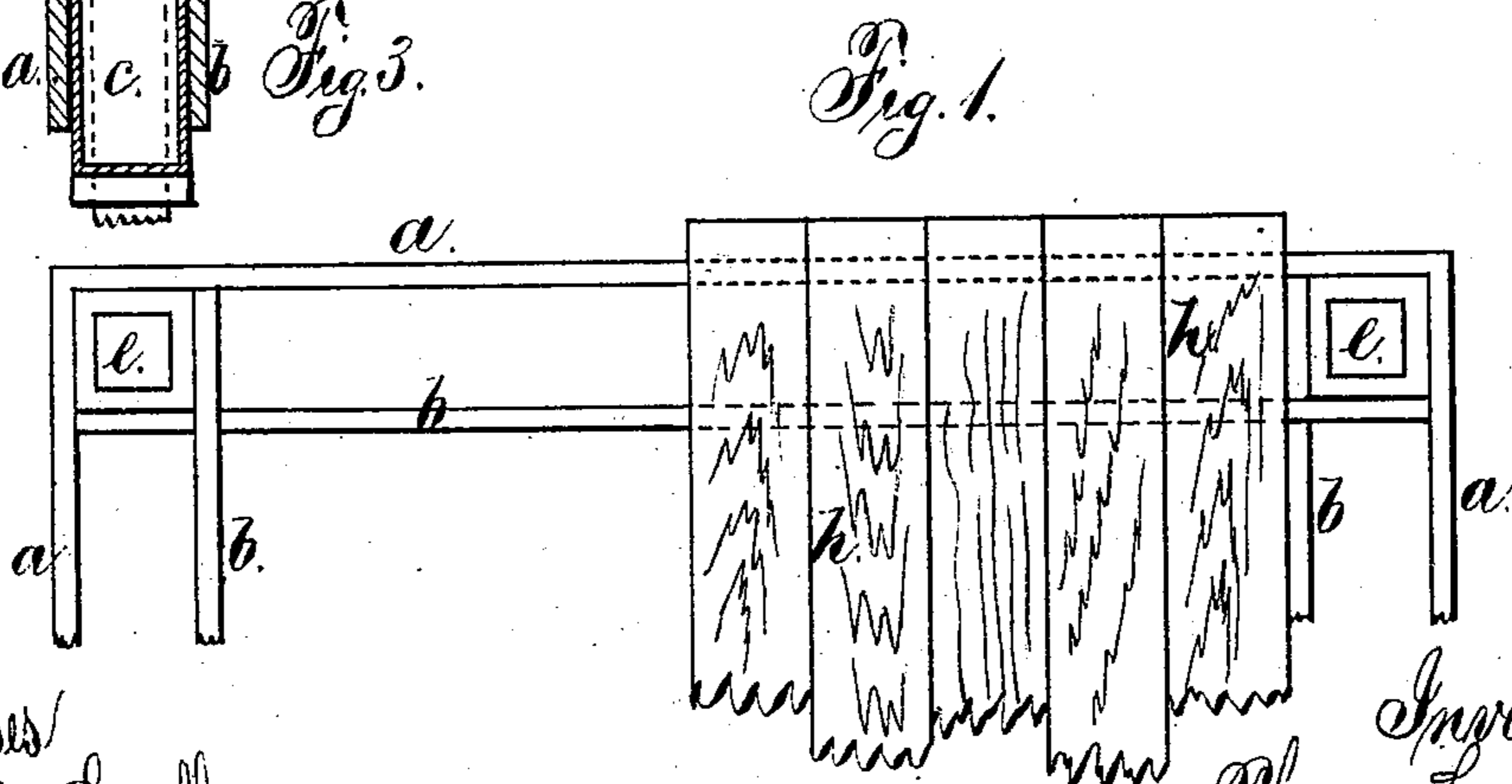
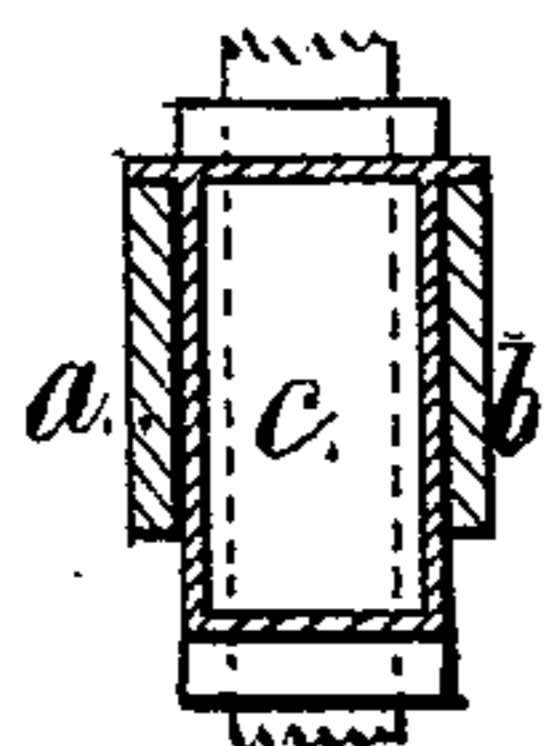
