

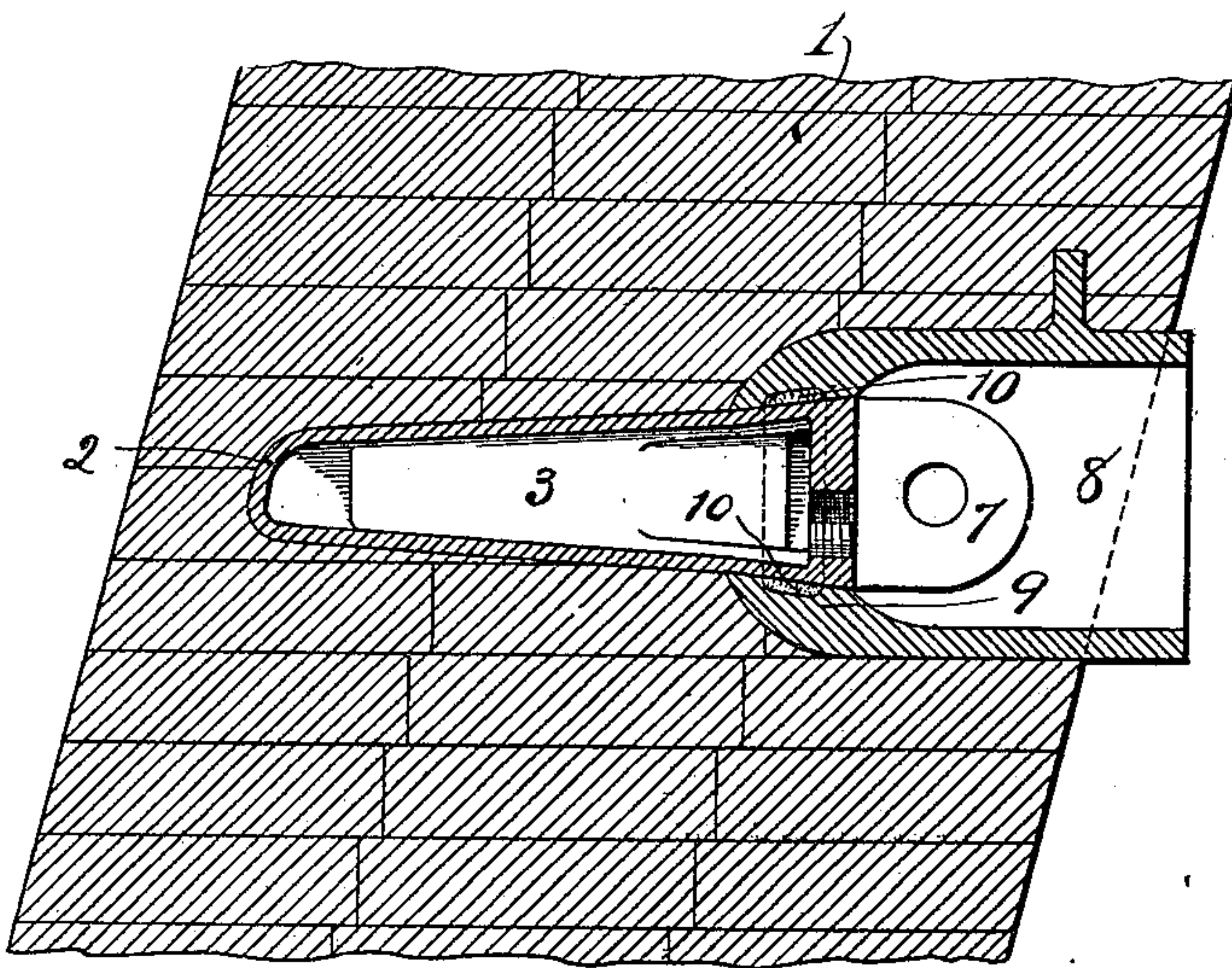
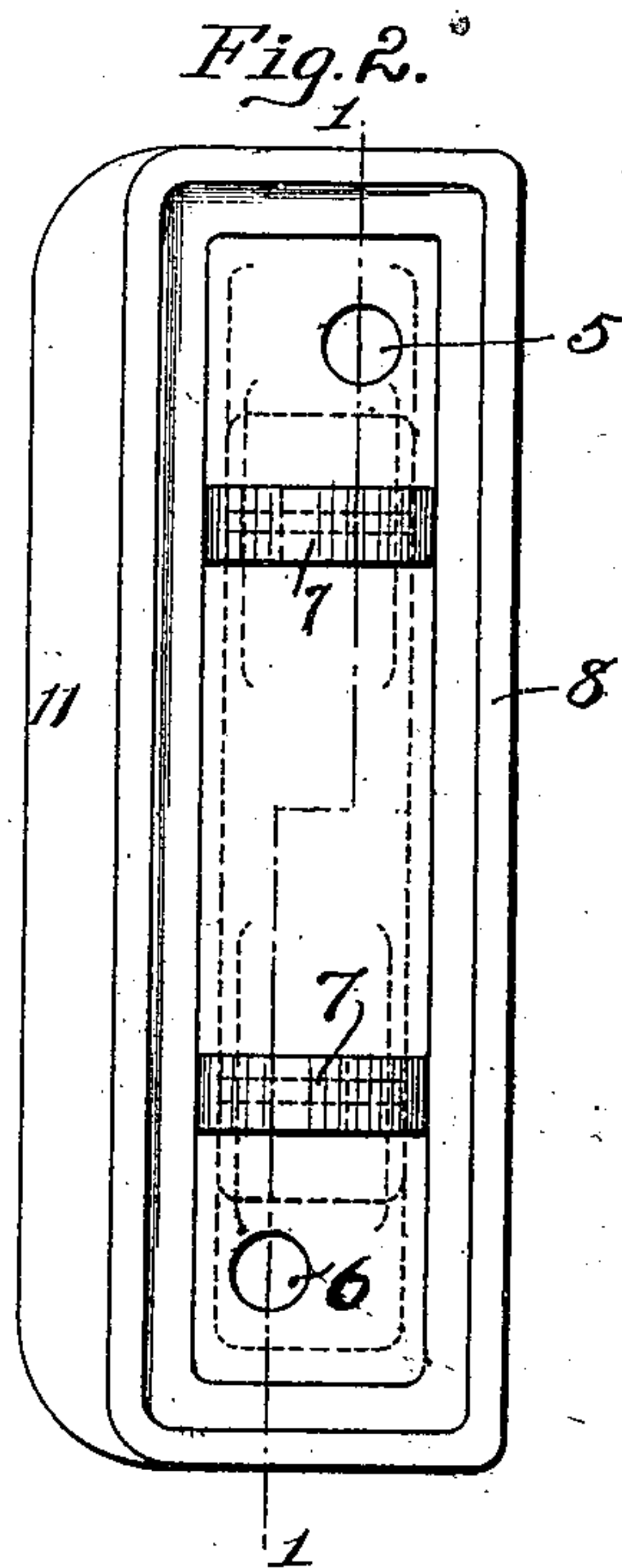
