

F. O. JAQUES, JR.
DENTAL PRESS.
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936,633.

Patented Oct. 12, 1909.

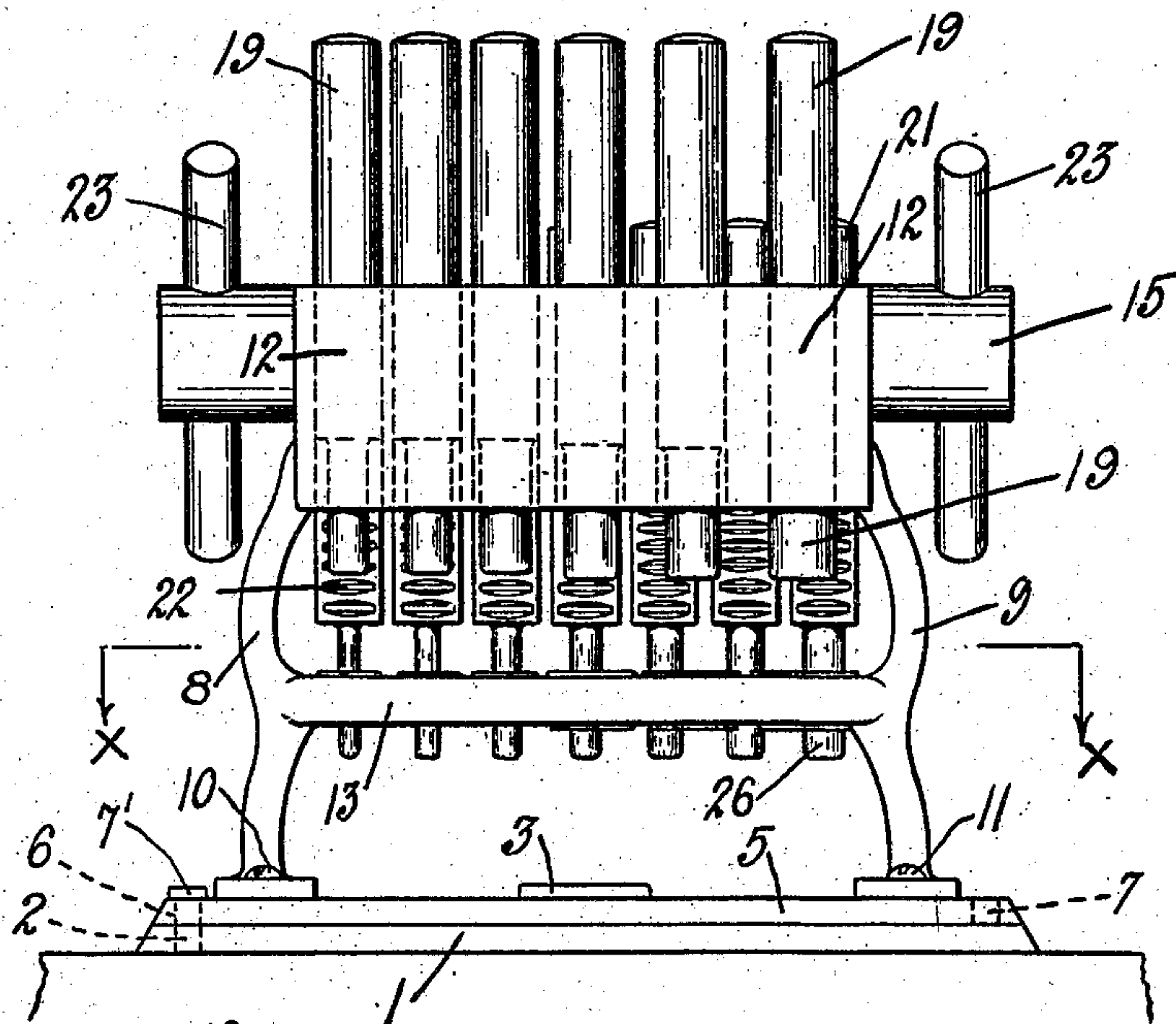


FIG. 1.

