

(No Model.)

3 Sheets—Sheet 1.

W. SWINDELL.
CASING FOR FURNACE VALVES.

No. 482,463.

Patented Sept. 13, 1892.

FIG. 1.

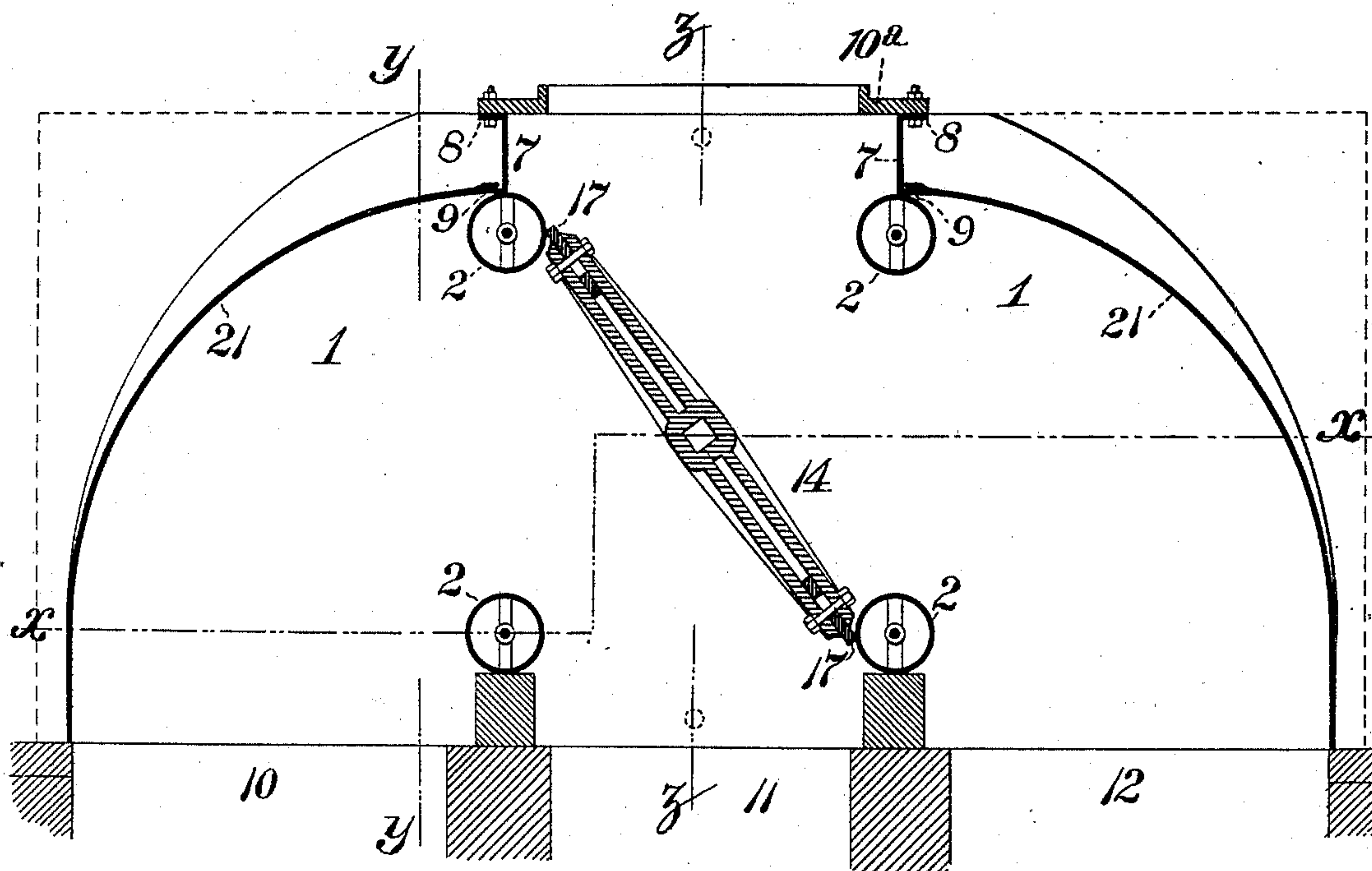
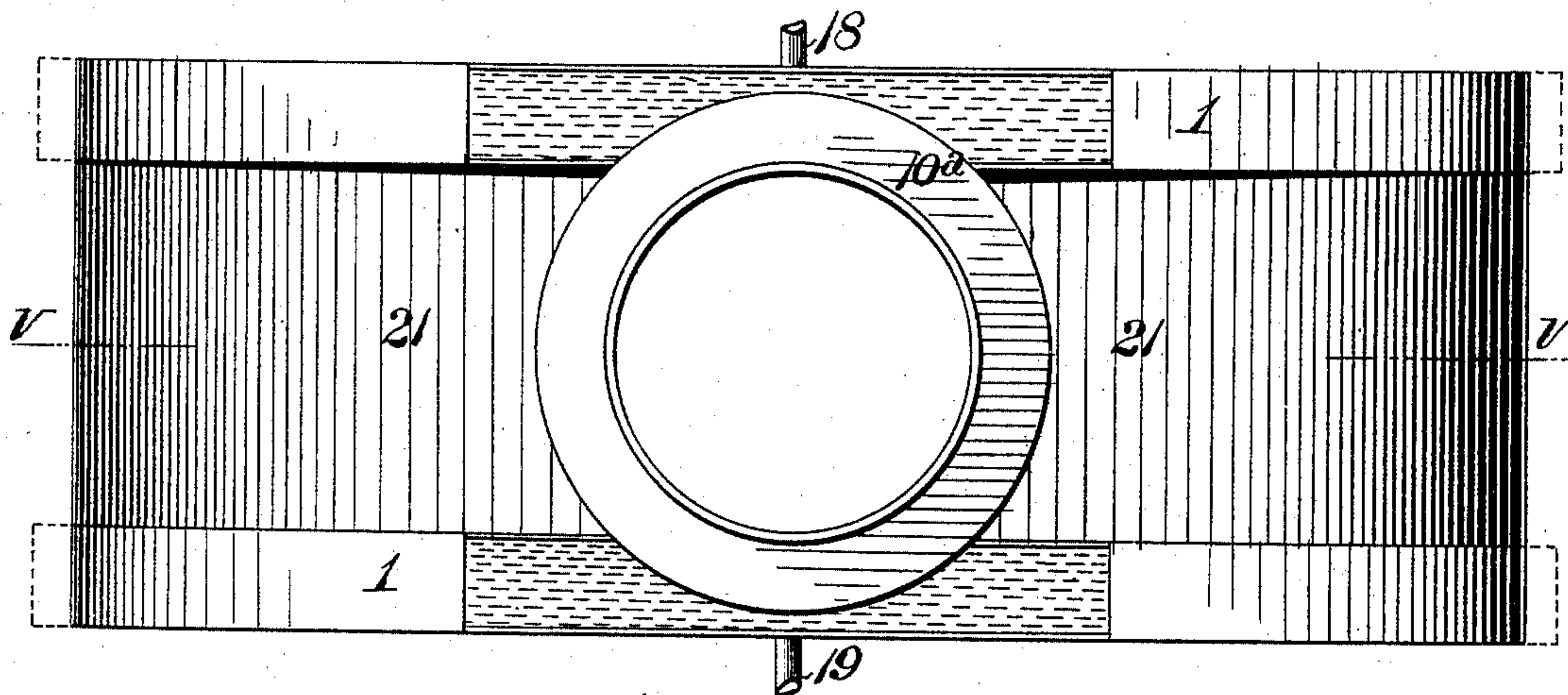


