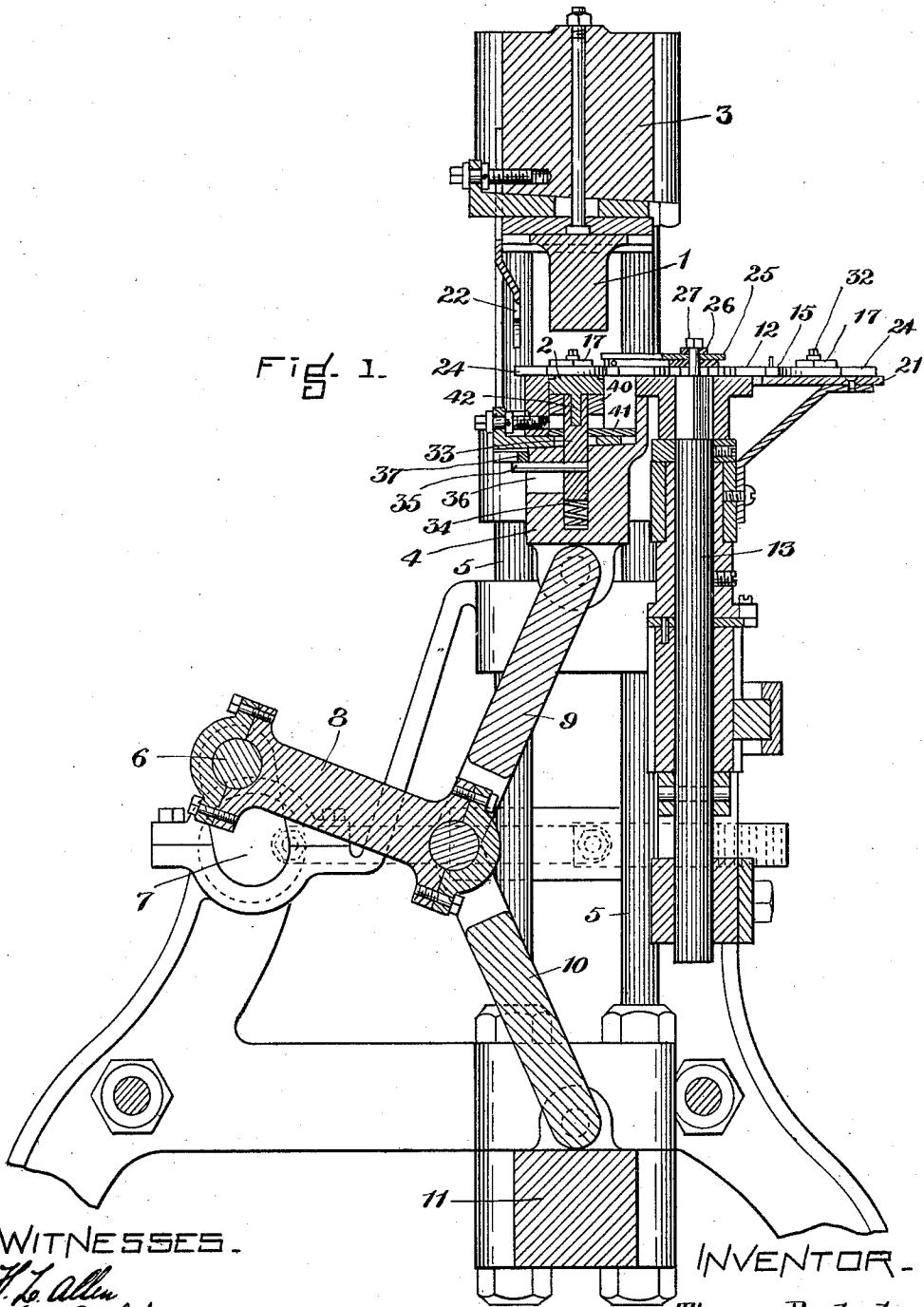


T. BOSTOCK.
MACHINE FOR PRESSING HEEL LIFTS, HEELS, &c.
APPLICATION FILED SEPT. 9, 1910.

1,018,549.

Patented Feb. 27, 1912.