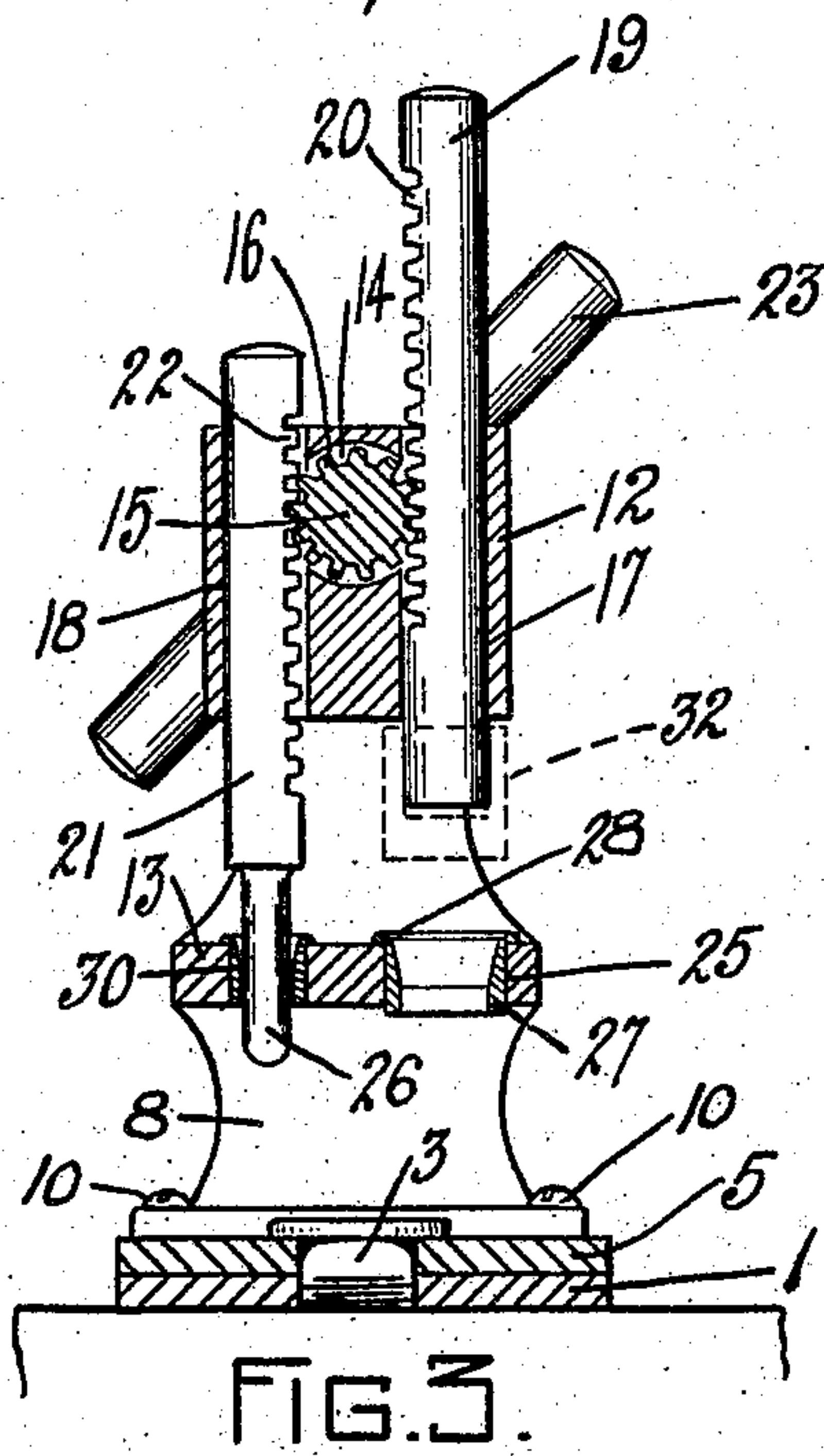


FIG. 3.

