

W. D. FRERICHS.
CLAY PRESS.

APPLICATION FILED MAR. 18, 1907.

1,012,835.

Patented Dec. 26, 1911.

7 SHEETS—SHEET 1.

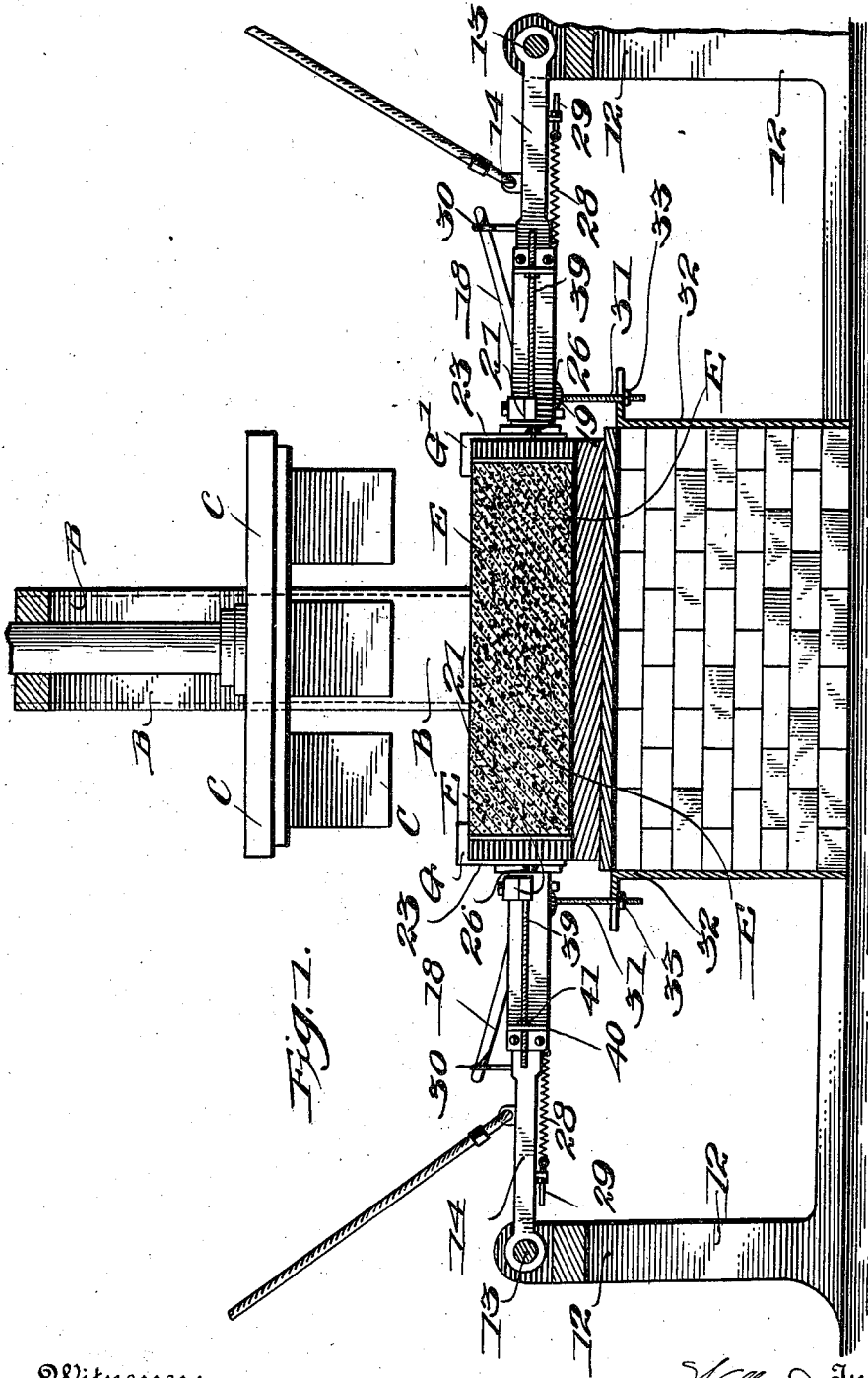


Fig. 1.

