

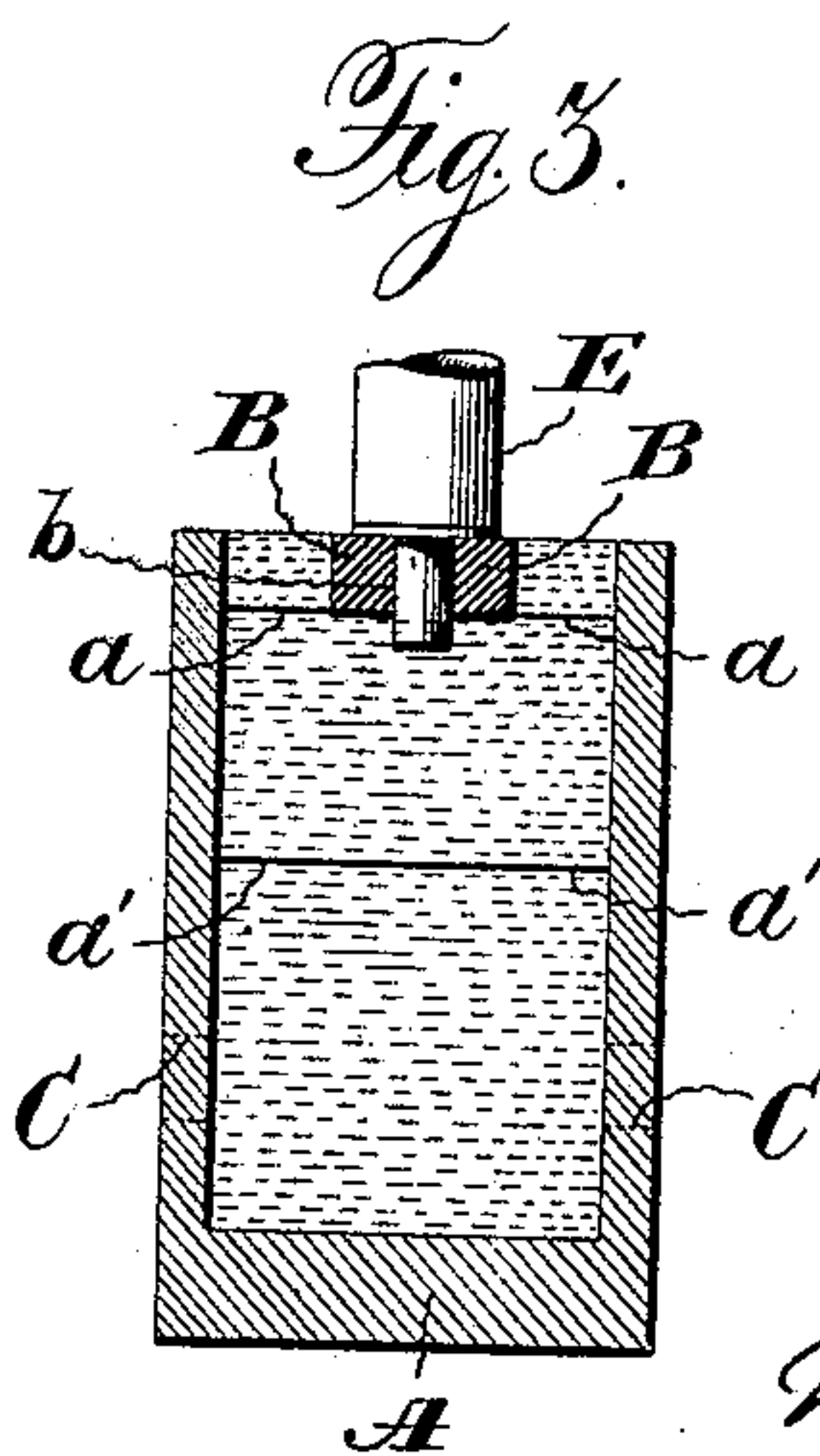
