March 29, 1927. 1,622,669

W. G. PRICE

PACKING PRESS

Filed Aug. 6, 1924 2 Sheets-Sheet 1

FIG. 1

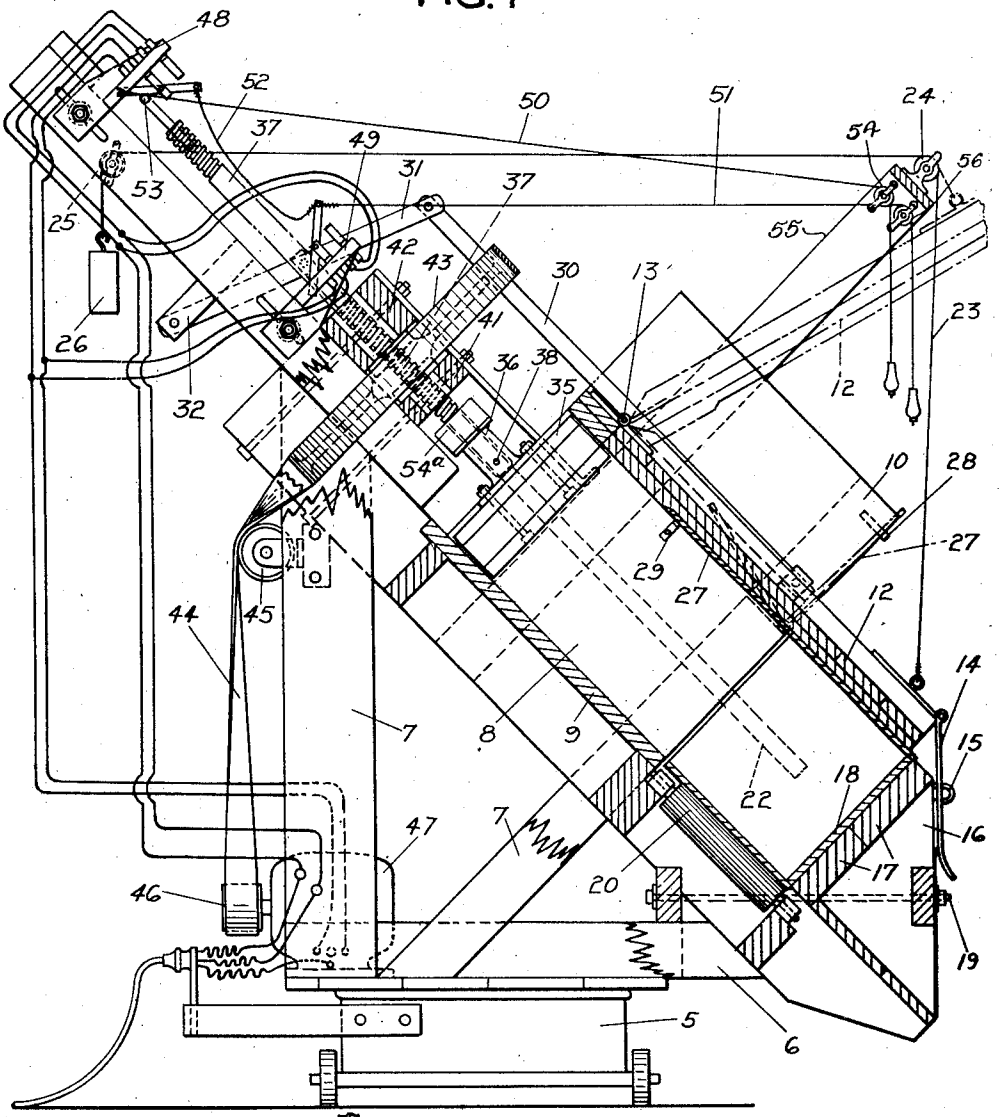
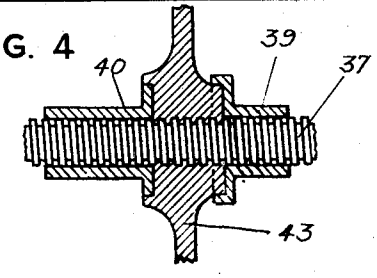


