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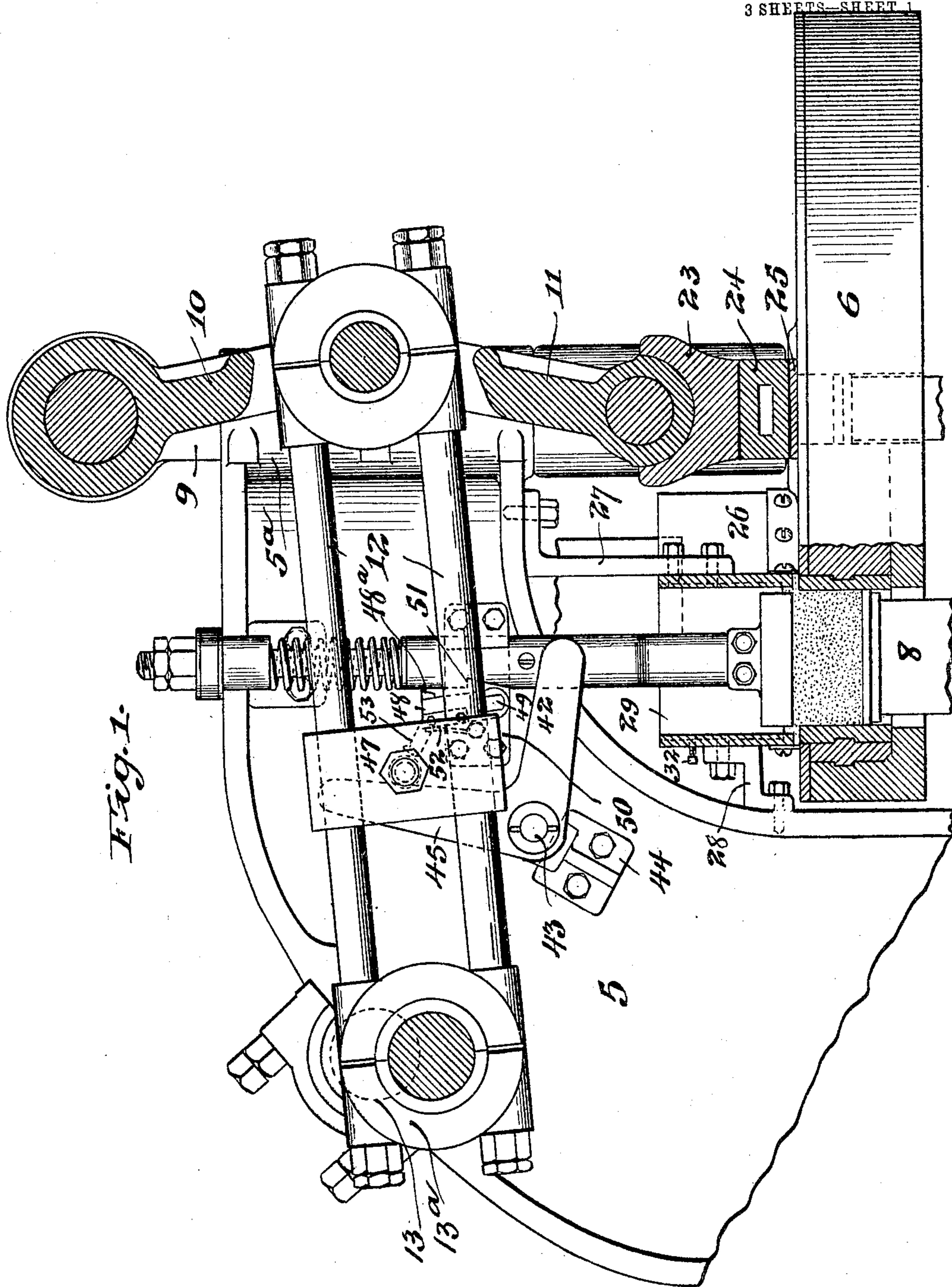
PATENTED AUG. 29, 1905.

H. J. FLOOD.

MOLD FILLING AND TAMPING DEVICE FOR BRICK AND SIMILAR PRESSES.

APPLICATION FILED AUG. 8, 1904.

