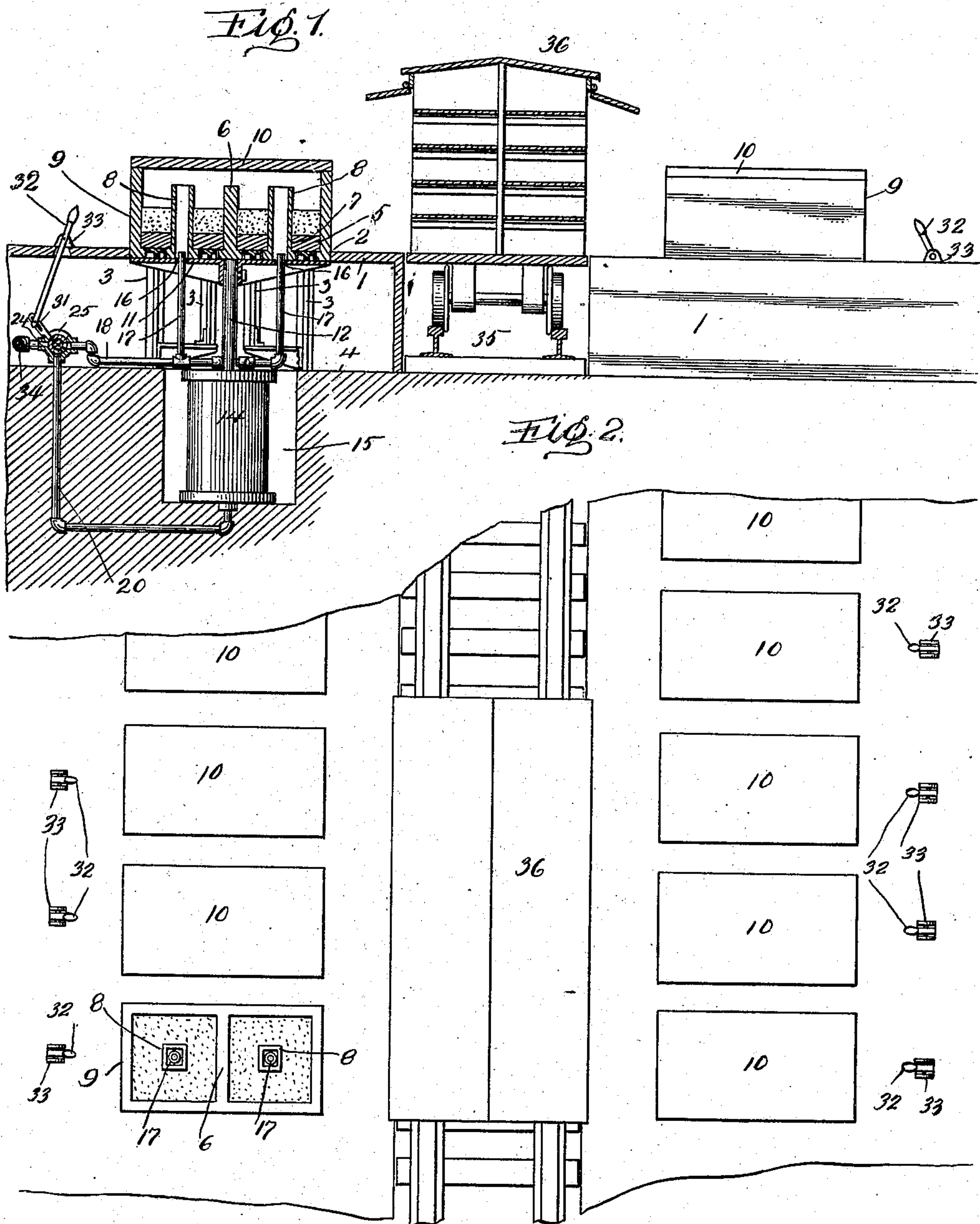


A. A. PAULY.  
 APPARATUS FOR FORMING BUILDING BLOCKS AND ARTIFICIAL STONE FROM PLASTIC MATERIAL.  
 APPLICATION FILED DEC. 10, 1907.

899,799.

Patented Sept. 29, 1908.

3 SHEETS—SHEET 1.



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 A. A. PAULY.