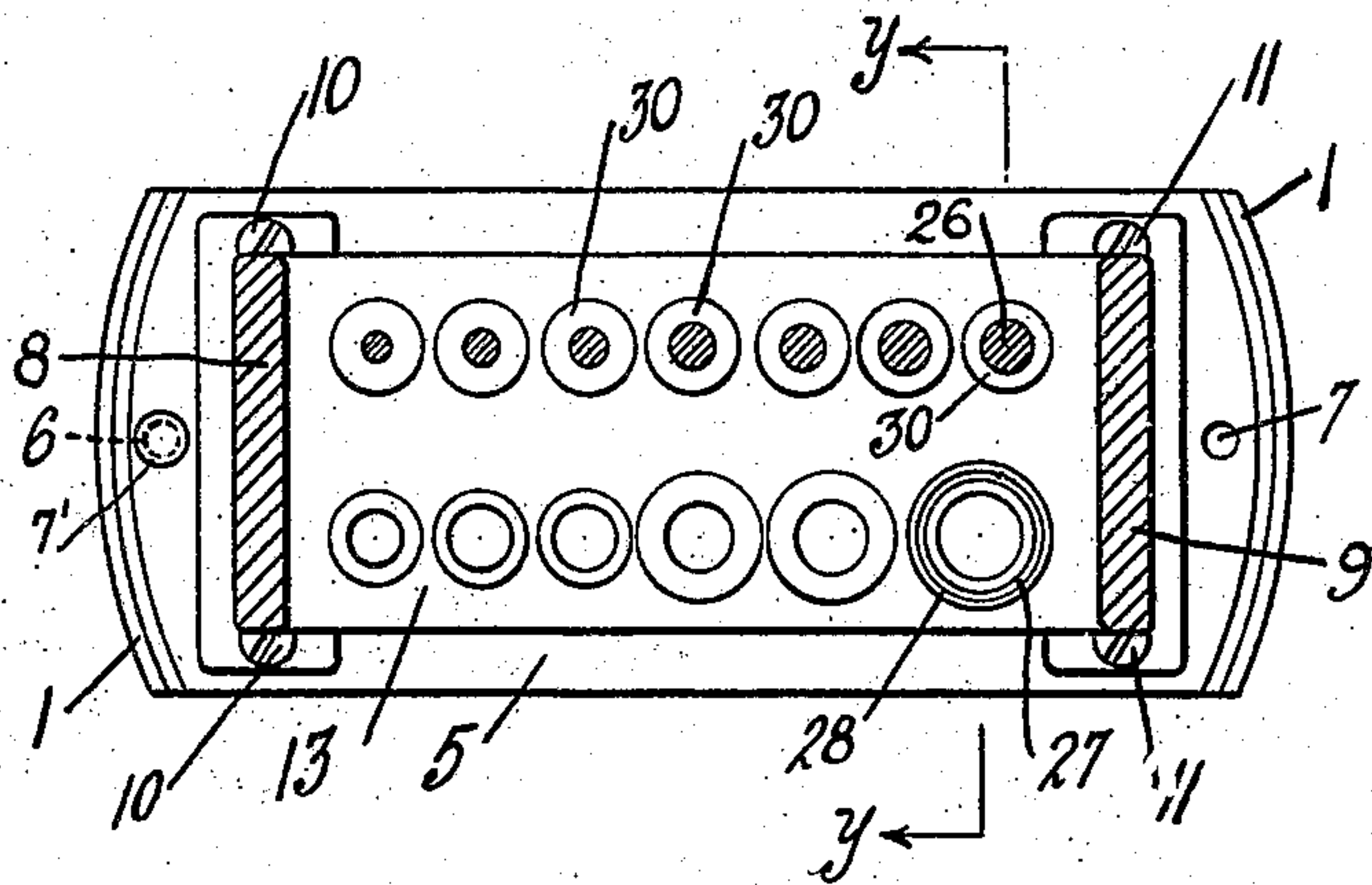


FIG. 2.

