

No. 861,975.

PATENTED JULY 30, 1907.

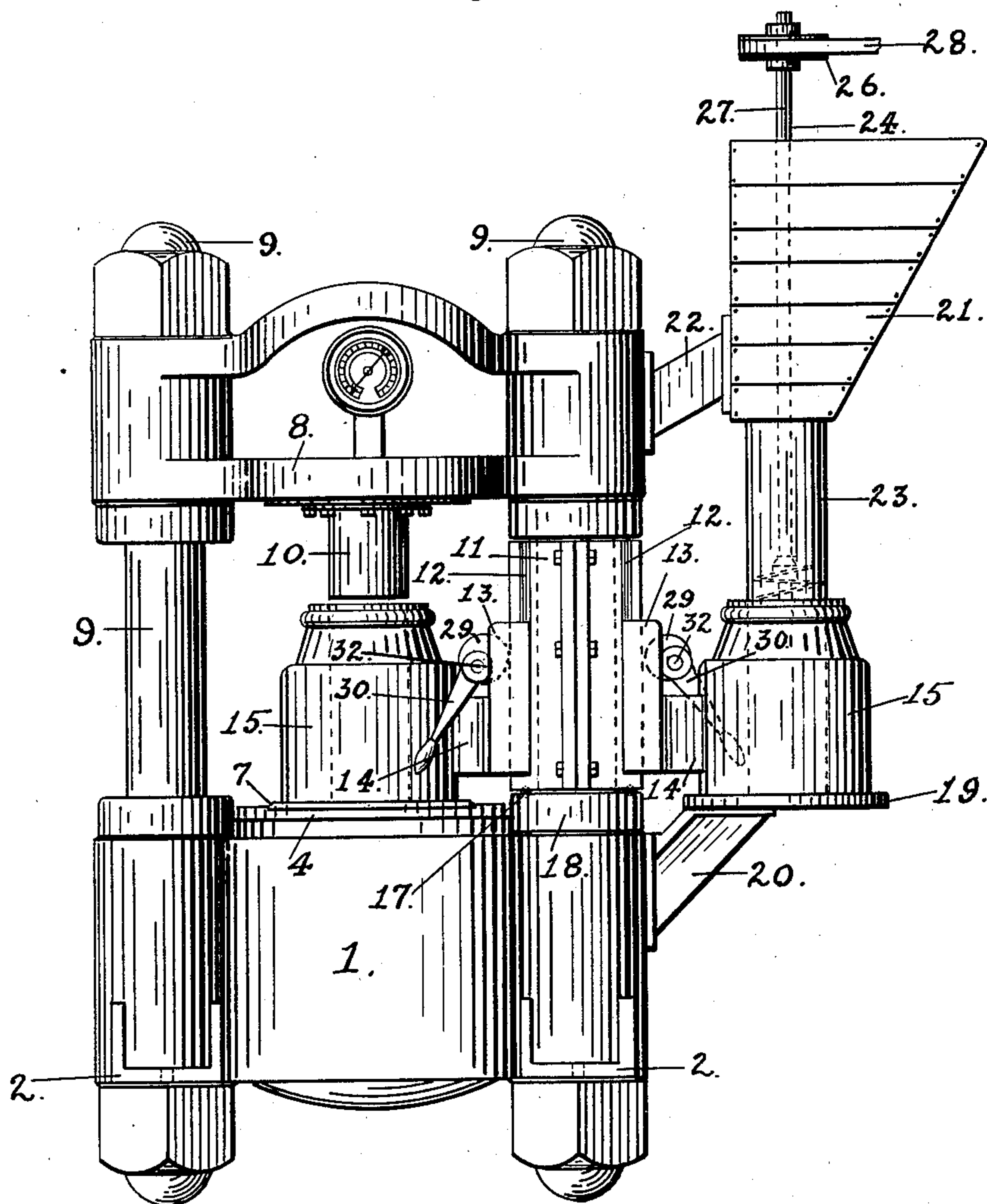
V. S. HARDY & A. E. ROE.

SALT PRESS.