Witnesses

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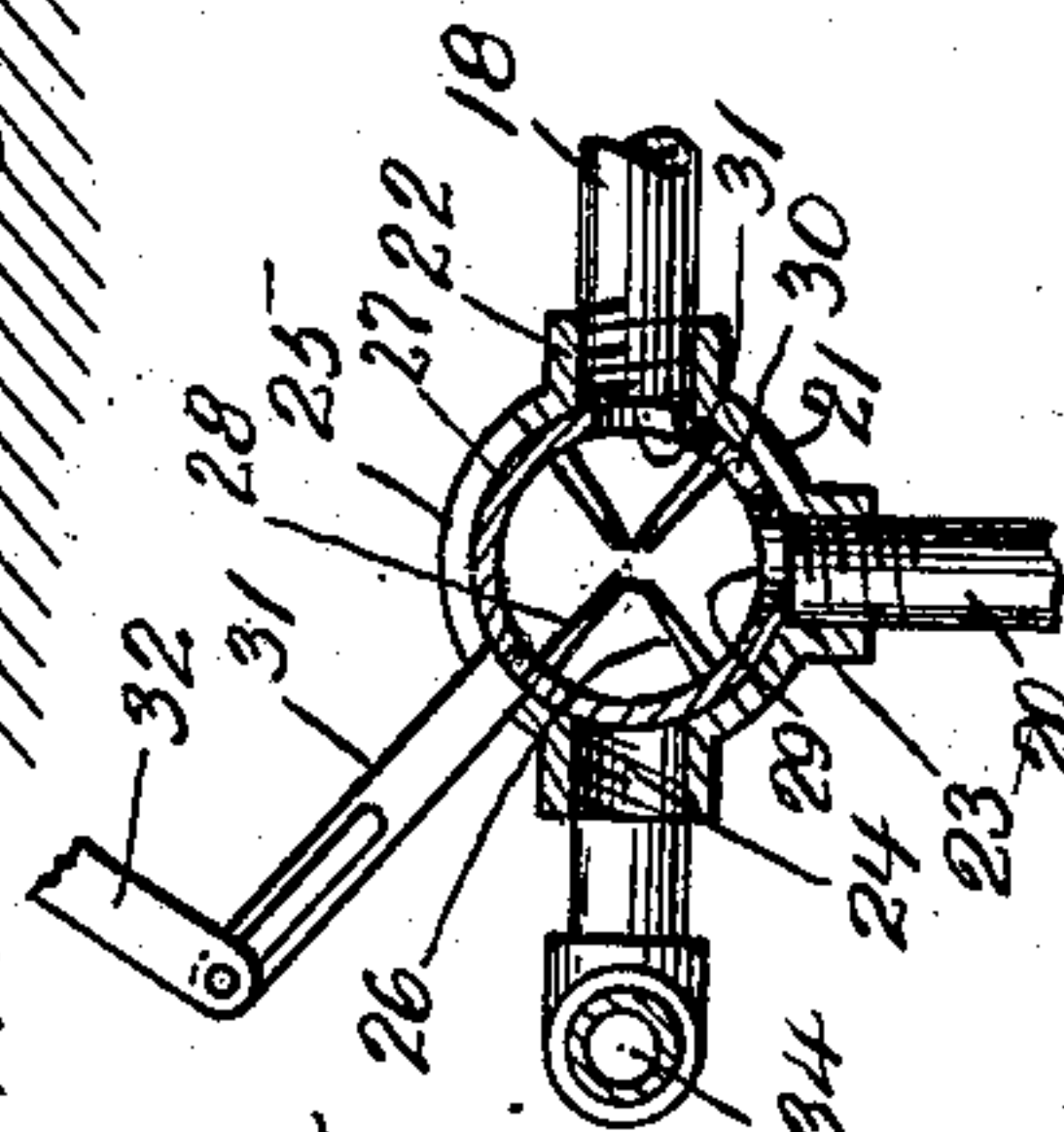
