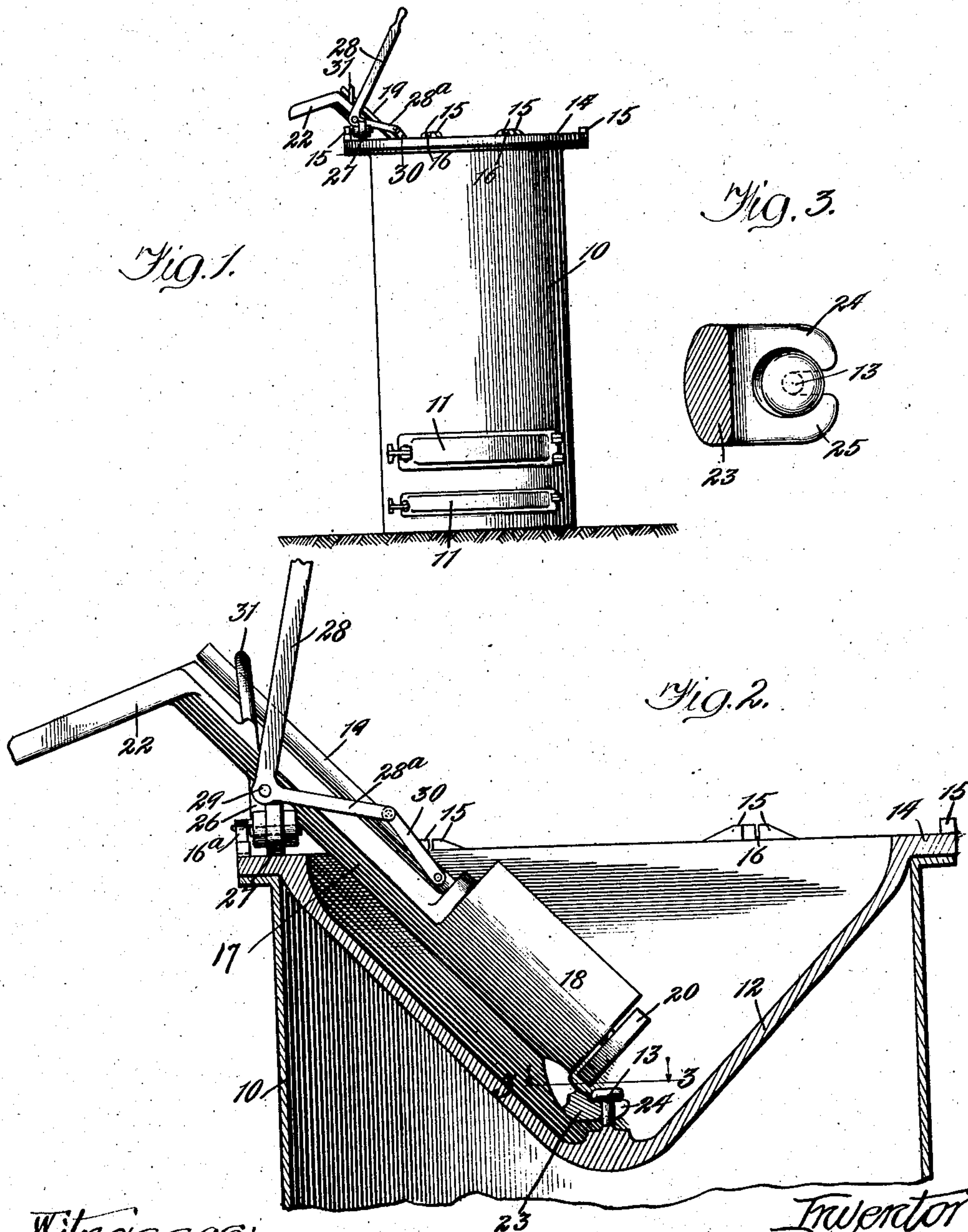


907,840.