FIG. 2.



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FIG. 3.

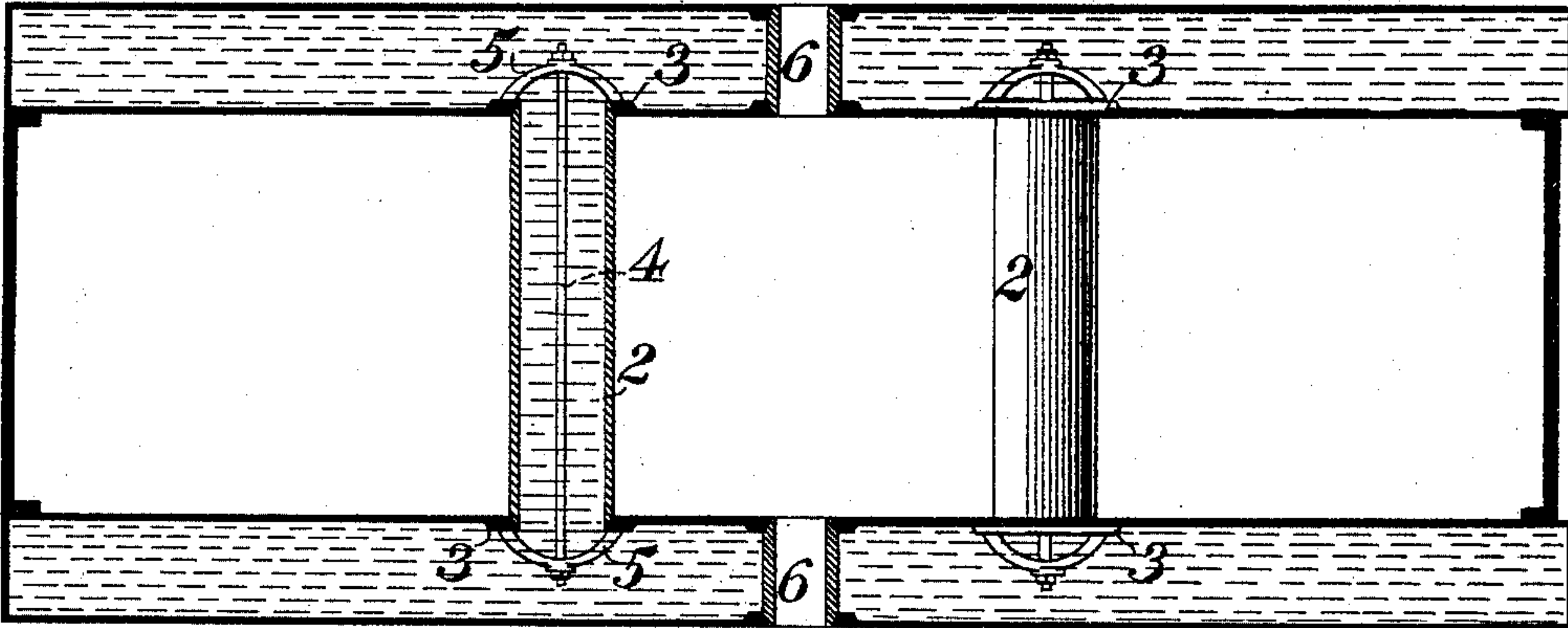


FIG. 4.