Witnesses:
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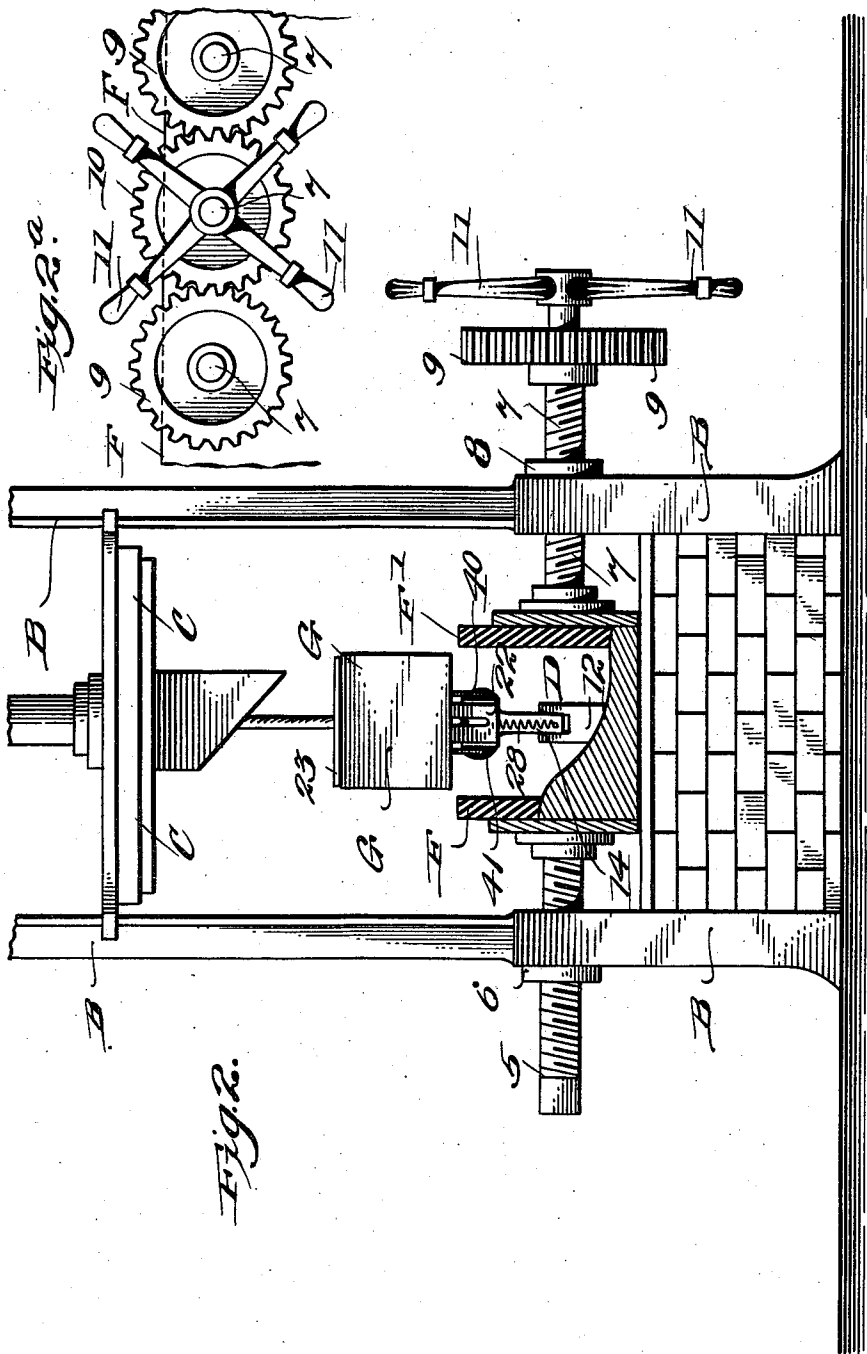
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7 SHEETS—SHEET 2.