2 SHEETS—SHEET 1.



WITNESSES.
H. L. Allen
H. R. Penstone

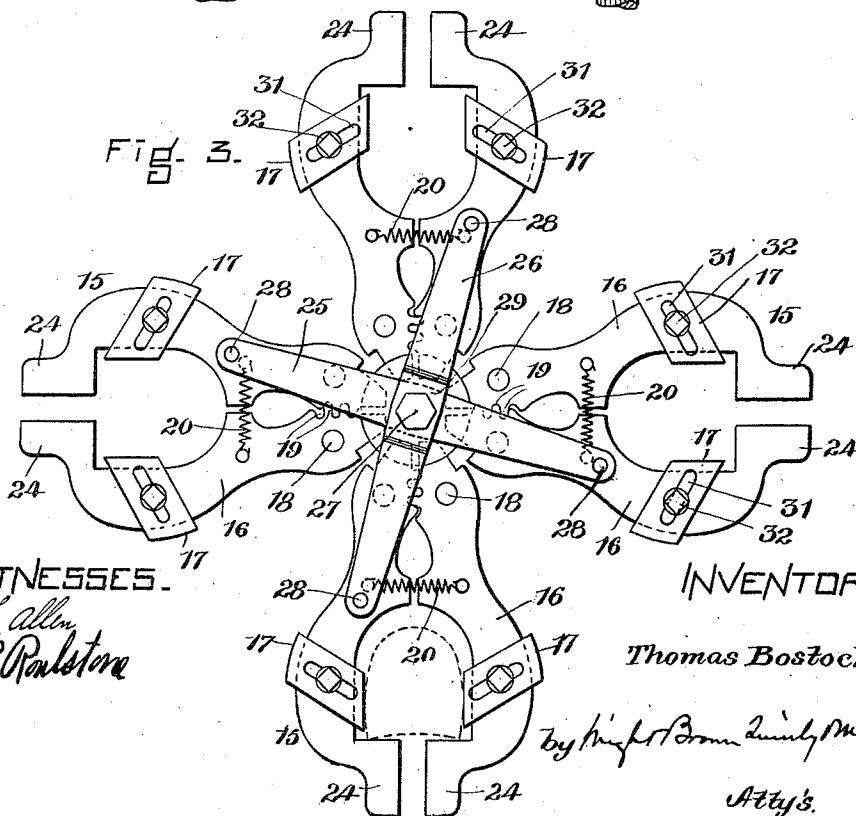
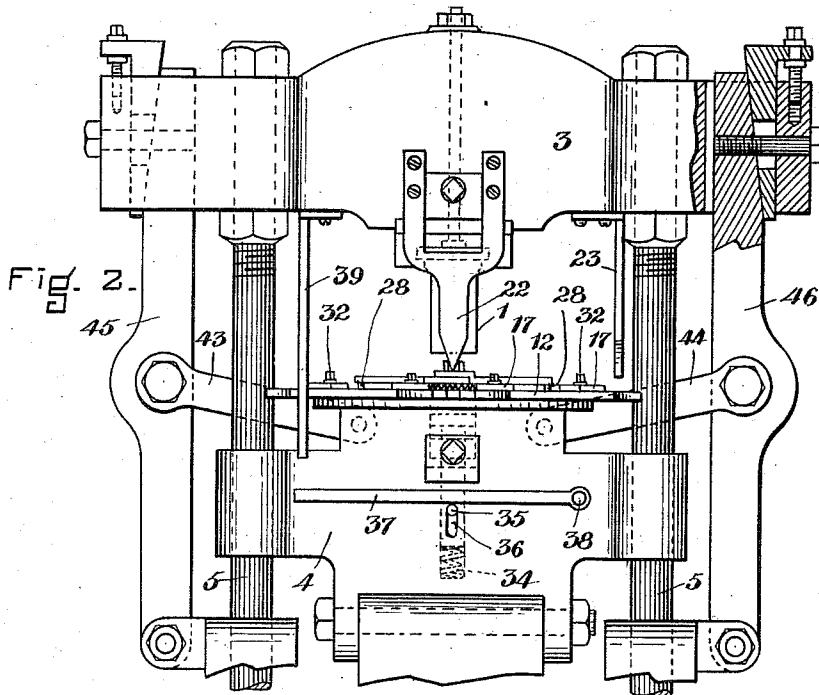
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2 SHEETS—SHEET 2.



WITNESSES.

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UNITED STATES PATENT OFFICE.

THOMAS BOSTOCK, OF BROCKTON, MASSACHUSETTS, ASSIGNOR TO FRED F. FIELD, OF BROCKTON, MASSACHUSETTS.