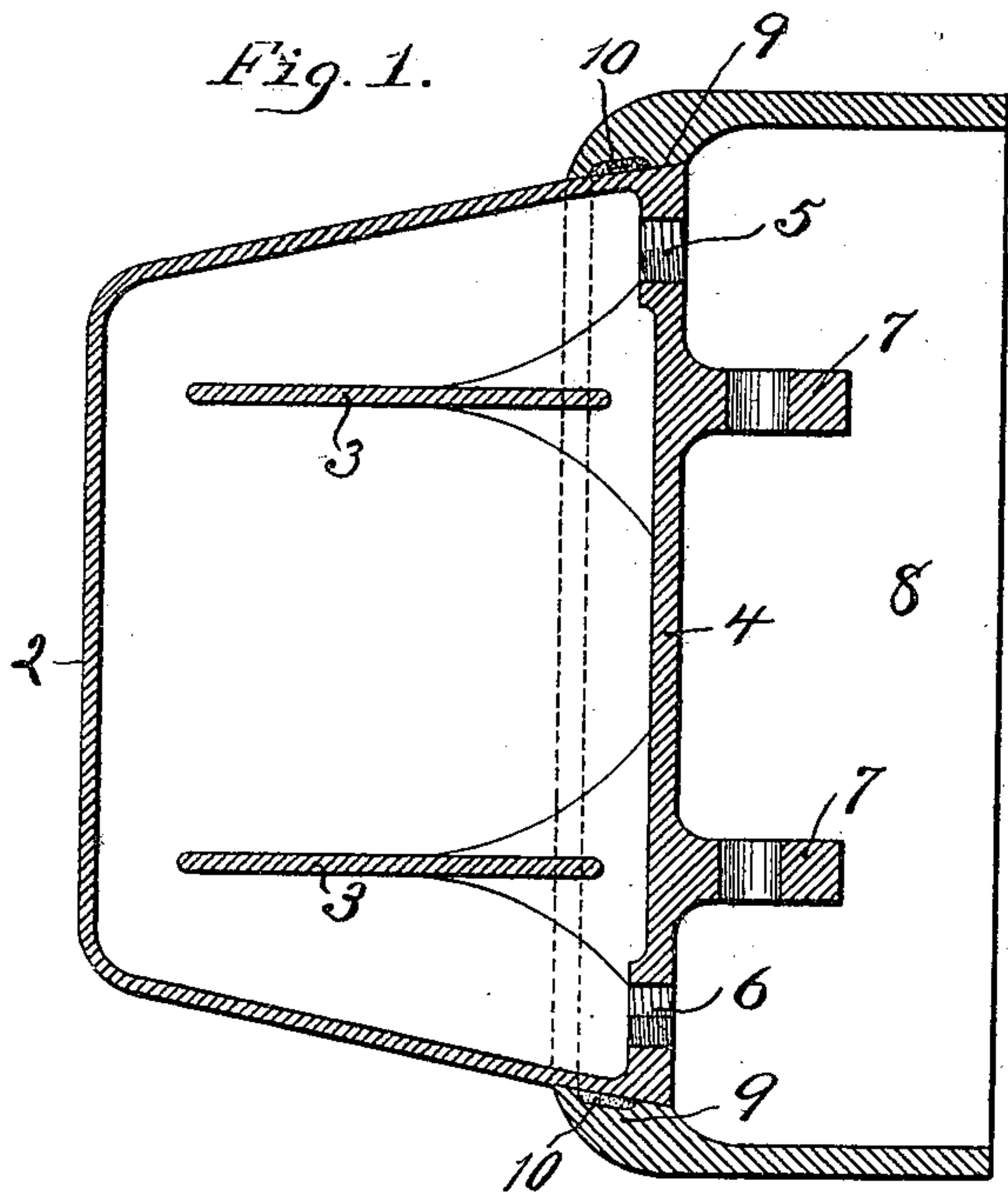
No. 663.613.