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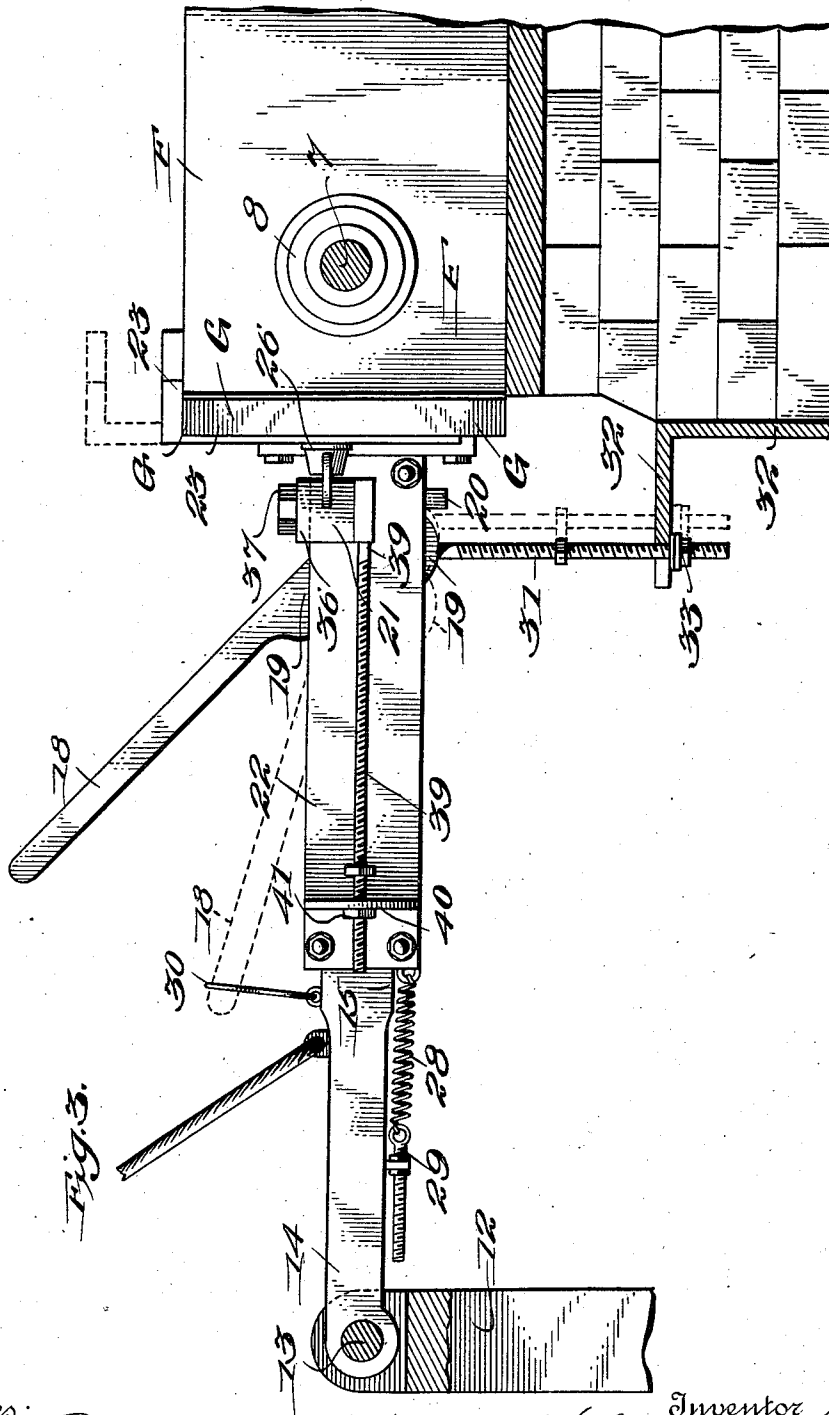


Fig. 3.

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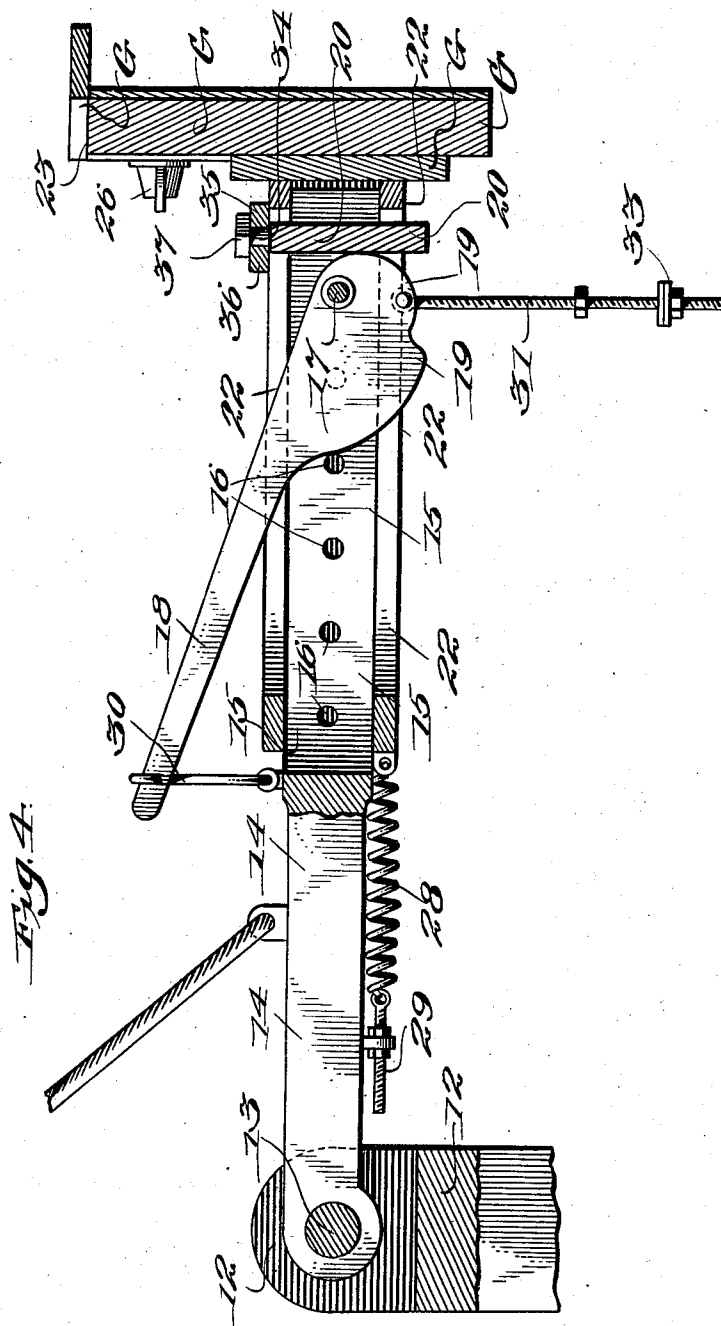