MACHINE FOR PRESSING HEEL-LIFTS, HEELS, &c.

1,018,549.

Specification of Letters Patent.

Patented Feb. 27, 1912.

Application filed September 9, 1910. Serial No. 581,314.

To all whom it may concern:

Be it known that I, THOMAS BOSTOCK, of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Machines for Pressing Heel-Lifts, Heels, &c., of which the following is a specification.

This invention relates to machines adapted to compress heel lifts, heels, shanks and other articles especially adapted for use in shoemaking, and is of the general character of the machine for this purpose illustrated and described in the application filed by me January 2, 1910, Serial No. 537,773 for a machine for pressing heel lifts.

The object of the present invention is to improve the machine shown in the application above-noted in two important particulars; namely, first, to provide for opening the lift-carrier automatically prior to insertion of a lift therein, and second, to provide means for permitting a central adjustment of the lift, or other article acted upon, with respect to the compressing dies, before the article is gripped by said dies.

In the machine hereinbefore referred to the lifts or other articles to be compressed are placed in a rotating carrier which removes the articles from the operator's station and places them between the compressing dies. This carrier includes a pair of grasping or gripping devices which are drawn together by spring pressure so as to grip the opposite sides of the article. I have found that there is some difficulty in pressing the lift or other article into the space between these grippers and separating the latter for the purpose against the tension of the spring, and that under the most favorable circumstances, the effort of inserting the lift into the carrier against this resistance, imposes labor upon the operator which it is desirable to avoid. The effort in any one instance may be slight, but considering the great number of repetitions of the act in feeding a machine speeded up to its greatest capacity, it will be understood that in the aggregate a great amount of labor is thus unnecessarily caused during the course of a day. Moreover when the lifts are inserted against resistance, it is more difficult to position them properly in the holder than when there is no resistance. Accordingly, I have provided in connection with a machine such as that above referred to, auto-

matic mechanism for causing the gripping members of the lift carrier to be separated when the carrier arrives at the falling position, whereby the lift or other article to be compressed may be dropped into the carrier without effort, and afterward gripped by the subsequent closing of the gripping members.

The other improvement relates to an arrangement of means for causing or permitting the lift to rest loosely upon the lower of the coöperating pressing dies after being released from the lift carrier, until the members of the divided mold position it centrally with respect to the dies.

The manner in which the foregoing objects are given effect is illustrated in the accompanying drawings which show the preferred embodiment of the invention, such drawings representing a machine similar to that shown in the application before referred to, with the improvements constituting the subject matter of the present invention applied thereto.

In these drawings, Figure 1 represents a vertical section of the machine. Fig. 2 represents a rear elevation of the upper part of the machine. Fig. 3 is a plan view of the lift-carrier showing the invention applied thereto.

The same reference characters indicate the same parts in all the figures.

The machine includes as its operating members, coöperating pressing dies 1 and 2, which bear upon the top and bottom surfaces of the lift, heel, or other article acted upon to compress the same, and at the same time impress an ornamental configuration upon one surface, as illustrated in the application referred to, and a carrying means which transfers the articles from the operator's position to the dies, and again transfers them to a discharging position after they have been acted upon by the dies.

The upper die 1 is preferably stationary and is adjustably fixed to a cross head or girt 3, while the lower die is movable, and approaches and recedes from the fixed die. It is carried by a movable cross-head or girt 4 constituting a die-carrier which slides on posts 5 and is given a reciprocating movement by a crank 6 on shaft 7 acting through a connecting rod 8 and toggle levers 9 and 10 pivoted respectively to the cross-head 4 and to a stationary girt 11. When the lower die rises, it bears on the un-

