B. H. BECKER & J. CIESLA.

SOAP PRESS.

APPLICATION FILED JULY 5, 1910.

1,021,126.

Patented Mar. 26, 1912.

4 SHEETS—SHEET 1.

Fig. 1.

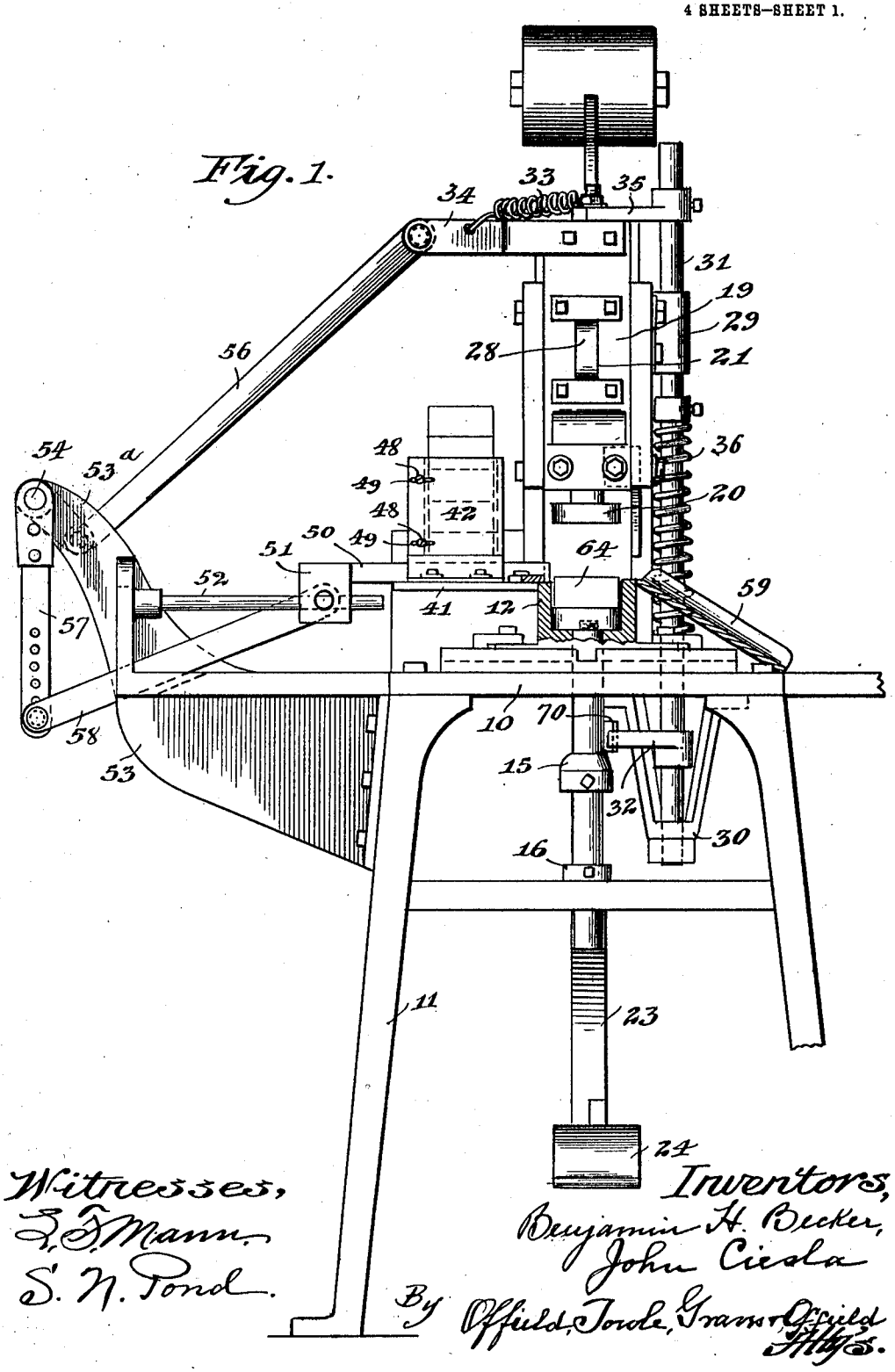

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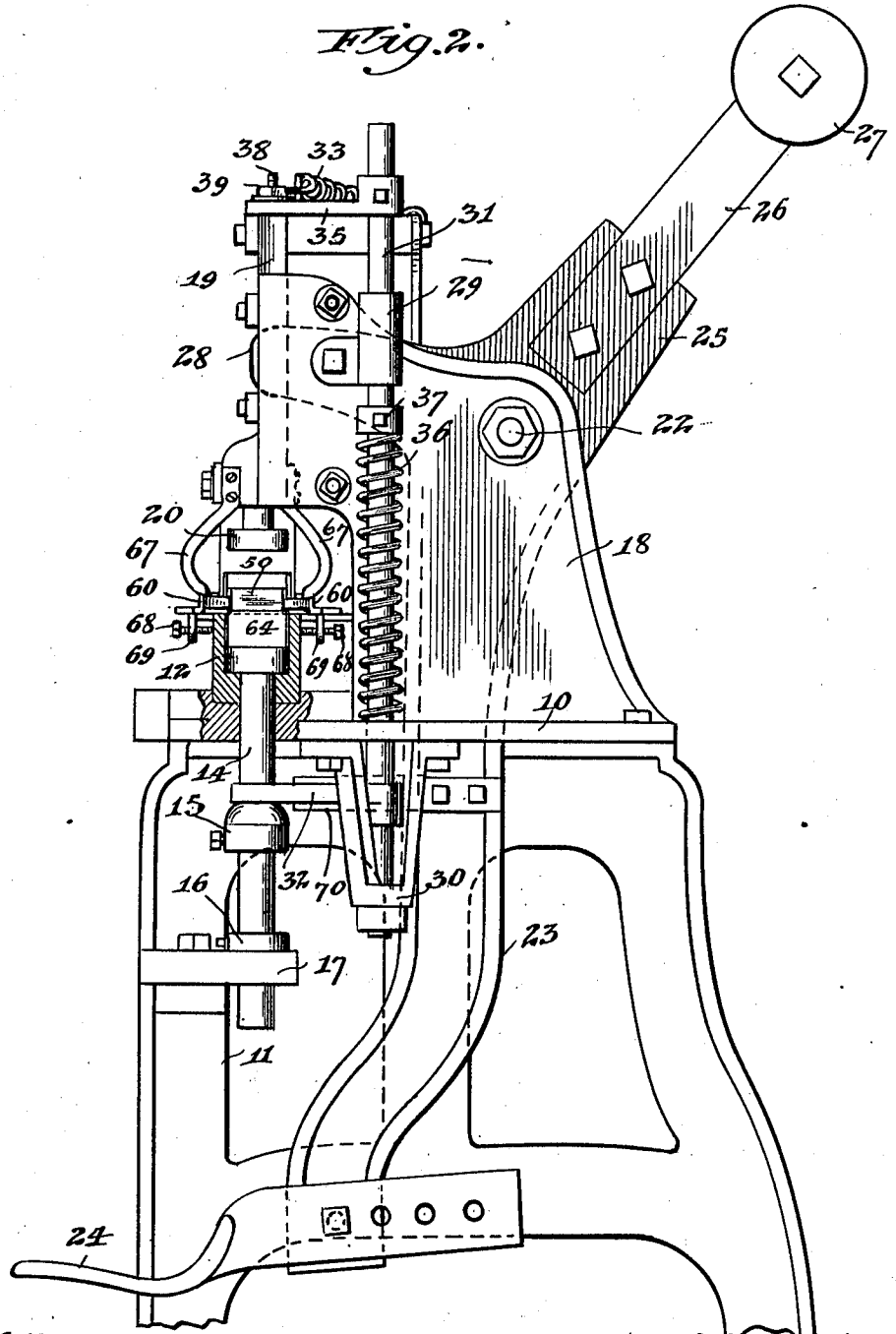
Fig. 2.