APPLICATION FILED JAN. 5, 1907.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses
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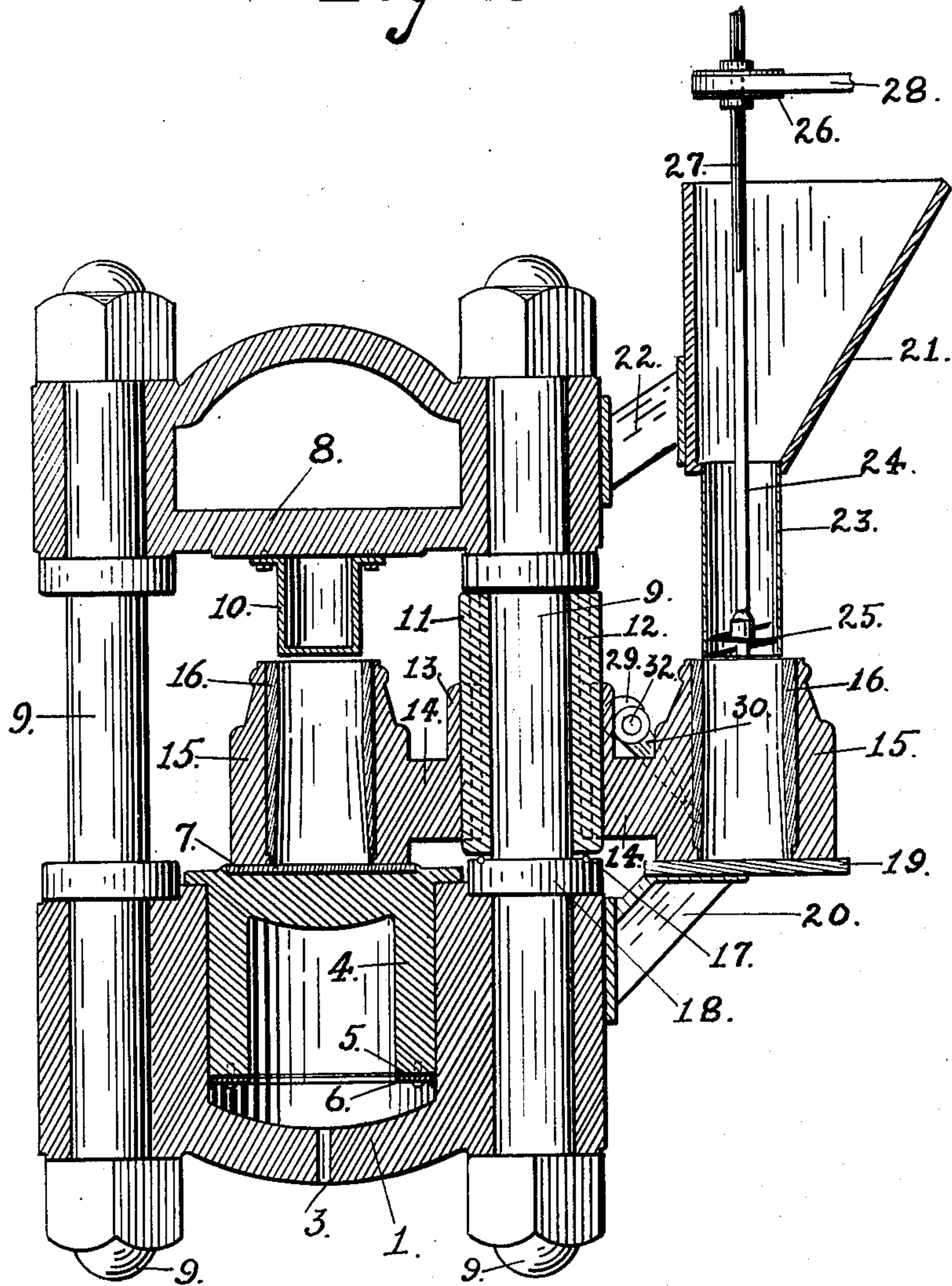
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APPLICATION FILED JAN. 5, 1907.

3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 3.