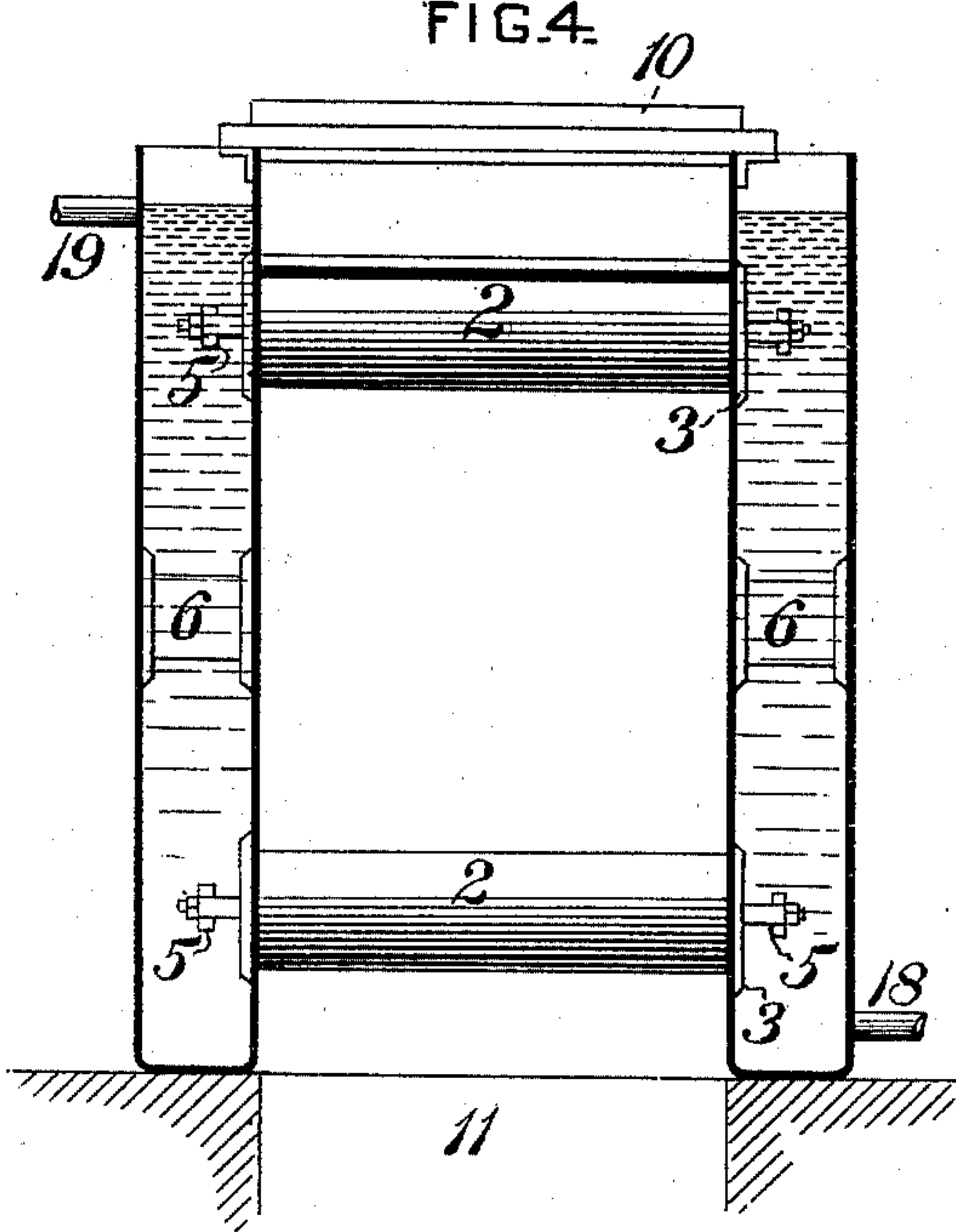