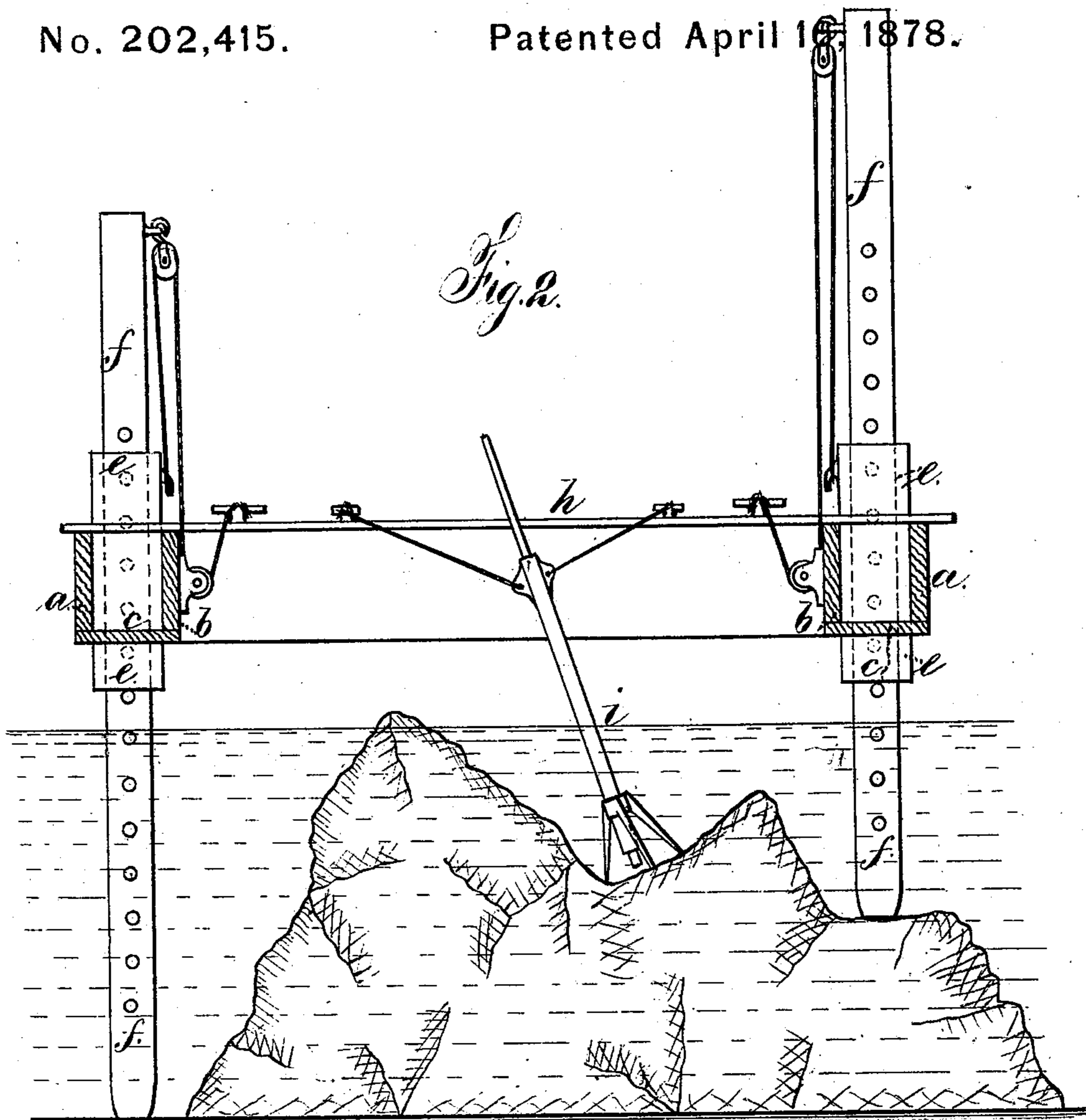