3 SHEETS-SHEET 1



Witnesses,
J. D. Mann.
S. H. Pond.

Inventor,
Harry J. Flood
By *Offield, Fowler & Lathrop*
Attys.

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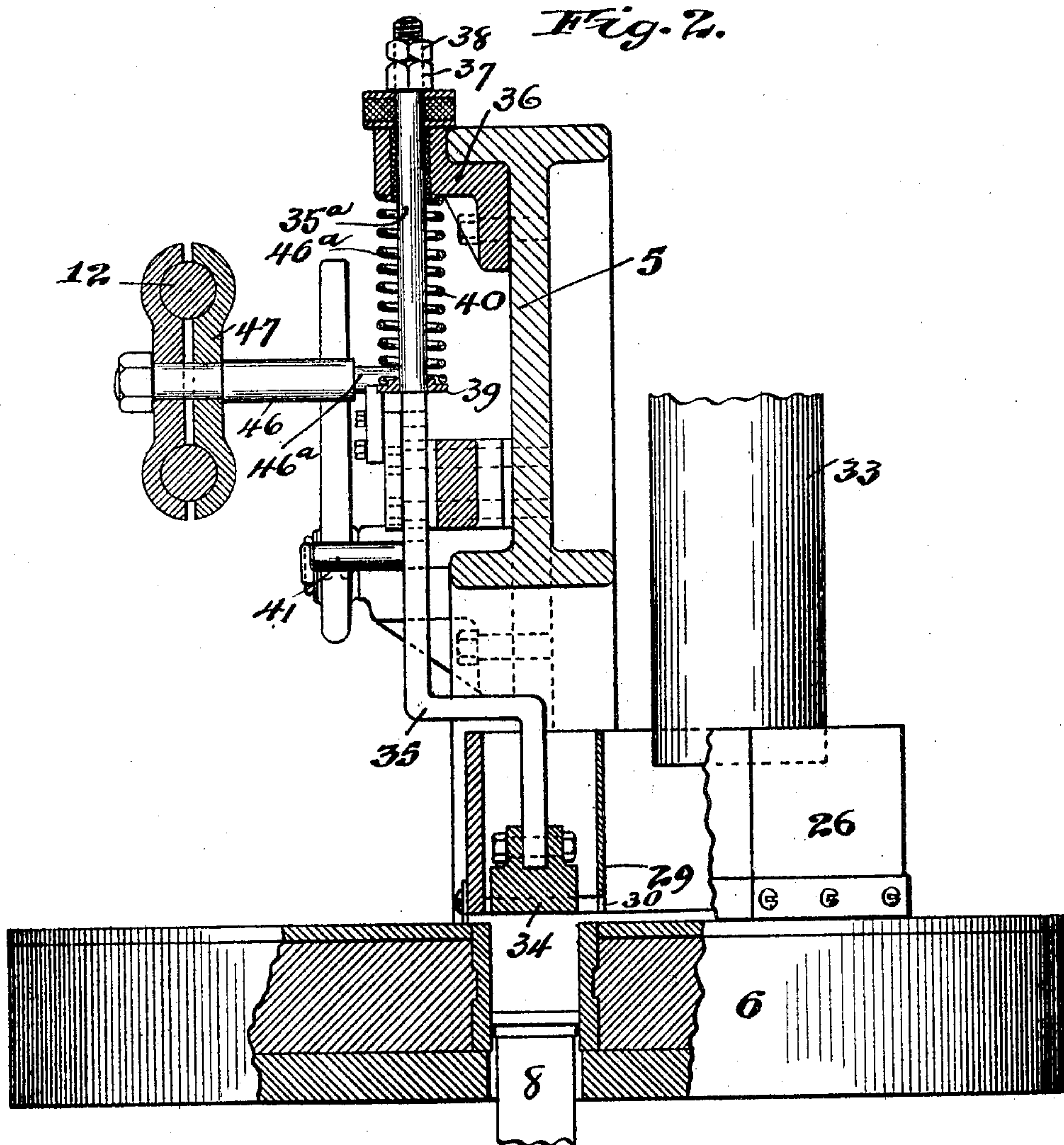
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3 SHEETS—SHEET 2.



