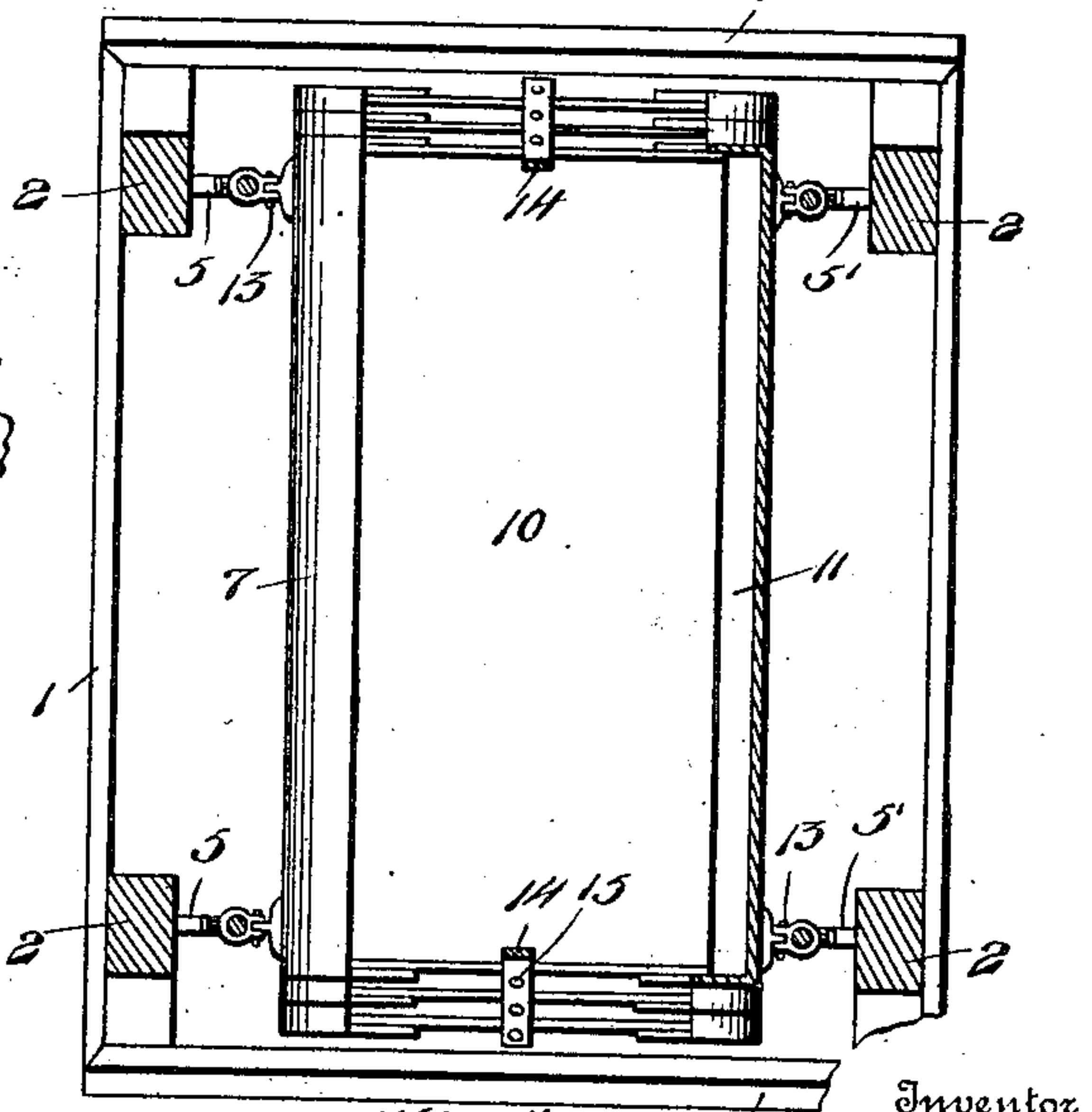
