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PATENTED DEC. 29, 1903.

G. W. ZODER & W. P. HAYNE.  
PRESS FOR OLEAGINOUS SUBSTANCES.

APPLICATION FILED NOV. 18, 1902.

NO MODEL.

4 SHEETS—SHEET 1.

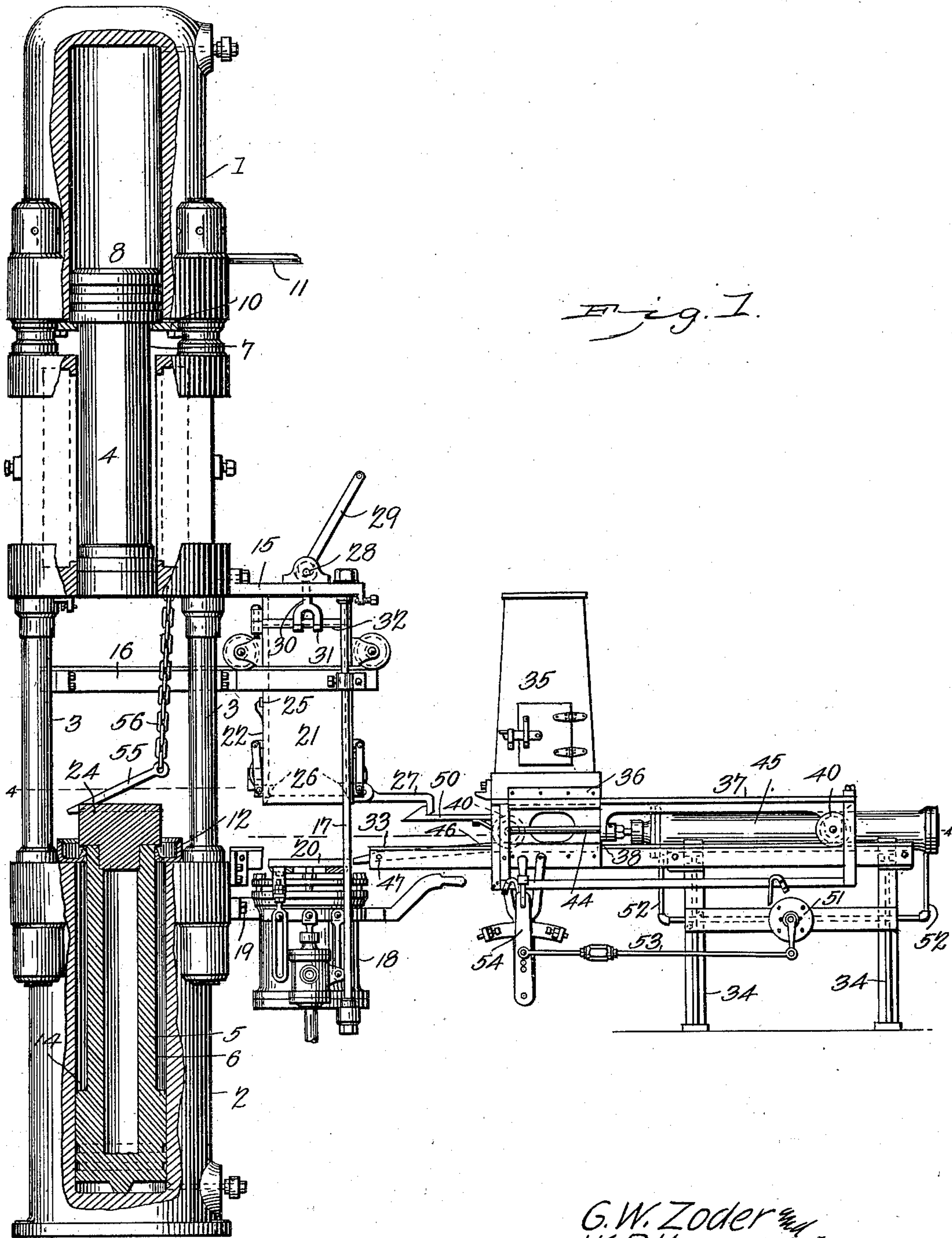


Fig. 1.