FIG. 4



INVENTOR

William G. Price

By Kay, Totten & Martin,

Attorneys

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Filed Aug. 6, 1924 2 Sheets-Sheet 2

FIG. 2

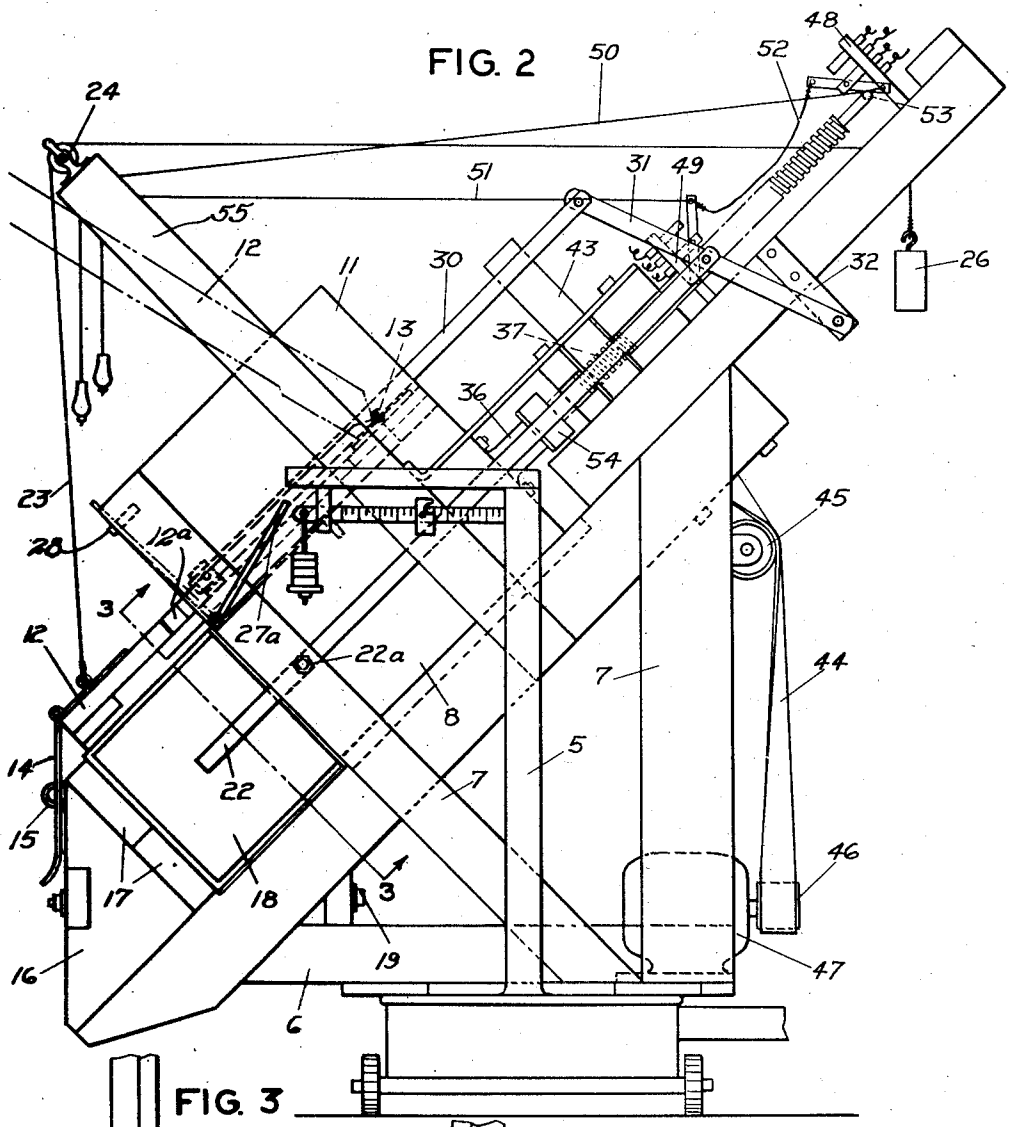
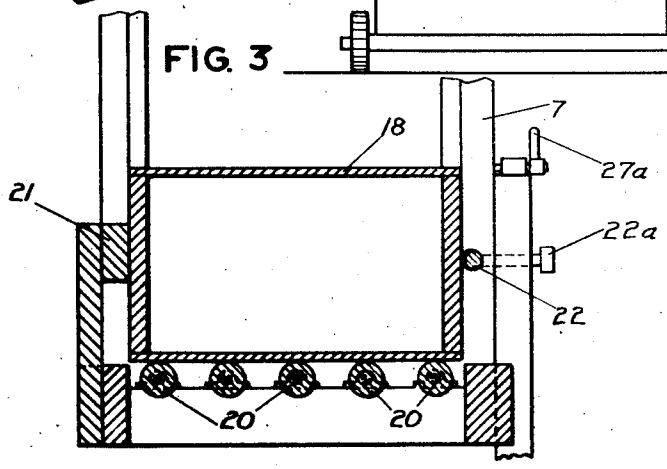