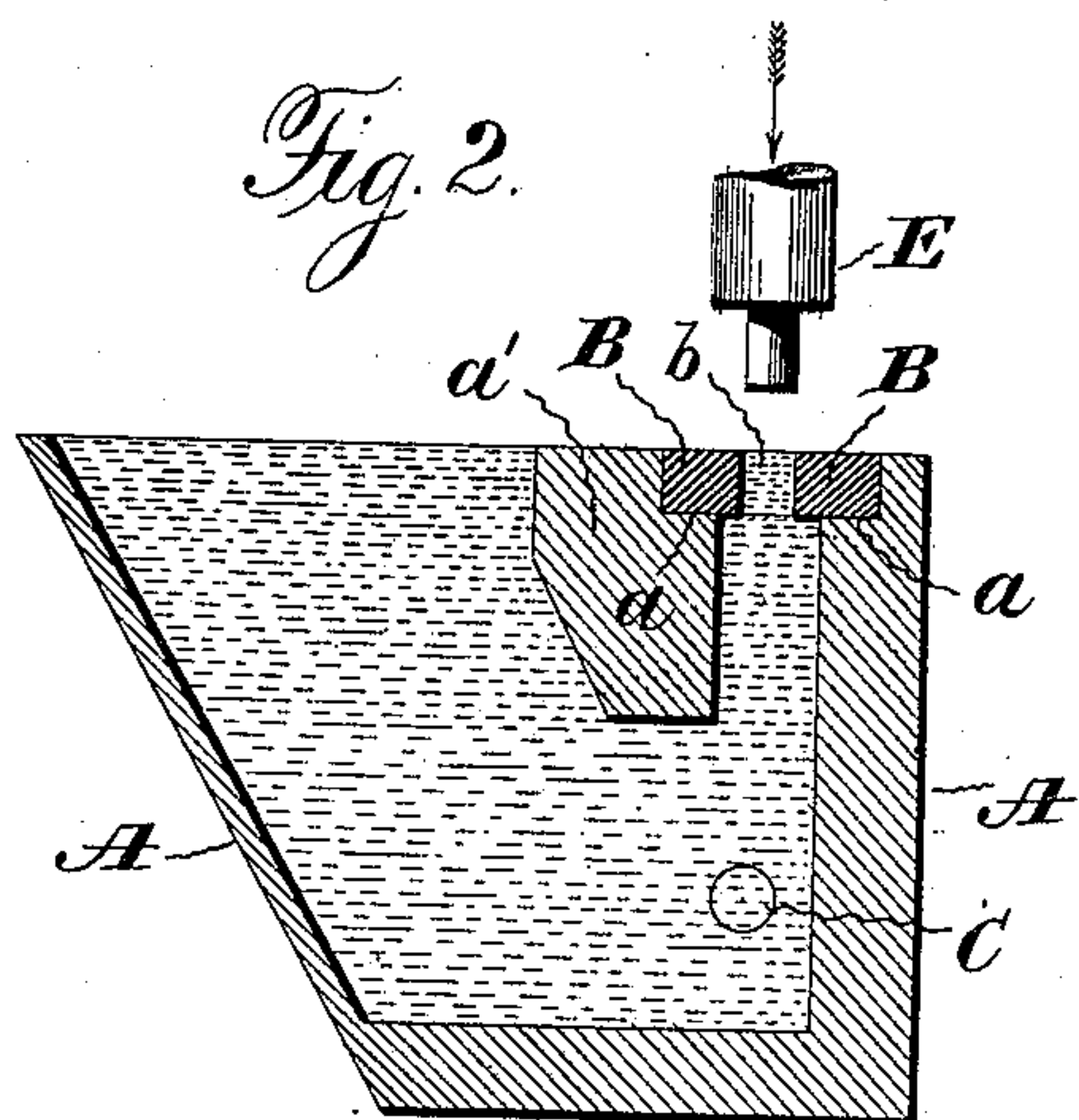