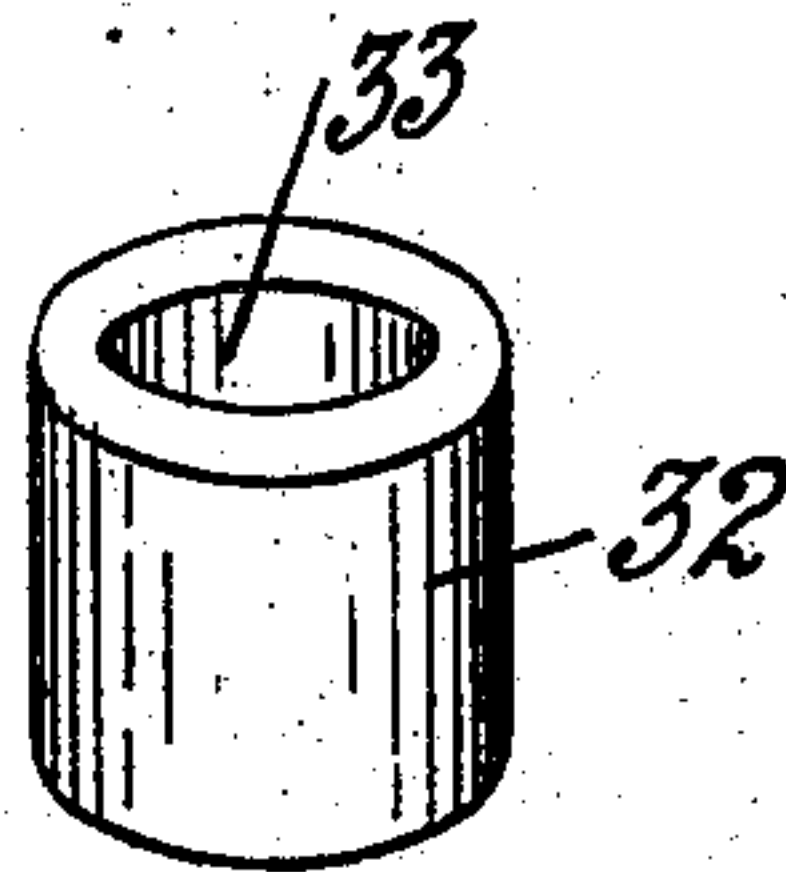


FIG. 4.

WITNESSES.

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DENTAL PRESS.

936,633.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FERNANDO O. JAKUES, Jr., a citizen of the United States, residing at Cranston, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Dental Presses, of which the following is a specification.

My invention relates to presses for cutting and forming dental crowns and similar articles from sheet metal, and has for its primary objects compactness, cheapness of construction, simplicity, accuracy, convenience for use, and speed in operation.

To the above ends essentially my invention consists in the multiple and graduated relation of the plungers and die plates; in locating all the dies in the die plate, and in pivotally mounting the frame.

Other novel features will be hereinafter set forth and claimed.

In the accompanying drawings which constitute a part of these specifications, Figure 1 is a front elevation of my novel press. Fig. 2, a transverse section on line $x x$ of Fig. 1, showing in broken lines a second position of the base. Fig. 3, a vertical section of the same on line $y y$ of Fig. 2, and Fig. 4, a detail view of the cutting tool.

Like reference characters indicate like parts throughout the views.

My press, in the form thereof herein shown, comprises a bed plate, 1, provided near one end with an orifice, 2. Pivoted upon a stud or screw, 3, in the center of the plate is a base plate, 5, provided near one end with an opening, 6, in vertical alinement with the opening, 2, and near its other end with an opening, 7, in longitudinal alinement with opening, 6. Whenever it is desired to maintain the upper and lower base plates, 1 and 5, in fixed relation with each other, a removable pin 7' may be inserted in the opening, 6 or 7, and 2. The standard or frame comprises two uprights or supports, 8 and 9, secured by screws, 10 and 11, or otherwise to the plate, 5, and a longitudinally disposed bearing block, 12, integral with the upper portions of the supports, together with a die plate, 13, integral with the supports and below the block.

Mounted centrally in an opening, 14, in the bearing block, 12, is a longitudinal rotary shaft, 15, upon whose surface are formed teeth, 16, the whole constituting a long

pinion. The block, 12, is provided with two series of vertical cylindrical passages, 17 and 18, one series upon each side of the opening, 14. Slidable in the passages, 17, are cylindrical plungers, 19, of graduated diameter, each provided with a rack, 20. In passages, 18, are also plungers, 21, graduated in diameter provided with racks, 22. The pinion, 16, engages and operates the racks, 20 and 22 of the respective plungers, so that each series of plungers may be simultaneously moved in opposite directions. One or more handles, 23, fixed in the shaft, 15, enable the latter to be manually turned in either direction. The die plate, 13, is provided with a series of openings, 25, in axial alinement with the plungers, 19; and with a series of openings, 26, in axial alinement with the plungers, 21. In the openings, 25, are fixed drawing dies, 27, provided with a tapering drawing surface, and cutter seats, 28, upon their upper end; the whole constituting a combined cutting and drawing die. In the openings, 26, are mounted graduated drawing dies, 30, which are of less diameter than the graduated dies, 27, and preferably are not provided with cutter seats. It is not absolutely necessary that more than one of the dies be provided with the cutting seat, 28, namely the die, 27, of the largest diameter, although in practice one or two of the next in size are usually provided with cutting seats, 28. The cutter or die, 32, to be used in this press is, as shown in Fig. 4, cylindrical and provided with an axial opening, 33, adapted to receive the lower end of the largest of the plungers, 19. This cutter is shown in broken lines in Fig. 3 applied to the plunger. The fit thereof should not be so tight as to prevent its application to and removal from the plunger manually.