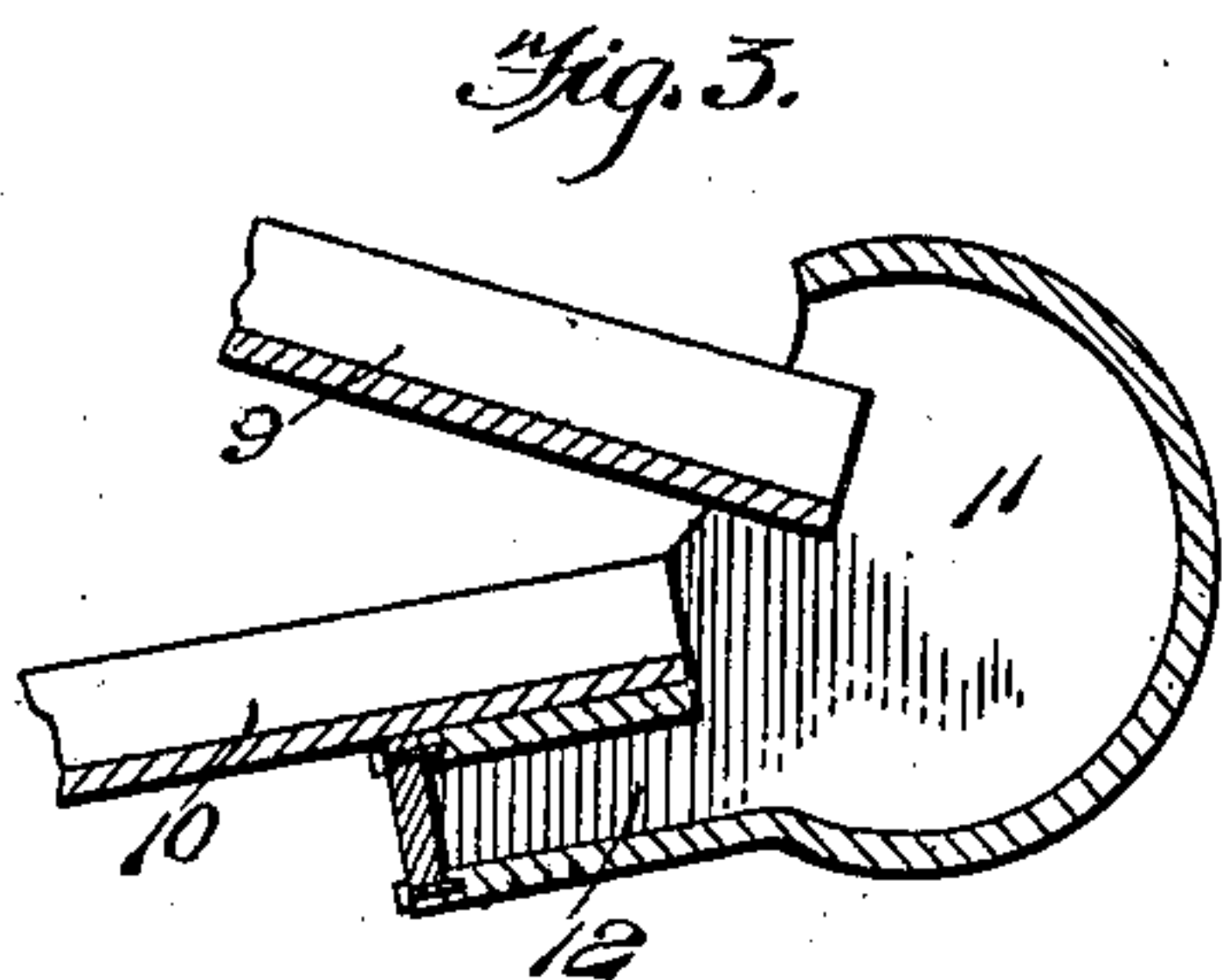
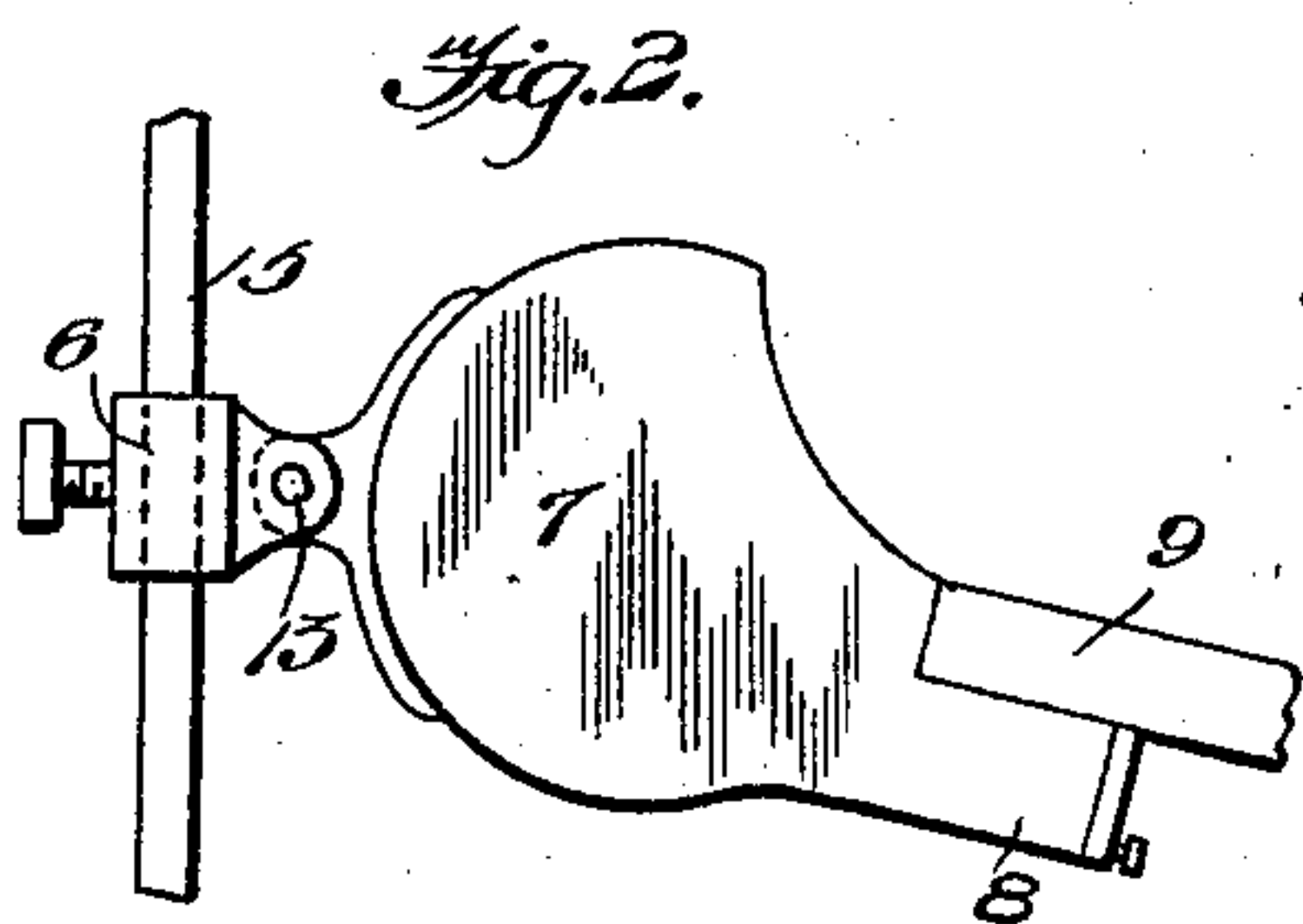