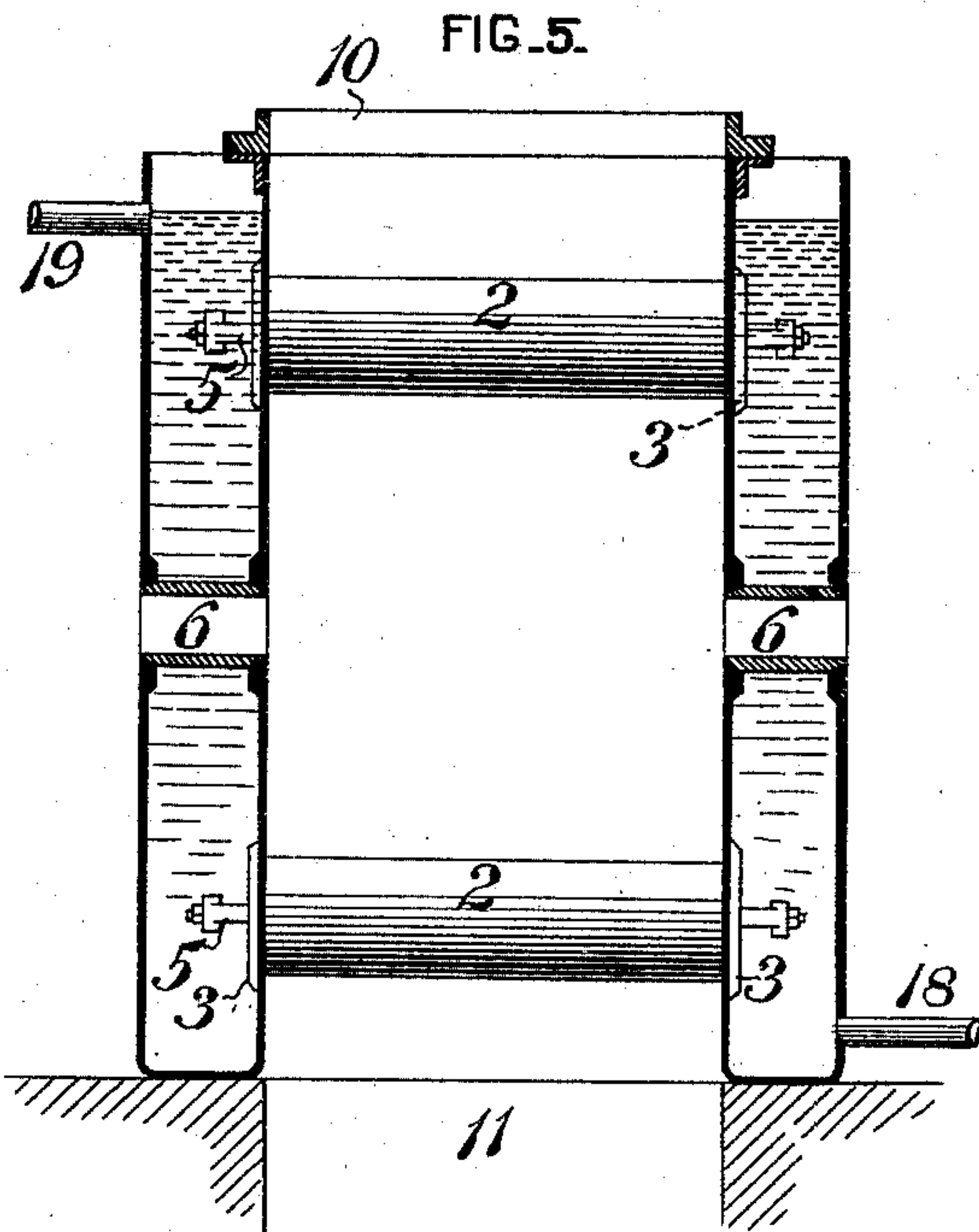