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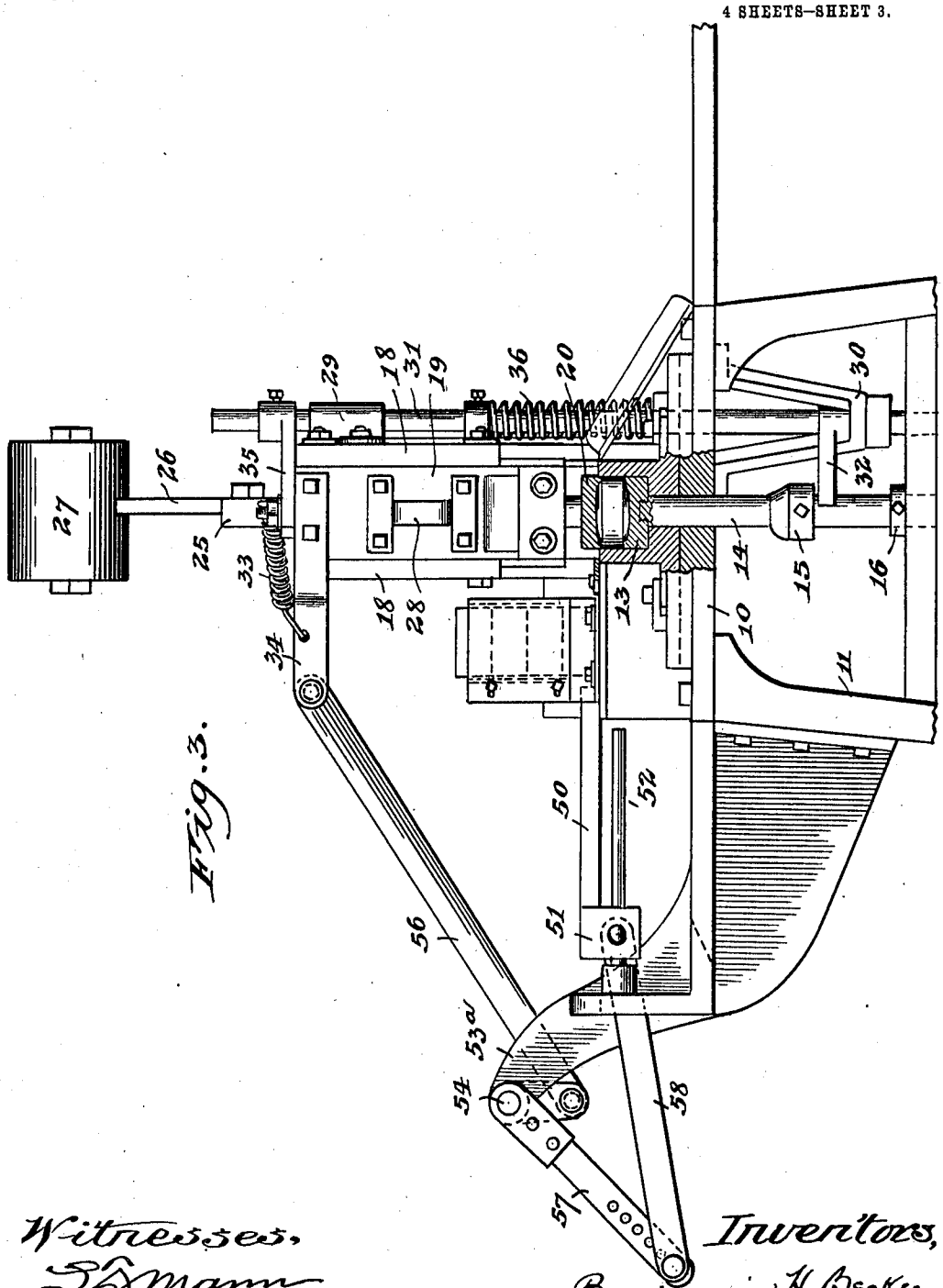

Fig. 3.

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4 SHEETS—SHEET 4.

Fig. 4.