Fig. 4.

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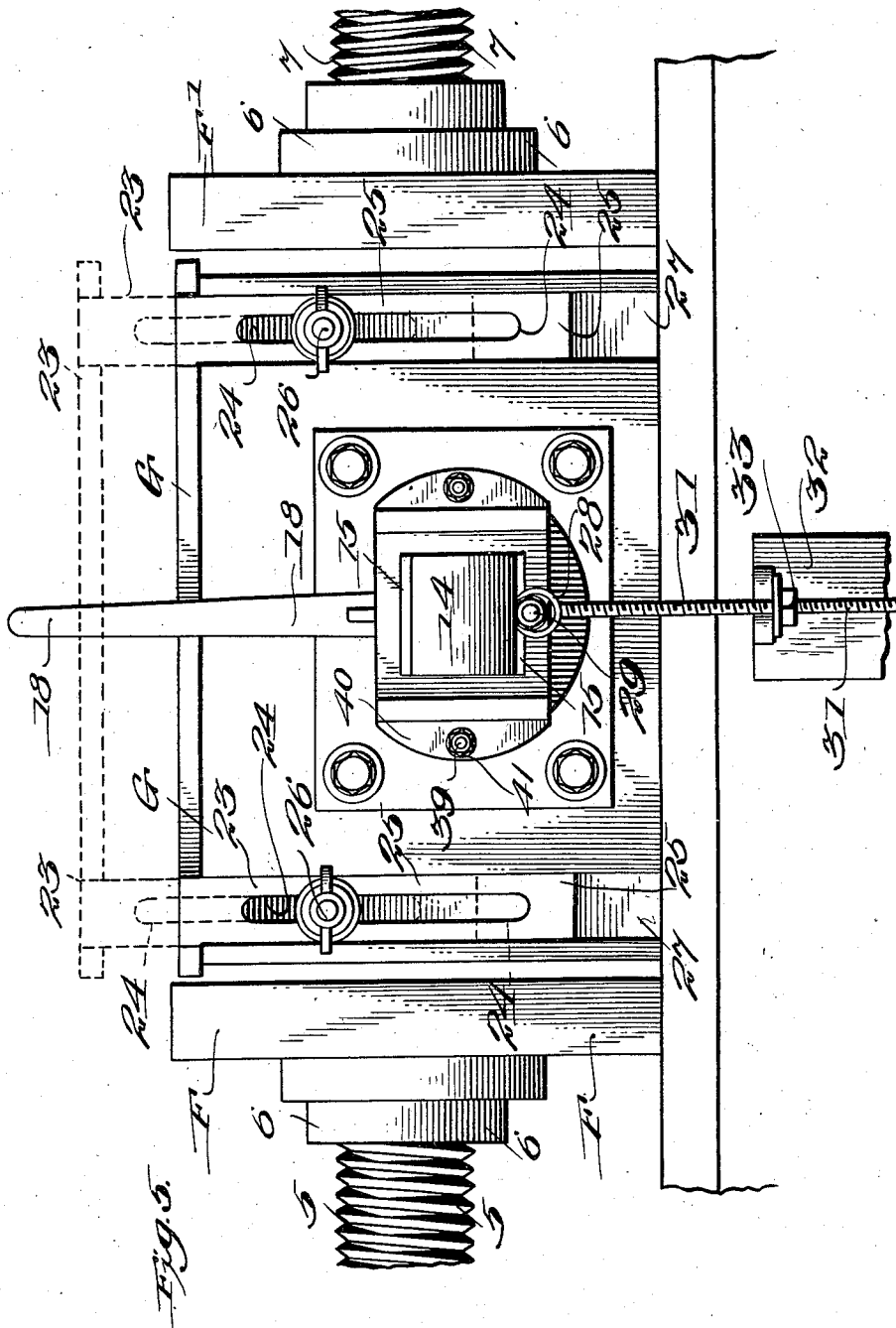
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7 SHEETS—SHEET 6.