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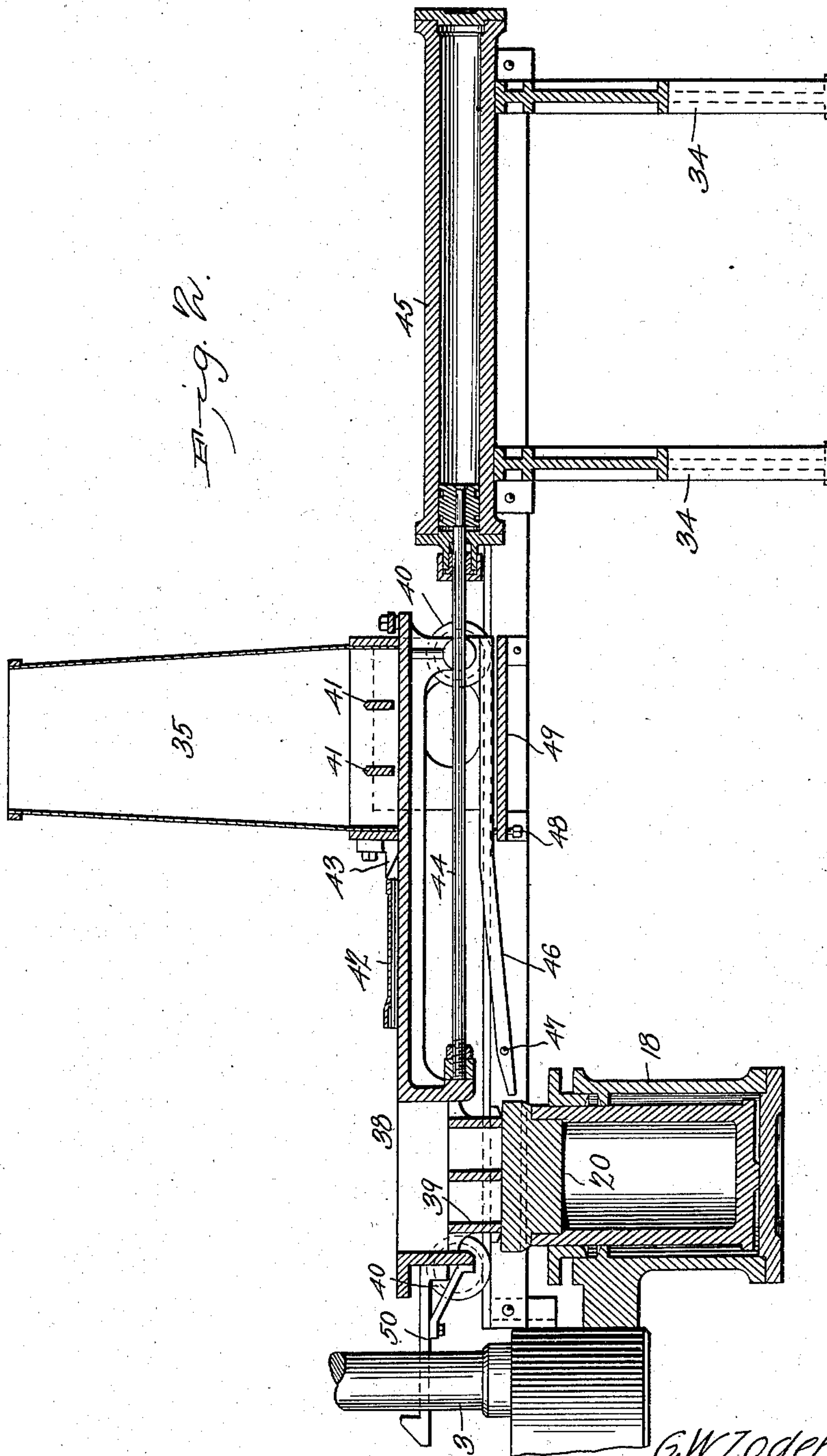
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4 SHEETS—SHEET 2.