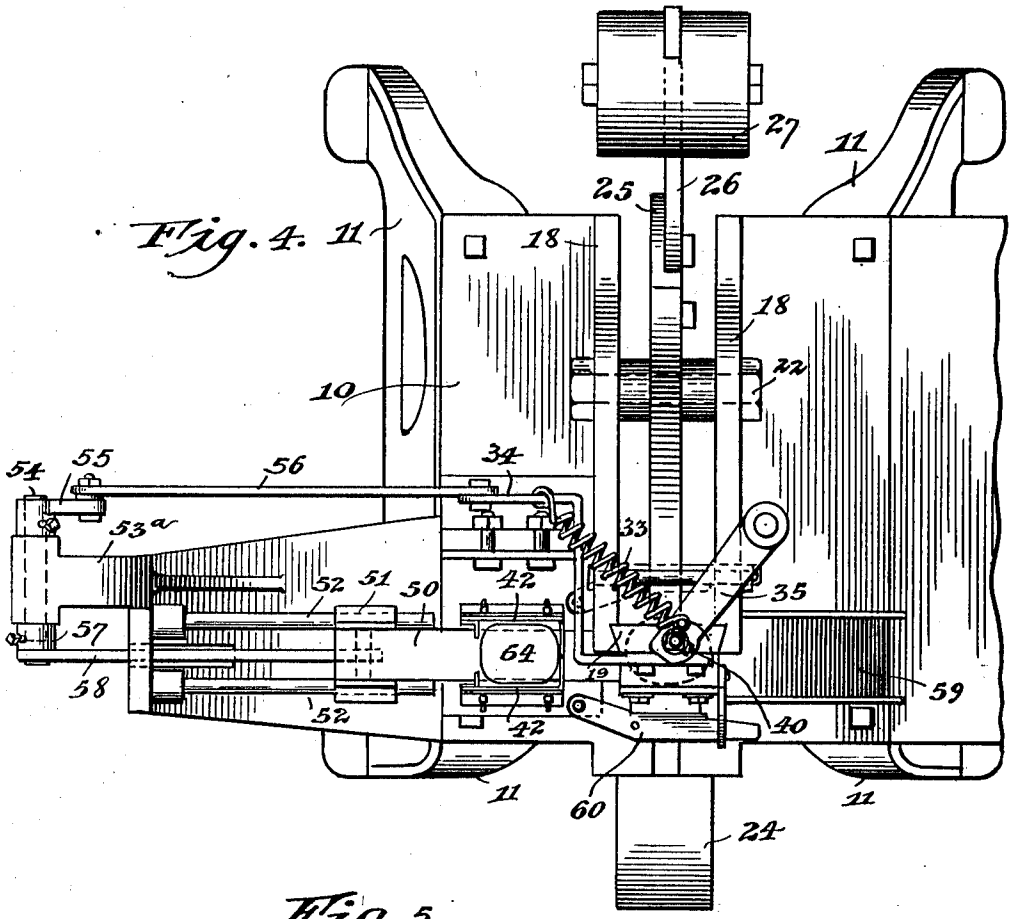
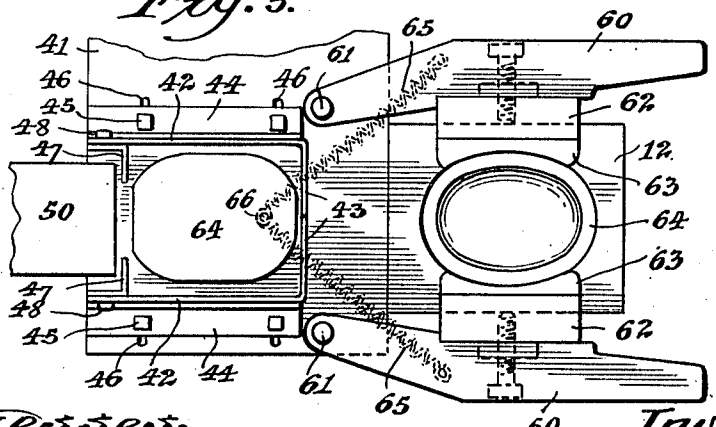


Fig. 5.



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UNITED STATES PATENT OFFICE.