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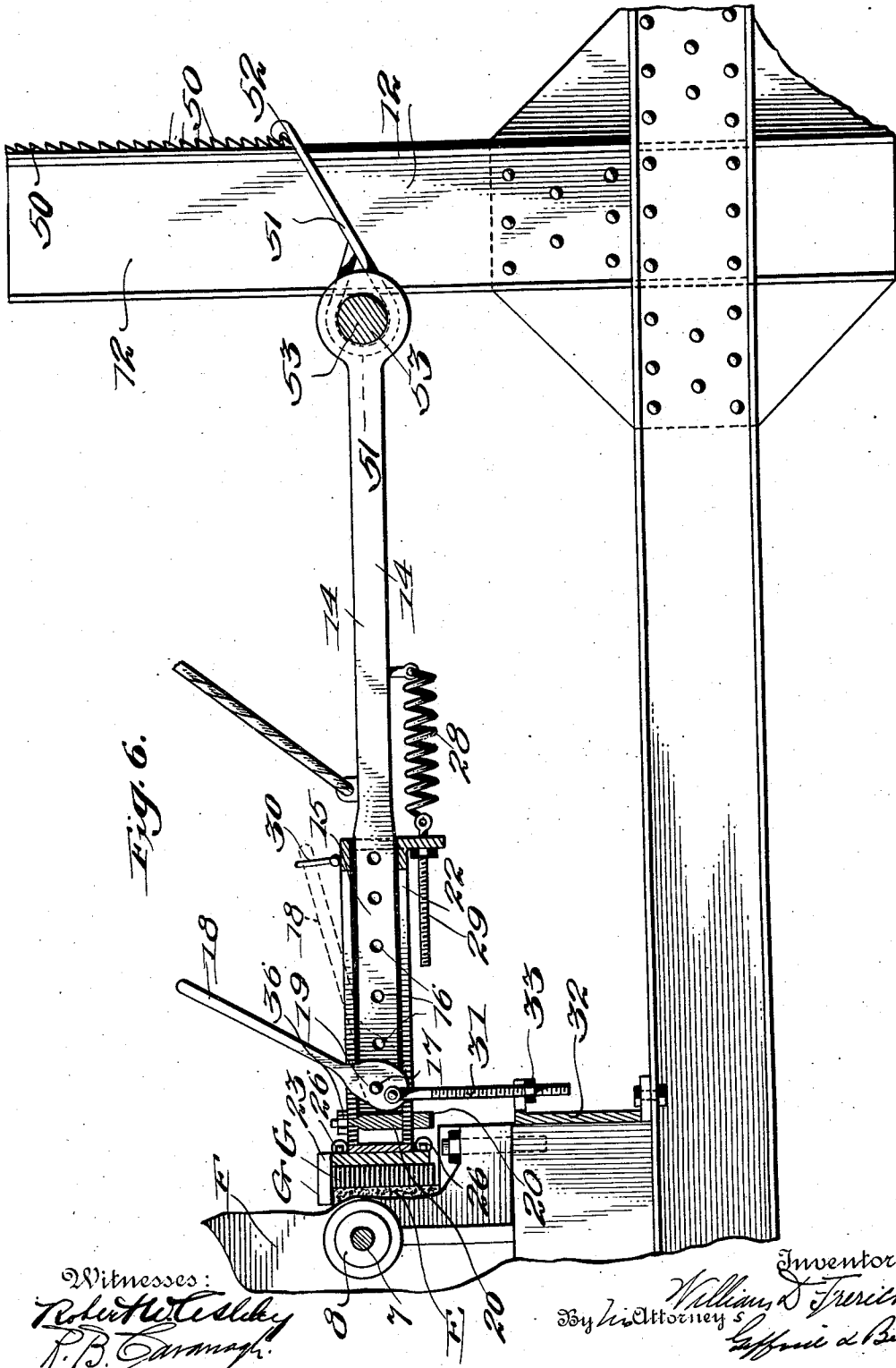
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7 SHEETS—SHEET 6.