FIG. 3



INVENTOR

William G. Price

By Kay, Totten & Martin,

Attorneys.

Patented Mar. 29, 1927. 1,622,669

UNITED STATES PATENT OFFICE.

WILLIAM G. PRICE, YAKIMA, WASHINGTON.

PACKING PRESS.

Application filed August 6, 1924. Serial No. 730,440.

My invention relates to packing presses, and particularly to presses especially suitable for packing evaporated fruits and the like, although I do not intend it to be limited to such use.

In packing resilient substances, such as dried apples and the like, into containers it is quite difficult to compress the desired quantity into the container and still permit the convenient nailing of a cover thereon, because pockets of air distributed throughout the material being packed become compressed and immediately cause said material to extrude from the open side of the container upon release of the pressure. If exceedingly heavy pressure is applied, these air pockets will be eliminated, and the expanding effect when pressure is released, is not nearly so great. Heretofore attempts have been made to secure the necessary pressure by hand presses but this is a slow and expensive operation. I have designed a quick-acting power press especially suitable for pressing elastic and porous materials into their containers.

One object of my invention is to provide an apparatus of the class described which is semi-automatic in its operation, in that power is automatically cut off at any desired stage of movement of the compressing element, and one which is readily portable and which may be mounted upon a scale that may be wheeled along the pile or bins containing the fruit or other material which is to be packed. The scale is utilized not only as a transferring medium for the press, but also to determine when the desired quantity of fruit has been charged into the apparatus ready for compression within a container.

Another object of my invention is to provide a pressing apparatus wherein improved means are provided for supporting the container or box against pressure applied to the contents placed therein, and one wherein a portion of the pressing apparatus may serve, in one position, as a portion of a hopper for receiving a charge of material, and in another position serve to support one side of the container.

A further object of my invention is to provide means for packing fruit in boxes whereby a minimum amount of damage to the pieces of fruit occurs, and wherein preliminary tamping is avoided and a uniformity of compression obtained.

Still another object of my invention is to simplify and improve generally the structure and operation of devices of the character referred to.

One form which my invention may take is shown in the accompanying drawing wherein Fig. 1 is a view, partially in section and partially in side elevation, of one side of a packing press, some of the parts being omitted; Fig. 2 is an elevational view of the opposite side of the apparatus; Fig. 3 is a view taken on the line 3—3 of Fig. 2; and Fig. 4 is a sectional view, on an enlarged scale, of a portion of the pressing mechanism.