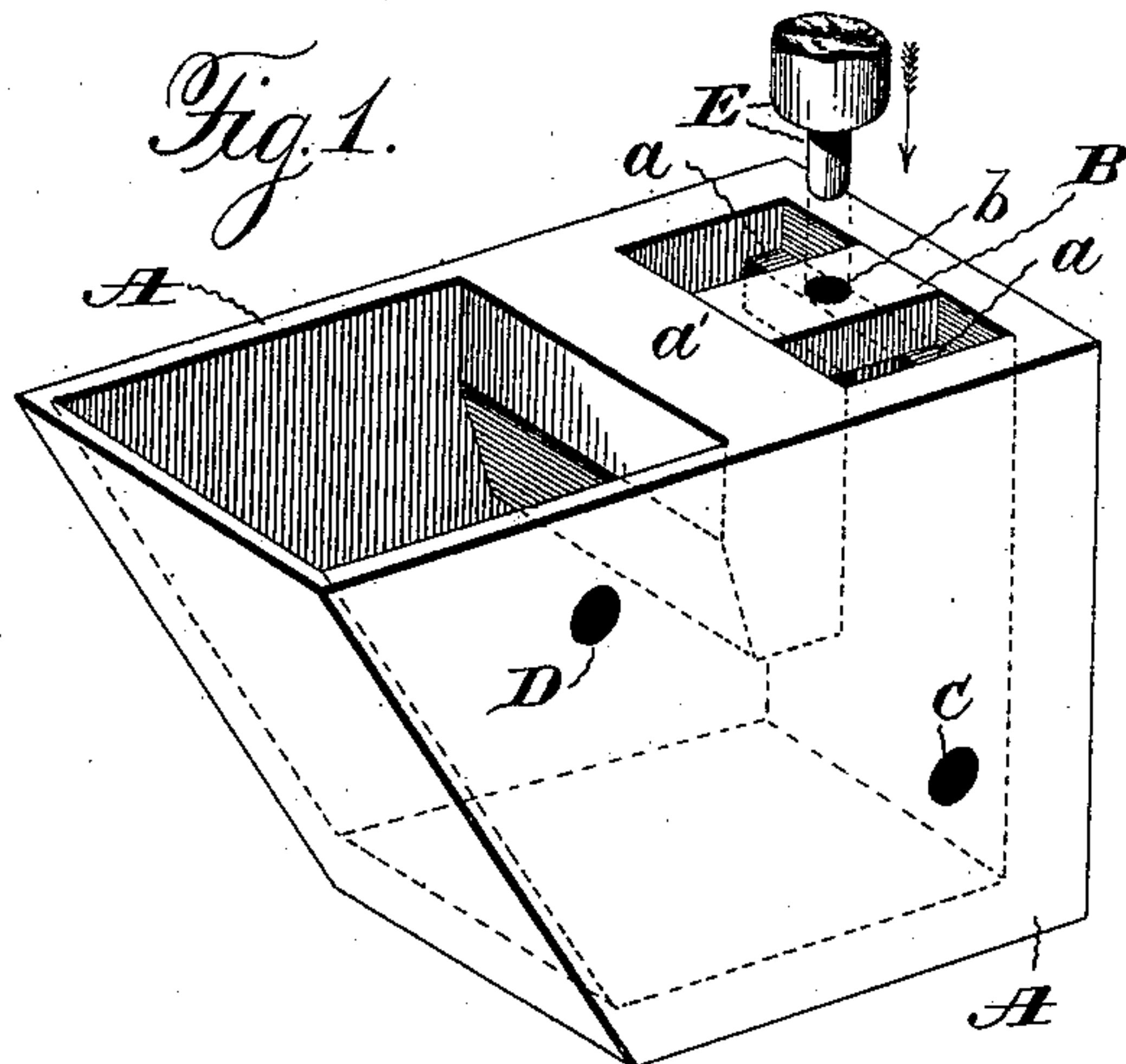
No. 612,001.