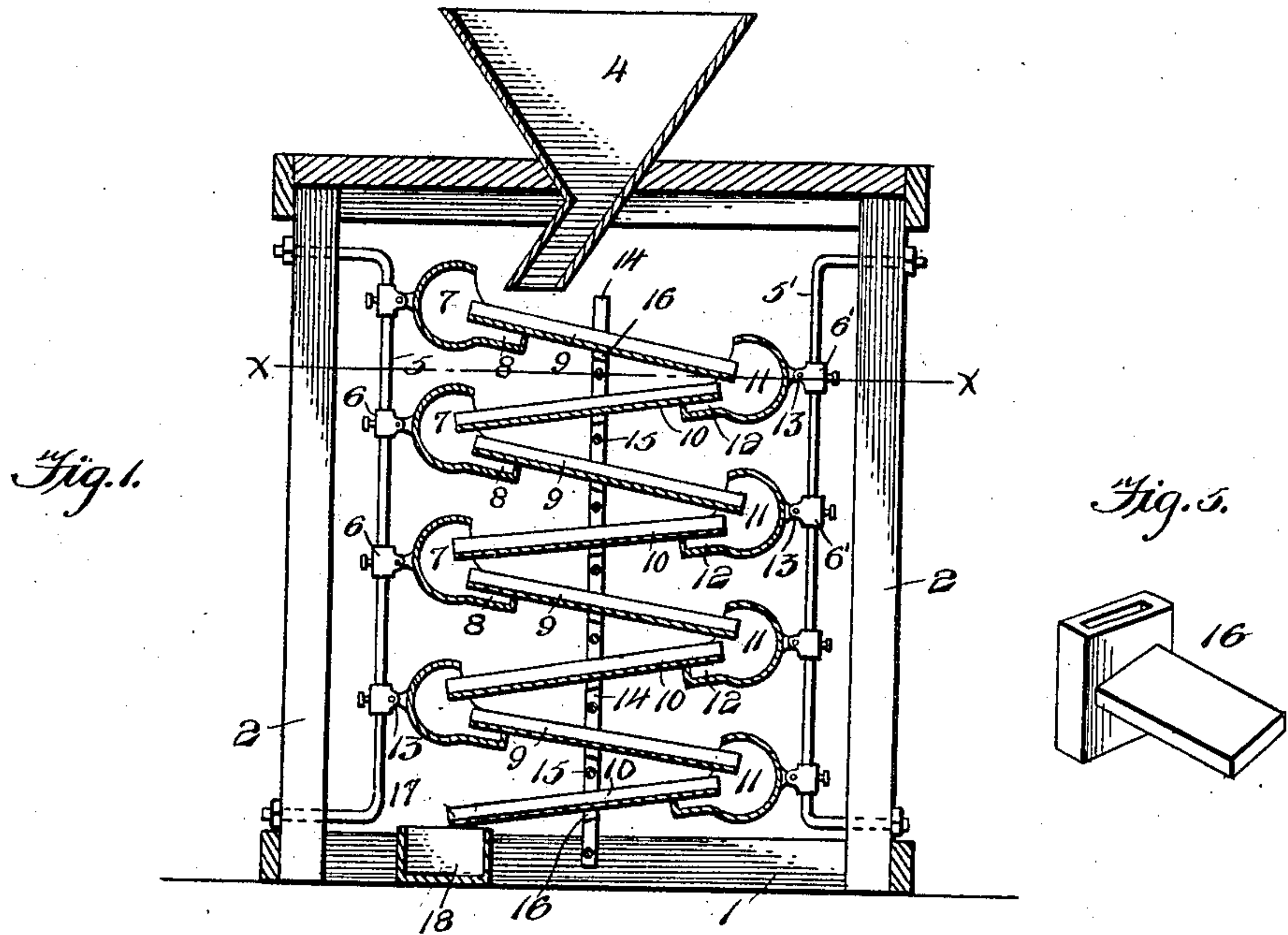