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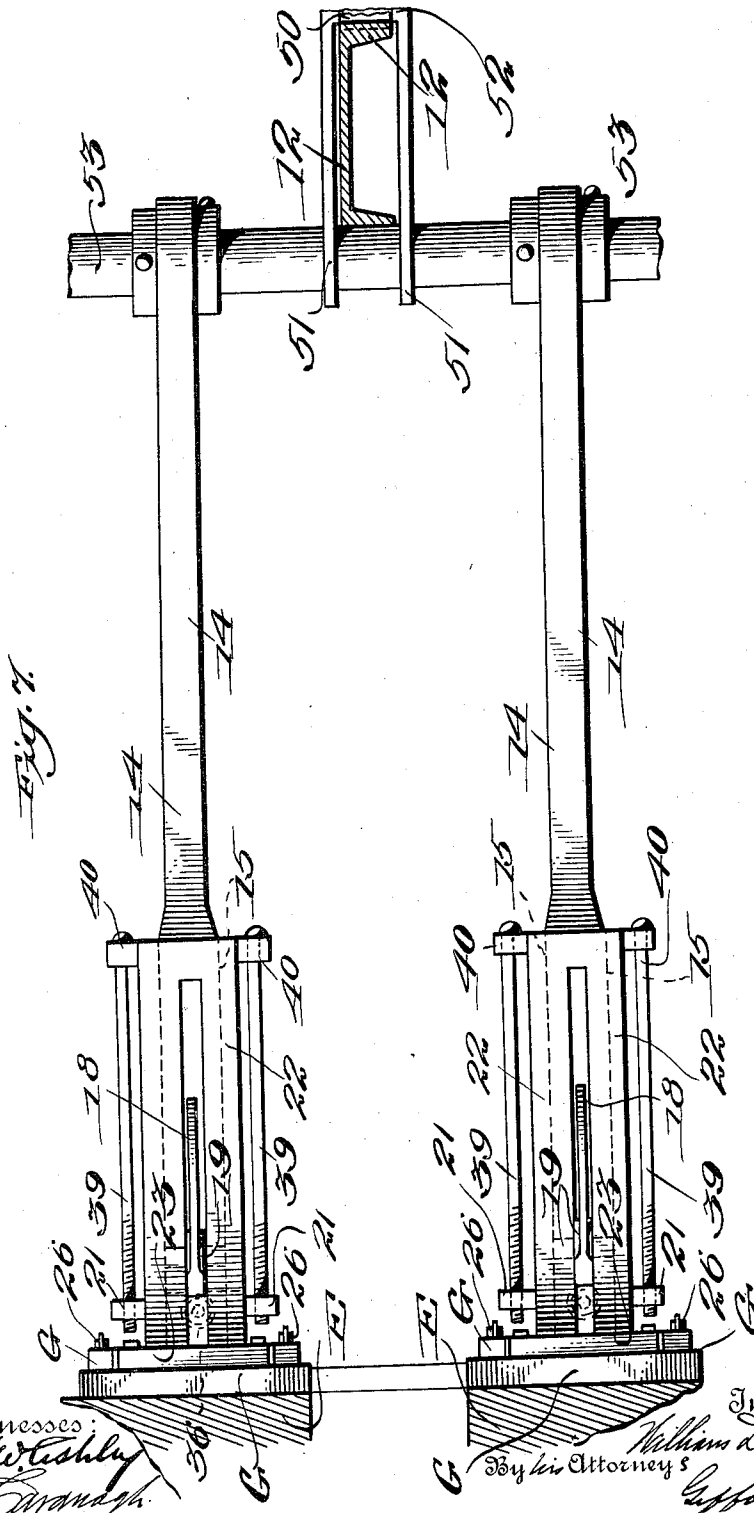
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7 SHEETS—SHEET 7.

1,012,835.



UNITED STATES PATENT OFFICE.

WILLIAM D. FRERICH, OF TOTTENVILLE, NEW YORK, ASSIGNOR TO THE ATLANTIC
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CLAY-PRESS.

1,012,835.

Specification of Letters Patent.

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Application filed March 18, 1907. Serial No. 362,819.

To all whom it may concern:

Be it known that I, WILLIAM D. FRERICH, a citizen of the United States, and a resident of Tottenville, borough of Richmond, in the county of Richmond and State of New York, have invented certain novel and useful Improvements in Clay-Presses, of which the following is a specification.

This invention relates to a press or mold for the manufacture of clay products and is in the nature of an improvement upon such an apparatus as is illustrated in my prior Patent No. 713,562, dated November 11, 1902.

The invention consists in the construction, combination and arrangement of parts set forth in and falling within the scope of the appended claims.

Referring now to the accompanying drawings wherein, by way of illustration, I have delineated one embodiment of my invention, Figure 1 is a longitudinal sectional view taken through an apparatus embodying my improvement; Fig. 2 is a transverse or end view partly in elevation and partly in section, and showing clearly one type of mechanism which may be employed for manipulating the sides of the mold; Fig. 2^a is a view in side elevation of one of the longitudinal sides of the mold, and showing the adjusting mechanism therefor; Fig. 3 is an enlarged detail view of a portion of the molding or press apparatus and showing particularly the construction of the mechanism carrying the head forming the end of the box or mold; Fig. 4 is a longitudinal, sectional detail view showing the construction of the lever and the means for adjusting the head or end of the mold box; Fig. 5 is a view in elevation of the adjustable head or end of the mold. Fig. 6 is a detail view, partly in elevation and partly in section, showing a means for adjustably supporting the arm carrying the adjustable head. Fig. 7 shows an arrangement of a plurality of heads for the end of the mold or molds.