dersurface of a lift placed over it and presses such lift against the fixed upper die. The lift-carrier which places the lifts between the dies and removes them therefrom consists of a rotary head 12 secured and rotated by a shaft 13 and carrying grasping devices 15, each including a pair of jaws or grippers 16 carrying adjustable clamps 17 which engage the sides of the lift or heel. Each pair of gripping jaws forms one lift-holder, and there may be as many of such lift-holders as desired. I find that 3 or 4 is the most suitable number in practice. The jaws of each lift-gripper or holder are pivoted upon studs 18 on the carrier head, and are provided with interengaging teeth 19, whereby they are caused to swing together or apart in unison. They are drawn together by a spring 20. A table 21 is provided over which the lift-grippers extend and travel, such table being extended far enough to underlie the grippers in all of their positions except the one wherein they project between the compressing dies. The table and lift-carrier are supported upon the movable cross-head 4 and rise and fall therewith, hence their relative position with respect to the lower die is unchanged except for the rotary movement which causes the lifts to be brought to and removed from the dies. The shaft 13 by which the lift carrier is secured, is rotated step by step at the proper times by mechanism which is fully described in the pending application before referred to, and need not be again described here. It is sufficient to say that each step of the shaft places the lift-carrier where one of its lift-holders is between the dies, a second one is at the front of the machine ready to have a lift placed in it by the operator, and a third is in a discharging position.

When the lower die rises, those lift-holders which are in the compressing position and discharging position respectively, are opened so as to release the lifts held by them. Said opening is effected by cam devices 22 and 23 secured to the upper or stationary cross-head 3, and having beveled sides which enter between ears 24 of the lift-gripping jaws and separate such jaws as the lower die and lift-carrier approach the uppermost limit of their travel.

In the machine described in my prior application referred to, only those lift-holders which are in pressing and discharging position respectively are open, the lift-holder in the receiving position remaining closed under the tension of its spring, there being no means for opening such holder. Consequently when the blanks are inserted in said holder, they must be so inserted against the resistance of the spring 20. This spring, in order to serve its purpose, must be comparatively stiff, in consequence of which it opposes more or less resistance to the inser-

tion of the blank into the holder, which must, of course, be overcome by the manual strength of the operator at the cost of labor which in the course of the day amounts in the aggregate to a great deal. Moreover, in the brief time given by the pauses in the intermittent rotation of the lift-carrier, it is not always possible to place a blank with perfect accuracy. Accordingly by the present invention I have devised a means which automatically opens each lift-holder of the carrier when it arrives in the filling position, whereby the blank may be inserted between the gripping jaws thereof without labor and in such a way that upon the closing of the jaws the blank becomes automatically centered and is in the proper plane. This means consists preferably of bars 25 and 26, which are centrally pivoted upon a stud 27 rising from the end of the shaft 13, and at their opposite ends, by means of pins or studs 28, are pivotally connected with corresponding jaws of two different lift-holders. By means of the bar 25 and likewise the bar 26, any lift-holder which is in the present position, and the gripping members of which are separated by the cam 22, causes the oppositely located lift-holder, that is, the one in the filling position, to be also opened. Thus a space is left between the clamps 17 of two gripping jaws of this holder wider than the width of the blank, whereby the blank may be dropped in the holder and may rest upon the table in the space inclosed by the jaws. When the lower cross-head descends and the holder in the pressing position again closes upon the lift, the holder in the filling position also closes upon the lift placed in it and grasps the lift between its jaws. Before the grasping takes place, however, the lift has already been located in the proper plane by resting upon the flat table 21. When the lift carrier reaches the discharging position and is opened by the cam 23, the recently filled holder is again opened, but as the lift still rests upon the table 21, it does not become dislodged from the holder.

In the embodiment of the invention shown, only two of the lift-holders are connected by means of the bar 25, the bars 25 and 26 being independent of each other, so that when one of the holders is open, only one other holder, and that the diametrically opposite one, is similarly affected. For this reason the bars 25 and 26 are separate pieces and each is loosely pivoted upon the shank of the bolt 27. One of these bars necessarily passes over the other, and said bar, for instance, the one lettered 26, is therefore offset at its central portion 29, whereby its ends are enabled to lie close to the adjacent lift-holders, while its center is raised sufficiently to permit the bar 25 to pass under it. It is possible, however, to use instead

of the two bars 25 and 26, a multiple-armed yoke of which each arm is connected to one of the jaws of each lift-holder. With this construction, whenever one of the lift-holders is opened, all are opened.