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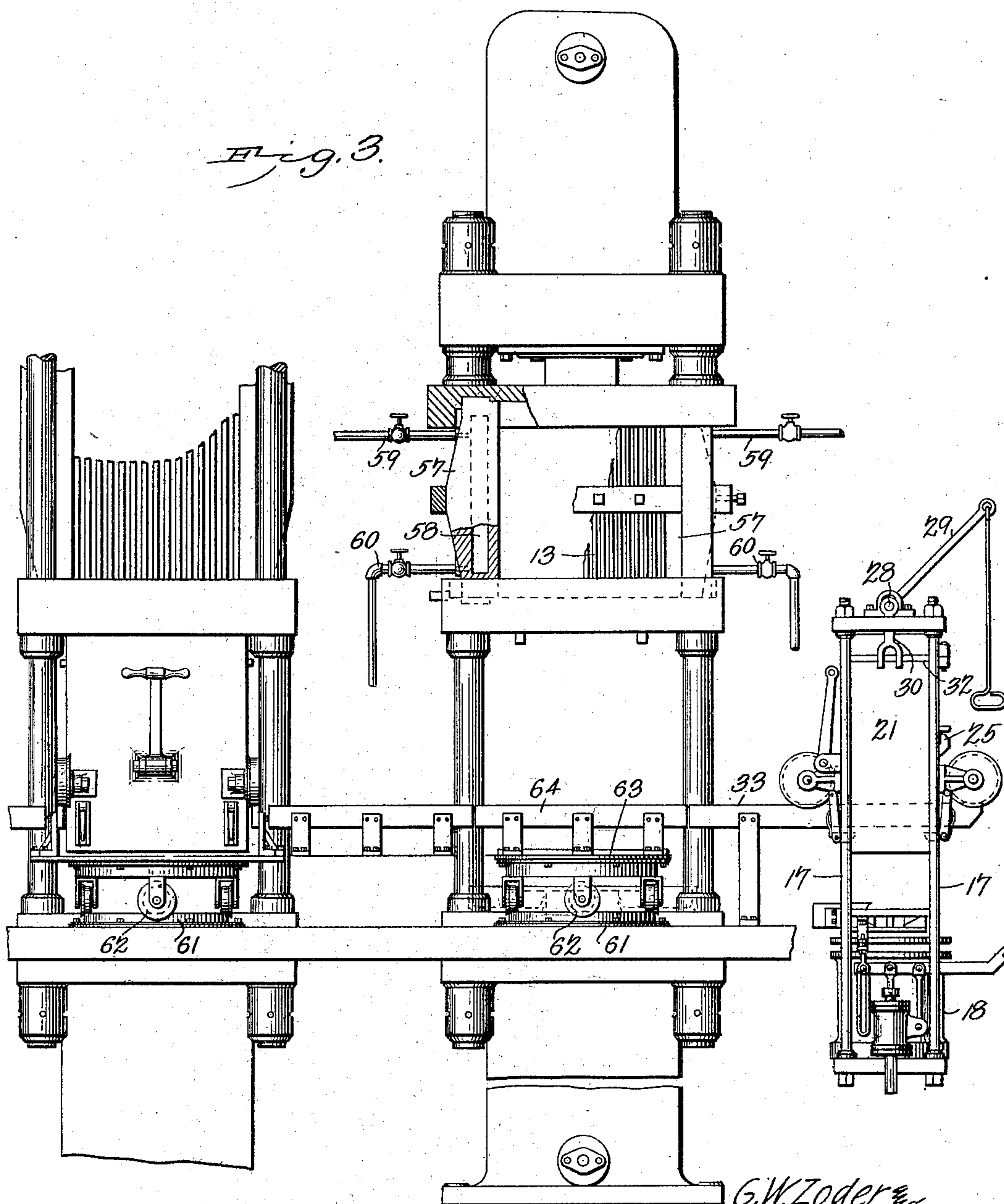
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4 SHEETS—SHEET 3.



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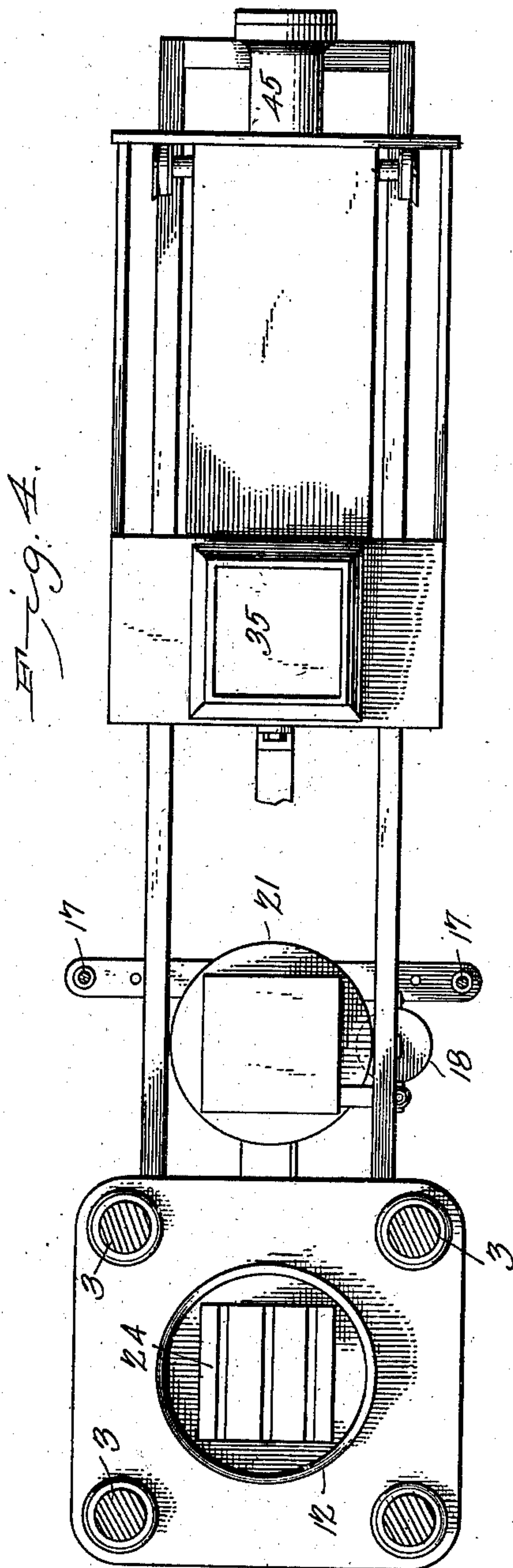
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# UNITED STATES PATENT OFFICE.