Patented Dec. 11, 1900.

A. K. REESE,  
BOSH PLATE.

(Application filed Feb. 20, 1900.)

(No Model.)



Witnesses:

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# UNITED STATES PATENT OFFICE.

ARNOLD K. REESE, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF  
TO ELIZABETH SMEETH, OF CHICAGO, ILLINOIS.

## BOSH-PLATE.

SPECIFICATION forming part of Letters Patent No. 663,613, dated December 11, 1900.

Application filed February 20, 1900. Serial No. 5,874. (No model.)

*To all whom it may concern:*

Be it known that I, ARNOLD K. REESE, a resident of Baltimore, (Sparrows Point,) in the county of Baltimore and State of Maryland, have invented a new and useful Improvement in Bosh-Plates; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to devices for reducing the temperature of the walls of blast-furnaces, such as are commonly known as "bosh-plates," and has for one of its objects to provide a bosh-plate of such form that it may be readily inserted in position and as readily removed therefrom when burned, cracked, or otherwise disabled with a minimum expenditure of time and labor.

A further object of my invention is to provide a box or holder for bosh-plates which will securely support such plates in position and prevent escape of furnace-gases around the plate arising from defects in the joints between the plates and box or holder.

With these ends in view I have devised a bosh-plate having tapered sides and top and bottom walls, and for use in connection therewith a box or holder completely open at its outer end and provided with a seat or socket at its inner end which conforms in shape to the outer walls of the bosh-plate, so that when a plate is inserted it is wedged securely in position, but may be readily removed when desired, as well as other improvements hereinafter set forth.

The apparatus constituting my invention is illustrated in the accompanying drawings, in which—

Figure 1 is a horizontal sectional view of the bosh-plate and holder, and Fig. 2 is a rear end view of the same. Fig. 3 is a vertical section of a portion of a furnace-wall and of my bosh-plate and holder in operative position therein.

Considering now the details of construction as illustrated in the drawings, 1 is a portion of the masonry of a blast-furnace at that part known as the "bosh," and the protection of which from injury by means of excessive heat is the object of the device generally employed and known as "bosh-plates."