In the molding of clay products, especially those formed of terra cotta, it is desirable that the mold parts be assembled and adjusted with accuracy and then maintained unyieldingly in position during the working of the apparatus in order that the objects molded may possess uniformity of

structure, and the formation of irregularities on the surface caused by the yielding of the mold walls may be avoided. To accomplish this, I have devised a mold or press which may be assembled and adjusted to manufacture objects of various sizes with the uniformity and accuracy required.

Referring to the accompanying drawings in detail, A indicates a suitable form of bed or foundation for the press, while the letter B designates the frame of the press carrying the plunger C.

D indicates as an entirety the mold or press-box, in which the patterns of the objects to be manufactured are placed, the clay or other material for forming the article being indicated by E in Fig. 1. The mold which may be of any suitable shape in the present instance is shown as oblong or rectangular in form, and comprises the two longitudinal sides F, F', and the heads or ends G, G'. One of the longitudinal sides, for instance, the side F, I desire to normally maintain stationary and to adjust the other longitudinal side F' relative thereto to compensate for articles of various widths. I therefore, connect to the side F screw shafts or rods 5 suitably spaced apart and extending through bearings 6 in the adjacent portion of the frame. Similarly, the adjustable side F' is provided with screw shafts or rods 7 extending through bearings 8 on opposite side of the frame. But at the outer end of each of the shafts 7 I provide gear wheels 9 actuated by the intermediate meshing gear 10, the latter in turn being operated in any suitable manner, such as by the hand wheel 11. By this arrangement, it will be obvious that a relative adjustment of the longitudinal sides may be made.

As the ends or heads G, G', of the mold are similar in construction, a description of one will be sufficient for both.

To a suitable support 12 at the point 13 is pivoted an arm 14 formed with an elongated slotted or bifurcated portion 15, such bifurcated parts being provided with alining apertures 16, to form bearings for the reception of the pivot pin 17. This pin forms a fulcrum point for the cam lever 18. The toe portion 19 formed at the enlarged or cam section of the lever is adapted to be moved into contact with the abutment block

20 carried by the sliding box sleeve 21, movable along the slotted or bifurcated part of the arm. This box sleeve is formed with elongated slots 22, alining with the slot in the arm, so that the movement of the cam lever is permitted. At the end of the box sleeve is secured the head G comprising, as before mentioned, one of the walls or ends of the mold box. The holes 16 permit the moving back of the cam lever when blocks of exceptional size are to be pressed. The construction of this head is shown in detail in Figs. 4 and 5 and it comprises a section or body of wood or other material of proper shape for the wall, and suitably faced, if desired. This head is secured to the sliding box sleeve at its central portion and in any desired and convenient manner. An adjustable frame 23 is also included in the construction of the head, so that the area covered by the latter may be extended vertically and enlarged. By this arrangement the head or wall is made to accommodate itself to the height of different pieces of work. The end of this extension or frame 23 is provided with a ledge or flange extending at right angles to the main portion thereof, so that when the wall is moved into position to form a part of the mold box, such ledge will fit over the end of the pattern in the mold and tend to hold the same down, to further secure rigidity. The adjustment of the extension or frame 23 is accomplished by forming slots 24 in the vertical arms 25 thereof, and providing set screws 26 having their shanks extending into the back of the head or wall. By this means the screws may be loosened to permit the vertical adjustment of the extension or frame relative to the head and mold and the framework extension is then held in such adjusted position by tightening up the screws again. The arms 25, it will be noted, slide in guideways 27 formed in the back of the head G. A retraction spring 28 is connected at one end to the rear of the box sleeve and at its other end to a suitable adjusting pin 29 carried by the arm 14. This spring performs the function of retracting the sleeve and the wall carried thereby after the same has been released from its active position by the actuation of the cam lever.

30 indicates a locking hook for engaging with the extended or handle portion of the cam lever when the latter is depressed and the head has been thrust forward by contact of the cam with the abutment block. This hook performs the function of holding or securing the cam lever in its locking position. In order to maintain the head securely in position when it is acting as the end wall of the mold and to hold down the molds I also provide a screw rod 31 engaging with a slotted lug or bracket 32 preferably secured to the foundation or bed of

the press, and on this rod is threaded the nut 33 for holding the rod against movement in the slot of the bearing or bracket.