BENJAMIN H. BECKER AND JOHN CIESLA, OF CHICAGO, ILLINOIS, ASSIGNORS TO JAMES S. KIRK & CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SOAP-PRESS.

1,021,126. Specification of Letters Patent. **Patented Mar. 26, 1912.**

Application filed July 5, 1910. Serial No. 570,425.

To all whom it may concern:

Be it known that we, BENJAMIN H. BECKER and JOHN CIESLA, both citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Soap-Presses, of which the following is a specification.

Our invention relates to improvements in that class of presses which are used in the final steps of the manufacture of toilet-soaps and like articles to give the cake of soap its final or finished form and impress thereon characters indicating its source of manufacture, brand, etc. Machines of this character employ as their principal elements a pair of die-members between which a blank possessing roughly the general size and shape of the finished article is compressed; and some of these machines are power-machines equipped with automatic devices for feeding the blanks into position between the die-members and discharging the finished product, while many of these machines are manually operated, the blanks being positioned between the dies by hand and the dies subsequently operated by foot-actuated mechanism. A serious objection to this latter class of machines resides in the danger to the operator, through careless handling of the blank, of injury to the hands from the cutting or crushing effect of the dies.

Our present improvements are designed chiefly to eliminate this objection, more especially in manually operated machines, through the provision of mechanical means for advancing the blanks to a position between the dies and accurately positioning or centering the blanks prior to the compressive action of the dies thereon; and these improvements will be readily understood when considered in connection with the accompanying drawings, which illustrate one form or type of manually-operated machine to which our improvements are applicable, and in which—

Figure 1 is a front elevational view of the complete machine, showing the die-members separated, and a blank resting upon the lower die-member in a position to be compressed, the die-box or matrix within which the lower die-member operates being shown in section. Fig. 2 is a side elevational view as seen from the right of Fig. 1 of the parts shown in the latter figure. Fig. 3 is a view similar to Fig. 1 broken off at its lower end and showing the parts in the relative positions which they assume at the completion of the compressing movement of the die-members within the matrix. Fig. 4 is a top plan view of the machine; and Fig. 5 is an enlarged detail above the matrix, more especially illustrating the feed-chute of the blanks and the centering devices for the latter.

Referring to the drawings, 10 designates a table or platform mounted on a suitable supporting-frame 11 and having rigidly secured thereto a die-box or matrix 12. Within the matrix 12 is slidably mounted the lower die-member 13, which latter has a threaded or other connection with a depending stem 14 passing through registering holes in the platform 10 and bottom of the matrix, said stem having adjustably keyed thereto a pair of collars 15 and 16, the lowermost of which coöperates with an abutment-plate 17 (Fig. 2) secured to the frame to form a guide and stop for the lower end of the stem 14.

Superposed on and rigidly bolted to the platform 10 are a pair of parallel vertical yoke-frames 18 which, at their forward ends, constitute a guide for a vertically-slidable crosshead 19, which latter carries at its lower end the upper die-member 20. Said crosshead 19 has formed therein a vertical slot 21 that is engaged by actuating means next to be described.

Pivoted at 22 (Fig. 2) between the yoke-frames 18 is a three-armed lever, the long depending arm 23 of which has adjustably secured to its lower end a pedal 24. The upwardly and rearwardly extending arm 25 of said lever has attached thereto an arm 26 which carries at its upper end a counter-weight 27; and the forwardly extending arm 28 of said lever projects at its free end through the slot 21 of the crosshead 19 and constitutes the immediate actuating means of said crosshead. The counter-balance 27 is of such weight and the arms 25 and 26 carrying the same of such length that the said weight normally over-balances the parts of the lever on the opposite side of the vertical plane passing through the pivot 22 and the pedal, crosshead, and upper die-member, thus normally maintaining said

crosshead, upper die-member and pedal in raised position as shown in Figs. 1 and 2.