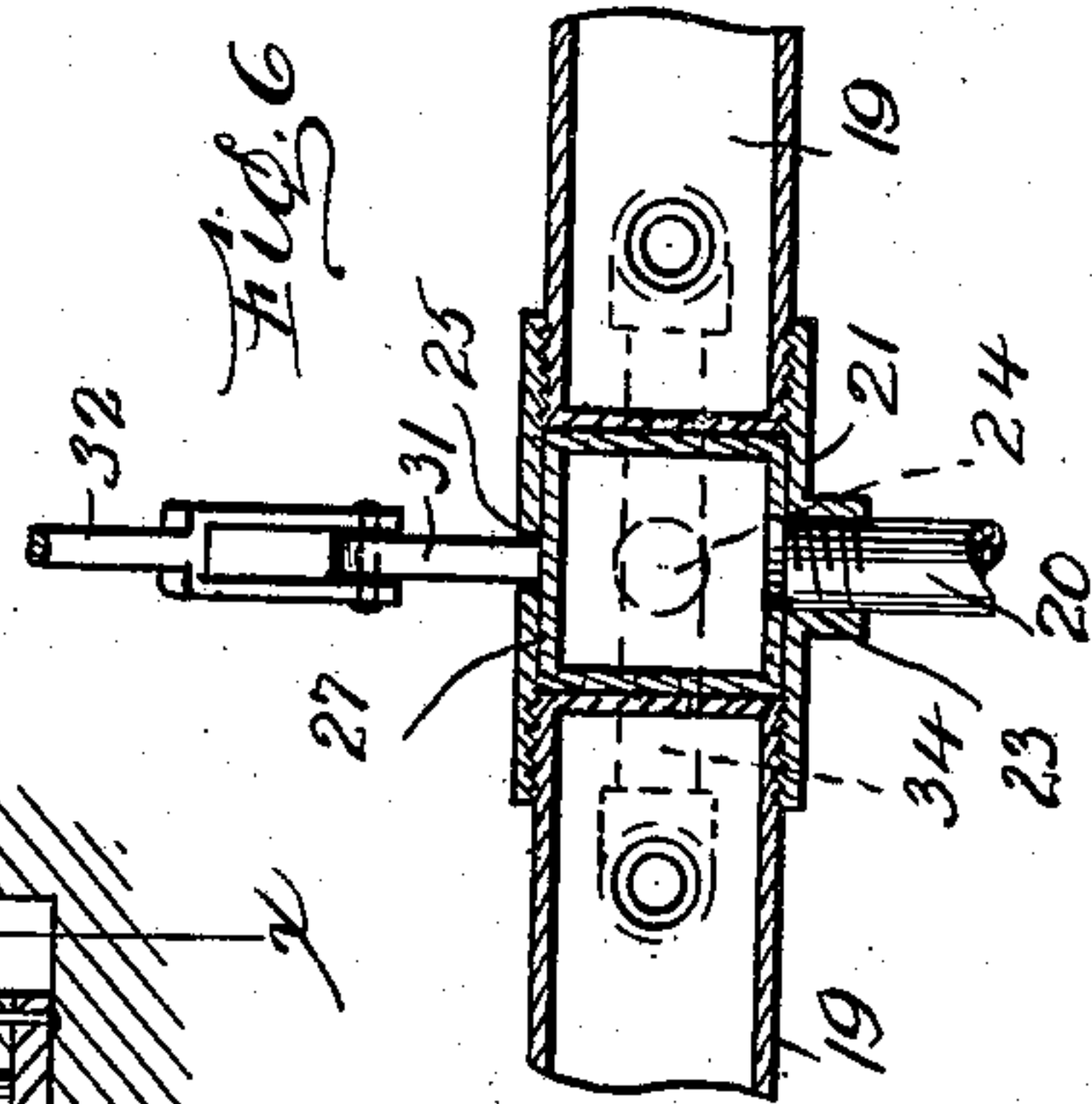
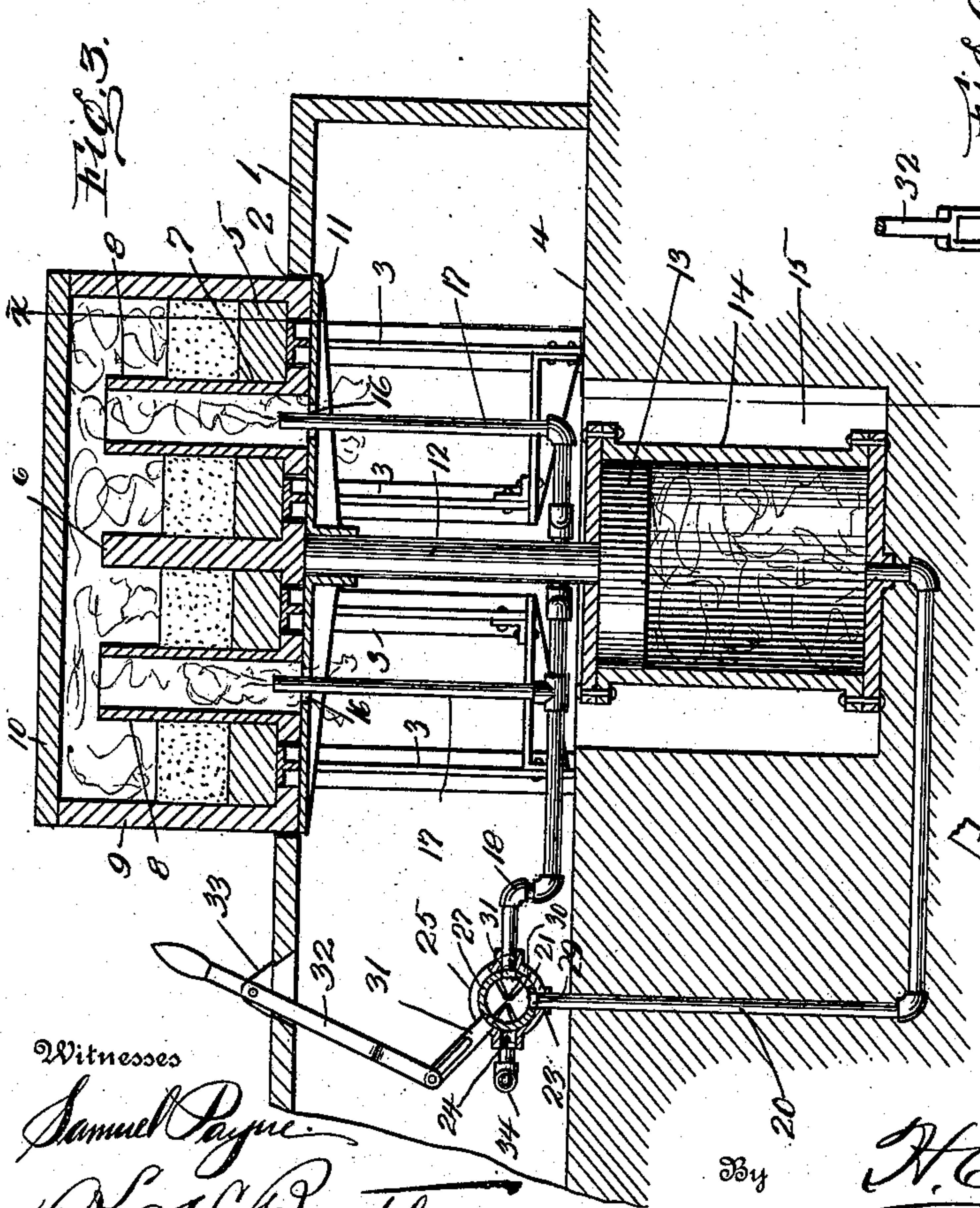