As heretofore mentioned the cam lever may be placed in various positions of adjustment within the bifurcated portion of the arm and as such lever is moved from one position to another it will of course be necessary to adjust the abutment block 20 so that the cam may be moved into contact with the same to push the head forward. This adjustment is accomplished as follows: The upper end of the block is formed with the threaded stud 34 extending through an opening 35 formed in the U-shaped plate 36 which rests at the top of the box sleeve, and secured thereto by means of the nut 37 threaded on the stud. Adjustable threaded parallel rods 38, 38 are connected at one end as at 39, to the vertical portions of the U-shaped plate and at the other end extend through an aperture formed in the lug 40. By means of the nuts 41 the plate may be moved into any suitable position of adjustment within the bifurcated portion of the arm and consequently the abutment block is adjusted longitudinally of the arm to accommodate itself to any change of position of the cam lever.

The above is a description of the apparatus, so far as concerns its structural features and I will now proceed to briefly describe the operation of the same. The sides F and F' having been adjusted to suit the ends or heads G, G', are placed in position as follows: The cam lever 18 is swung from the position shown in full lines in Fig. 3 to that shown in dotted lines in such figure and is secured by the hook 30. As the lever is moved into this position the toe of the cam pressing against the abutment plate 20 connected to the box sleeve tends to thrust such sleeve forward, and the head carried at the end thereof is consequently moved forward to a position of abutment against the ends of the longitudinal sides. If necessary, the extension frame 24 is adjusted vertically as the case may require, to accommodate articles of various heights, by loosening the set screws 26, raising or lowering such frame and fastening such screws again. The threaded rod 31 is moved into the position shown in Figs. 1 and 3, that is, in engagement with the slotted portion of the bracket 32 and tightened by means of the nut 33. The pattern and material to be molded, such as clay, is then placed in the mold and the plunger C operated to effect the molding. By means of the construction described, during the molding and while undergoing the strain caused by the process, all the sides of the mold box will be held normally and unyieldingly in position and as the various adjustments described enable the parts to be adjusted to

a nicety the result is that the articles will be uniform in finish and contour. After the molding has taken place and it is desired to remove the object therefrom the lever is released and moved to its original position, as shown in full lines in Fig. 3, and the action of the spring 28 retracts the box sleeve and consequently withdraws the head G away from the mold sufficiently to permit it to be swung or rocked upon the pivot 13 out of the way and into the position shown in Fig. 2. By operating the hand wheel 11 the movable side F' may then be withdrawn and the object taken from the mold. A further advantageous feature to be noted is that by the arrangement of levers and screw rods the ends and sides are always maintained level and true relative to the center of the mold to withstand the spreading strain, so that no matter what the height or length of the article being molded may be, the mold members can be adjusted to accommodate the patterns and held rigidly in position during the stress of the molding operation.

In Fig. 6 I have shown an arrangement whereby the arm 14 carrying the adjustable head or side of the mold may be adjusted relative to its support, so that the head and arm will always lie in a certain line relative to the mold, and be in position to resist the supporting strain. In the arrangement shown in Fig. 6, the support 12 is provided with a rack 50 and the arm 14 is provided with a hanger in the form of a hook shown at 51, the turned or hooked end 52 of the hanger being adapted to engage with any one of the teeth of the rack, as is shown in said figure, so that the arm may be raised and lowered and adjusted vertically as desired.

In Fig. 7 I have shown an arrangement whereby I employ a plurality of arms, each carrying an adjustable head, such arms being supported by the shaft 53. By this arrangement if the work being molded should be extra large, or of such a size that a single head would be either insufficient for the purpose or so large as to be cumbersome and inconvenient, I may employ a plurality of heads, as is shown in said Fig. 7, and

these heads may be adjusted relative to the work and to each other as the occasion may require.

While I have herein shown and described one embodiment of my invention, I wish it to be understood that I do not limit myself to all the details, as modification and variation may be made without departing from the spirit of the invention or the scope of the claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. In a clay press, the combination with a support, an arm pivotally connected thereto, a reciprocating head or wall carried by said arm and adapted to form a wall of the mold, and cam mechanism for moving said head or wall.

2. In a clay press, the combination with a support, a bifurcated arm, a slotted sleeve carried by said arm, a cam lever mounted in the arm, a head or wall for the mold of the press carried by said sleeve and adapted to be moved toward the mold by the action of the cam lever, and means for retracting the head or wall.

3. In a clay press, the combination with a plunger, of a mold box mounted upon the foundation or bed of the press, means for adjusting the side members of said mold box, supports arranged adjacent to the press, end mold members carried by the supports, means for adjusting said end members vertically, means for moving said end members laterally, and means for rocking said members into and out of molding position.

4. In a clay press, the combination of a support, a rack carried thereby, an arm, a hanger carried by the arm and adapted to engage with the rack to support the arm, and an adjustable head member mounted on said arm.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM D. FRERICHs.

Witnesses:

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OTTO MUNK.