Witnesses,
J. O. Mann
S. R. Pond.

Inventor,
Harry J. Flood,
By *Field, Fowler & Hutchinson*
Attys.

No. 798,329.

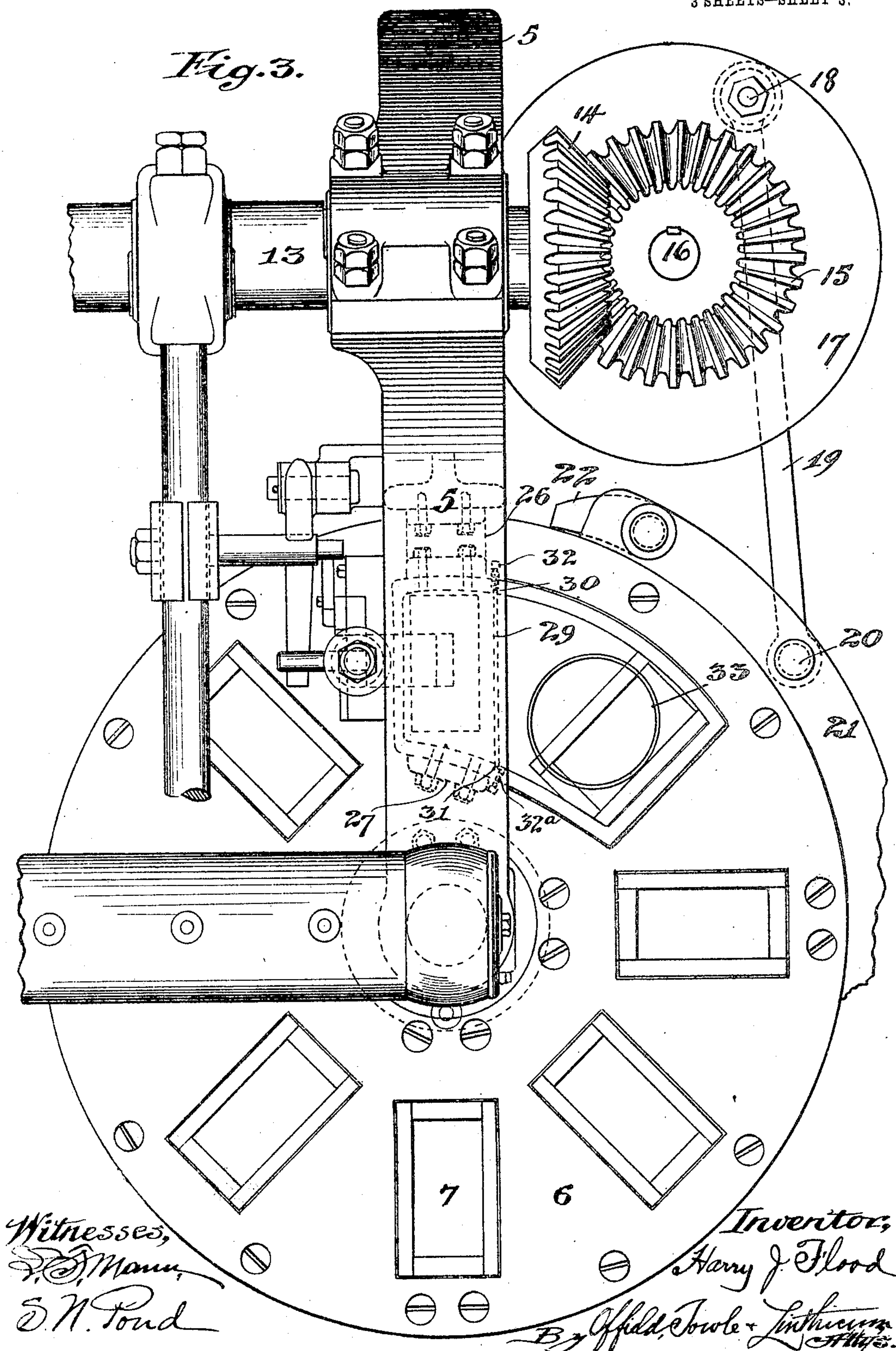
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

HARRY J. FLOOD, OF CHICAGO, ILLINOIS.

