H. S. TAFT.

STOPPER FOR TREMIE TUBES.

APPLICATION FILED JULY 27, 1915.

1,256,074.

Patented Feb. 12, 1918.

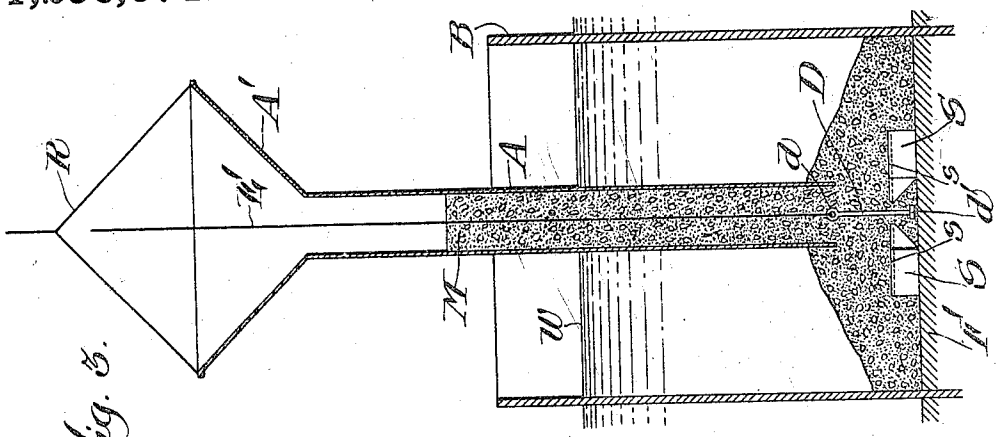


Fig. 3.

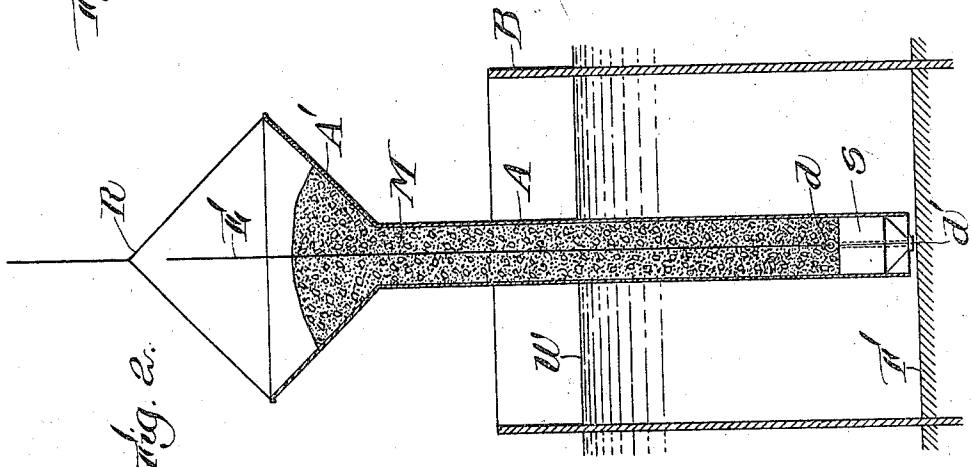


Fig. 2.

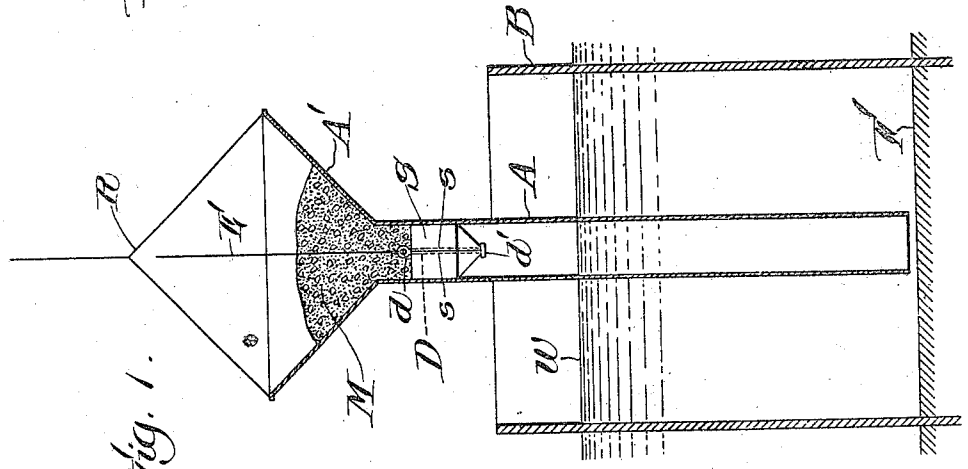


Fig. 1.

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UNITED STATES PATENT OFFICE.

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STOPPER FOR TREMIE-TUBES.

1,256,074. Specification of Letters Patent. Patented Feb. 12, 1918.

Application filed July 27, 1915. Serial No. 42,195.