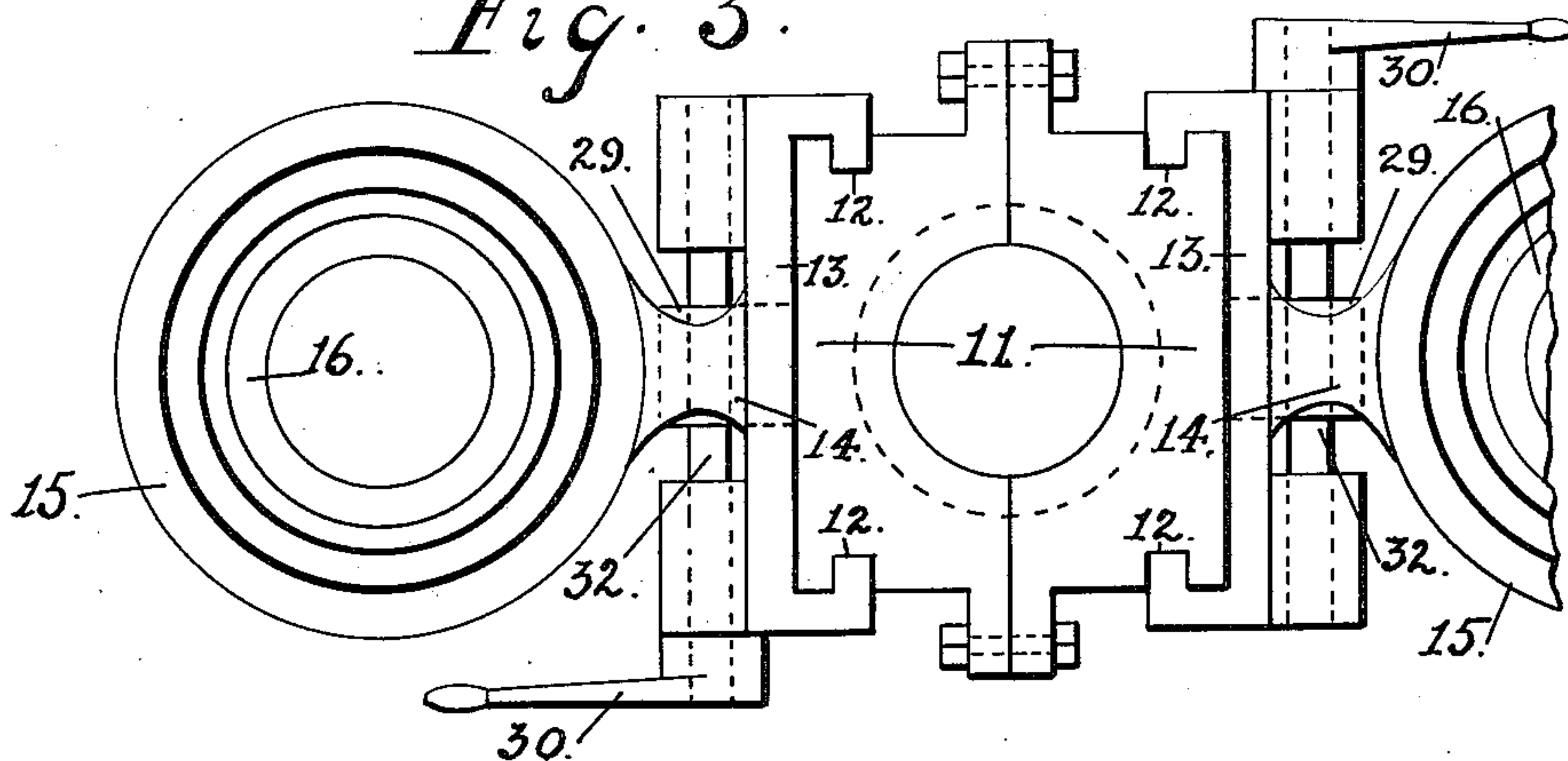


Fig. 4

