No. 773,630. PATENTED NOV. 1, 1904.

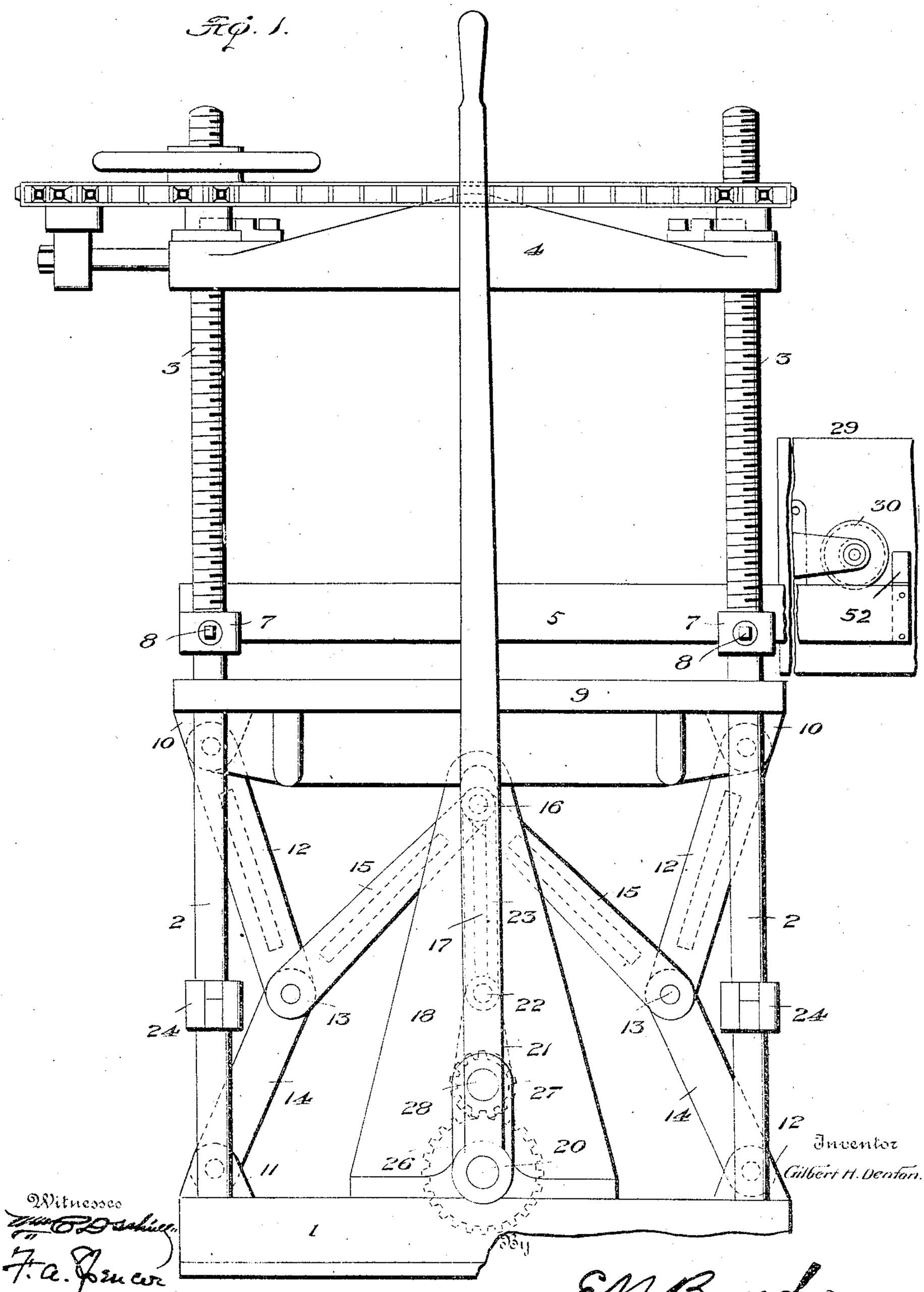
G. H. DENTON.

PRESS FOR FORMING BUILDING BLOCKS.

APPLICATION FILED JULY 19, 1904.

NO MODEL. 3 SHEETS—SHEET 1.