No. 889,864.

PATENTED JUNE 2, 1908.

O. H. WADE.
CONCENTRATOR OR WASHER FOR PRECIOUS METALS.
APPLICATION FILED FEB. 28, 1907.



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CONCENTRATOR OR WASHER FOR PRECIOUS METALS.

No. 889,864.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed February 28, 1907. Serial No. 359,946.

To all whom it may concern:

Be it known that I, OLIVER H. WADE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Concentrators or Washers for Precious Metals, of which the following is a specification, reference being had therein to the accompanying drawing.

My present invention relates to improvements in concentrators or washers for precious metals, and the main object of my invention, is the provision of a gravity washer or concentrator, in which the sand containing the precious metal, with sufficient water to properly cause the admixture to flow, is caused to flow down a circuitous route, in broken stages, where an "eddy" is produced to allow the heavier substances, that is the metals, to be precipitated, and held in a receptacle, while the sand, water and tailings continue to flow through the entire length of the apparatus. To attain these objects, the apparatus may be made in any desired shape, but preferably rectangular, although it may be circular, and the chutes or inclined plates may be placed in the frame at any distance apart as may be desired for the specific purpose. Each chute overhangs the chute next below, and being inclined, they are arranged in a circuitous zig-zag route, but at the beginning of each chute, I provide a receptacle to receive the flow and conduct it onwardly, and also a peculiarly shaped auxiliary receptacle, by means of which the "eddy" is produced, and the heavier substances retained in said auxiliary receptacles.

To more clearly illustrate my invention, attention is invited to the accompanying drawings, in which:—

Figure 1 is a vertical central sectional view of the complete apparatus. Fig. 2 is an enlarged detail view illustrating the method of changing the elevations and inclines of the chutes. Fig. 3 is an enlarged detail view of the exit end of one chute and the entrance end of the next chute. Fig. 4 is a cross section on line X—X Fig. 1. Fig. 5 is a detail perspective of one of the adjustable cleats.