G. A. MENENDEZ.  
MELTING FURNACE.  
APPLICATION FILED FEB. 25, 1907.

Patented Dec. 29, 1908.  
2 SHEETS—SHEET 1.



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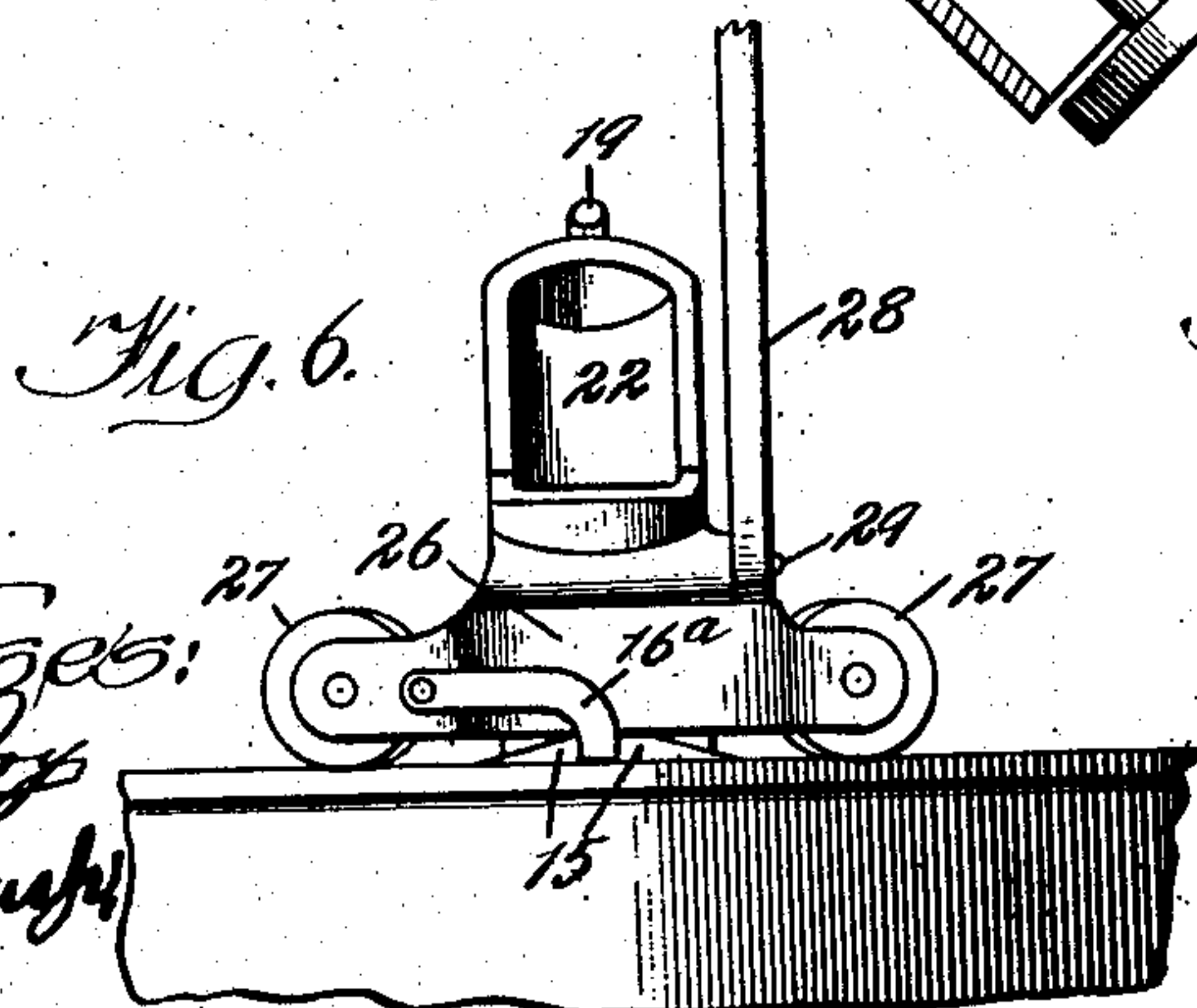
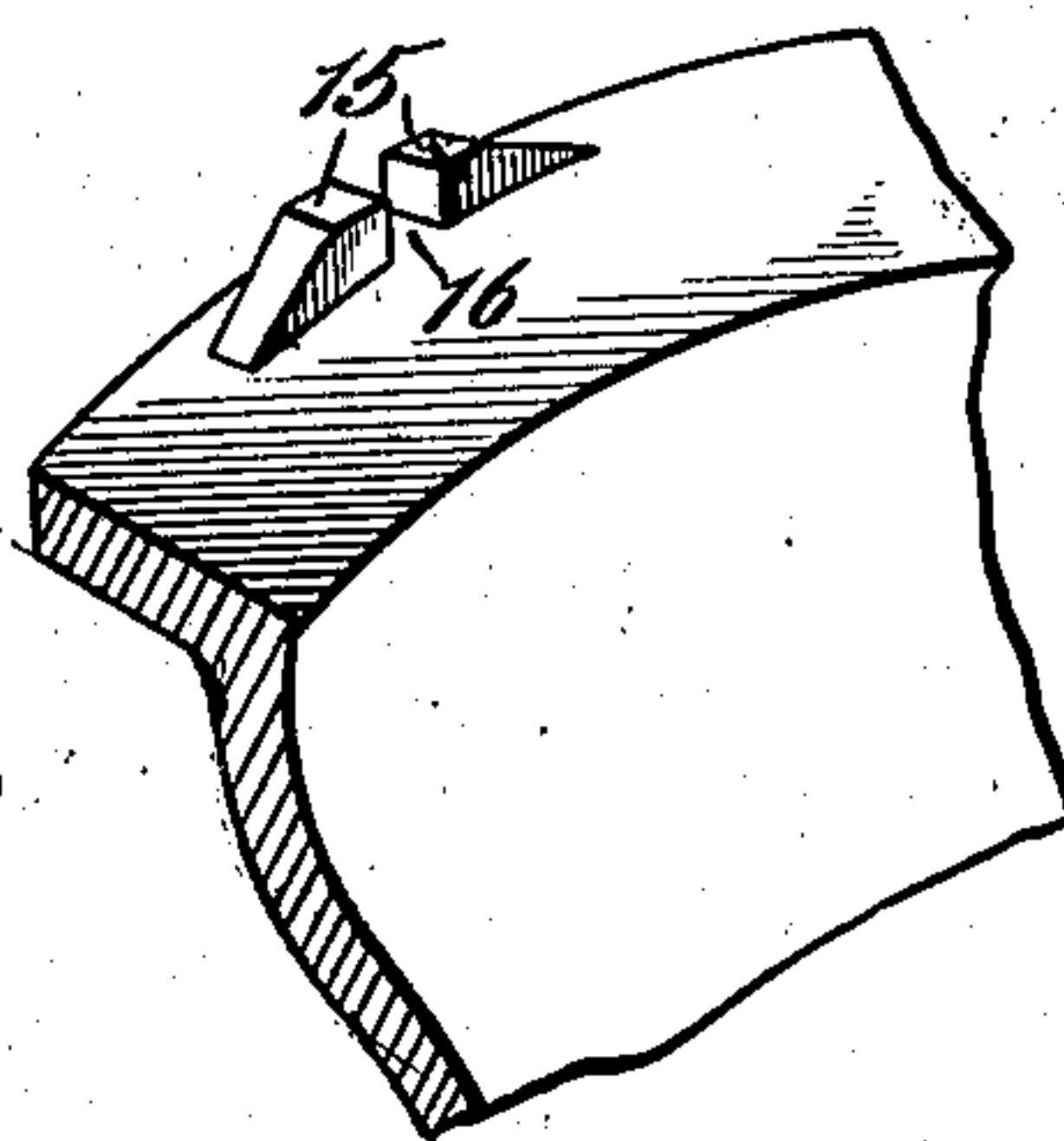