The press is shown as mounted on a scale 5 provided with the usual weighing beam, and with wheels whereby the scale and press carried thereby may be readily transported from bin to bin or along the piles of fruit which is to be packed. The press comprises a base member 6 and frame members 7 for supporting a chute 8 having bottom boards 9 and side boards 10 and 11. A lid or top covering 12 is hinged at 13 to the chute 8 and is provided with a hasp 14 that, when the lid 12 is in closed position, is engaged by a staple 15 that is secured to an end block 16 which, through the medium of planks 17, supports the bottom of the box or container 18 into which the fruit is to be packed. The members 16 and 17 are braced by tie bolts 19, only one of which is shown. The cover member 12, when in locked position, as shown in the drawing, serves to support one side of the box 18 when fruit is being pressed therein, while the opposite side of the box 18 is braced and supported by anti-friction rollers 20.

One end of the box, as shown in Fig. 3, is supported by a side frame member 21 of the chute 8, the box being moved into position thereagainst by being slid horizontally from the right. The right hand end of the box 18 is braced, during the compression operation by a longitudinally movable rod 22, the movement of which will be hereinafter described.

The lid 12 swings in a vertical plane about the hinges 13 between the side members 10 and 11, and is counter-weighted, through a cord 23 which passes over the sheaves 24 and 25 and carries at its outer end a weight 26. When the lid 12 is raised to the position shown in dotted lines in Fig. 1, it serves as one wall of a rectangular chute, the sides 10 and 11 serving as two other walls of the chute, and an aux-

iliary cover member or hinged plate 27 serves as the fourth wall thereof, when raised to the position indicated in dotted lines in Fig. 1. The plate 27 is provided with a handle 27ª for operating it. When the plate 27 is in raised position it seats against stops 28, and when in depressed position is supported by stops 29 disposed within the chute 8 and secured to the side walls 10 and 11 thereof. It will be seen that a recess is provided on the under side of the cover 12 for the hinged plate 27.

The cover plate 12 is provided with a notch 12ª in each of its edges so as to permit it to pass the stops 28 that are secured to the walls 10 and 11.

A bar 30 has its ends pivotally connected to the cover 12 and a lever 31 which in turn is fulcrumed on a bracket member 32. The rod 22 is pivotally connected to the lever 31 intermediate the ends thereof and at its lower end is loosely supported by one of the frame members 7 as shown more clearly in Figs. 2 and 3. An adjusting screw 22ª is provided for adjusting the rod 22 transversely of the chute, to position it against the ends of boxes of various lengths. It will be seen that when the cover 12 is raised the lever 31 will be moved in a clockwise direction, drawing with it the rod 22. During this movement the rod 22 is pulled back such distance that the box 18 may be withdrawn horizontally from the position shown in Figs. 2 and 3, and another box inserted. A charge of fruit may then be shoveled into the hopper formed by the members 12, 27, 10 and 11 as above explained, until a given weight, as indicated by the scale, has been charged.

When a sufficient quantity of fruit has been introduced through the hopper into the chute 8, the hinged plate 27 and the cover 12 are returned to the positions shown in the drawings, and the closure of the cover 12 effects preliminary compression of the fruit. The fruit is then forced into the container 18 by mechanism which will now be described. A piston 35 fits loosely within the chute 8, for movement longitudinally thereof, and is provided with a socket member 36 into which one end of a screw 37 fits and is non-rotatably secured by a key 38. The piston being of rectangular form, holds the screw against rotation, and it has cut out portions (not shown) which permit it to pass the stops 29. The screw threaded member 37 is supported in smooth bore bushings 39 and 40 (Fig. 4), that are carried by pillow blocks 41 and 42, respectively.

A pulley 43 is mounted between the bearing members 39 and 40 and has end thrust engagement therewith. This pulley is internally threaded so that upon rotation thereof the screw threaded member 37, together with the piston 35 secured thereto, will be moved longitudinally of the chute 8. The pulley 43 is driven through the medium of a belt 44 that passes over guiding sheaves 45 and around a pulley 46 that is connected to the shaft of an electric motor 47.