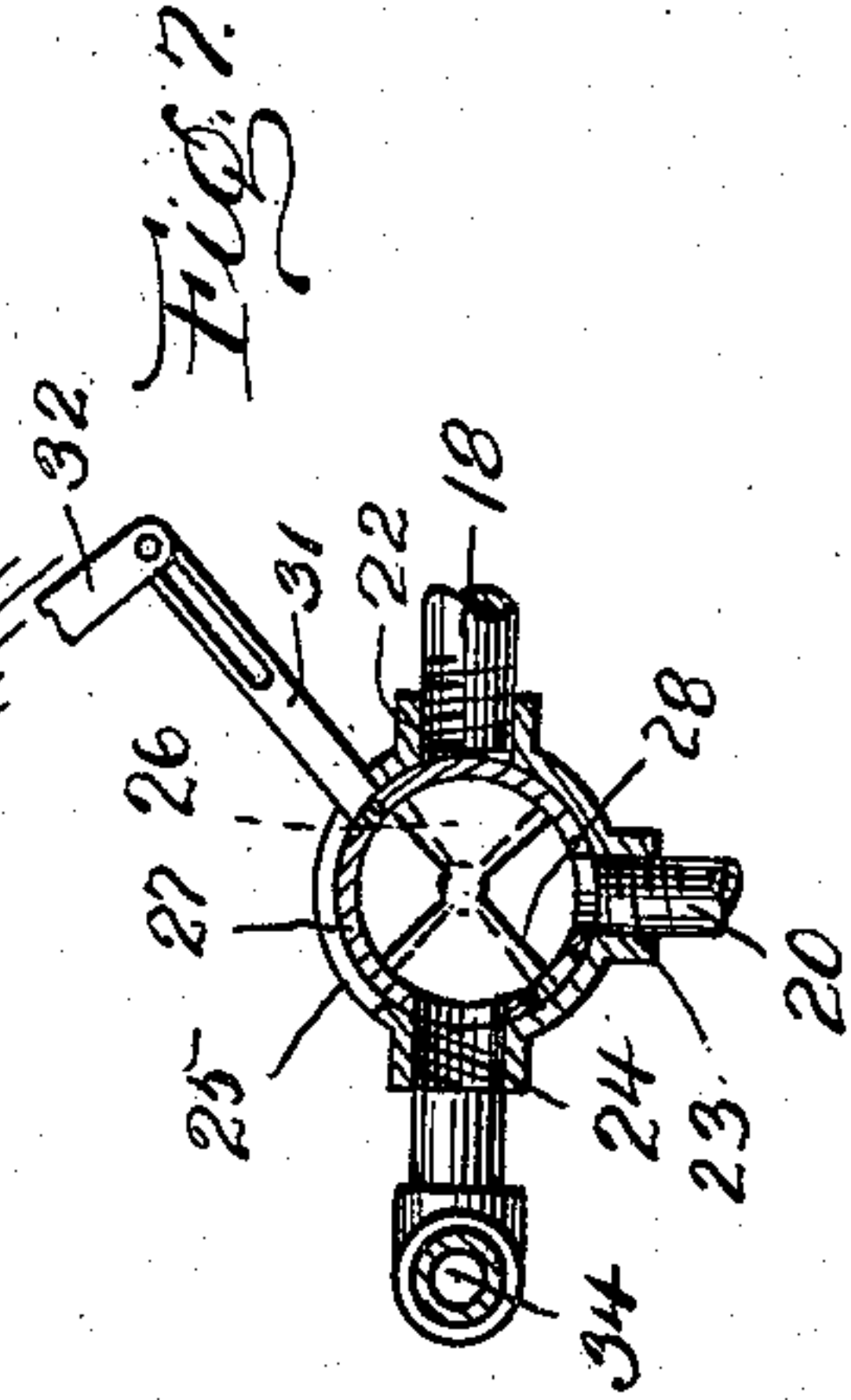
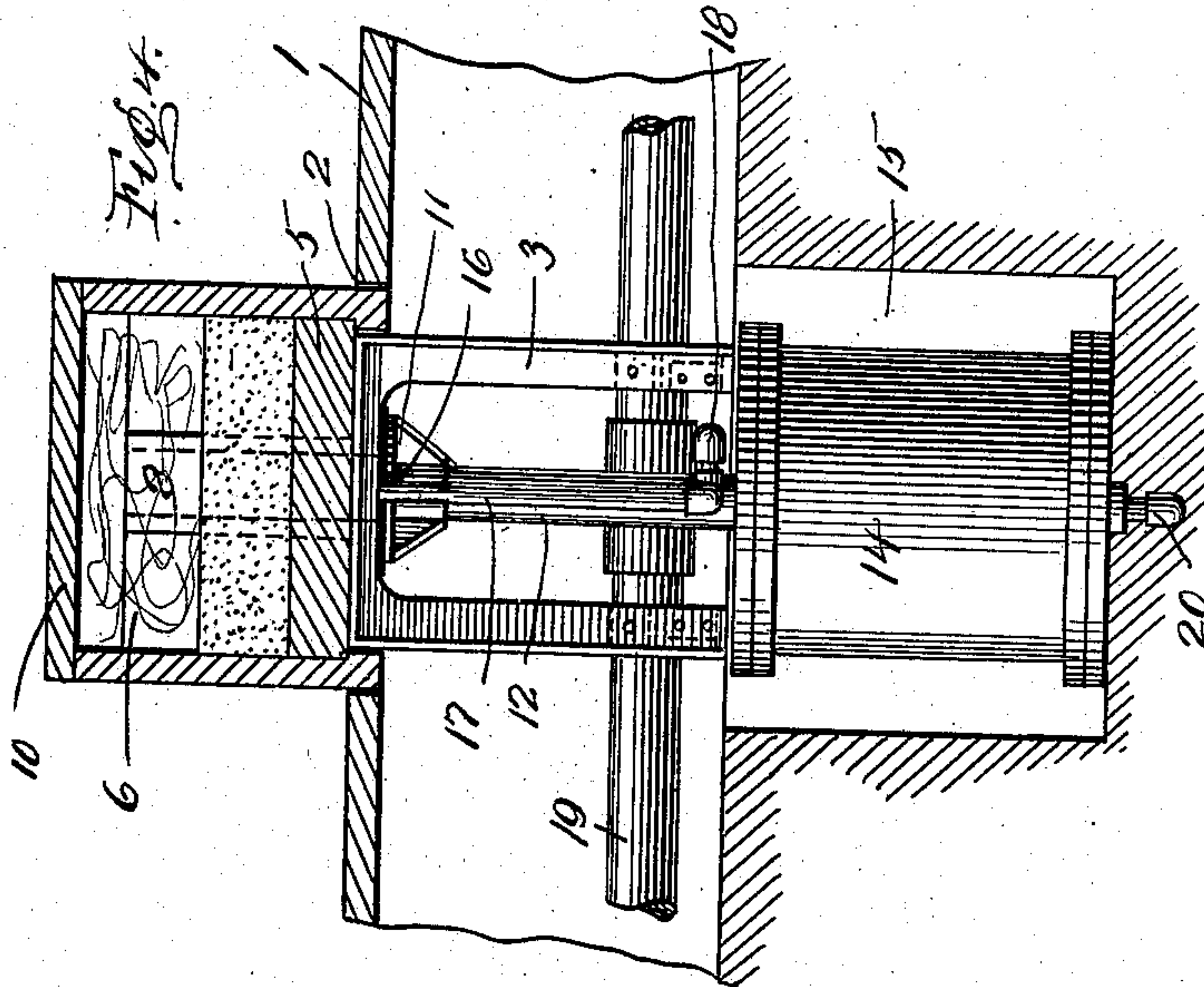