FIG. 5.



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FIG. 6.

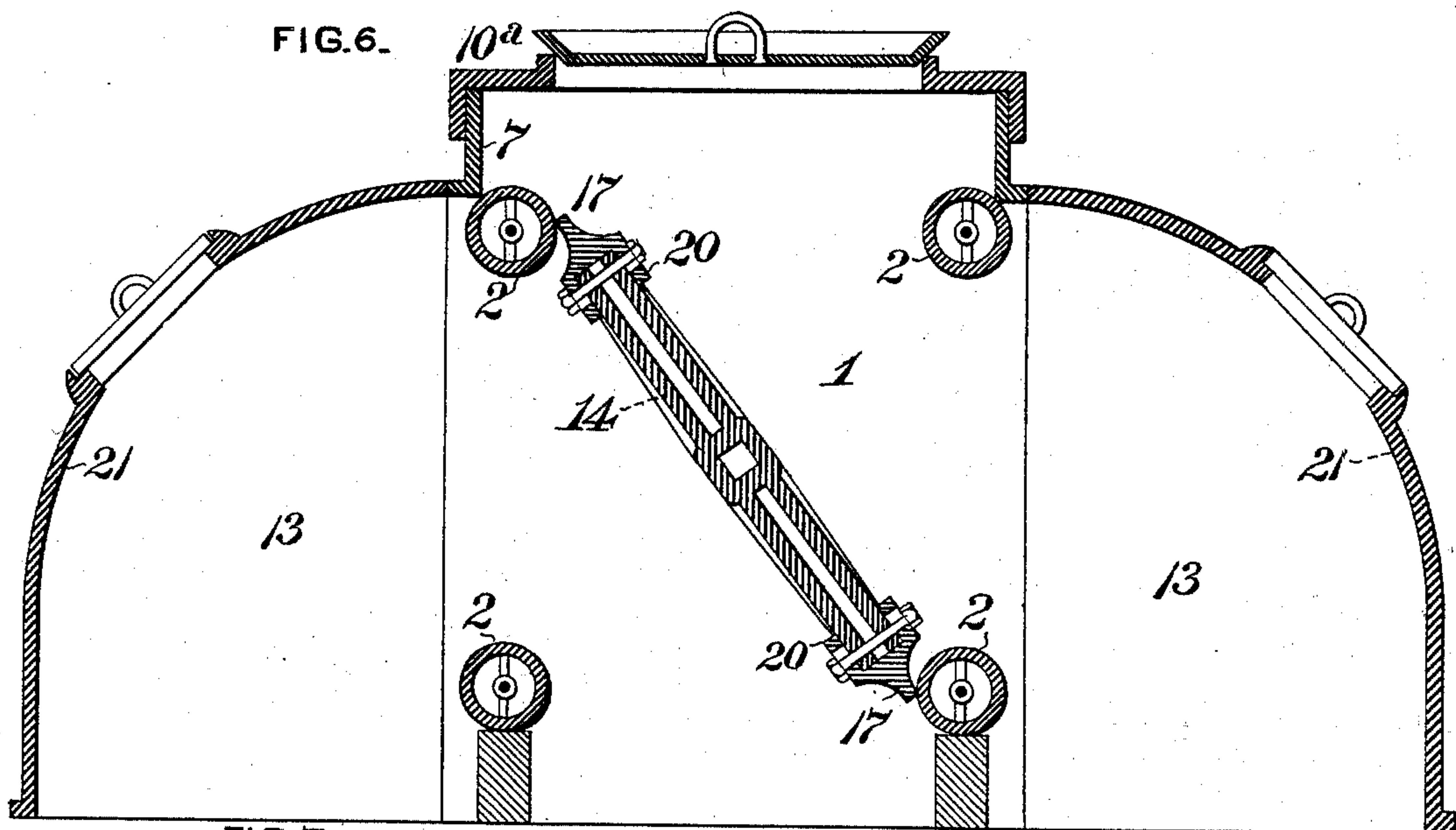
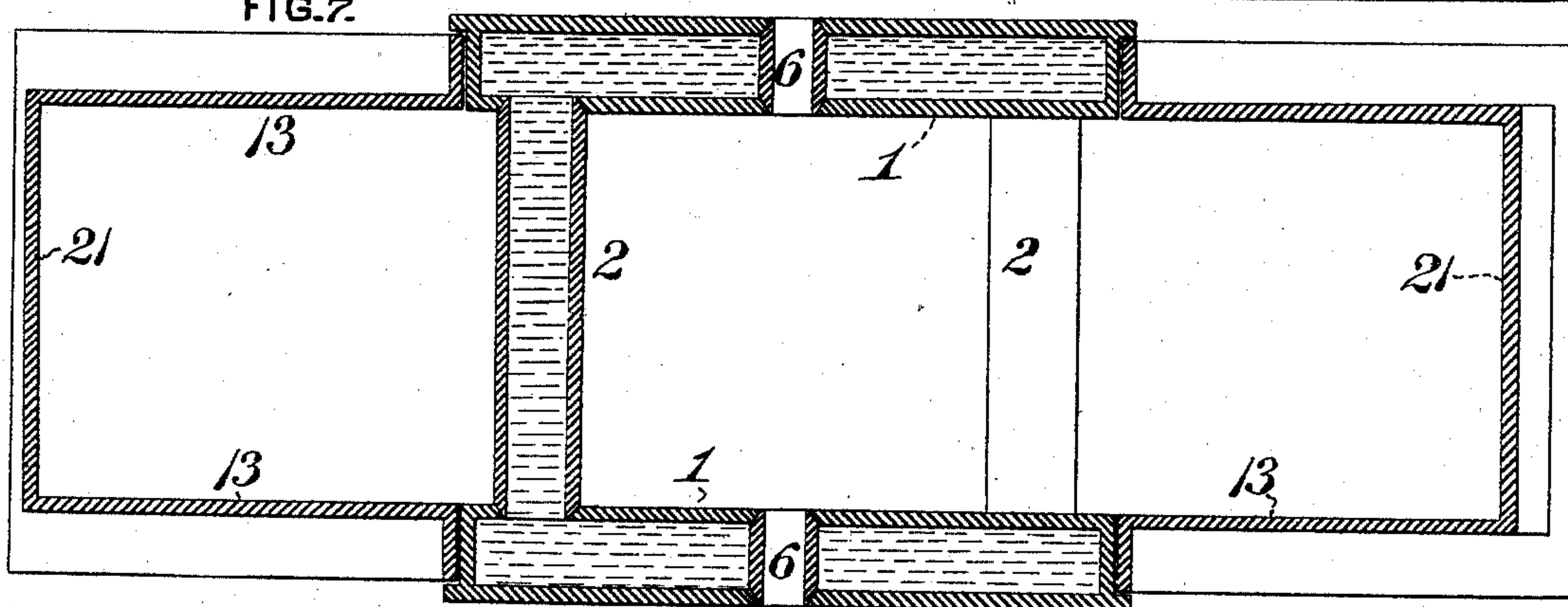