The bosh-plate 2, constructed according to

my invention, is of considerable length and width as compared with its height or thickness, in order that it may extend nearly to the inner wall of the furnace without unduly weakening the masonry, and is provided with top, bottom, and side walls that taper or converge inwardly, as is clearly shown in Figs. 1 and 3, and with interior baffle-plates 3, the number and location of which may be such as is found to best promote the utilization of the water caused to flow through the plate. I have shown the plates 3 as extending nearly, but not quite, to the rear wall 4 of the plate, and as extending to points at somewhat greater distance from the inner or front end of the plate, causing the greatest circulation of water to take place over the inner or front end of the plate. It will be understood, however, that these plates may be extended completely to the plate 4, or that they may be otherwise arranged so as to secure any desired circulation of the water through the plate, and that the number of such plates may be varied to suit the ideas of the constructor. The outer or rear wall 4, as shown, is provided with an inlet-opening 5 and an outlet-opening 6, the latter being preferably located at a higher level than the former. Suitable pipes will obviously be connected with these openings and the desired circulation of water promoted by any suitable means. The rear wall 4 is also shown as provided with perforated lugs 7, which serve as handles for the insertion and removal of the plate.

Because of the rusting and corrosion of iron by the water it has become the usual custom to make the entire bosh-plates of copper or some composition that is not easily oxidized or corroded. On account of the greater cost of such materials it is obviously desirable to reduce the size as much as possible without relinquishing any of the benefits to be derived from the use of such plates. For this reason, as well as certain others of material consequence, I provide a box or holder 8, which may be made of cast-iron, and therefore comparatively inexpensive, the outer end of this box or holder being open and the inner end provided with a socket or seat 9, having beveled sides to fit the outer sides of the



plate 2. This seat or socket 9 is preferably provided on its inner face with a continuous groove or packing-recess 10, which may be filled with asbestos or any other suitable packing material in order to provide a tight joint and to some extent prevent a binding action between the plate and its holder. The asbestos packing is preferred because, while fireproof, it is somewhat elastic, and therefore prevents leakage, even though the bosh-plate and box may be moved with relation to each other. The top of the holder is also provided with a flange 11 for the purpose of anchoring the holder more securely in the masonry and also to strengthen it against the crushing action due to the weight of the masonry above the holder. More than one flange 11 may obviously be employed, if desired, and the location of the flange or flanges may be also varied.

It will be understood from the drawings and the foregoing description that by my construction I am enabled to employ a short plate and at the same time secure the same results that have been heretofore secured by a much more expensive construction, and that plates constructed and supported in accordance with my invention may be much more readily placed in position and removed, that leakage of gas is guarded against, and that the construction is such as to lessen the strength of the furnace-masonry to a minimum degree.

While I have shown and described a specific embodiment of my invention, I desire it to be understood that variations in form, dimensions, and location of the portions may be made without departing from the scope of the invention as claimed.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination with a box or holder adapted to be permanently set in the outside of the furnace-wall and having a tapered opening in its inner end, of a bosh-plate hav-

ing tapered sides conforming to the opening in the box or holder and adapted to fit tightly therein, said bosh-plate being hollow and having its inner end closed, and water connections to said plate.

2. The combination with a box or holder having an exterior flange for anchoring the same in the outside of the furnace-wall, and having a tapered opening in its inner end, of a bosh-plate having tapered sides conforming to the opening in the box or holder and adapted to fit tightly therein, said bosh-plate being hollow and having its inner end closed, and water connections to said plate.

3. The combination with a box or holder adapted to be permanently set in the outside of the furnace-wall and having a tapered opening in its inner end, of a bosh-plate having tapered sides conforming to the opening in the box or holder and adapted to fit tightly therein, said bosh-plate being hollow and having its inner end closed and having handles on its outer side, and water connections to said plate.

4. The combination with a bosh-plate of tapered form, of a metal holder or support having one end open, and having a tapered socket in its other end in which the plate fits, said tapered socket having a peripheral groove or recess, and heat-resisting packing therein, substantially as set forth.

5. In a blast-furnace the combination with the furnace-wall of a bosh-plate holder or box having an external anchoring-flange and a tapered socket, provided with a peripheral groove filled with packing material, and a hollow, tapered bosh-plate adapted to fit said socket and having internal baffle-plates and external handles, substantially as set forth.

In testimony whereof I, the said ARNOLD K. REESE, have hereunto set my hand.

ARNOLD K. REESE.

Witnesses:

SIDNEY S. MARTIN,  
WM. HENRY STONE.