Fig. 1.



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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 3.

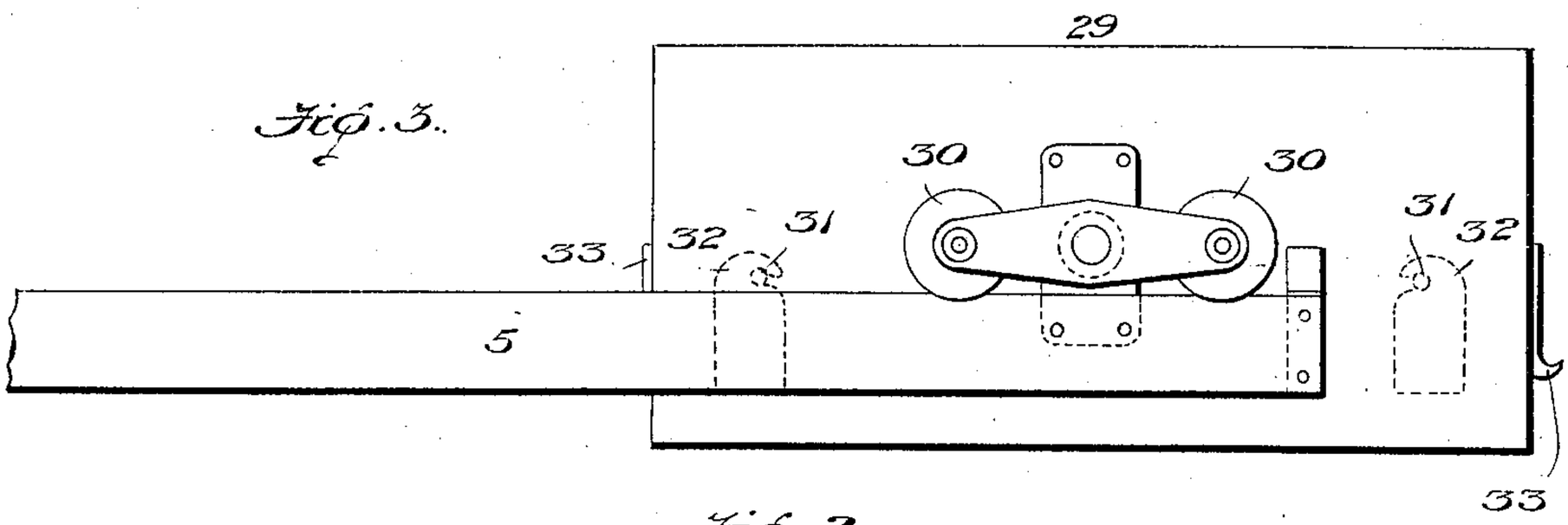
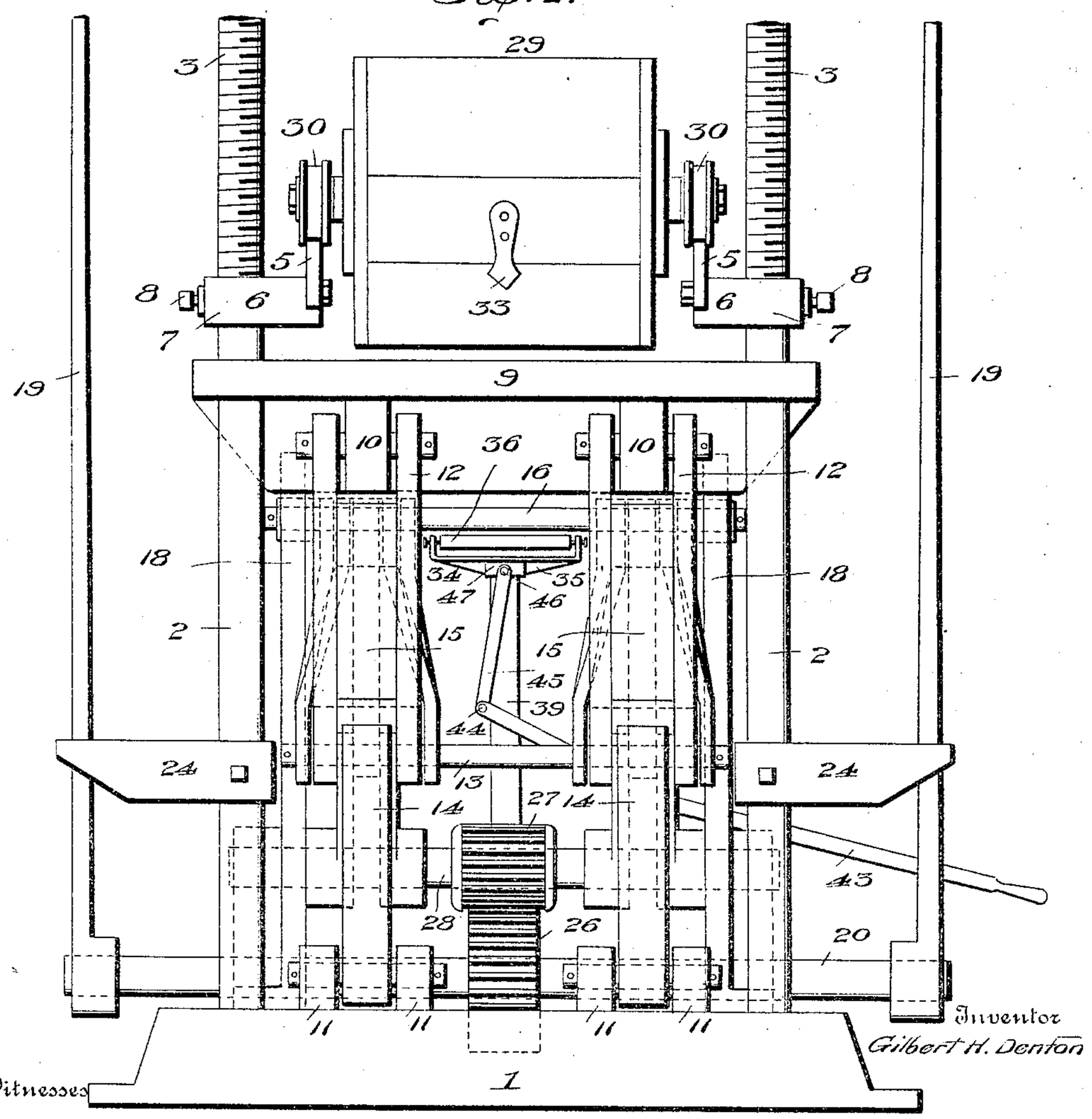