Patented Oct. 4, 1898.

W. R. JENKINS.
STAMPING OR PUNCHING PRESS.

(Application filed Oct. 16, 1897.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM R. JENKINS, OF BELLEFONTE, PENNSYLVANIA, ASSIGNOR TO THE
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STAMPING OR PUNCHING PRESS.

SPECIFICATION forming part of Letters Patent No. 612,001, dated October 4, 1898.

Application filed October 16, 1897. Serial No. 655,439. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. JENKINS, of Bellefonte, in the county of Centre and in the State of Pennsylvania, have invented certain new and useful Improvements in Stamping or Punching Presses; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a portion of a punch and a press-bed embodying my invention. Fig. 2 is a vertical longitudinal section thereof, and Fig. 3 is a vertical transverse section.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to provide simple and most efficient means to keep cool the dies and punches of presses used in working with hot metal; and to this end said invention consists in the means employed, substantially as hereinafter specified.

The common practice in working hot metal in stamping or punching presses is to pour water upon the surfaces of the dies and punches to keep them cool; but this is an objectionable procedure for several reasons. It does not continuously and thoroughly cool the parts. The water flows upon the piece of metal to be worked with the result of cooling it, and the heated piece of metal when placed in the press prevents the water from coming into contact with the parts, and this is at the time it is most needed, as the parts are then subjected to the greatest heat. Another expedient is to provide the punches and dies with chambers or cavities and to circulate water through them; but this is unsuccessful, because the walls around the chambers have to be so thick to give the die or punch sufficient strength for its work that the heated cutting edges thereof are quite unaffected by the presence of the water in the chamber. Again, such a large flow of water is required for some tools that the chambered construction is wholly inadequate.

My cooling means will be found free from the objectionable features of those above noted, and actual use has shown its entire practicability.

In the carrying of my invention into practice as applied to a punching-press I give to the press-bed A the form of a tank, providing it with parallel ledges *a* and *a* for the support of the die B, which is shown as a block with a simple round hole *b* extending vertically through it. One of the ledges *a* is formed in the end wall of the tank-like bed and the other in a transverse bar or bridge *a'*, extending from side to side of said bed at the top thereof. The ledges *a* and *a* are sufficiently below the top of the bed so that the upper surface of the die is flush with or below the plane of the top of the bed. Through one or both sides of the bed openings C and C are provided near the bottom thereof for the admission of water, and an opening D is provided in one side near the top for the discharge of water. The level of the water in the bed is maintained at such a point as to be nearly or quite flush with the top of the die, and hence as the water enters the die-opening *b* and as there are spaces between the sides of the die and the sides of the bed the die is virtually submerged in the water. An abundant flow of water can obviously be kept up through the bed, so that the temperature thereof cannot get high enough to impair its effect on the die. The level of the water can be maintained in the bed by giving the necessary elevation to the discharge-pipe connected to the opening or by means of a suitable valve.

Besides keeping the die B cool the punch E is also cooled as it dips into the water in the die-opening *b* when it passes through the material to be punched.

It will be seen that by making a tank of the bed of the press the die, except as to its upper surface, is surrounded by the cooling fluid, and the latter is in contact with its external surfaces and at the places where it is most needed and is most effective. My construction is not only superior to those which require that the dies and punches be chambered in respect to its efficiency and the greater quantity of cooling fluid that can be used, but it can be employed with dies and punches whose size or structure precludes their being formed with chambers.

It is of course to be understood that I do not limit myself to the specific construction which I have chosen to illustrate my invention nor to any particular kind of press.

5 Having thus described my invention, what I claim is—

1. In a press for working heated metal, the combination of a vessel to contain a cooling medium, a die within such vessel placed so
10 that it may be submerged in the cooling medium, except as to its work-receiving surface, whereby the metal being worked is kept out of contact with the cooling medium, substantially as and for the purpose described.

15 2. In a press for working heated metal, the combination of a tank-form bed, a die, and ledges on said bed supporting the die so that a cooling medium in the bed may be flush or substantially flush with the work-receiving
20 surface of the die, and out of contact with the metal being worked, substantially as and for the purpose shown.

3. In a press for working heated metal, the combination of a tank-form bed to contain a
25 cooling medium, a die suitably supported therein, with its bottom and side, but not its top surfaces in planes beneath the level of the cooling medium in the tank, whereby the metal being worked does not come in contact

with the cooling medium, substantially as 30 and for the purpose specified.

4. In a press for working heated metal, the combination of a tank-form bed to contain a cooling medium, a die suitably supported therein with its bottom and side, but not its
35 top surfaces in planes beneath the level of the cooling medium in the tank, whereby the metal being worked does not come in contact with the cooling medium, and a punch that enters the cooling medium in the tank, substantially as and for the purpose set forth. 40

5. In a press for working heated metal, the combination of a vessel to contain a cooling fluid, a die within the vessel placed so that it may be submerged in said fluid, except as
45 to its work-receiving surface, whereby the metal being worked is kept out of contact with the cooling fluid, a means for supplying fluid to the vessel, and a means for removing it therefrom, substantially as and for the pur- 50 pose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 12th day of October, 1897.

WILLIAM R. JENKINS.

Witnesses:

CHARLES P. HEWES,
J. H. LINGE.