MOLD-FILLING AND TAMPING DEVICE FOR BRICK AND SIMILAR PRESSES.

No. 798,329.

Specification of Letters Patent.

Patented Aug. 29, 1905.

Application filed August 8, 1904. Serial No. 219,907.

To all whom it may concern:

Be it known that I, HARRY J. FLOOD, 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 Mold-Filling and Tamping Devices for Brick and Similar Presses, of which the following is a specification.

My invention relates to attachments applicable to machines for pressing brick and generally analogous articles, and pertains more particularly to a new and improved device for filling and tamping the material operated upon in the usual mold-boxes of such machines preliminary to the compressing action of the machine proper.

My invention has been more especially designed for use in connection with brick-making machines of that type employing a rotary mold disk or table having a series of radially-disposed mold-boxes which are successively filled with the material to be treated and subjected to the action of one or more compressing plungers or rams.

In the accompanying drawings I have shown the device of my present invention as applied to a rotary brick-press similar to that forming the subject-matter of my pending application, filed on the 20th day of May, 1904, Serial No. 208,858; but it will be understood that in its broad features the attachment is capable of employment to advantage upon any class or type of brick or other press employing mold-boxes wherein the loose material is first charged and subsequently tamped to completely and thoroughly fill all parts and corners of the mold-box preliminary to the compressing operation.

Referring to the accompanying drawings, in which I have shown my invention in an approved mechanical form in association with those parts of a brick-machine with which it intimately coöperates, Figure 1 is a side elevational view of the apparatus with certain parts of the machine proper in cross-section. Fig. 2 is a vertical cross-sectional view of the same parts in a plane at right angles to the plane of Fig. 1, and Fig. 3 is a top plan view of the same parts.

Referring to the drawings, 5 designates the upper overhanging portion of one of the main side frames of a brick-press of that general type employing a rotary mold disk or table in association with a toggle-actuated compressing mechanism.

6 designates the rotary mold table or disk

provided with a series of radially-disposed mold-boxes 7, each equipped with a ram or plunger 8, said plungers being successively engaged and elevated by an underlying presser-head (not shown) connected to the lower ends of a pair of side bars, one of which is shown at 9 in Fig. 1 slidably mounted in a vertical sleeve 5^a on the extremity of the side frame 5 and vertically actuated by a pair of toggle-links 10 and 11, which are actuated by a connecting-rod 12 from a cranked or eccentric portion 13^a of a driving-shaft 13, journaled horizontally in the side-frame members 5. The driving-shaft 13, in addition to actuating the presser-head which elevates the plungers 8, also imparts an intermittent rotary motion to the mold-table 6 through a bevel-pinion 14, Fig. 3, engaging a corresponding pinion 15 on the upper end of a shaft 16, the lower end of which carries a disk 17, to the under side of which is pivoted by a wrist-pin 18 one end of a pitman 19, the other end of which is similarly connected at 20 to a segment-bar 21, carrying one or more spring-pressed pawls 22, that coöperate with ratchet-teeth (not shown) on the periphery of the mold-table. The lower toggle-arm 11 is jointed in a rigid transverse yoke 23, to the under side of which is attached a block 24 and hardened pressure-plate 25, the latter overlying the upper open ends of the successive mold-boxes 7 as they are in turn brought beneath it and constituting a cover or abutment against which the material in the mold-boxes is compacted.

The parts of the brick-press to the extent hereinabove described correspond with the disclosure in the application hereinabove referred to; and I will next describe those parts making up my improved mold-filling and tamping mechanism wherein my present invention principally resides.