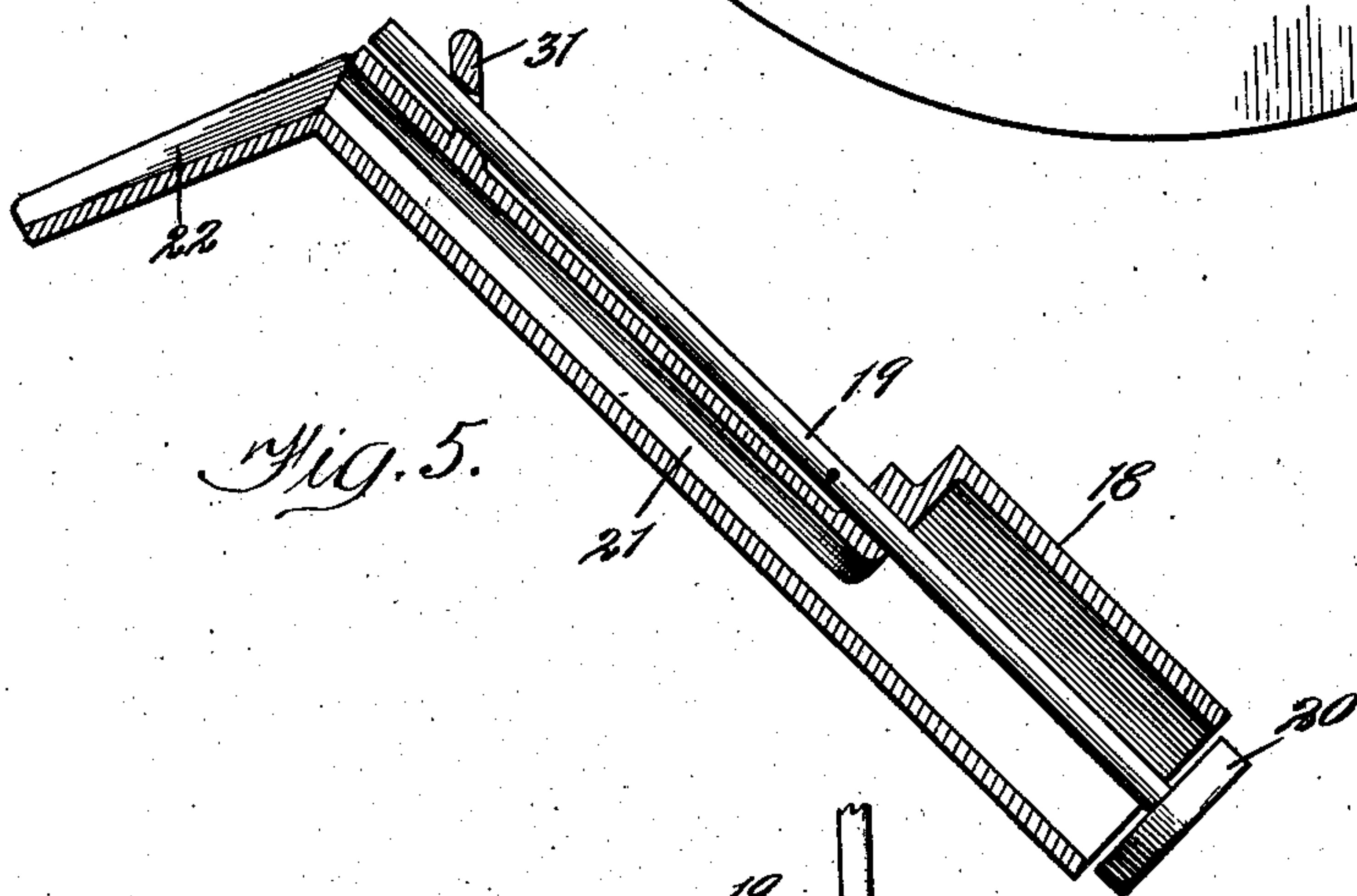
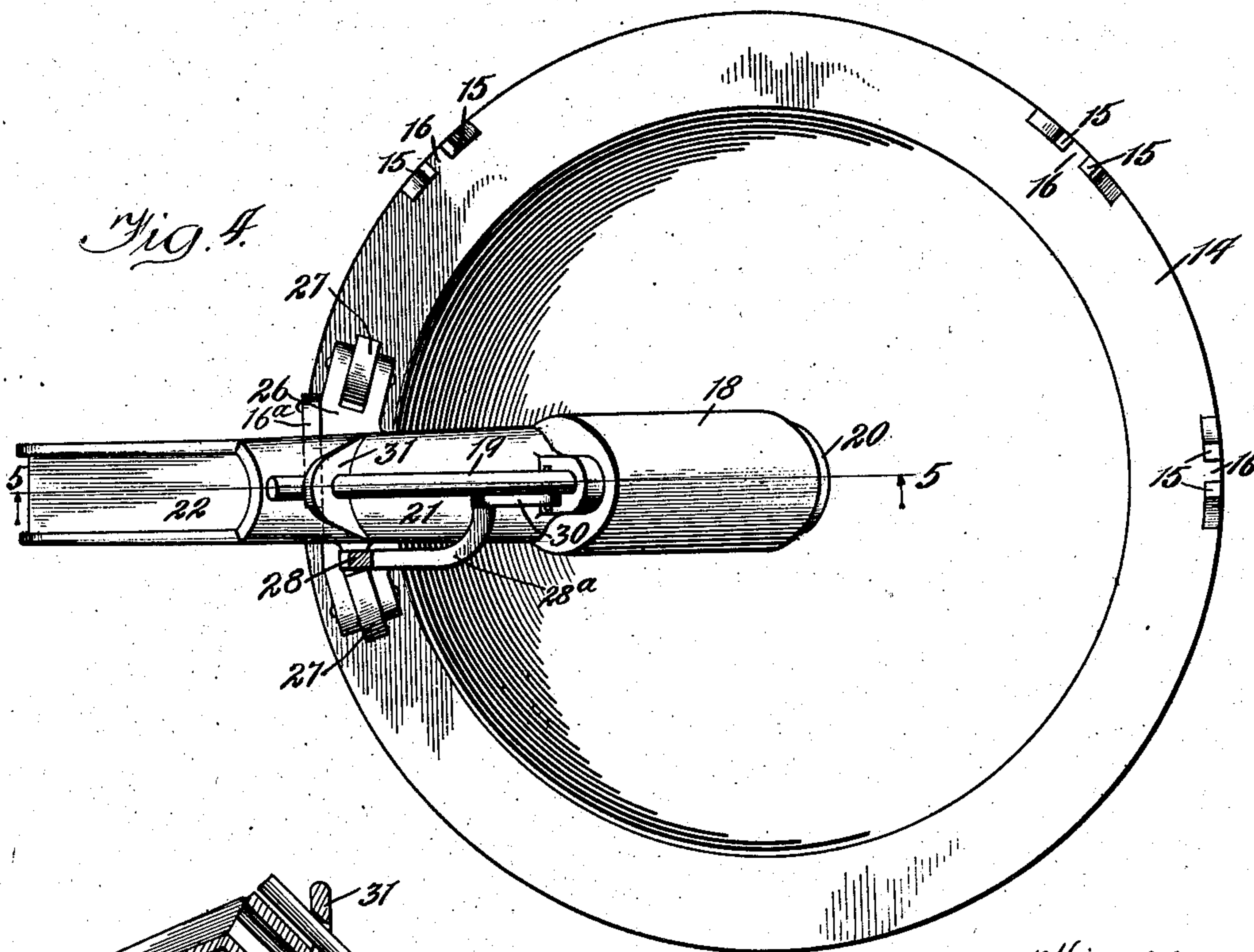
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