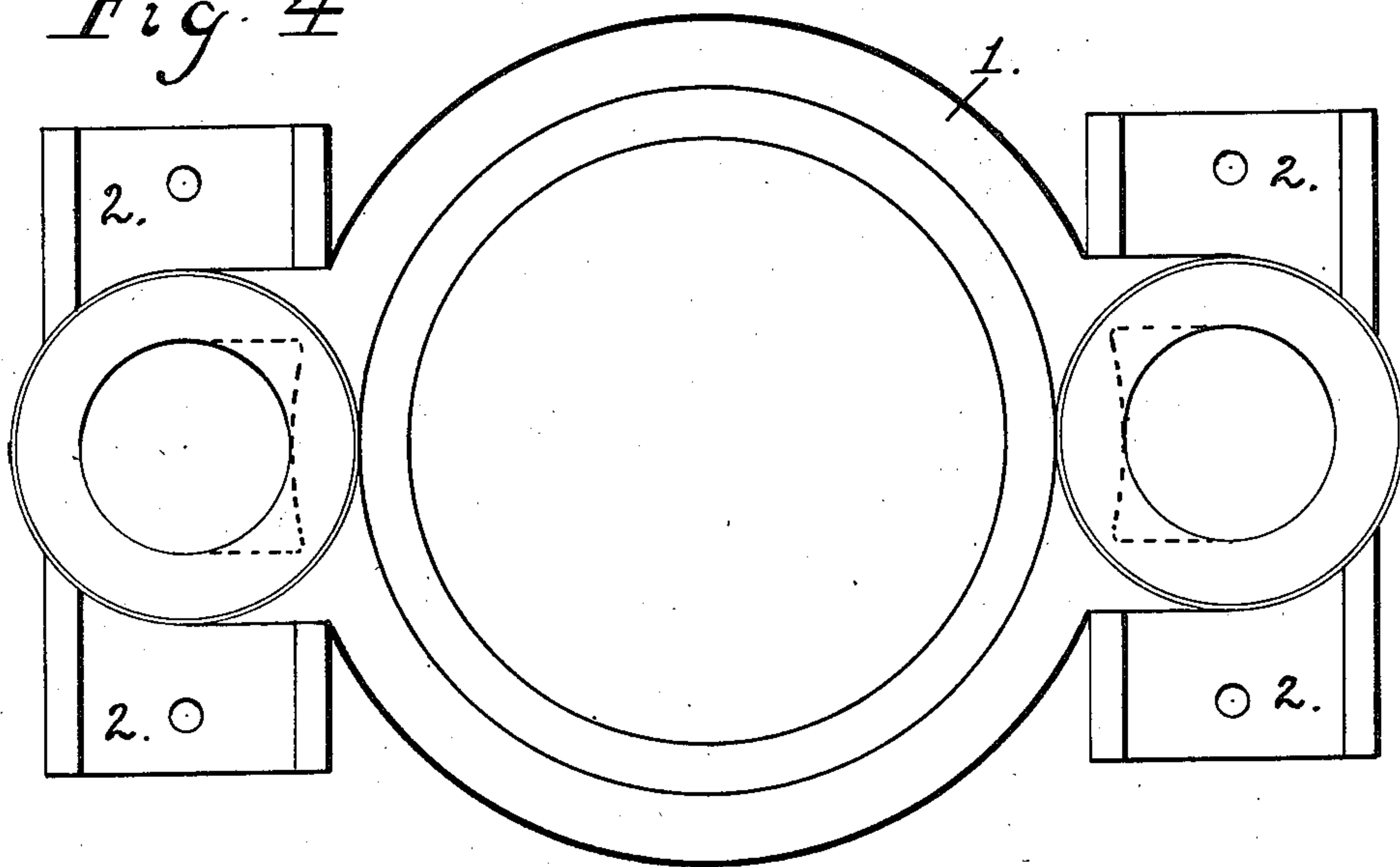
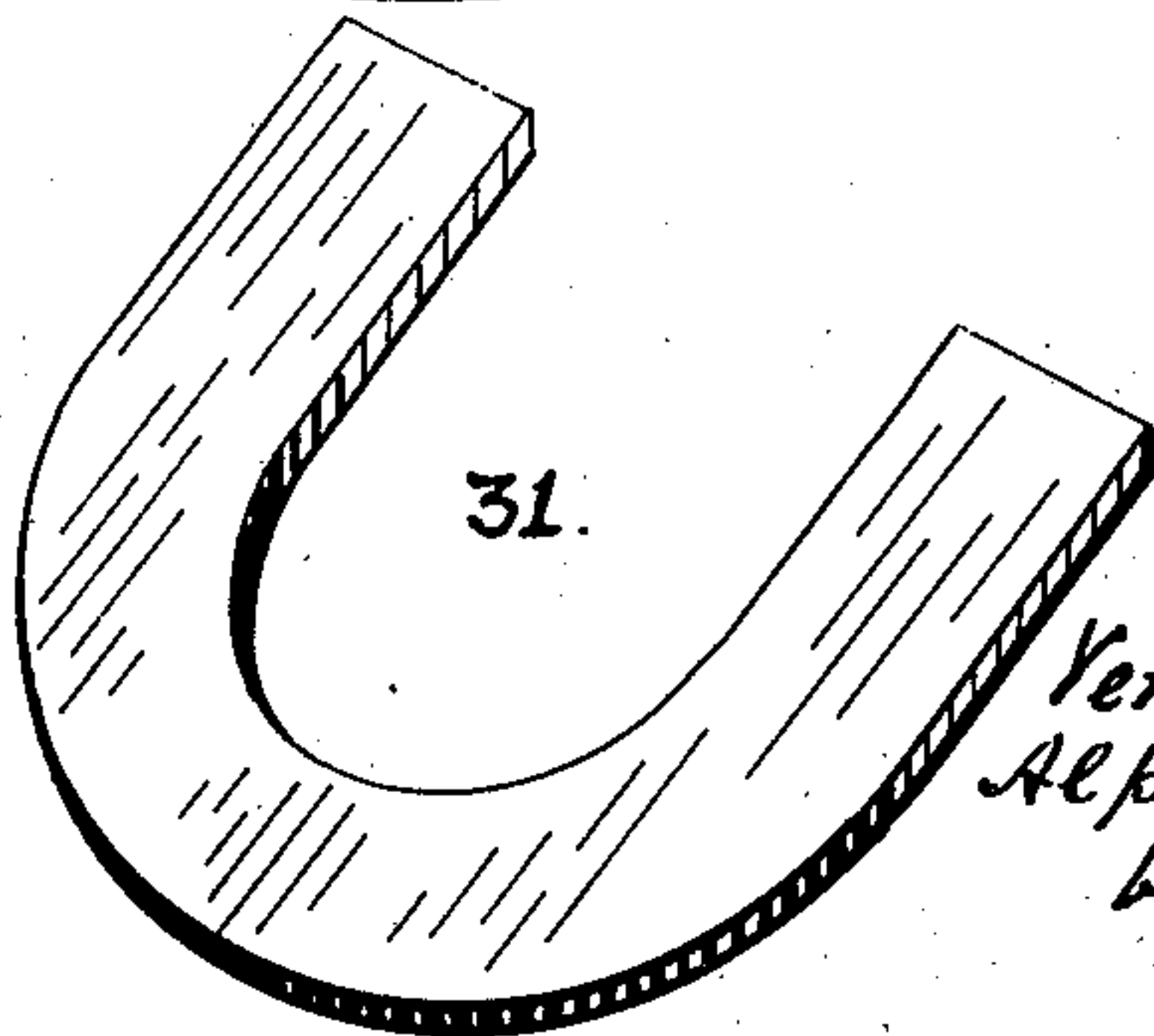