26 designates a feed-hopper of generally segmental form disposed above the mold-table and preferably of a length sufficient to embrace and cover two adjacent mold-boxes, as shown in Fig. 3. This hopper may be rigidly supported on or from the frame of the machine by any suitable means, such as the angle-brackets 27 and 28 bolted to either side thereof and secured at their other ends to the inner flange of the side-frame member 5. The hopper 26 is preferably divided into two chambers by a partition-plate 29, which is slidably mounted in vertical grooves or slide-ways 30 and 31, formed in the inner opposite

longitudinal walls of the hopper, and is made vertically adjustable by any convenient means, such as a set-screw 32, tapping the bottom wall of groove 30. For convenience in re-
 5 moving the partition-plate where the over-lying frame is so low as to interfere with a vertical sliding movement out of its guiding-grooves one side wall of groove 31 may be cut away, as shown, so as to permit that end
 10 of the partition-plate to be inserted and removed laterally, the plate when in place being confined by a threaded pin or bolt 32^a. The lower edge of the partition 29, as will be seen by reference to Figs. 1 and 2, terminates
 15 somewhat short of the upper face of the mold-disk 6, its degree of separation from the latter being determined by the adjusting devices last described. The larger chamber of the hopper thus formed is served by a spout 33
 20 leading from any overhead source of clay, sand, or other material to be treated.

34 designates a tamping block or head disposed reciprocally in the smaller chamber of the hopper 26 of substantially the form and
 25 longitudinal and transverse dimensions of the mold-boxes 7. This tamping-block is rigidly secured to the lower end of a laterally-offset operating arm or stem 35, the upper portion of which consists of a rod 35^a, having a verti-
 30 cally-sliding bearing in a bracket 36, secured to the side-frame member 5, said rod being threaded at its upper end and carrying an adjustable movement-limiting stop in the form of a nut 37, provided with a locking-nut 38.
 35 The arm 35 has at the lower end of the rod portion 35^a a collar 39 fixed thereon, between which and the lower face of the bracket 36 is a coil compression-spring 40, surrounding the rod 35^a and exerting a downward pressure
 40 upon the collar 39. Projecting laterally from the face of the arm 35 is a pin 41, which lies across the path of upward movement of the horizontal arm 42 of a bell-crank lever pivoted at 43 on a bracket 44, secured to the face
 45 of the side frame 5. The vertically-extending arm 45 of the bell-crank lever lies along-side of the connecting-rod 12 and across the path of movement of a laterally-extending pin 46, projecting from a clamp 47, secured to
 50 the connecting-rod 12, said pin having a reduced end portion 46^a, for a purpose hereinafter described.

By reason of the foregoing mechanism it will be seen that the continued movement of
 55 the connecting-rod 12 in the direction indicated by the arrow in Fig. 1 to straighten the toggle-arms 10 and 11 will, through the pin 46, the bell-crank lever 45 42, and the pin 41, raise the tamp 34, at the same time strongly
 60 compressing the spring 40. In order to retain the tamp thus elevated until the proper instant in the operation of the machine for the impact arrives, I provide a detent mechanism thrown into action automatically by a
 65 spring and released automatically when the

connecting-rod 12 reaches a certain position in its oscillations. This detent mechanism, as herein shown, consists of a pawl 48, pivoted at 49 to the face of a bracket-plate 50, secured to the face of the side-frame member 5, said
 70 bracket-plate 50 also serving as a vertical guide for the stem or arm 35 of the tamp. The upper end of the pawl 48 has a nose 48^a adapted to be automatically thrust into holding engagement with a notch 51, formed in the ad-
 75 jacent edge of the arm 35, said pawl being actuated by a leaf-spring 52 acting in rear upon the upper end thereof. It will thus be seen that when the arm and tamp have been raised sufficiently to bring the notch 51 to the level
 80 of the nose 48^a of the pawl the latter will at once snap into the notch and sustain the tamp in its elevated position against the compressive effect of the spring 40. This having been
 85 done, the connecting-rod 12 will continue its oscillation, straightening the toggle-arms and effecting the compression of a brick in that mold-box subjected to the action of the presser-head, and will then on its return movement
 90 bend the toggle-arms, permitting the presser-head to drop while the mold-table is given another partial rotation to bring the next successive filled mold-box and its plunger above the presser-head. As now the connecting-rod
 95 returns on the straightening movement of the toggle, the reduced extremity 46^a of the pin 46 will strike and depress a tappet 53, secured to and projecting rearwardly from the upper end of the pawl 48, this action rocking the
 100 pawl rearwardly sufficiently to withdraw its nose from the notch 51, thus allowing the tamp to fall with a sharp quick stroke, produced by the spring 40, upon the material in the mold-box lying directly beneath the tamp. As the connecting-rod continues its movement
 105 the tamp is again raised, and the same cycle of operations is repeated in connection with each of the next succeeding charged mold-boxes.