FIG. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM SWINDELL, OF PITTSBURG, PENNSYLVANIA.

CASING FOR FURNACE-VALVES.

SPECIFICATION forming part of Letters Patent No. 482,463, dated September 13, 1892.

Application filed February 1, 1892. Serial No. 419,910. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SWINDELL, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Casings for Furnace-Valves, of which improvements the following is a specification.

The invention described herein relates to certain improvements in casings for furnace-valves, and has for its object to provide a durable and efficient construction embodying therein water-chambers and water-lined valve-seats, whereby said parts are rendered more durable and efficient.

In general terms the invention consists in the construction and combination substantially as hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional elevation of a valve-casing constructed in accordance with my invention, the plane of section being indicated by the line *vv*, Fig. 2. Fig. 2 is a plan view of the casing. Fig. 3 is a sectional plan, the plane of section being indicated by the line *xx*, Fig. 1. Fig. 4 is a vertical section on the line *yy*, Fig. 1; and Fig. 5 is a similar view with the plane of section indicated by the line *zz*, Fig. 1. Figs. 6 and 7 are sectional views, the former being an elevation and the latter a plan of a modification of my improved valve-casing.

In the practice of my invention the side walls of the valve-casing consist of two hollow chambers 1, preferably formed of wrought-iron, the inner and outer walls of said chambers being separated a sufficient distance to provide a suitable body of water between them. These two hollow casings or chambers, forming, as they do, the sides of the valve-chamber, are connected together by four tubes 2, which form the seats for the valves. In order to form a tight joint between the tubes and casings, the ends of the tubes are slightly beveled, as shown in Fig. 3, and are adapted to fit correspondingly-shaped seats 3 in the inner walls of the casings, the walls of the casings around the hole through which the tubes enter being suitably thickened to form such seat, or a suitable ring having an inner beveled edge adapted to fit against the

beveled ends of the tubes may be placed around the openings in the walls of the casings, as shown. The two casings are held in proper relation to each other and against the beveled ends of the tubes by rods 4 and yokes 5, whose ends bear against the thickened portions of the plates or the ring-seats and are drawn together by the rods passing through the tubes, as clearly shown in Figs. 3, 4, and 5.