To all whom it may concern:

Be it known that I, HARRISON S. TAFT, a citizen of the United States, and resident of Seattle, in the county of King and State of Washington, have invented new and useful Improvements in Stoppers for Tremie-Tubes, of which the following is a specification.

This invention relates to a stopper for the "tremie tube" so called, commonly employed in placing concrete in a receptable, box, or concrete mold under water. In the use of said tube according to the well known practice, it is lowered into the box and at once becomes filled or partly filled with water, with the result that the concrete which is first placed in the tube tends to become separated and ruined by the water into which it drops. Various expedients have heretofore been resorted to for expelling the water from the tube before the concrete was poured in, but so far as I am aware none of them has proved satisfactory; and it is the principal object of this invention to provide a stopper for said tube whereby the concrete may be poured therein without danger of injury from water.

Referring to the drawings which illustrate an embodiment of my invention,—

Figure 1 is a vertical section of a tremie tube provided with my improved stopper;

Fig. 2 is a similar view showing the stopper lowered to the bottom of the tube; and

Fig. 3 is a similar view showing the stopper after it has fallen from the bottom of the tube.

A is the tube of usual construction having the usual funnel mouth A′ to facilitate the insertion of the concrete, and adapted to be raised or lowered as by the rope R into and out of the receptacle or box B which is in whole or in part below the water level W.

The stopper S is cylindrical in form and preferably has a tapered end as shown. It is made in two independent sections each of which has a vertically extending groove *s* in its inner or abutting face, so that when the two sections are placed together as shown in Figs. 1 and 2, there is an aperture through which passes a bolt D. At the top of said bolt is an eye *d* to which is secured a wire, rope or the like E, and at the bottom is a head or support *d′* on which the tapered ends of the stopper sections rest. The diameter of the stopper is slightly less than that of the tube so that when inserted therein it has a sliding fit and can be lowered or held at any desired position by the wire or rope E. As hereinafter set forth the stopper is intended to remain in the receptacle B, and therefore it is preferably made of concrete to avoid the introduction of a foreign material or substance into the concrete mixture with which the receptacle is filled.

In use, the tube A is lowered into the water-filled receptacle or box B with its lower open end close to the river or sea floor F, as shown in Fig. 1, and the stopper S is held near the top of the tube in the position shown in said figure. The concrete, M, with which the receptacle is to be filled, is then poured into the funnel A′ and the stopper is slowly lowered in the tube by means of its supporting rope or wire E, until it reaches the bottom of the tube as shown in Fig. 2. It will, I believe, be clear that as the stopper is thus lowered from its position in Fig. 1 to that shown in Fig. 2, it forces the water out of the tube and prevents the concrete from coming in contact therewith, so that there is no likelihood of separation of the concrete first placed in the tube due to its drop into the water.

When the stopper has been lowered to the bottom of the tube (Fig. 2), said tube is slightly raised by its rope R and the wire E is slacked, thus permitting the stopper to drop out, whereupon its sections fall from the supporting bolt D on to the sea or river floor where they are permitted to remain. As soon as the stopper drops out, the tube is lowered into the mass of concrete which has thus been permitted to flow out so that there is no inrush of water into the tube. The bolt D is then withdrawn and the work of filling the receptacle proceeds in the usual way, the lower end of the tube being always embedded in the concrete.

I claim:

1. A tremie tube having a stopper adapted for movement therein as a unitary structure, whereby to separate a charge of material in said tube from water therein, in combination with a support for said stopper adapted to control its movements, and means permitting the disconnection and withdrawal of said support upon passage of said stopper from said tube.

2. In combination a tremie tube, a stopper therefor comprising independent sections and supporting means therefor permitting

said stopper to be moved as a unitary structure lengthwise of said tube in advance of the material therein, whereby to separate said material from and exclude water from said tube, said support being adapted to be released from engagement with said sections upon the passage of the stopper from said tube.

3. A tremie tube having a stopper comprising independent sections adapted to be moved as a unitary structure lengthwise of said tube and to separate material therein from water therein, and means for controlling movement of said stopper and the charge of material following it comprising a flexible support independent of said tube having thereon means for engaging the stopper sections when they are assembled, said means being adapted to release said sections when they have passed from the bottom of said tube.

4. A tremie tube for placing sub-aqueous concrete and the like, having a stopper, a support therefor adapted to control the movement of the stopper lengthwise of said tube in advance of a charge of material therein to separate said material from and exclude the water in said tube, said stopper being divided to permit the separation of its parts to release said support upon passage out of the tube.

5. A tremie tube having stopping means adapted for movement therein as a unitary structure so as to separate a charge of material in said tube from water therein, in combination with supporting means for said stopping means adapted to control the movement of the stopping means through the tube, the two means having coöperative parts arranged to be held in attached relationship by the tube while in the tube and automatically to separate when moved out of the tube.

Signed by me at Seattle, Washington, this twentieth day of July 1915.

HARRISON S. TAFT.

Witnesses:
GEORGE H. PRESTON,
THOMAS D. ELY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."