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3 SHEETS—SHEET 2.



Witnesses

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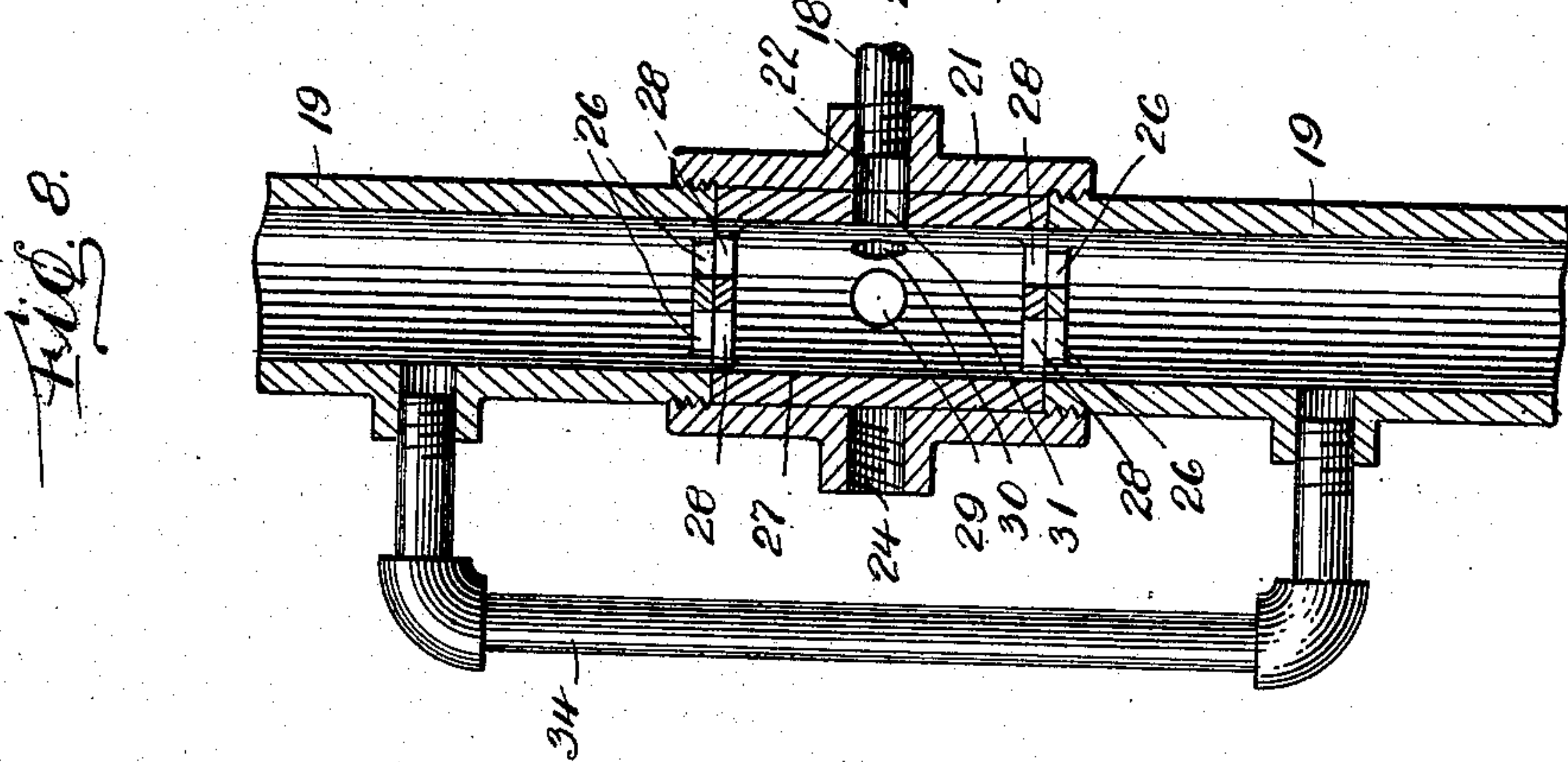
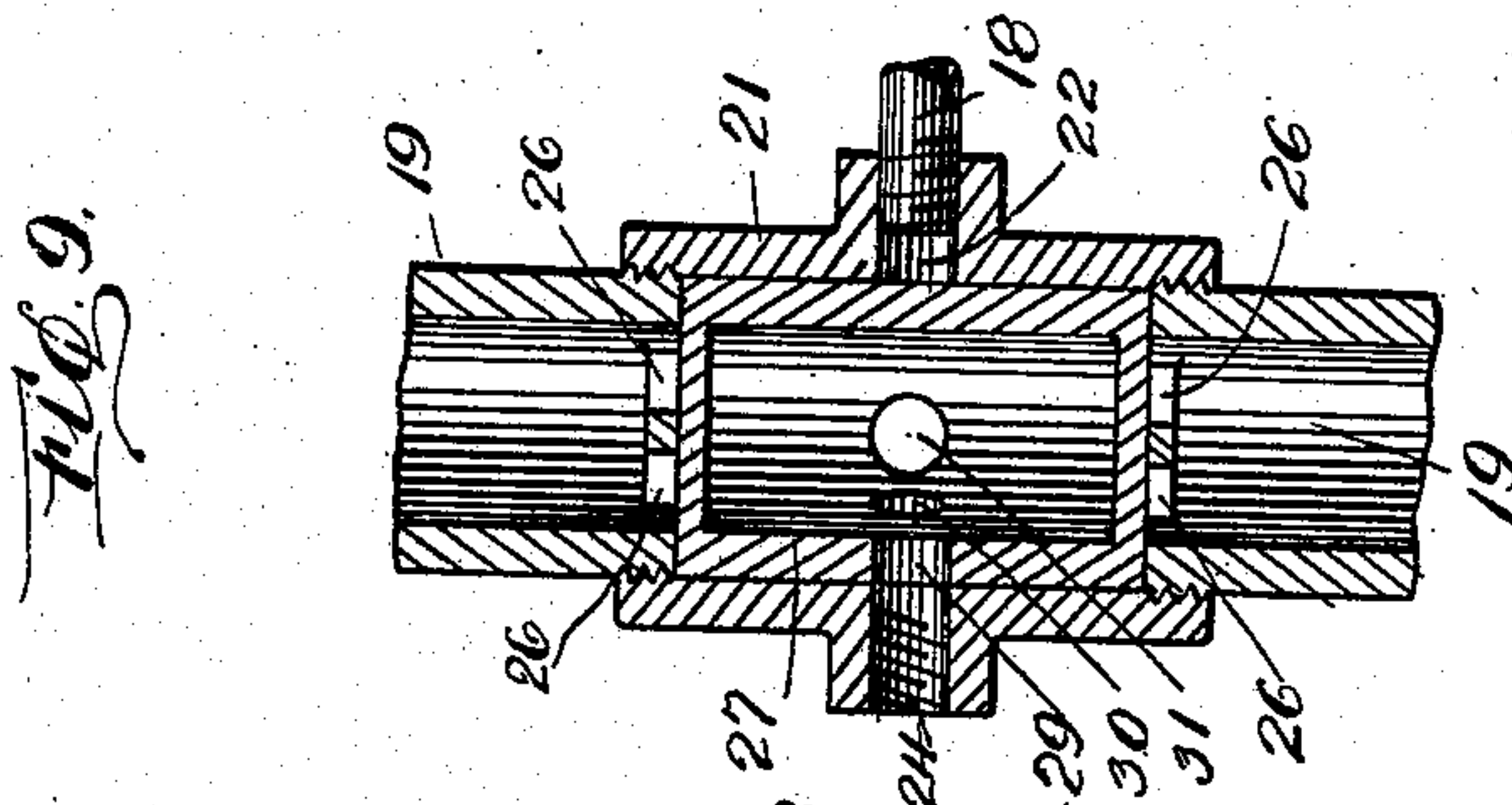
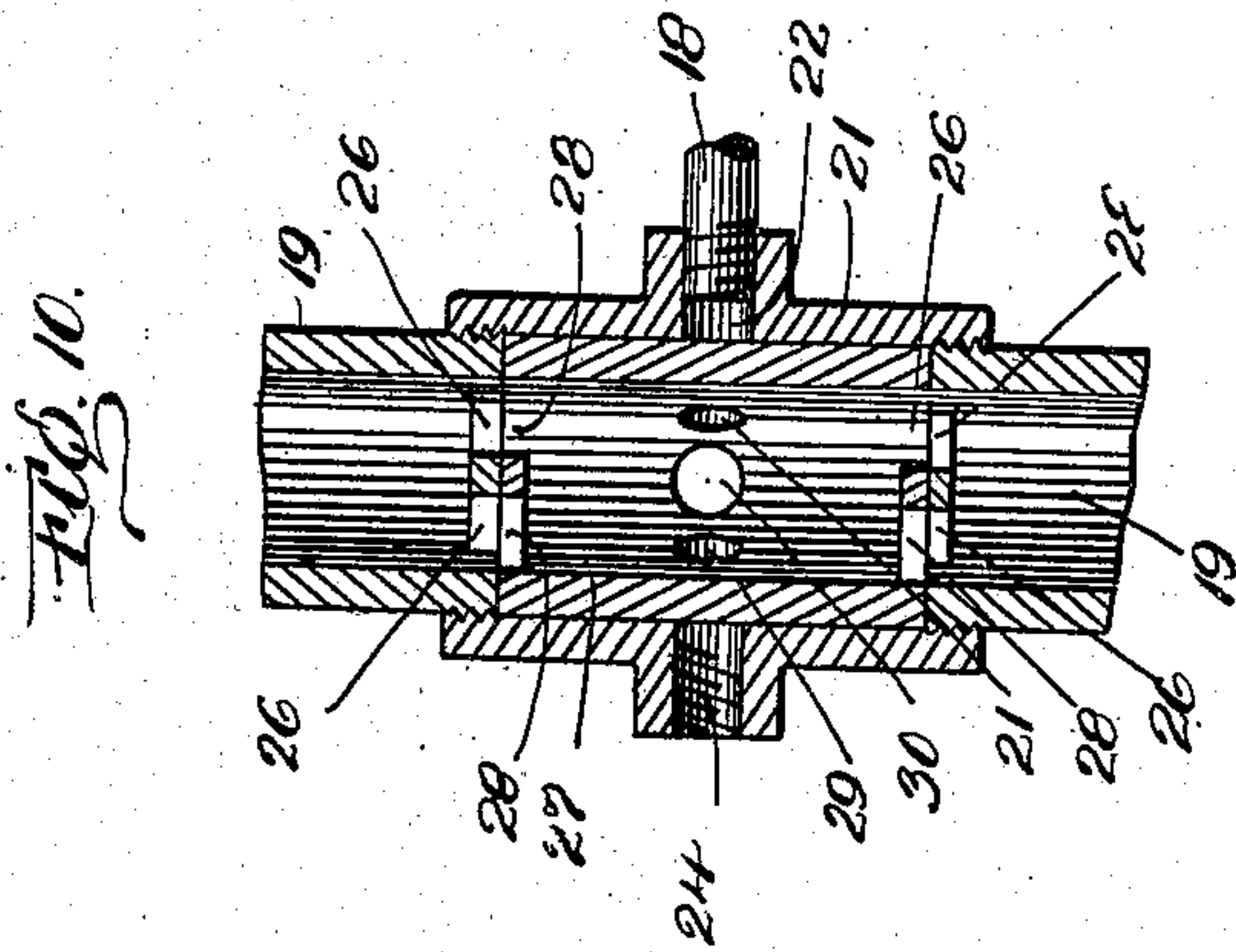