The motor 47 is shown as a 3-phase motor and is supplied with current from any suitable source. The direction of rotation of the motor may be controlled by switches 48 and 49 through suitable wiring connections shown schematically in the drawings, but which need not be described in detail because well known in the art. A pull cord 50 is provided for closing the switch 48 to cause movement of the motor in such direction that the piston 35 will be withdrawn from the lower end of the chute 8, and a pull cord 51 is provided for closing the switch 49 when it is desired to cause the piston 35 to be moved downwardly to compress the fruit. A cord 52 connects the switches 48 and 49 so that when one switch is being closed the other one will be pulled open by said cord. The cord 50 passes over a pulley 54 that is carried by an arm 55, and the cord 51 passes over a pulley 56 which is also mounted on the arm 55.

The upper end of the screw shaft 37 is provided with a bent over portion 53 which, at the extreme upper position of the member 37, will open the switch 48 through engagement with the movable contact member thereof in the manner clearly shown in the drawings, thus automatically limiting the upward movement of the piston 35 by stoppage of the motor. When the switch 49 is closed and the piston is moved downwardly, the hook portion 53 at the downward limit of movement of the piston will trip the switch 49.

The downward movement of the piston 35 will be cushioned by the fruit being pressed into the box 18. Upon upward movement thereof, if the piston should tend to be carried, through momentum of the motor, to a too great distance upwardly, a buffer 54ª of rubber or similar material, secured to the screw shaft 37, will engage the lower side of the block 41 and serve as a buffer.

The press is preferably inclined to the horizontal for economical operation. If it were horizontal the material would fall out of the box after it is pressed and while the box is being removed from the press. If the press were vertical the receiving chute would be too high for rapid shoveling in of the material and the folding chute covers, which give a preliminary pressing of the fruit, could not operate as the material would fall out over the lower cover.

It will be understood that various changes in detail and general arrangement of parts may be made in the apparatus without de-

parting from the spirit and scope of the invention as defined in the accompanying claims.

I claim as my invention:

1. Pressing apparatus comprising a chute, means adjacent to the lower end of the chute for supporting a container, a pivoted member for bracing one side of said container against internal pressure, a brace member for another side of said container, means for raising said pivoted member to a position to serve as portion of a hopper through which the chute may be fed, and connections whereby said movement withdraws said brace member to inoperative position.

2. Pressing apparatus comprising an inclined chute, means adjacent to the lower end of said chute for positioning a container, a pivoted cover for one side of said chute extending downward a sufficient distance to support one side of said container against internal pressure, said pivoted cover when raised serving as a portion of a hopper through which said chute may be fed, a movable member for bracing another side of said container against internal pressure, and connections between said member and said cover for causing withdrawal of said member to inoperative position when said cover is raised.

3. Pressing apparatus comprising a chute, means adjacent to the lower end of the chute for supporting a container, a cover extending from the upper end of the chute to the lower end thereof and serving to support one side of the container, means for supporting said cover in an upright position to serve as one wall of a hopper, and a second cover plate pivotally mounted on the chute, and adapted to be raised to serve as another wall of the hopper.

4. Pressing apparatus comprising a chute, means adjacent to the lower end of the chute for supporting a container, a cover extending from the upper end of the chute to the lower end thereof and serving to support one side of the container, means for supporting said cover in an upright position to serve as one wall of a hopper, and a second cover plate pivotally mounted on the chute, and adapted to be raised to serve as another wall of the hopper, the underface of the first-named cover being provided with a recess for the reception of the second-named cover member when said covers are closed.

5. Pressing apparatus comprising an inclined chute, a cover for said chute having a pivotal mounting adjacent to the upper end of the chute, and a second cover member pivotally mounted on said chute, the first-named cover member forming one wall of the chute when both cover members are in lowered position, and the two cover members serving as walls of a hopper when they are raised.

In testimony whereof I, the said WILLIAM G. PRICE, have hereunto set my hand.

WILLIAM G. PRICE.