GEORGE WILLIAM ZODER AND WILLIAM PHILIP HAYNE, OF BOYCE,  
LOUISIANA.

## PRESS FOR OLEAGINOUS SUBSTANCES.

SPECIFICATION forming part of Letters Patent No. 748,138, dated December 29, 1903.

Application filed November 18, 1902. Serial No. 131,875. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE WILLIAM ZODER and WILLIAM PHILIP HAYNE, citizens of the United States, residing at Boyce, Rapids parish, and State of Louisiana, have invented a new and useful Press for Oleaginous Substances, of which the following is a specification.

This invention relates to presses for oleaginous substances.

The press of the present invention is an improvement of two patents issued to us—namely, No. 649,503, dated May 5, 1900, and No. 691,430, dated January 31, 1902.

The objects of the present invention are generally to increase the efficiency of the pressing mechanism, resulting in a quicker operation of the press, a reduction of friction in the press-box, and the attainment of equal pressure on the top and bottom of the charge of material being pressed; to render it possible to form an oil-cake of the desired form or to press cakes of less area than the internal diameter of the ram-cylinders; to improve the manner of disposing the division-plates within the charging-box and to effect this without the necessity of stopping the carriage for the insertion of such plates; to obviate waste of the oil-bearing material; to regulate the thickness of the cake; to provide a novel means for heating the contents of the press-box before starting the press; to effect automatic discharge of the cakes from the press, and finally to improve various parts of the apparatus in a manner that will be hereinafter fully set forth.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a press for oleaginous substances, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, there are illustrated two forms of embodiment of the invention, each capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied as to shape, pro-

portion, and exact manner of assemblage without departing from the spirit thereof.

In the drawings, Figure 1 is a view in elevation, partly in section, of a press embodying the essential features of the present invention. Fig. 2 is a view in vertical longitudinal section of the charging portion of the press. Fig. 3 is a view in side elevation, partly in section, of a modified form of press. Fig. 4 is a view in plan of Fig. 1.

One of the salient points of improvement of the present invention is shown in Fig. 1 and consists in the provision of two ram-cylinders 1 and 2, which may be of the usual or any preferred construction and are connected by pillars 3. In the patents to which reference has been made there is but one ram-cylinder employed, the upper one in this case. The present invention resides in the addition of the ram-cylinder 2, disposed in vertical alinement, the object of the employment of two cylinders being to expedite the operation of the press, reduce the friction in the press-box, and to obtain equal pressure on the top or bottom of the charge or other material being pressed. The precise construction of the ram-cylinders is immaterial and may be of any preferred type. There is, however, a change of construction in the rams in order to make the form of cake desirable or to press cakes of less area than the internal diameter of the ram-cylinders, and this is effected by reducing the diameter of the lower portion of the ram 4 and the lower portion of the ram 5 at 6 and 7, respectively, leaving a space between the reduced portion of the rams and the inner walls of the cylinders, as clearly shown in Fig. 1. The upper and lower ends of the respective rams form pistons, which snugly fit within the cylinders and are provided with the usual packing 8 for the purpose. The piston portion of each of the rams is to be of sufficient length to insure proper vertical movement thereof. To limit the downward movement of the upper ram, there is provided a collar or stop 10, and above the plane that will be occupied by the ram 4 when in its lowered position there is provided a relief-pipe 11, as usual.