Slidably mounted in a sleeve 29 secured to one of the frames 18 and to a bracket 30 secured to and depending from the platform 10 is a rod 31 to which is keyed or otherwise secured near its lower end a laterally projecting arm 32 which engages the underside of the collar 15, as shown in Fig. 3, to effect the lifting movement of the lower die-member when the compressed cake is to be expelled from the matrix. This arm 32 is normally urged laterally toward the spindle 14 by means of a spring 33 that is anchored at one end to a bent bracket 34 bolted to the upper end of the cross head 19 (see Fig. 4), and at its other end is connected to the outer end of an arm 35 keyed to the upper end of the rod 31. The top of the collar 15 is round or beveled, as shown, so that on the descending movement of the arm 32 it slides over said collar. As herein shown, the rod 31 is normally urged upwardly by a coil-spring 36 confined between a collar 37 keyed on the rod 31 and the platform 10, in order to secure a quick return or upward movement of the rod 31 and consequently a quick upward or expelling movement of the lower die-member; and where such spring 36 is used, the arm 35 is secured to the upper end of the crosshead 19 by a bolt 38 and nut 39, said bolt engaging a slot 40 (Fig. 4) in the arm 35, which allows the described lateral movement of the arm 35 under the action of spring 33. The spring 36 may, however, be dispensed with, and the rod 31 allowed to descend by its gravity, in which case the bolt 38 and nut 39 are obviously unnecessary.

Referring now to the mechanism for delivering the blanks in succession to the matrix 12, 41 designates a supplemental platform mounted on the main platform 10 at one side of the matrix 12, on which is mounted an adjustable rectangular vertical gravity feed-chute herein shown as comprising a pair of opposite side walls 42 having angularly bent rear extensions 43 which unitedly form the rear wall of the chute, and angle-strips 44 (Fig. 5) attached to or integral with the lower ends of said side walls, which latter are adjustably secured to the platform 41 as by bolts 45 engaging slots 46 in said platform. The front end wall of the box, which need not be continuous, is herein shown as formed by a pair of vertical angle-strips 47 adjustably secured to the front ends of the walls 42 by bolts 48 (Fig. 1) engaging horizontal slots 49 in the walls 42. By this means the dimensions of the chute in both directions are adjustable to permit the employment of a matrix and die-members of varying sizes; and the lower ends of the front and rear walls 47 and 43 are cut away to permit the play through the bottom of the chute of a pusher 50, which latter is slidably mounted by means of a suitable cross-head 51 on a slide-way comprising a pair of horizontal rods 52 (Fig. 4); said rods 52 being rigidly attached to a bracket 53 secured to one side of the main frame of the machine. The pusher 50 is actuated from and in properly timed relation to the cross-head 19 carrying the upper die-member 20 through connections herein shown as comprising a rock-shaft 54 journaled in a projecting arm 53^a of the bracket 53, an arm 55 on one end of said rock-shaft, a link 56 pivotally connecting arm 55 with the outer end of the bent bracket 34 (Fig. 4), an arm 57 on the other end of the rock-shaft 54, and a link 58 adjustably connecting arm 57 with cross-head 51. An inclined chute 59 serves to guide the stamped or compressed cake from the matrix down on to the platform 10, whence it is removed to be packed.

In order to accurately center each blank in the matrix prior to its compression between the die-members we employ a centering-device principally shown in Figs. 4 and 5, the same comprising a pair of mating-arms 60 that are pivoted at 61 to the auxiliary platform 41 and extend rearwardly on the opposite sides of the upper end of the matrix 12, said arms having secured to the inner sides thereof a pair of grippers or clamps 62 preferably having an inner facing 63 of rubber, leather, felt, or like material shaped on their inner sides to substantially conform with the opposite edge portions of the blank 64 engaged thereby. The centering arms 60 are normally urged toward each other by spring means, such as tensile-springs 65 connected to the under sides of said arms and to a pin or lug 66 on the under side of the platform 41. In order to positively open the arms 60 when the blank has been centered we employ a pair of curved spreader-arms 67 (Fig. 2) secured to and depending from the crosshead 19, the lower ends of said spreaders as the crosshead descends passing between the outer ends of the arms 60 and forcing the latter apart. The inward movement of the arms 60 is limited by adjustable means herein shown as screws 68 (Fig. 2) threaded through depending lugs 69 on the lower sides of the arms 60 and engaging at their inner ends the opposite side walls of the matrix 12. Rigidly secured to the depending arm 23 of the main operating lever is a kicker-bar 70, whose function is to throw the lifter-arm 32 out of engagement with the collar 15 after the lower die-member has been raised to permit the quick descent of the latter by gravity preliminary to the reception of the next blank.