Mention has previously been made of the clamps 17 which are mounted on the gripping jaw 16 of the lift-holders. These clamps are adjustable in and out on the jaws, in order to accommodate themselves to lifts, etc., of different widths, and to locate the lift centrally between the jaws. For this purpose the clamps are provided with slots 31 through which pass bolts 32 which are threaded into tapped holes of the jaws. As the slots extend longitudinally of the clamps, they provide room for adjustment of the latter upon loosening the bolts. It will be seen that although this adjustment enables lifts of any size to be centrally grasped by the grippers, yet, in order to locate the lift centrally, both clamps must be equally and oppositely adjusted. It is difficult in the practical operation of the machine to secure such an accurate adjustment of both clamps as will locate the lift in an exactly central position with respect to the areas of the dies 1 and 2 when the lift-holder is placed between the dies. Accordingly the second main improvement which forms the subject of this invention relates to provisions by which accurate locating of the lifts between the dies may be accomplished, even though the clamps are not set with absolute accuracy. In order to appreciate this phase of the invention, it is necessary to remark that the machine is provided not only with the top and bottom dies 1 and 2, but also with parts of a divided mold, or side dies located respectively at opposite sides of the space between the dies, which are moved together to confine the edges of the lift or heel when the dies are brought together upon the faces of said lift or heel and are drawn apart when the compressing dies are separated, and further that one of the dies, as the lower die 2, is formed in its central part with a raised portion which impresses ornamental indentations into the tread surface of the lift or heel, which indenting portion is separated by a depressed band of uniform width from the edges of the die, all as shown clearly in application No. 537,773 hereinbefore referred to. In the machine made as illustrated and described in said application, the lifts or heels are gripped and squeezed by the compressing dies before they are released by the jaws of the carrier, and before the members of the mold engage their edges. Hence, if the lift is not held in position by the carrier in an exactly central location with respect to the die, no opportunity is given for an adjustment of the lift after it has been released from the carrier, for the reason that it is

then gripped between the dies so firmly that the lateral pressure of the side dies or molds is unable to shift it. By the present invention I have devised means for so controlling one of the dies, as the bottom die, that it is prevented from squeezing the lift against the other die until the lift has been released from the carrier by the means hereinbefore described, and the members of the mold have engaged its edges. The lift is thus caused to lie loosely upon the bottom die until the mold has positioned it centrally, before the dies are caused to press against its top and bottom surfaces. The bottom die is mounted upon the moving cross-head or girt 4 in a manner which causes it to be yieldingly projected except when it is compressing a lift. It is mounted upon the upper end of a stem 33 movable endwise in the cross-head 4 and projecting upward therefrom, being supported by a spring 34 in the bottom of the socket in which the stem is contained. A pin 35 projects laterally from the stem through a slot 36 in the cross-head, and serves both as a means for preventing excessive projection of the stem, and for withdrawing of the stem to allow descent of the die.

A lever 37 pivoted at one end on a pin 38 carried by the cross-head 4 overlies the pin 35 and its free or swinging end is directly beneath a stop 39 secured to the fixed cross-head 3. The length of this stop and the position of the lever 37 are such that the lever is engaged during the upward movement of the cross-head 4 shortly before the lift or heel reaches the fixed die 1, and thus the free end of the lever is arrested, or in other words, is depressed relatively to the moving cross-head, it being understood that as the moving cross-head rises and the end of the lever 37 remains stationary, the effect is as though the lever were depressed. The lever bearing on the pin 35 causes the stem to be depressed and with it the die plate 2, whereby said die plate is prevented from pressing the lift or heel against the top die until time has been given for the lift-carrier to release the lift, and for the members of the mold to engage the sides of the lift. When the bottom of the die plate 2, or of a plate 40 immediately below it, strikes a bottoming plate 41, rigidly and adjustably mounted on the upper side of the cross-head 4, the relative descent of the bottom die is stopped and said die is caused to apply forcible pressure to the lift or heel which now abuts against the die 1. The connection between the stem 33, die 2 and plate 40 is such that continued relative movement of the stem in a downward direction is permitted until the cross-head 4 reaches the end of its upward travel, even after the block 40 has become seated upon the plate 41, the stem passing loosely through the block 40 and the die

block 2 having a shank 42 passing loosely into a recess in the end of the stem. Thus the stem supports the die block, but is enabled to withdraw therefrom after the die block has become seated upon the bottoming plate 41.