Referring to the drawings:—The numeral 1 designates the base, which supports the casing or frame 2, of my concentrator or washer. Mounted in the upper end of the casing, is the hopper 4, to which the sand containing the precious metals to be con-

centrated, and the water to assist in the concentration, are projected. Secured within and upon opposite sides of the casing, are the two pairs of vertical rods 5, and 5', the rods 5, having secured thereto by means of the adjustable brackets 6, the receptacles 7, and the auxiliary receptacles 8, to which are secured the inclined chutes or plates 9; while to the rods 5', are secured by means of the adjustable brackets 6', the oppositely inclined chutes or plates 10, carried by the receptacles 11 and the auxiliary receptacles 12. These rods are so mounted that the brackets 6 and 6', may be released and moved upwardly or downwardly thereon to increase or decrease the relative distances between the various chutes, thus providing a means whereby the concentrator may be used for various classes of concentration, and with various flows. These brackets may also be adjustably connected to the receptacles as at 13, by means of which various angles may be given to the chutes or plates.

It will be noted that the auxiliary receptacle 8, is carried by the main receptacle 7, and has its bottom joining the bottom of the main receptacle at a point above the lowest point of the main receptacle, the bottom of the auxiliary receptacle being below and parallel with the upper end of the chute to which the receptacles are attached. By this construction, the flow entering the main receptacle is given a whirl toward the end of the chute, the water and lighter substances being forced upon the chute and on its way through the washer, while the heavier substances are thrown by centrifugal force into the auxiliary receptacle, where the eddy is formed and the heavier substances are retained.

In order to assist in supporting the chutes, after they have been properly adjusted, I employ the opposite arranged metal binders 14, which are drawn toward each other by means of the binding rods 15, so as to contact the edges of the chutes and thereby hold their free ends properly supported, and should it be desired to more securely hold the shelves in place, the adjustable cleats 16, may be adjustably and slidably secured to the binders 14.

The operation of my improved concentrator or washer is as follows:—The sand, containing the metal to be concentrated, and the water to assist in the concentration, is projected into the hopper, which directs the flow

into the first receptacle and this receptacle causes an "eddy" in the auxiliary receptacle, where some of the heavier portions, by means of the "eddy" caused, are retained, the sand containing less heavy portions and the water being allowed and caused to flow down the first chute, where the flow again empties into a receptacle, which again causes an "eddy" in the auxiliary receptacle; and thus this action continues until the water and lighter substances are projected through the exit 17 of the machine; or when mercury or amalgam, are employed to assist in concentrating fine gold dust, or platinum, I employ the trap 18 to catch the same, the lowest chute emptying therein.

I would have it understood, that my concentrator or washer may be either used as a "wet" or a "dry" washer without departing from the spirit of my invention.

In order that the precipitate may be removed from the auxiliary receptacles, I provide the said receptacles each with a door, but I reserve the right to employ any means whereby the same may be removed, if desired without discontinuing the washing or concentrating operation.

By this construction, it will be seen that by the formation of the peculiar receptacles or pockets 7 and 8, the water is given an "eddy," thus holding in suspense the heavier metals, and causing the sand and lighter materials to be raised to a plane above the upper end of the chute, where the same is sent upon its passage through the apparatus.

What I claim as new and desire to secure by Letters Patent, is:—

1. In an apparatus of this character, having a series of chutes arranged in zig-zag in-

clined order, of a support for each chute connected to the upper end thereof, and consisting of a receptacle having its mouth above the upper end of the chute and its bottom below and beyond the end of the chute, and an auxiliary receptacle carried by the main receptacle and joining the bottom of the main receptacle at a point above the lowest point of the main receptacle, said auxiliary receptacle having its bottom below and parallel with the upper end of the chute, for the purpose set forth.

2. In an apparatus of this character, the combination of a frame, a hopper connected to the upper end thereof, rods connected to opposite sides within the frame, two binders connected to the remaining two sides within the frame, a series of chutes, adjustable means connected to the binders and adapted to engage the sides of the chutes to assist in supporting the same, a receptacle having an auxiliary receptacle adapted to project below and be connected to the under side at the top of each chute, said auxiliary receptacle being parallel with the bottom of the chute and joining the main receptacle at a point above the lowest point of the main receptacle, and means for adjustably connecting said receptacles to the rods, the formation of the receptacle and auxiliary receptacle causing an eddy in the auxiliary receptacle, for the purpose set forth.

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

OLIVER HOLMES WADE.

Witnesses:

PETER I. PORTER,

CHARLES STEPHEN MANGENE.