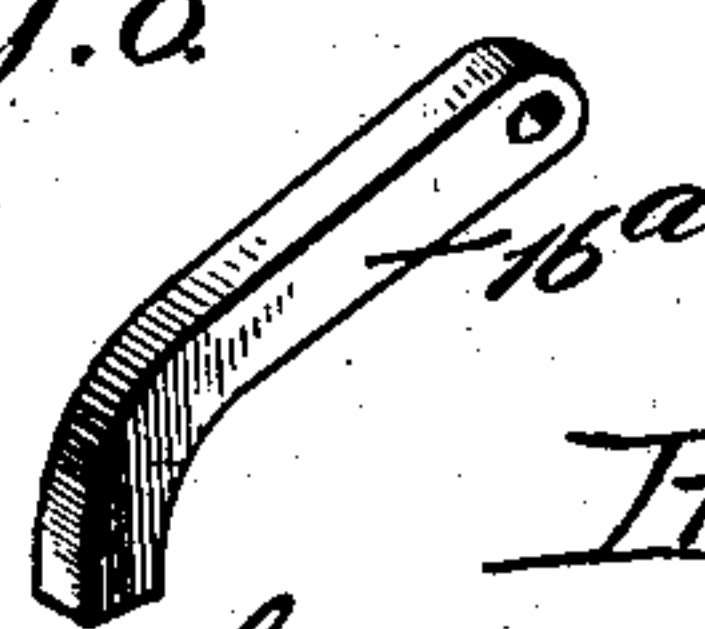
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2 SHEETS—SHEET 2.