T. CUMMING.  
Platform for Submarine Rock-Drilling.  
No. 202,415.      Patented April 16, 1878.



Witnesses  
Harold Serrell  
Chas. H. Smith

Inventor.  
Thomas Cumming  
per. L. W. Serrell  
atty

# UNITED STATES PATENT OFFICE.

THOMAS CUMMING, OF HACKENSACK, NEW JERSEY.

## IMPROVEMENT IN PLATFORMS FOR SUBMARINE ROCK DRILLING.

Specification forming part of Letters Patent No. **202,415**, dated April 16, 1878; application filed September 3, 1877.

*To all whom it may concern:*

Be it known that I, THOMAS CUMMING, of Hackensack, in the county of Bergen and State of New Jersey, have invented an Improvement in Platforms for Submarine Rock-Drilling, of which the following is a specification:

Rock-drilling machines have usually been placed upon a scow or float above the rock or reef, such scow being held by chains or ropes to anchors dropped in different directions. Great difficulty is experienced in operating machine rock-drills in this manner, because the rise and fall of the tide or the currents of the water change the position of the float or scow to the rock, and in tide-water it is generally so difficult to hold the float stationary that the drilling is only pursued during still water.

Another device, in the form of a tripod, has been used to sustain the drilling-machine; but this is very difficult to handle, and has to be changed from place to place each new hole.

My improvement consists in a floatable frame, having tubular corners, through which pass vertical, or nearly vertical, spuds or legs that are variable in length, so as to rest upon or pass into the material at the bottom of the water, and sustain the frame above the water, so as not to be injured by the waves, or by the rise or fall of the water. Upon this frame is a platform adapted to support the rock-drilling machine. By this improvement the platform-frame can be floated to the reef or rock, and then the legs or spuds thrust down to the bottom, the platform elevated upon such legs, and it will be held firmly by them, and the drilling can be performed in any portion of the rock beneath the platform, and, when required, the platform can be lowered so as to float, the spuds or legs drawn up, and the platform changed from place to place.

In the drawings, Figure 1 is a partial plan, and Fig. 2 is a sectional elevation, of the platform and supporting-legs; and Fig. 3 is a section of a metal float.

The frame is preferably rectangular, and made of the outer timbers *a* and inner timbers

*b*, framed together at the corners in any convenient manner. It will generally be preferable to make use of the bottom pieces *c*, so as to form four troughs, that are to be water-tight and act as the floats. In many instances the displacement of the wooden timbers or beams *a b* will be sufficient to float the platform and legs; but should the frame be made of metal, as seen in the section, Fig. 3, separate airtight floats *c* will be required between the beams *a b*.

At the angles formed by the union of the beams *a a b b* of the frame I introduce the vertical, or nearly vertical, tubes *e e*. These may be round or quadrangular, as shown, and through them slide the legs or spuds *f f*.

It is generally preferable to employ a tackle, or a ratchet or rack and pinion, by means of which each leg can be forced down until it rests upon or takes a bearing in the rock, sand, mud, or other material at the bottom of the water. This is preferably done at high tide, and the frame is usually elevated still higher by means of such tackle or other mechanical appliance, so as to obtain its entire support from the legs or spuds, and be entirely above the water, so as not to be influenced thereby. The action of the water is very little upon the legs or spuds, and the drilling machinery is sustained by the platform *h* entirely above the water.

If desired, anchors may be employed to lessen the vibration that might result from the motion of the machinery.

The platform *h* is preferably made of movable planks or timbers, so as to facilitate the positioning of the rock-drilling machinery.

I have not shown or described any particular character of drilling machinery, and the same may be such as is now in use. It is, however, generally preferable to employ a guide-tube, *i*, that is large enough for the drill to pass through; and of a length to reach from near the platform to the surface of the rock, having a weighted tripod at the end, to rest upon the surface of the rock. The drill passes through this, and the upper end of the tube may be kept in place by being lashed to the frame or platform.

The frame *a b* might be floated to place

upon a scow, and the same be withdrawn as the tide falls, and it is generally preferable to clamp the legs within the tubes by driving in wedges, or otherwise.

I claim as my invention—

A frame-work for rock-drilling machinery, adapted to being floated, and provided with vertical, or nearly vertical, tubes, in combination with legs or spuds passing through

such tubes, and a platform supported by the frame, substantially as set forth.

Signed by me this 27th day of August, A. D. 1877.

THOMAS CUMMING.

Witnesses:

GEO. T. PINCKNEY,  
HAROLD SERRELL.