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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

ALBERT A. PAULY, OF YOUNGSTOWN, OHIO.

## APPARATUS FOR FORMING BUILDING-BLOCKS AND ARTIFICIAL STONE FROM PLASTIC MATERIAL.

No. 899,799.

Specification of Letters Patent.

Patented Sept. 29, 1908.

Application filed December 10, 1907. Serial No. 405,841.

*To all whom it may concern:*

Be it known that I, ALBERT A. PAULY, a citizen of the United States of America, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Apparatus for Forming Building-Blocks and Artificial Stone from Plastic Material, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in apparatus for forming building blocks and artificial stone from plastic material, and the invention has for its object to provide a novel apparatus for economically and expeditiously producing seasoned blocks and stone having qualifications conducive to immediate use.

The present invention relates to an improvement upon my Patent No. 865,255, granted September 3rd, 1907. In this patent an apparatus is described wherein the stripping device comprises the material or block supports, a finished block being automatically removed from a mold. In the present application, my stripping device comprises the mold and the cores thereof, the finished block being held stationary during the stripping operation, whereby the block can be easily removed when the mold and cores have been removed away from said blocks.

The detail construction of the present invention will be hereinafter described and then specifically pointed out in the appended claims.

Referring to the drawing: Figure 1 is a cross sectional view of the apparatus, partly in elevation, Fig. 2 is a plan of the same, Fig. 3 is an enlarged longitudinal sectional view of a portion of the apparatus, Fig. 4 is a cross sectional view of the same, taken on the line  $x-x$  of Fig. 3, Fig. 5 is an enlarged cross sectional view of a three-way valve used in connection with the apparatus, illustrating the valve in an open position, Fig. 6 is a longitudinal sectional view of the same, Fig. 7 is a cross sectional view of the valve in a closed position, Fig. 8 is a horizontal sectional view of the valve illustrating the position of the same when admitting steam to the mold and cylinder, Fig. 9 is a similar view illustrating the position of the valve when allowing the cylinder to exhaust, and Fig. 10 is a

similar view illustrating the valve as simply admitting steam to the cylinder.

In the accompanying drawings, 1 designates two parallel elevated platforms or supports arranged upon the ground or floor of a suitable building. These platforms are provided with a plurality of longitudinally aligning openings 2 and arranged in said openings are metallic pallet supports 3, said supports being erected upon the ground or floor 4. The pallets 5 carried by the supports 3 are separated by a movable partition 6, and are provided with central openings 7 for movable hollow cores 8. Surrounding the pallets 5 is a movable mold frame 9 having a detachable cover 10. The movable partition 6, cores 8, and mold frame 9 are supported upon a cross head 11 carried by a piston rod 12 of a piston 13, said piston being located in a cylinder 14 mounted in a ditch or cavity 15 provided therefor in the ground 4 or below the floor line. The head 11 of the piston rod 12 is provided with openings 16 and extending upwardly through said openings into the hollow cores 8 are steam inlet pipes 17, these pipes being connected to a branch supply pipe 18 tapped into the main supply pipe 19, arranged longitudinally of the platforms or supports 1.

To control the admission of steam to the branch supply pipes 18 and to cylinder steam supply pipes 20, I employ novel three-way or triple valves, these valves being operated from above the platforms or supports 1. Each valve comprises a body 21 having a port 22 formed therein for the branch steam supply pipe 18, and a port 23 for the cylinder steam supply pipe 20; an exhaust port 24, and a segment-shaped slot 25, the object of which will presently appear. The ends of the main supply pipe 19 entering the valve body 21 are provided with diametrically disposed quadrant shaped openings 26, the openings at one end of the valve body aligning longitudinally with the openings at the opposite end. In the valve body 21 is mounted a cylindrical valve 27, the ends of this valve being formed with oppositely disposed quadrant shaped openings 28 slightly larger than the quadrant openings 25 of the pipe 19. The valve 27 is provided with three ports 29, 30, and 31, and carries a radially disposed slotted operating arm 31, said arm protruding through the segment shaped slot 35 of



the valve body, and connecting with an operating lever 32, pivotally mounted between bearings 33, carried by the platform or support 1.

5 In order that one molding frame can be operated independent of the other frames, I provide the pipe 19 with pipes 34, these pipes providing a bypass for steam around the triple valve.

10 As numerous molding frames are used for producing artificial blocks or stones of various sizes, configuration and constructions, it is necessary that means be provided for rapidly removing the partially finished product. 15 Therefore, I have arranged between the platforms or supports 1 a track 35 upon which seasoning cars 36 can be moved and loaded, either from the stationary pallets 7 or from the platform or support 1. The seasoning 20 car which I have illustrated is disclosed in my Patent No. 849,160, this car embodying shelves upon which the plastic material can be placed. The cars are provided with side doors which are closed after the cars have 25 been filled, whereby the contents of the cars can be subjected to the action of steam for rendering the stones or blocks waterproof.