Fig. 5



Witnesses.

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UNITED STATES PATENT OFFICE.

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SALT-PRESS.

No. 861,975.

Specification of Letters Patent.

Patented July 30, 1907.

Application filed January 5, 1907. Serial No. 350,986.

To all whom it may concern:

Be it known that we, VERNON S. HARDY and ALPHEUS E. ROE, citizens of the United States, residing at Berkeley and Oakland, respectively, in the county of Alameda and State of California, have invented certain new and useful Improvements in Salt-Presses, of which the following is a specification.

Our invention relates to the class of power-presses, particularly, hydraulic presses.

10 It is applicable for use in pressing various materials, but its special use, and that for which we have designed it, is compressing salt into cakes of given weight.

The object of our invention is to provide a suitable, effective and rapidly operating press for this purpose; 15 to which end our invention consists in the novel construction, arrangement and combination of parts, which we shall hereinafter fully describe by reference to the accompanying drawings in which

Figure 1 is an elevation of our press. Fig. 2 is a vertical section of the same. Fig. 3 is a top plan view, showing the mounting of the molds on one of the connecting bolts. Fig. 4 is a top plan view of the cylinder. Fig. 5 is a view of the temporary filler 31, used in the operation of loosening the mold content, after compression. 25

1 is the cylinder, which, for convenience in mounting, is formed with foot-flanges 2, which are to rest upon suitable sills. Pressure is admitted to the cylinder through the bottom passage 3. Fitted to the cylinder 30 is the ram 4, which, as seen in Fig. 2, is packed in its seat with a gasket 5 of some compressible, flexible material, said gasket being held by a ring 6.

The upper end of the ram is best provided with a plate 7 of bronze or other material not easily oxidized, 35 so that it is not likely to rust by contact with the salt.

8 is the strong-back, and 9 are the bolts which connect the cylinder and strong-back. Secured to the strong-back is the plunger 10.

Fitted to one of the bolts 9 is a sleeve 11, provided 40 with vertical grooves 12, in which a slide 13 is mounted. From this slide projects a neck 14 which carries the mold 15. This mold has a bore fitted with a lining 16 of some material not readily oxidizable, such as bronze. The mold cavity, as seen in Fig. 2, is cylindrical for a 45 certain distance from its upper end, and thence to its lower end it flares slightly to larger diameter.