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*Fig. 8.*



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# UNITED STATES PATENT OFFICE.

GABRIEL A. MENENDEZ, OF CHICAGO, ILLINOIS, ASSIGNOR TO GOSS PRINTING PRESS COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## MELTING-FURNACE.

No. 907,840.

Specification of Letters Patent.

Patented Dec. 29, 1908.

Application filed February 25, 1907. Serial No. 359,120.

*To all whom it may concern:*

Be it known that I, GABRIEL A. MENENDEZ, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Melting-Furnaces, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to melting furnaces, such as are used in melting stereotype metal, and has particularly to do with the construction of the melting pot and with the mechanism for withdrawing the molten metal from the furnace.

It has for its object to provide a new and improved melting pot, and also certain improvements by which the molten metal may be more conveniently withdrawn from the melting pot and delivered to stereotype casting boxes placed around the furnace; also to provide the furnace with removable pumping means for withdrawing the molten metal therefrom, and to provide certain other improvements which will be hereinafter more particularly pointed out. I accomplish these objects as illustrated in the drawings and as hereinafter described.

What I regard as new is set forth in the claims.

In the accompanying drawings,—Figure 1 is a side view of my improved furnace, showing part of the pumping mechanism; Fig. 2 is an enlarged sectional view of the upper portion of the furnace, showing the melting-pot and pump; Fig. 3 is a section on line 3—3 of Fig. 2; Fig. 4 is a plan view; Fig. 5 is a section of the pump on line 5—5 of Fig. 4; Fig. 6 is an end elevation of the upper portion of the furnace and pump; Fig. 7 is a perspective view of the upper portion of the furnace, showing one of the pairs of stops by which the pump is secured at different points around the melting-pot; and Fig. 8 is a perspective view of the latch which coöperates with said stops.

Referring to the drawings,—10 indicates the furnace, in the lower portion of which is a suitable fire-box, as indicated by the doors 11.

12 indicates the melting-pot, mounted at the top of the furnace, and which, as shown in Fig. 2, is in the form of an inverted cone, the sides tapering or sloping toward the center of the melting-pot which forms the apex of the cone. The advantage of making the

melting-pot conical in form is that the danger of its being cracked by reason of the fact that the type metal does not materially contract in cooling while the cast-iron, or other material, of which the melting-pot is made, does so contract, is minimized, since, owing to the form of melting-pot, the contraction of the metal of which it is made tends to lift or force up the type metal in it, thus leaving the pot free to contract without damage.