Operation. Referring particularly to Figs. 3 to 10 inclusive, it will be observed that steam 30 is being admitted to the hollow cores 8 and to that portion of the molding frame above the plastic material located upon the pallets 5. A pressure of steam is also maintained in the cylinder 14 for holding the head 11, 35 partition 6, cores 8 and molding frame 9 in an elevated position, the exhaust port 24 and the triple valve being closed, and the quadrant-shaped openings of the valve 27 registering with the openings of the pipe 19. 40 This position of the valve is clearly shown in Figs. 5 and 8. Assuming now that the plastic material within the mold frame has been sufficiently subjected to the action of steam, and it is desired to strip the material, the 45 cover 10 is removed. The operating lever 32 is now moved to close the port 22 of the valve body 21 and shut off the steam from the branch supply pipe 18. This movement of the operating lever 32 causes port 29 to 50 register with the exhaust port 24, and port 31 to register with the port 23, allowing the steam within the cylinder 14 to exhaust, and the head 11, partition 6, cores 8, and molding frame 9 to descend by gravity. This 55 movement of the operating lever 32 has moved the valve 27, whereby the quadrant-shaped openings 28 of said plug will close the openings 26 of the pipe 19. Immediately upon the partition 6, cores 8, and molding 60 frame 9 descending beneath the platform or support 1, the formed plastic material can be easily removed from the side of the pallets 5 and placed in the car 36 or piled upon the platform or support 1. In order to restore 65 the partition 6, pallets 8, and molding frame

9 to an elevated position to receive raw material, the operating lever 23 is moved to a vertical movement. This position of the operating lever places the valve 27, whereby the quadrant-shaped openings 26 of the pipe 70 19 will be partially opened, admitting steam to the valve. This movement of the valve 27 has also placed the port 30 thereof in registration with the port 23, admitting 75 steam to the cylinder 14, without opening the ports 22 and 24. Upon the head 11 and its appurtenant part being elevated, material placed in the molding frame 9, and the cover 10 replaced, the operating lever 32 can be moved to the position illustrated in Fig. 5 80 of the drawings, causing the port 29 to register with the port 23, the port 31 to register with the port 22 and the quadrant-shaped openings 28 to fully register with the openings 26 of the pipe 19. Steam will thus be 85 supplied to the cylinder 14 to maintain the head 11 in an elevated position, while steam will be admitted to the mold, to partially season the contents thereof.

From the foregoing description it will be 90 observed that I have provided positive and reliable means for moving a mold frame and the cores thereof, without disturbing the plastic material, the stripping action of the molding frames and cores producing better 95 results than if the plastic material was elevated or lowered from a stationary mold.

In lieu of the steam employed for seasoning the concrete blocks and operating the hydraulic cylinder, I can use air under pressure, 100 and in this connection I reserve the right to use hand power for moving the mold, particularly where the apparatus is used in small plants. Any suitable heating medium can be readily used for seasoning the concrete 105 blocks.

I do not care to confine myself to the specific type of triple valve as disclosed for controlling the admission of steam to the hydraulic cylinder or the molding frame, and 110 such other changes in the general arrangement of the elements entering into my invention as are permissible by the appended claims, can be resorted to without departing from the spirit and scope of the invention. 115

Having now described my invention what I claim as new, is:—

1. In a concrete block forming apparatus, a platform, a plurality of molding frames movable vertically through said platform, 120 pallets arranged within said molding frames, supports underneath the platform upon which said pallets are mounted, said pallets provided with a plurality of openings, hollow cores projecting through the openings in 125 the pallets into said molding frames, a cross head on which said hollow cores and the molding frames are mounted, a steam cylinder, a piston therein having its rod connected to said cross head, a steam supply line com- 130



communicating with said cylinder, branch lines tapped into said steam supply line and communicating with said hollow cores for supplying steam to the interior of the molding frames, a triple valve in said steam supply line, and an operating lever extending through the platform whereby said triple valve and the operation of the molding frames may be controlled from above the platform.

2. Concrete block forming means, comprising a platform, a molding frame movable vertically through said platform, a cross head beneath the platform on which said molding frame is mounted, supports beneath the platform and extending into the molding frame, a pallet mounted on said supports and provided with openings, hollow cores carried by said cross head and extending through the openings in said pallet, a steam cylinder beneath the platform, a piston therein to the rod of which said cross head is connected, a steam supply line communicating with said cylinder, branch steam lines leading from said supply line to the hollow cores for supplying steam to the molding frame, a triple valve in said steam supply line controlling both the admission of steam to the cylinder and the admission of steam to the molding frame, and a lever connected with said triple valve and extending through the platform whereby the valve and the movement of the molding frame can be controlled from the platform.

3. Concrete block forming means, comprising a platform, a molding frame movable vertically through said platform, a cross head beneath the platform on which said molding frame is mounted, supports beneath the platform and extending into the molding frame, a pallet mounted on said supports and provided with openings, hollow cores carried by said cross head and extending through the openings in said pallet, a steam cylinder beneath the platform, a piston therein to the rod of which said cross head is connected, a steam supply line communicating with said cylinder, branch steam lines leading from said supply line to the hollow cores for supplying steam to the molding frame, a triple valve in said steam supply line controlling both the admission of steam to the cylinder and the admission of steam to the molding frame, and a lever connected with said triple valve and extending through the platform whereby the valve and the movement of the molding frame can be controlled from the platform.

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

ALBERT A. PAULY.

Witnesses:

K. H. BUTLER,  
A. J. TRIGG.