Fig. 2.



Witnesses

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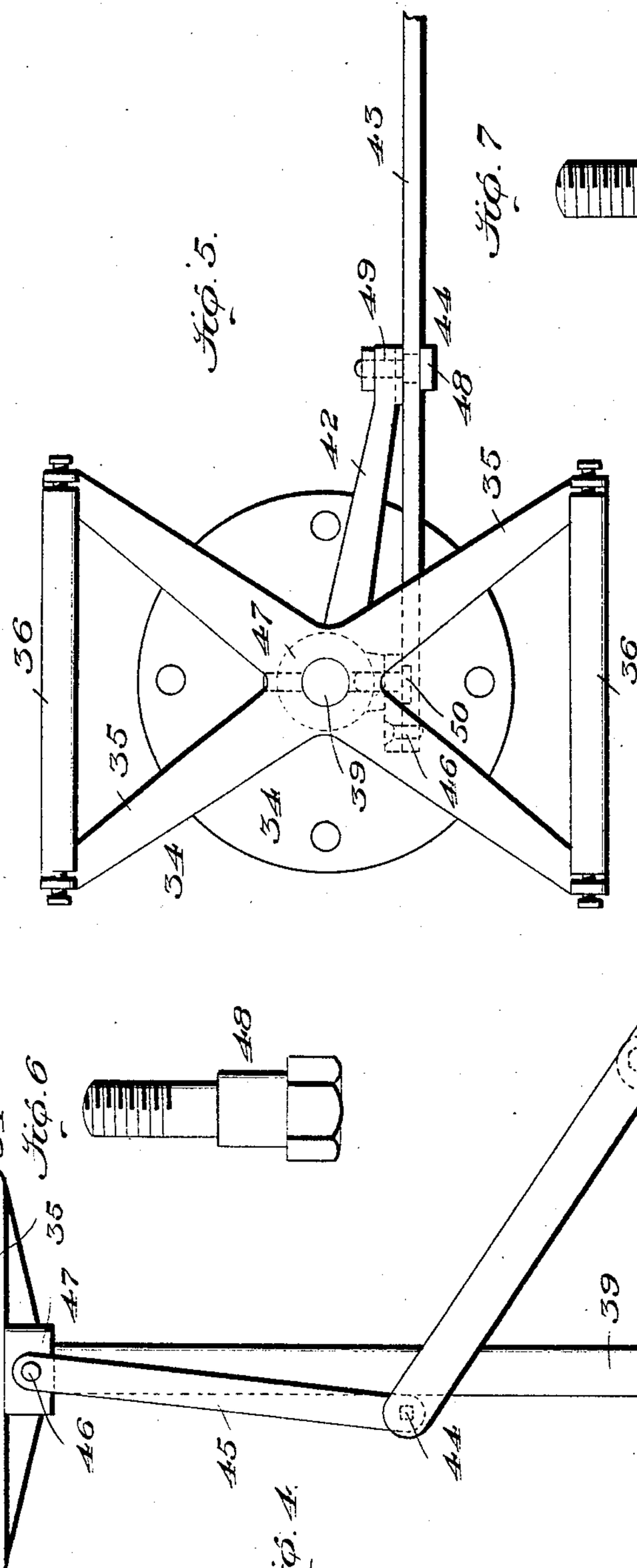
NO MODEL. 3 SHEETS—SHEET 3.