The clay or other material charged into the
 110 larger compartment of the mold-box through the spout 33 maintains said compartment substantially full, from which the material falls directly into the mold-box underlying said
 115 larger compartment, it being understood that the hopper has no bottom other than that formed by the upper surface of the mold-table. As the mold-boxes thus filled successively pass beneath the partition 29, the lower edge of the latter serves as a leveler or even-
 120 er for the material therein, so that the tamp-head on its subsequent descent strikes squarely upon the flat upper surface of the material in or projecting slightly above the top of the mold-box, and by its blow sufficiently spreads
 125 and compacts the material in the mold-box to insure the thorough filling at a practically uniform density of all parts of the box prior to the main compressing operation.

The formation of the hopper in two com- 130

partments, one of which receives the charge while the other accommodates the tamp, with a partition therebetween, which serves to level off the previously-filled mold-boxes prior to the tamping operation, is of importance, since it dispenses with the necessity of manually regulating the charge in each mold-box, and the adjustability of the partition 29 is also of considerable importance, since different materials should be leveled or evened off at different heights prior to the tamping operation, according to the different densities and fineness of the materials and the effect produced thereon by the action of the tamp.

It is evident that the mechanism, as hereinabove described, and shown in the drawings, might be considerably varied in respect to details without altering its principle of operation or lessening any of the benefits or advantages attained thereby, and hence I do not limit the invention to the particular construction shown and described except to the extent indicated in specific claims.

I claim—

1. The combination with a stationary hopper and a mold-box movable to a charging position therebeneath, of a spring-actuated tamp reciprocable in said hopper, means for elevating said tamp, and means whereby the tamp-actuating spring is subsequently made effective to drive the tamp upon the material in said mold-box, substantially as described.

2. The combination with a stationary hopper and a mold-box movable to a charging position therebeneath, of a spring-actuated tamp vertically reciprocable in said hopper, means for elevating said tamp against the action of its spring, a detent for holding said tamp elevated, and a detent-releasing mechanism, substantially as described.

3. The combination with an open-bottomed stationary hopper having a transverse partition dividing said hopper into a charge-receiving compartment and a tamping-compartment, the lower edge of said partition constituting an evener or leveler, of a mold-box movable beneath said compartments successively, and a vertically-reciprocable tamp in said tamping-compartment adapted on its descent to impact the material in said mold-box, substantially as described.

4. The combination with an open-bottomed stationary hopper having a vertically-adjustable transverse partition dividing said hopper into a charge-receiving compartment and a tamping-compartment, the lower edge of said partition constituting an evener or leveler of a mold-box movable beneath said compartments successively, and a vertically-reciprocable tamp in said tamping-compartment adapted on its descent to impact the material in said mold-box, substantially as described.

5. The combination with a rotatable mold-table having a series of radially-disposed mold-boxes, of a superposed open-bottomed stationary hopper of a length sufficient to cover two adjacent mold-boxes, a transverse partition dividing said hopper into a charging-compartment and a tamping-compartment, the lower edge of said partition serving as a leveler, a vertically-reciprocable tamp in said tamping-compartment, and means for successively elevating said tamp and causing it to impact the material in successive mold-boxes subjected to its action, substantially as described.

6. The combination with a rotatable mold-table having a series of radially-disposed mold-boxes, of a superposed open-bottomed stationary hopper of a length sufficient to cover two adjacent mold-boxes, a transverse vertically-adjustable partition dividing said hopper between said mold-boxes into a charging-compartment and a tamping-compartment, the lower edge of said partition constituting an evener or leveler of the material in each mold-box as it is moved from beneath the charging-compartment to a position beneath the tamping-compartment, a vertically-reciprocable tamp in said tamping-compartment, a spring supplying the impacting energy of said tamp, means for elevating said tamp against the action of said spring, a detent for holding said tamp elevated during the movement of each charged mold-box to a position therebeneath, and a detent-releasing mechanism, substantially as described.

HARRY J. FLOOD.

Witnesses:

SAMUEL N. POND,
WILLIAM G. MILLER.