The operation of the press is as follows: The sheet metal strip from which the crown is to be constructed is laid upon the upper face of one of the largest cutting and forming dies, 27, beneath its corresponding plunger, 19, upon which is frictionally mounted the cutter, 32, and a handle, 23, is rotated to downwardly throw the plunger by means of the rack and pinion mechanism. This movement cuts the disk of stock upon the seat, 28. The cutter, 32, is then removed and the plunger continuing its travel forces the disk downwardly through the tapering or forming portion of the die, 27, thereby

forming the disk into cup shape. This cupped blank is then inserted successively in the forming dies of less diameter whereby the blank is gradually lengthened and its diameter lessened to the required dimensions. It will be noted that the plurality of plungers actuated by a single operating shaft permits the simultaneous drawing of a plurality of crowns at the same time; that the pivotal mounting of the machine gives the operator convenient access at all times to any of the dies or other machine parts; and that both the cutting and forming operations are performed nearly contemporaneously and upon a single horizontal plane.

What I claim is:—

1. In a dental press, the combination of two parallel series of plungers provided with racks, a pinion member intermediate the two series of plungers and engaging the racks of both, combined with forming dies disposed in axial alinement with said plungers for successively coöperating therewith.

2. In a dental press, the combination with the frame, of two parallel series of vertically movable plungers mounted in said frame, means in the frame movable between said plungers and engaging with both series thereof for simultaneously raising the one series and depressing the other, a rigid die plate in the frame below the plungers, and dies mounted in said die plate in axial alinement with the several plungers for successive coöperation with the plungers.

3. In a dental press, the combination with a frame, of two series of vertically disposed plungers in the frame, horizontally rotatable means in the frame for simultaneously moving each series of plungers in opposite directions, a die plate fixed in the frame below the plungers, graduated drawing dies mounted in said plate in axial alinement with one series of plungers, and independent dies in the die plate in axial alinement with the other series of plungers, said dies being arranged for successive coöperation with the plungers.

4. In a dental press, the combination with the frame, of two series of plungers in the frame graduated in diameter, means in the frame engaging both series of plungers for simultaneously moving each series of plungers in opposite directions, a die plate fixed in the frame below the plungers, and forming dies in the die plate in axial alinement with the plungers for successive coöperation therewith.

5. In a dental press, the combination with the frame, of two series of plungers in the frame graduated in diameter, means in the frame engaging both series of plungers for simultaneously moving each series of plungers in opposite directions, a die plate fixed in the frame below the plungers, and cutting

dies in the plate in axial alinement with the plungers for successive coöperation therewith.

6. In a dental press, the combination with the frame, of two series of plungers in the frame graduated in diameter, means in the frame for simultaneously moving each series of plungers in opposite directions, a die plate fixed in the frame below the plungers, combined cutting and forming dies in the plate in axial alinement with some of the plungers, and forming dies in said plate in axial alinement with others of the plungers for successive coöperation therewith.

7. In a dental press, the combination with the frame, of two series of vertically disposed graduated plungers in the frame, means in the frame for simultaneously moving each series of plungers in opposite directions, a stationary die plate mounted in the frame below the plungers, and two series of graduated dies in the plate in axial alinement with their respective plungers for successive coöperation therewith.

8. In a dental press the combination with the frame, the die plate in the frame, and dies in the plate, of a bearing block in the frame above the die plate, two series of plungers vertically mounted in the bearing block in axial alinement with the dies, rack teeth upon the plungers, a shaft provided with pinion teeth mounted in the block intermediate the two series of plungers and engaging the rack teeth of both series of plungers through the pinion teeth, and an operating handle upon the shaft.

9. In a dental press, a frame, a fixed die plate therein, dies in said plate, two series of plungers mounted for vertical movement in a fixed part of the frame in vertical alinement with the dies, said plungers being provided with rack teeth, a shaft disposed at right angles to said plungers intermediate thereof and toothed to engage the teeth of both series of plungers, and means for rotating said shaft.

10. In a dental press, a frame, a fixed die plate therein, dies in said plate, two series of plungers mounted for vertical movement in a fixed part of the frame in vertical alinement with the dies, said plungers being provided with rack teeth, a shaft disposed at right angles to said plungers intermediate thereof and toothed to engage the teeth of both series of plungers, and means for rotating said shaft, said plungers and dies being graduated in size.

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

FERNANDO O. JAQUES, Jr.

Witnesses:

HORATIO E. BELLOWES,
JOSEPH E. BURNS.