13 indicates a retaining device, in the form of a lug, which is secured at the bottom of the fire-box, projecting up thereinto, as shown in Fig. 2, and being preferably cast integral with the melting-pot.

14 indicates a marginal flange at the upper end of the furnace surrounding the melting-pot, as shown in Figs. 1 and 2. Said flange may be termed the "rim" of the melting-pot. At suitable intervals it carries a plurality of pairs of stops 15, which are best shown in Fig. 7. Each pair of stops is composed of blocks set a distance apart to form notches or recesses 16,—the faces of said blocks farthest from said recesses being inclined, as shown in Fig. 7. The recesses 16 are designed to receive a latch 16<sup>a</sup> carried by the pump, as will be hereinafter described, to hold the pump at different points around the rim of the furnace. Any desired number of stops may be provided, but usually four will suffice, and in that case they are preferably placed 90° apart.

17 indicates a pump mounted in the melting-pot, as shown in Figs. 2 and 4. Said pump, as shown in Fig. 5, comprises a pump cylinder 18, a piston-rod or plunger-rod 19, a piston 20 at the lower end of said rod and operating in said cylinder, an outlet passage 21 communicating with the upper end of said cylinder and extending to and connecting with a discharge nozzle or lip 22, together with suitable operating mechanism, as will be hereinafter described. The pump is designed to be placed in the melting-pot in an inclined position, its lower end being secured to the lug 13 by means of a notched lug 23 which projects from the lower portion of the cylinder 18 into position to embrace the lug 13, as shown in Fig. 2, and as shown more clearly in Fig. 3,—said lug having claws 24—25 between which the lug 13 fits, the head of said lug lying over said claws, as shown in Figs. 2 and 3. The arrangement is such that by turning the pump 17 to ap-



proximately a vertical position the lug 23 may be disengaged from the lug 13, but when the pump is in operative position, as shown in Fig. 2, the lug 23 cannot become  
 5 disengaged from said lug 13. I thus provide a connection between the pump and the furnace which permits the pump to be swung around in the melting-pot so as to discharge in any desired direction, but which nevertheless permits of its being readily removed,  
 10 as there are no bolts or other attaching devices to be removed in order to permit of the detachment of the pump from the furnace.

The upper portion of the pump is supported from the rim of the furnace by means of a truck or wheeled support 26, best shown in Figs. 4 and 6, the wheels 27 thereof being set in the arc of a circle of the proper diameter so that they travel properly upon the rim 14,  
 20 as shown in Fig. 4. The passage 21 extends up over the truck 26, the lip or nozzle 22 discharging beyond the side of the furnace, as shown in Figs. 2 and 4. The piston-rod 19 is reciprocated by means of a bell-crank lever  
 25 28 pivoted at 29 on the truck 26, or other suitable support, so that one arm extends upward, the other arm 28<sup>a</sup> extending more or less nearly horizontally and being connected by means of a connecting-rod 30 to  
 30 the piston-rod 19 between its ends. By this arrangement, by rocking the bell-crank lever 28, the piston-rod may be reciprocated to reciprocate the piston or plunger 20 in the cylinder. The various parts are so correlated that when the piston-rod 19 is at the  
 35 lower end of its stroke the piston 20 lies outside of and below the pump cylinder 18, as shown in Fig. 2, thereby permitting the molten metal in the melting-pot to enter the  
 40 cylinder above said piston. When the piston-rod is moved outwardly, the piston 20 enters the cylinder below the metal therein, carrying the metal up and forcing it out through the passage 21. It will be understood, of course, that the cylinder 18 and  
 45 passage 21 are so proportioned that the stroke of the piston 20 is sufficient to discharge the greater portion of the metal contained in the pump at each full stroke of the  
 50 piston.

31 indicates a guide for the upper end of the piston-rod 19.