The seats 6 for the valve journal or shaft are formed by short sections of tubes having their ends beveled and adapted to bear against correspondingly-shaped seats formed in the inner and outer walls of the two hollow chambers. These short tube-sections serve to hold or brace the walls of the hollow casings against collapsing.

Between the hollow casings is secured a ring 7, provided with outwardly-projecting flanges 8 and 9, to the upper one of which is secured an annular cap-plate 10^a, provided with a rim for the reception of the pipe for conducting gas to the valve-chamber. On the lower flange 9 of this ring is supported one end of the cap-plates 21, arranged between the hollow casings and closing the ends of the valve-chambers, the lower ends of said plates resting on the masonry through which the flues to and from the furnace-chamber are formed. The valve-casings may have their outer edges curved, as shown in full lines in Fig. 1, or the whole casing may be made rectangular, as indicated in dotted lines in Fig. 1. As shown in Fig. 1, these casings are made of a sufficient length to extend over the three flues 10, 11, and 12, two of which 10 and 12 pass to the two regenerating-chambers of the furnace and the other one 11 to the stack, the latter being the central flue. The two pairs of tubes which form the seats for the valves are separated a distance approximately equal to the width of the flue leading to the stack.

In Figs. 6 and 7 the hollow casings 1 are shown as of only sufficient dimensions to extend a little beyond the central flue 11. The hoods or cap-plates 21, which are formed with side wings 13, are utilized as covers for the other flues and have their side walls or wings extended, so as to abut against the vertical edges of the hollow casing. The ends of the

body of the valve are slotted for the reception of bearing-plates 17, which have slots formed through them and are held in the slots of the body of the valve by suitable bolts and can
 5 by reason of the slots formed in them be adjusted in and out, as required, as shown in Fig. 1, or the bearing-plates may be formed on caps 20, which fit over the ends of the valve, as shown in Fig. 6, and are adjustably
 10 held thereon by bolts passing through slots in the caps or valves.

By employing tubes or other like structures through which air or other cooling medium can circulate as seats for the valve their
 15 durability is not only increased, but by reason of the coolness of their surfaces a deposit of soot and dust from the products of combustion is formed thereon, which deposit is cut into by the edges of the bearing-plates 17
 20 of the valve, and thereby forms a packing for the valve. A similar deposit, though to a less extent, is formed on the sides of the valve-casing and will be as the valve slips along scraped off and form a packing in front of
 25 the valve, and so form a tight close joint as against the leakage of gas therethrough.

As shown in Figs. 3 and 4, the casings are provided with pipes 18 and 19 for the supply and escape of water therefrom. It is preferred to arrange the supply and escape pipes
 30 so that the water or other cooling medium will enter one of the casings, and, flowing through the tubes forming the valve-seats, escape from the other casing, thereby insuring
 35 a circulation of the cooling medium through the tubes. As the edges of the valves are subjected to the greatest wear, the employment of removable plates for such edges, thus

permitting of their easy renewal, will greatly increase the durability of the valve. 40

While a valve provided with adjustable bearing-plates on its ends is shown and described herein with some degree of particularity, no claim is made for a valve of such construction as a part of this specification, as
 45 substantially such a form of valve forms the subject-matter of an application filed August 8, 1892, and numbered, serially, 442,454.

I claim herein as my invention—

1. The combination, in a valve-chamber for
 50 furnaces, of hollow side walls or casings, tubes connecting such walls or casings, a valve adapted to seat itself in its several positions against such tubes, and pipes for introducing
 55 water into the casing, substantially as set forth.

2. The combination, in a valve-chamber for furnaces, of tubes arranged transversely of the chamber and connected to a suitable water-supply and a valve adapted to seat itself
 60 in its normal positions against said tubes, substantially as set forth.

3. The combination, in a valve-chamber for furnaces, of hollow side walls or casings provided with suitable water-inlets, tubes connecting such walls or casings, a valve adapted
 65 in its normal positions to seat itself against such tubes, and removable hoods or cap-plates fitting between the side walls, substantially as set forth. 70

In testimony whereof I have hereunto set my hand.

WILLIAM SWINDELL.

Witnesses:

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