In order to save time in the operation of the press and thereby to increase its capacity, the mold 15 is duplicated, as shown, one mold being opposite to the other. 50 The sleeve 11 carries both molds, and is fitted to the bolt 9 rotatably, a ball bearing 17 being placed between the base of the sleeve and a collar 18 of the bolt. The molds may thus be turned successively into the press,

so that while one is being acted upon by the ram and plunger, the other, which is temporarily at rest over a 55 platform 19, supported by a bracket 20, is receiving its charge. In this plural arrangement of molds, it will be seen that each is movable vertically independently of the other, which is necessary, as will presently appear in describing the operation of the press. 60

21 is a hopper which is suitably supported by a bracket 22 from the press structure, or otherwise, and said hopper terminates in a filling tube 23 directly above the mold. Within this tube is a stem 24, carrying on its lower end a filling and pressing screw 25. 65 The stem is adapted to be vertically moved, in order to carry its screw down into the mold and to lift it therefrom, in the ordinary manner of such packing and filling devices.

The stem is rotated by suitable means, here shown 70 as a pulley 26 which is slidable upon a feather 27, said pulley being driven by a belt 28, or other power connection, as may be desired.

The slide 13 of each mold is fitted with a shaft 32 which carries a cam 29 adapted to impinge upon the 75 sleeve 11, whereby the slide may be held in any vertical position desired. The shaft is rocked by a lever 30.

The operation of the press is as follows:—The salt is fed to the hopper 21, and, by means of the screw 25, is passed down into and is partially packed into the mold 80 against the underlying platform 19. This packing will be sufficient, generally, to cause the salt to hold in the mold even when said mold is swung clear of the platform; or, if not sufficient with some materials, said platform may be continued around to the press. When the 85 mold has received its charge, the sleeve 11 is turned on the bolt 9 through an arc of 180 degrees, so that the charged mold is carried around directly under the plunger 10, while the empty mold is swung to a position over the platform 19, and under the filling tube 23. 90 Then while the empty mold is receiving its charge, the press is operated to compress the charge in the full mold. This operation is as follows:—By pressure admitted to the cylinder through the bottom passage 3, the ram 4 is lifted. The top plate 7 of the ram comes up 95 under the bottom of the mold and lifts said mold, the latter rising with its slide 13. As the mold rises its open top telescopes the plunger 10, whereby the mold content is compressed between the ram top plate 7 and the plunger, to the desired density. When compression is 100 complete, the cam 29 is moved to hold the mold elevated, and while thus held, the ram 4 is lowered, by the release of fluid pressure, a little distance, sufficient to permit the introduction of the temporary filler 31, shown in Fig. 5, under the mold bottom. When this 105 filler is in place, the ram is lifted against it, (the cam 29

having been released) and the mold is thereby again lifted slightly. This has the effect of causing the plunger to force the mold content down to a distance equal to the thickness of the filler 31, which movement of said content is sufficient, because of the flare of the mold cavity, to loosen it therein, so that when the mold is swung clear of the ram, the compressed salt-cake will drop out or will be loose enough to be readily removed. Then the operation is repeated.

10 Having thus described our invention, what we claim as new and desire to secure by Letters Patent is,

1. A press comprising a cylinder, a strong-back, connecting bolts, a ram in the cylinder, a plunger on the strong-back, an open ended mold adapted to receive the pressure of the ram at one end and to receive the plunger in its other end, and a vertically adjustable connection supporting the mold from one of the connecting bolts.

2. A press comprising a cylinder, a strong-back, connecting bolts, a ram in the cylinder, a plunger on the strong-back, a plurality of open ended molds adapted to receive the pressure of the ram at one end and to receive the plunger in the other end, and vertically adjustable, rotatable connections supporting the molds from one of the

bolts, adapting them to be successively moved to and from a supply position and a pressing position.

3. A press comprising a cylinder, a strong-back, connecting bolts, a ram in the cylinder, a plunger on the strong-back, a plurality of open ended molds adapted to receive the pressure of the ram at one end and to receive the plunger in the other end, a rotatable sleeve on one of the connecting bolts, independent vertically movable slides engaging the sleeve and carrying the molds, and an independent clamping device for each slide.

4. A press comprising a cylinder, a strong-back, connecting bolts, a ram in the cylinder, an opposing plunger on the strong-back, an open ended mold rotatably supported from one of the connecting bolts, whereby it is adapted to be swung into the press and out therefrom, a platform over which the mold when swung out of the press is at rest, and a feed device over the mold to supply it with material.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

VERNON S. HARDY.
ALPHEUS E. ROE.

Witnesses:

JOHN W. SCRIBNER,
JOHN H. RALPH.