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No. 773,630. Patented November 1, 1904.

UNITED STATES PATENT OFFICE.

GILBERT H. DENTON, OF DENVER, COLORADO, ASSIGNOR TO J. A. FERGUSON, OF DENVER, COLORADO.

PRESS FOR FORMING BUILDING-BLOCKS.

SPECIFICATION forming part of Letters Patent No. 773,630, dated November 1, 1904.

Application filed July 19, 1904. Serial No. 217,217. (No model.)

To all whom it may concern:

Be it known that I, GILBERT H. DENTON, a citizen of the United States of America, and a resident of Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Presses for Forming Building-Blocks, of which the following is a specification.

This invention relates to certain new and useful improvements in presses for forming building-blocks of plastic material which will harden when seasoned.

The present invention has for its objects, among others, to provide an improved press for this purpose which shall be double acting in its nature and in connection with which is employed a track upon which is designed to be run the mold, which is provided with rollers to run upon the said track and adapted to be inverted after the block has been formed and the pressed block deposited upon a lowering device. This track runs through the press and is supported thereby, so that a mold may be operated at either side and the output of the press generally greatly increased.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

The invention in its preferable form is clearly illustrated in the accompanying drawings, which, with the numerals of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a side elevation of my improved press. Fig. 2 is an end view thereof with the top portion removed, showing the mold in position over the adjustable or movable plate. Fig. 3 is a detail in side elevation, showing a portion of the track and the mold thereon. Fig. 4 is an elevation of the lowering stand. Fig. 5 is a top plan thereon with a portion of the operating-lever broken off. Figs. 6 and 7 are details of the bolts employed. Fig. 8 is a detail in cross-section which will be more particularly referred to hereinafter.

Like numerals of reference indicate like parts throughout the several views.

Referring now to the drawings, 1 designates the base of the press, which is designed to be supported in any suitable manner in the desired position. Rising from this base at or near each corner are the posts 2, the upper portions of which are screw-threaded, as seen at 3.

4 is the upper plate, which is adapted to be adjusted vertically to accommodate a mold of the required size, this adjustable plate and its means of adjustment not being claimed herein, as the same is disclosed in my prior application, Serial No. 185,272, filed December 15, 1903. It is sufficient to state that the construction is such that simultaneous adjustment of all of the nuts engaging the threaded portions of the posts is assured, and thus the plate 4 moved to adapt the press for use in connection with such a mold as is required to give the desired depth or thickness to the block.