The operation of the machine will be readily understood from the foregoing description of its structure but may be briefly described as follows: Assuming that the

parts are in the relative positions shown in Figs. 1 and 2 wherein the pusher 50 has just delivered a blank 64 to the matrix, the operator exerts a downward and forward thrust on the pedal 24 which causes the upper die-member 20 to descend and effect the compression and stamping of the blank within the matrix, as shown in Fig. 3. This same operation withdraws the pusher 50 and effects or permits the descent of the rod 31 carrying the lifter-arm 32 so that the latter assumes a position beneath the collar 15, as also shown in Fig. 3, the weight 27 at the same time being thrust forwardly but not across the vertical plane of the pivot 22. As the crosshead descends the arms 67 at the same time spread the centering-arms 60 carrying them safely out of the way of the descending die-head 20. The operator then removes his foot from the pedal 24, which allows the weight 27 to act, thereby raising the upper die-member and also the lower die-member through the lifting effect of the arm 32 on the collar 15. The compressed and stamped blank is thus raised to the top of the matrix and at the same time the advance or inward movement of the pusher 50 pushes the next succeeding blank to a position over the matrix, said blank forcing the previously compressed blank down the chute 59. As the main lever reaches the limit of its backward swing to normal position, the kicker 70 strikes the lifter-arm 32, thrusting the latter to one side and allowing the lower die-member to drop with the newly introduced blank thereon, which is at once accurately centered by the arms 60, whereupon the above described operations are repeated. It will thus be seen that the operator is required only to maintain a proper supply of blanks to the open upper end of the feed-chute and work the pedal 24 in the manner described; or, of course, the main lever may be power-equipped if desired or convenient, so that by the described automatic feed and centering of the blanks, not only is the danger of injury to the operator eliminated, but the operation can be performed much more quickly and expeditiously than where the feeding and positioning of the blanks between the die-members is performed manually.

Minor variations and changes in the mechanism described can be made without involving any departure from the principle of the invention or sacrificing any of the advantages thereof; hence, we do not limit the invention to the exact and specific structure and arrangement shown except to the extent clearly indicated in specific claims.

We claim:

1. In a soap-press, the combination with a matrix and upper and lower die-members, of a reciprocating cross-head carrying said upper die-member, means for positively actuating said cross-head in both directions, means for raising the lower die-member after the stamping operation to expel the stamped cake from the matrix, a feed-chute for the blanks, a pusher operating across said feed-chute, means for actuating said pusher, a pair of pivoted spring-actuated centering arms mounted above said matrix, and a spreader for said arms carried by said cross-head, substantially as described.

2. In a soap-press, the combination with a matrix and upper and lower die-members, of a reciprocating cross-head carrying said upper die-member, means for positively actuating said cross-head in both directions, a depending stem on said lower die-member, a collar on said stem, a vertically reciprocating rod having an arm adapted to liftingly engage said collar, a spring normally tending to draw said arm toward the stem of said die-member, means for disengaging said arm from said collar after said stem and lower die-member have been raised, a feed-chute for the blanks, a pusher operating across said feed-chute, and means connected with said cross-head for actuating said pusher in timed relation to the movements of said die-members, substantially as described.

3. In a soap-press, the combination with a matrix and upper and lower die-members, of a reciprocating cross-head carrying said upper die-member, means for positively actuating said cross-head in both directions, a depending stem on said lower die-member, a collar on said stem, a vertically reciprocating rod operating in unison with said cross-head and having an arm adapted to liftingly engage said collar, a spring normally tending to draw said arm toward the stem of said die-member, means for disengaging said arm from said collar after said stem and lower die-member have been raised, a feed-chute for the blanks, a pusher operating across said feed-chute, and lever and link connections between said cross-head and said pusher for actuating the latter in timed relation to the movements of said die-members, substantially as described.

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