Fitted around the upper end of the lower



ram 5 is a trough or tray 12, which is designed to catch the downward flow of oil from the press-box 13, Fig. 3, whence it is spouted to a tank or other convenient receptacle, (not shown,) thus to prevent any oil from the upper cylinder becoming mixed with the expressed oil. This tray is lifted as the ram 5 rises by a shoulder 14, formed by the reduced portion of the ram, as will be readily understood by reference to Fig. 1, thus to hold the tray close to the press-box.

The press-box may be of the usual or any preferred construction and needs no detailed description, as it forms no part of the present invention, and the mechanism for controlling the operation of the ram may be the same as that shown in Patent No. 691,430 or of any other preferred design.

Bolted to and projecting from the base of the press-box is a horizontally-disposed bracket 15, and secured to the pillars 3 and extending beneath the press-box are a pair of trackways 16. (Clearly shown in Fig. 4.) Depending from the outer end of the bracket are a pair of columns 17, the lower ends of which are secured to a ram 18, the cylinder of which is bolted at 19 to the cylinder 2. The said ram has associated with it a vertically-movable follower 20, as usual.

Mounted for movement upon the tracks 16 is a charging-box 21, the arrangement being such as to permit of said box being run under the press-box and disposed in vertical alinement therewith and with the rams 4 and 5. The box has its sides 22 hinged, thus to allow of the side being opened to permit the charging-box being run over the follower 24 of the ram 2, as shown in Fig. 1. When the side 22 is closed, it is held in that position by a bar 25 or other suitable means. In opposite sides of the charging-box, at the lower end thereof, are vertical slots or openings, in which are pivoted pawls 26, and hinged to one side of the box is a coupling-hook 27.

Mounted in suitable bearings upon the bracket is a rock-shaft 28, with which is associated a lever 29, and to the shaft is connected a rock-arm 30, from which depend clamps 31, which are adapted to engage ledges or flanges 32 on the sides of the charging-box. By pressing the lever 29 the clamps may be caused to engage with the flanges 32 when the charging-box is run outward under the press-box to the position shown in Fig. 1 and directly over the follower 20 of the ram 18, the said clamp operating to lock the charging-box in this position.

Extending from the upper portion of the cylinder 2 and above and on each side of the follower 20 is a pair of tracks 33, the outer ends of which are supported in any suitable manner, as by standards 34. Arranged a suitable distance above the tracks 33 is a hopper 35, having its upper and lower ends open, the said hopper being supported at the proper distance above the tracks by plates 36. Running upon the tracks is a carriage 37, carry-

ing a measuring-box 38, having mounted therein a false follower 39, the height of which is equal to the depth of the measuring-box, the cross-section of which corresponds to that of the charging-box 21, and the internal diameter of which conforms in size and shape to that of the press-box, the carriage and measuring-box being supported upon the tracks 33 by wheels 40, disposed at the terminals thereof. Arranged within the lower portion of the hopper 35 are transversely-disposed bars 41, which are adapted to equalize the distribution of the meal or other material in the measuring-box and over the partition or division plates 42, one of which is shown in Fig. 2. The partition-plate may be constructed in any preferred manner and is adapted when disposed upon the table to bear against an angle-bracket 43, which bracket will insure that the division-plate will be properly disposed within the measuring-box as the latter recedes, reciprocatory motion being imparted to the carriage through the medium of a piston-rod 44, carrying a piston working in a cylinder 45, supported by the uprights 34. Disposed in alinement with the top of the follower 20 when the same is in the position shown in Fig. 1 are a pair of skids 46, which are preferably pivoted at 47 to the tracks, that portion of the skids adjacent to the cylinder 18 being upwardly inclined and that portion disposed beneath the hopper 35 being straight, the latter portions of the skids resting upon set-screws 48, by which they may be raised or lowered, thus to regulate the thickness of the cake. The set-screws are disposed in plates 49, bolted to the sides of the tracks 33. In the operation of the machine when the carriage is moved forward the false follower rides up the skids 46 and carries a division-plate, which is deposited upon the said follower through the medium of the angle-bracket 43 beneath the hopper, where the charge of meal or other material is deposited, and on the outward movement of the carriage the false follower moves down the skids, the upward movement of the said follower causing the equalizing-bars to remove any surplus meal, and thus prevent waste, and the downward movement of the said follower causing it to be brought into operative relation with regard to the follower 20. The provision of the adjustable skids is important, inasmuch as the thickness of the cakes to be pressed may be regulated at will. When the carriage has moved rearward until the false follower is in position above the ram 20, the upward movement of the ram will raise the false follower and the division-plate resting thereon to convey the charge of meal into the charging-box, and upon the descent of the ram the false follower will descend with it, and the division-plate will be sustained within the charging-box by frictional engagement with the sides thereof. When the ram 20 has reached the bottom of its descent, the carriage will be



ready for another forward movement into position under the hopper 35 to receive a second charge of meal.