5 is a track which may be supported in any suitable manner, in this instance shown as secured in lugs 6, forming part of collars 7, which are adjustably mounted on the posts 2, as by set-screws 8. This track runs through the press beneath the upper plate 4, the tracks being inside the space inclosed by the posts, as seen best in Fig. 2, and may extend any desired distance upon one or both sides of the press. It may be adjusted vertically to adapt the same for use in connection with molds of different sizes, as occasion may require. Upon this track or overhead trolley the molds are adapted to be supported and moved in a manner which will hereinafter be explained.

9 is the lower plate or platform, which is mounted to slide vertically, being guided upon the corner-posts 2, as will be readily understood. This is similar to the corresponding part of the press described and claimed in my prior application above referred to; but the manner of actuating the same differs and is as follows: The said plate or platform has depending from its under side near each corner a lug 10, while from the base 1 rises near each corner a lug 11, and 12 represents bars or arms pivoted at one end to the lugs 10 and at their other ends pivotally connected, as at 13, to the adjacent ends of the bars or arms 14, which

have their lower ends pivotally connected with the lugs 11, as seen clearly in Fig. 1. 15 represents arms or bars pivotally connected with the adjacent ends of the arms or bars 12 and 14 upon their pivots 13, as shown. The bars or arms 15 are mounted on a common connecting-rod or the like 16, which is mounted at its ends for vertical movement in the vertical openings 17 in the standards 18, rising from the base 1 near opposite sides thereof, as shown in Figs. 1 and 2. 19 is a lever fulcrumed at its lower end on a shaft 20, mounted on the base 1, as shown, while on this shaft is an arm 21, having pivotal connection, as at 22, with an arm 23, pivotally connected with the rod 16, so that manipulation of the said lever will actuate the toggles formed by the bars or arms, as above described and as will be readily understood from Fig. 1, and move the plate 9 up or down, according to the direction in which the said lever is moved. It is to be understood that the sets of toggles are duplicated on opposite sides of the press and that there is a lever 19 upon each side. 24 represents stops adjustably mounted on the posts, as shown, and arranged in the paths of the levers to limit their movements.

I may sometimes find it advisable to employ a gear 26 on the shaft 20 and meshing with a smaller gear 27 on a shaft 28, as seen in Figs. 1 and 2, to increase the power and lessen the labor of actuating the press; but these elements are not necessary and may be omitted, if desired.

29 is the mold. It may be of any form of construction best adapted to the purpose. It is provided with wheels or rollers 30, which are adapted to run upon the tracks above described, as seen in Figs. 1, 2, and 3, the mold being pivotally mounted between the two rollers on each side, so that it may be easily turned upside down when desired. Pins 31 project from opposite sides of the mold near each end to coöperate with a dog or dogs 32 on the track, as shown, to secure the mold in the desired position while it is being filled with the material to be molded. At the ends of the mold are the clasps 33 for holding the lid in position. These may be of any suitable character adapted to the purpose.

In Figs. 4 and 5 is shown the lowering stand used in connection with my improved press and the trolley on which the molds are supported and moved. While this lowering stand is not specifically claimed herein, it forming the subject-matter of an application of even date herewith, Serial No. 217,218, it is herein illustrated and will be briefly described in order that its relation to the other parts may be understood and in order to fully understand the operation of the press.

In Figs. 4 and 5, 34 is the platform of the lowering stand. It is in the form of a spider, at the outer ends of the arms 35 of which are journaled the longitudinal rollers 36, as seen clearly in said Figs. 4 and 5. 37 is a base or support designed to be supported in any suitable manner, as on the floor on a level with the base of the press, and this support has rising therefrom the hollow standard 38, in which moves the vertical piston or plunger 39, provided with an elongated groove 40, adapted to be splined into the standard 38, as shown best in Fig. 8, the spline being designated at 41. From the standard 38 extends the outward and upward arm 42, on the outer end of which is fulcrumed the operating-lever 43, which may assume any desired shape, its inner end being pivotally connected, as at 44, with the arm 45, pivotally attached, as at 46, with the hub 47 of the platform of the lowering stand, as seen clearly in Fig. 4. A bolt 48 (shown detached in Fig. 7) serves as the connection between the lever 43 and the outer end of the arm 42, having a cylindrical unthreaded portion 49, which permits of the turning of the bolt in the lever, so as to reduce friction, while a bolt 50 serves a like purpose in connecting the upper end of the arm 45 with the hub of the spider of the platform 34. 51 is a spring around the piston, as seen in Fig. 4, at the upper end of the hollow standard 38.