As best shown in Fig. 6, the latch 16<sup>a</sup> is pivotally connected with the truck 26 in such  
 55 position that its downwardly-turned outer end is adapted to fit in the various recesses 16 around the rim of the furnace. Said latch, therefore, operates to hold the pump in position when moved to different points  
 60 around the furnace. By making the blocks 15 inclined, as described, the latch 16<sup>a</sup> rides up on them as the pump is swung around and drops by gravity into the recess 16.

My invention in its broader aspect is not  
 65 restricted to making the melting pot or bowl

of the furnace truly conical in form as it may be of other shape than circular in horizontal section, in which case instead of the lug 13 other suitable means will be provided for accommodating the movement of the pump. 70

While I have described in detail the embodiment of my invention illustrated in the accompanying drawings, I wish it to be understood that my invention is generic in character and that the claims hereinafter  
 75 made are to be broadly construed, except in so far as they are directed to details of construction.

That which I claim as my invention, and desire to secure by Letters Patent, is,— 80

1. A melting furnace, comprising a melting-pot, and means in said melting-pot and pivotally connected with the bottom thereof for discharging its contents.

2. A melting furnace, comprising a fire-box, and a melting-pot, said melting-pot having its sides inclined downwardly and inwardly, and means in the melting-pot and movable to different situations therein for discharging the contents thereof at different  
 90 places around the furnace.

3. A melting furnace, comprising a fire-box, and a melting-pot, said melting-pot having its sides inclined downwardly and inwardly, means in the melting-pot and movable to  
 95 different situations therein for discharging the contents thereof at different places around the furnace, and means detachably connecting said delivering means with the melting-pot. 100

4. A melting furnace, comprising a melting-pot having its sides inclined downwardly and inwardly, and a pump mounted in said melting-pot in an inclined position and movable to different situations therein. 105

5. A melting furnace, comprising a melting-pot having its sides inclined downwardly and inwardly, and a pump detachably secured in said melting-pot in an inclined position and movable to different situations  
 110 therein.

6. A melting furnace, comprising a melting-pot, and a pump mounted in and supported by said melting-pot, said pump being movable so as to discharge at different points  
 115 around the furnace.

7. A melting furnace, comprising a melting-pot, a pump in said melting-pot, said pump being movable so as to discharge at different points around the furnace, and  
 120 means detachably connecting the pump with the melting-pot.

8. A melting furnace, comprising a conical melting-pot, a pump pivotally secured at the bottom of said melting-pot and arranged to  
 125 discharge over the rim of the melting-pot, and a wheeled support running on the rim of the melting-pot and supporting the upper portion of the pump.

9. A melting furnace, comprising a conical 130



melting-pot, a pump pivotally and detachably secured at the bottom of said melting-pot and arranged to discharge over the rim of the melting-pot, and a wheeled support 5 running on the rim of the melting-pot and supporting the upper portion of the pump.

10 10. A melting furnace, comprising a conical melting-pot, a pump pivotally secured at the bottom of said melting-pot and arranged to discharge over the rim of the melting-pot, a wheeled support running on the rim of the melting-pot and supporting the upper portion of the pump, and means for securing the pump at different points around the furnace.

15 11. A melting-furnace having a melting-pot and means mounted in and supported by said melting-pot for discharging the contents thereof, said discharging means being movable so as to discharge at different points 20 around the melting-pot.

12. A melting furnace, comprising a melting-pot, a pump in said melting-pot, said pump comprising a cylinder open at its lower

end, a discharge passage communicating with the upper end of said cylinder, a piston 25 adapted to be reciprocated in said cylinder, a piston-rod connected with said piston, and means for reciprocating said piston-rod so as to move the piston out below the lower end of the cylinder and up into said cylinder. 30

13. A melting furnace provided with a melting pot having sides converging toward the bottom of the melting pot and means adjustably mounted in the melting-pot for discharging the contents thereof at different 35 points around its margin.

14. A melting furnace provided with a melting pot having sides converging toward the bottom of the melting pot, and means in said melting pot and pivotally connected 40 with the bottom thereof for delivering the contents thereof.

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