The parts of the mold previously referred to are mounted slidably upon the cross-head 4 and are connected with links 43 and 44 pivoted to arms 45 and 46 respectively. These arms are so adjustable and the position of the points at which the links are connected to them is such, that the blocks are brought together by the upward movement of the cross-head just before the latter reaches the end of its upward travel. As the stop 39 and lever 37 arrest the die block 2 until this point is reached, the dies are prevented from gripping the lift until the mold has positioned the heel. Thus it will be seen that a very exact and accurate adjustment of the clamps 17 is not required, and the lift is so accurately positioned that the ornamentation impressed upon its bottom surface is exactly central. It should be noted that it is extremely important that this ornamentation should be correctly located and neither nearer to one edge of the heel than the other, because even a slight inaccuracy mars the appearance of the lift and materially diminishes its value. Also if the lift is placed eccentrically between the dies, it is liable to have one edge compressed and upset by one member of the mold, thus spoiling its symmetry and homogeneity. To secure the desired effect by an adjustment of the clamps 17 alone, requires expenditure of much time and care, and is frequently uncertain. My invention, by eliminating the necessity of such a careful adjustment of the clamps, saves much time and labor on the part of the operator, and it secures better results.

I desire to note that although I have referred in the specification and in the following claims to the machine as being one for compressing lifts or heels, I do not wish to be understood as limiting it to any such purpose or application, but contemplate using, and reserve the right to use it for compressing any article whatever capable of being compressed in a machine of this sort, whatever may be the shape of the dies and mold required.

I claim,

1. A machine for compressing heel-lifts, heels, etc., comprising a stationary upper die, a die carrier movable toward and from said upper die, a lower die mounted on said carrier in line with the upper die, yielding means normally projecting the lower toward the upper die, side dies on the carrier on opposite sides of the lower die, means for placing a blank on the lower die, means for causing the side dies to approach one another

and to position the blank with respect to the upper and lower dies when the lower die approaches the upper die, and a stationary stop member for arresting the lower die independently of the carrier to permit positioning of the blank by the side dies prior to the application of pressure to the blank by the upper and lower dies.

2. A compressing machine comprising opposed upper and lower compressing dies, a head carrying the lower die and having a surface arranged to apply pressure thereto, being movable therewith toward and from the upper die, yielding means normally projecting the lower die from such pressure-applying surface, members carried by the movable head on opposite sides of the lower die, mechanism operated by the movement of such head during the latter part of its travel for closing said members upon a blank supported by the lower die and thereby positioning the blank, and a stop device fixed on a stationary part of the machine arranged to arrest said yielding die-projecting means while the blank-positioning members become operative, whereby the blank is loosely supported by the lower die while being positioned, the said die being thereafter engaged by the pressure-applying surface of the head and pressed forcibly toward the upper die.

3. In a compressing machine of the character described, a fixed compressing die, a head movable toward and from said die, a complementary compressing die mounted on said head opposite to the fixed die, said head having a rigid portion for applying pressure to the complementary die, a yielding die projector normally holding the complementary die in advance of the said rigid portion, and a stop fixed to a stationary part of the machine arranged to arrest said projector when the complementary die is close to the fixed die, whereby said complementary die is first arrested and then further advanced by the said rigid portion.

4. In a compressing machine of the character described, a fixed compressing die, a head movable toward and from said die, a complementary compressing die mounted on said head opposite to the fixed die, a rigid bottoming plate in the head adapted to apply pressure to the complementary die, a yielding die projector in the head loosely engaged with the die and normally holding it projected in advance of the bottom plate, and a stationary stop member located in such a position as to retract said projector when the dies are still separated by a distance slightly more than the thickness of an uncompressed blank, whereby the complementary die is arrested until further advanced by said bottoming plate.

5. A machine for compressing articles, comprising dies movable together and apart,

a carrier upon which one of said dies is mounted, and by which it is movable toward and from the other, a lift-carrier movable with said die carrier and having a further movement transversely to the dies and between them for placing a lift in position to be compressed, said lift-carrier having separable clamps for gripping the edges of the lift, a yielding die-projecting device holding the movable die with its upper face directly under the path of the lift-carrier, a stationary clamp opener located intermediate the clamps when the same are between the dies, and at such a height as to separate the clamps and release the lift when the dies are close together, means for withdrawing said projecting device prior to the arrival of the die-carrier at its limit of movement, whereby the movable die is arrested, a divided mold, and means for moving the parts of said mold against the edges of the lift and positioning the same between the dies during the arrest of the movable die.