Carried by the forward end of the measuring-box is a coupling-hook 50, adapted to engage with the hook 27 of the charging-box, thus to connect the charging-box with the measuring-box to enable the latter when the same is drawn to the position shown in Fig. 1 to draw the charging-box to the position shown in Fig. 2 over the follower 20.

As herein shown, the cylinder 45 is horizontally disposed, and a suitable valve 51 is provided to regulate the flow of fluid through the supply-pipes 52, connecting with the respective ends of the cylinders, the valve being operated through the medium of a connecting-rod 53, connected with an operating-lever 54.

To effect discharge of the cake from the press, bars 55 are employed, which are disposed within grooves in the upper face of the follower 24 and are connected by chains 56 to the upper cylinder. When the rams are approaching each other, these bars lie in the grooves of the follower and do not interfere with the pressing action of the machine; but on the downward movement of the ram these bars are lifted to the position shown in Fig. 1, and thus effect discharge of the cake.

In Fig. 3 is shown a slightly-modified form of press-box, wherein the ends 57 thereof are hollow, as shown at 58, to constitute steam-chambers, steam supply and exhaust pipes 59 and 60, respectively, being associated with the chambers to effect their heating. By initially heating the meal before subjecting it to pressure the oil is started and will be more readily given up. The form of apparatus shown in Fig. 3 is adapted for use in mills having two or more presses and but one charging apparatus for any number of presses. To accomplish this result, there is disposed above the lower cylinder of each press, of which there are shown in this instance two, a circular track 61, upon which travels the wheels 62 of a turn-table 63, carrying sections of track 64, adapted to aline with the tracks 33. When the charging-box 21 is rolled onto the tracks 64, the turn-table may be revolved to bring the said tracks into alinement with those of adjacent presses, after which the charging-box is pushed beneath the desired press. By this arrangement the employment of a charging apparatus for each press is obviated, thereby economizing both in machinery and power.

The operation of the apparatus is of the usual character, and therefore needs no detailed description.

Having thus described the invention, what we claim is—

1. A press of the character specified, com-

prising two vertically-alined ram-cylinders, and an oil-catching device adapted to be raised by the lower ram when the same has reached a predetermined point in lifting.

2. In a press of the character specified, the combination of a ram-cylinder, of a ram reduced in transverse diameter throughout the major portion of its length and a changeable follower, thereby to permit the formation of cakes of less area than the internal diameter of the ram-cylinders.

3. In a press of the character specified, a pair of alined ram-cylinders, a press-box placed between said cylinders and provided with chambered end walls, and steam supply and exhaust pipes communicating with the chambers.

4. In a press of the character specified, a feed-hopper, a measuring-box mounted for reciprocation beneath said hopper, a false bottom in said measuring-box, and skids disposed beneath the hopper upon which said false bottom rests.

5. In a press of the character specified, a feed-hopper, a measuring-box mounted for reciprocation beneath said hopper, a false bottom in said measuring-box, and adjustable skids disposed beneath said hopper upon which said false bottom rests.

6. In a press of the character specified, a feed-hopper, tracks beneath said feed-hopper, a measuring-box mounted for reciprocation on said tracks, a false bottom in said measuring-box, and skids disposed between said tracks upon which said false bottom rests, said skids comprising horizontal portions beneath the hopper and inclined portions extending to one side of the hopper.

7. In a press of the character specified, the combination with a feed-hopper, of a carriage movable beneath the same and carrying a measuring-box to receive division-plates, means carried by the hopper to dispose the said plates within the measuring-box, a false follower disposed within the box, and skids disposed beneath the hopper and operating to dispose the partition-plate properly beneath the hopper.

8. In a press of the character specified, a plurality of pairs of alined ram-cylinders, stationary sections of track between said pairs of alined ram-cylinders, and track-carrying turn-tables disposed over the lower ram in each pair of cylinders.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

GEORGE WILLIAM ZODER.  
WILLIAM PHILIP HAYNE.

Witnesses:

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