The parts being constructed and operated substantially as above described and the relative arrangement being substantially such as illustrated in Fig. 2, the lowering stand being set at the proper distance from the press, so that when the mold is run out on the track and turned over the arms of the lowering stand come up into the mold, the clamps on the mold holding the press-board are released and the block lowered away out of the mold and onto the platform of the said lowering stand. The operation of forming a building-block is substantially as follows: The mold is pushed out on the track into the position shown in Fig. 2, where a suitable stop device 52 may be provided to limit its movement, and secured by the dog, as described. The mold is then filled with the material of which the block is to be formed, the presser-plate is put on, if other than a rough-faced block is to be formed, (if a rough-faced block is to be formed the pressing-plate will be attached to the top plate of the press,) and then the mold is run into the press on the track. When the mold is in proper position, the pressure is given by manipulation of the lever or levers, which, it will be understood, may be operated in either direction, and then the mold is run out on the trolley to the proper point, where it is turned upside down on its pivots, being first released from the dog that holds it. The table or platform of the lowering stand is raised until it touches the presser-plate, and then the clamps that hold the presser-plate in position are released, when the finished block comes away from the mold, is received on the platform of the lowering stand, which latter is then low-

ered and the block lifted away, and the mold is ready to be refilled and the operation repeated. Two men operate at one side of the press to manipulate one mold, and two men at the opposite side handle another mold.

From the above it will be obvious that I have devised a simple, cheap, yet efficient double-acting press and accessories whereby building-blocks can be quickly and economically manufactured, and while the structural embodiment of my invention as herein disclosed is what I at the present time consider the preferable one it is evident that the same is subject to changes, variations, and modifications without departing from the spirit of the invention or sacrificing any of its advantages. I therefore do not intend to restrict myself to the details of construction herein disclosed, but reserve the right to make such changes, variations, and modifications as come properly within the scope of the protection prayed.

What is claimed as new is—

1. In a double-acting press of the character described, a track, an invertible mold movable thereon in the plane in which the press-operating members work, a vertically-movable plate, vertically-disposed toggle-levers for actuating the same, and means operable from either side of the press and in either direction for actuating said toggle-levers.

2. In a press of the character described, a track, a mold mounted to travel thereon in the plane in which the press-operating members work, an upper adjustable plate, a lower movable plate, vertically-disposed toggle-levers for actuating the lower plate, and duplicated upon opposite sides of the press, and means operable from either side of the press and in either direction and operatively connected with said toggle-levers to move the lower plate.

3. A press, and a track supported thereby and extended beyond both sides of the press and upon which a mold disposed in the plane in which the operating members of the press work may be run through the press and inverted.

4. A press, and a track extended upon opposite sides of the press and disposed between its upper and lower plates and extended through the press for supporting a mold and permitting of its being inverted while in the press.

5. A press, a track supported thereby to receive a mold, and a mold supported on said track and movably guided in the plane in which the press-operating members work and mounted to be inverted while in the press.

6. A press, a track supported thereupon, a pivotally-mounted mold having rollers to travel upon said track, and means for locking the mold while being filled.

7. A press, a track thereupon between its upper and lower plates, a mold having rollers to travel upon said track, and means supporting said mold and permitting of its being inverted to discharge the completed article.

8. A press having its posts provided with adjustable supports for a track, a track supported thereon and extended through the press, and a lowering stand and means for raising the same for receiving the pressed block.

9. A press having a track thereon to support a mold, a mold movable on said track, and a lowering stand disposed to receive the molded article after it has been run through the press and means for raising said stand.

10. A press, a track thereon and extended therethrough, a mold movable upon said track, means for holding the mold while being filled, means for inverting the mold after the article is pressed, and a lowering stand disposed to receive the molded article.

Signed by me at Denver, Colorado, this 16th day of July, 1904.

GILBERT H. DENTON.

Witnesses:
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D. M. KELLEY.