6. A machine for compressing articles, comprising dies movable together and apart, a carrier upon which one of said dies is mounted and by which it is movable toward and from the other, a yielding projecting device holding said die in advance of the carrier, a lift-carrier movable transversely to the dies and between them for placing a lift in position to be compressed, said lift-carrier having adjustable clamping means for gripping the edges of the lift, means for separating said clamps and releasing the lift when the carrier is between the dies, a projection engaged with said projecting device, a stationary abutment located at such a height as to engage said device and arrest the same prior to the arrival of the die-carrier at its limit of movement, whereby the movable die is arrested, a divided mold, and means for moving the parts of said mold against the edges of the lift and positioning the same between the dies during the arrest of the movable die, said die-carrier having an abutment by which the movable die is positively advanced when the limit of its withdrawal has been reached.

7. A machine for compressing lifts, comprising a frame, a stationary die secured to said frame, a complementary die, a carrier for said complementary die movable therewith toward and from the stationary die, a rotary lift carrier having a plurality of lift-holders movable with said die carrier, means for giving said lift-carrier a step-by-step rotation in a direction transverse to the movement of the die-carrier during each trip of the latter, and to such an extent as to place one of the holders between the dies at each step, a yielding support for the movable die normally holding the same with its top surface immediately under the path of the lift-carrier, a divided mold having

its parts mounted on the die-carrier on opposite sides of the movable die, a stationary device mounted at such a point as to cause the lift-holder between the dies to release the lift held thereby as the movable die approaches the stationary die, a stationary die arrester mounted in such relation to the lift-releasing device as to arrest the die support subsequent to the release of the lift and prior to the end of the travel of the die-carrier, and means for closing the parts of the mold against the edges of the lift while the same rests freely on the movable die.

8. In a compressing machine of the character described, a stationary die, a die carrier arranged to travel toward and from the stationary die, a relatively movable die carried by said carrier, a yielding projected stem supporting the latter die, a pin extending from the stem to a point outside of the die-carrier, a member mounted on the die-carrier with provision for movement relatively thereto in such a direction as to bear on said pin and withdraw the stem, and a stationary stop arranged to engage said member and cause relative withdrawal of the movable die at a point near the end of the travel of the crosshead toward the stationary die.

9. In a machine of the character described, cooperating pressing dies, a rotary lift-carrier including a plurality of lift-holders rotarily movable with the carrier between the dies and across the direction of pressure exerted thereby, said lift-holders consisting of jaws arranged to engage opposite edges of a lift, and springs for drawing said jaws together against the edges of the lift, means for separating the jaws of one lift-holder, and a connection between corresponding jaws of said lift-holder and of another holder for simultaneously causing the jaws of the latter to be opened.

10. A compressing machine of the character described, comprising a pair of cooperating pressing dies movable together and apart, and arranged to act on the top and bottom surfaces of a lift or similar article, a lift-carrier having a plurality of holders movable rotarily step by step from a lift-receiving position at the front of the machine to a position between the dies for placing lifts in position to be acted upon, each of said holders including a pair of spring-actuated clamps, means for opening the clamps of the holder when the same is between the dies, and a connection between said holder and the holder which is in receiving position for causing the clamps of the latter to be simultaneously opened.

11. A machine for compressing lifts, comprising dies constructed and arranged to approach and separate from one another and to press upon the top and bottom surfaces of a lift, a lift-carrier having a plurality of

holders and rotatable step by step between the dies to place lifts carried thereby successively in position to be acted upon by the dies, said carrier including a plurality of
5 holders so arranged that when one holder is between the dies another is clear of the dies in position to receive a blank, a resiliently closed clamp for retaining the blank in the holder, means for opening the clamp
10 of that holder which is in the pressing position, and a connection between the clamp of said holder and of the holder which is in filling position for simultaneously opening the latter.

15 12. In a machine of the character described a rotary lift-carrier comprising a head and a plurality of lift-holders attached to said head, each lift-holder comprising a pair of lift-grasping jaws movable toward
20 and from one another for grasping and releasing lifts, and the corresponding jaws of

different holders being connected together in such manner that opening of one holder opens the other.

13. In a machine of the character de- 25 scribed, a lift-carrier comprising a plurality of lift-holders radiating from a common center and each including a pair of connected jaws movable relatively together and apart, a connecting member pivotally mount- 30 ed at the common center and connected to corresponding jaws of different holders, whereby separation of the jaws of one holder causes corresponding separation of the jaws of another. 35

In testimony whereof I have affixed my signature, in presence of two witnesses.

THOMAS BOSTOCK.

Witnesses:

WM. E. PATCH,
FRANK BOSTOCK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
