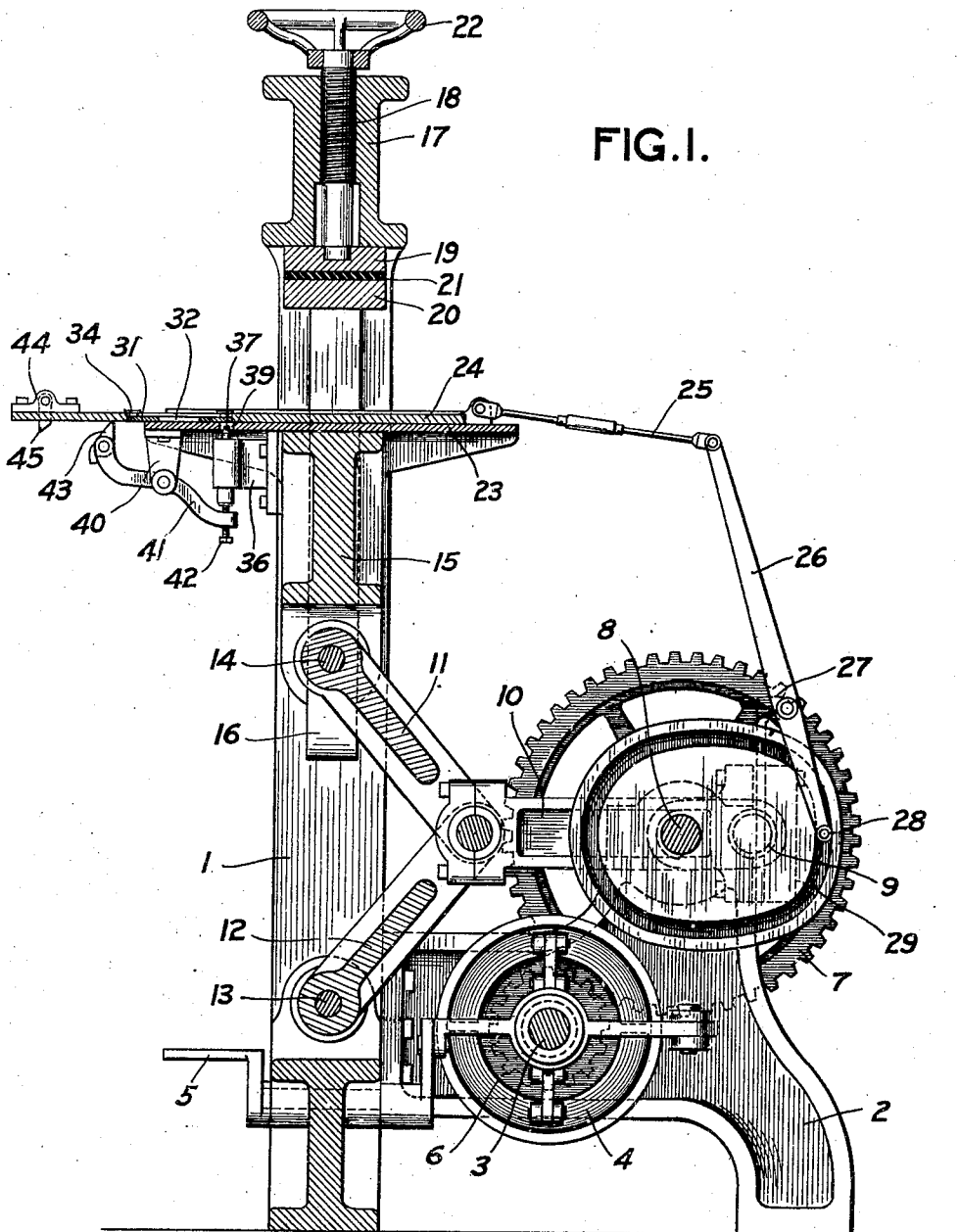


937,983.

2 SHEETS—SHEET 1.



L. Thon
C. W. Carroll

Albert J. Bolton
by Henry & Davis
his Attys

A. J. BOLTON.
MACHINE FOR FLATTENING TOP LIFTS.
APPLICATION FILED APR. 29, 1909.

937,983.

Patented Oct. 26, 1909.

2 SHEETS—SHEET 2.

FIG. 2.

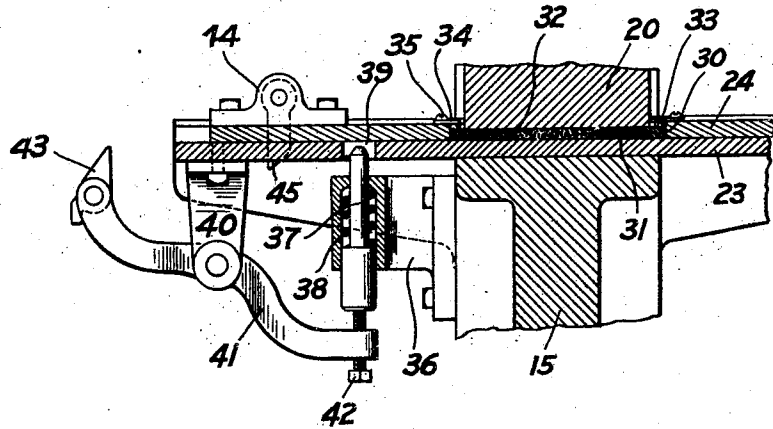


FIG. 3.

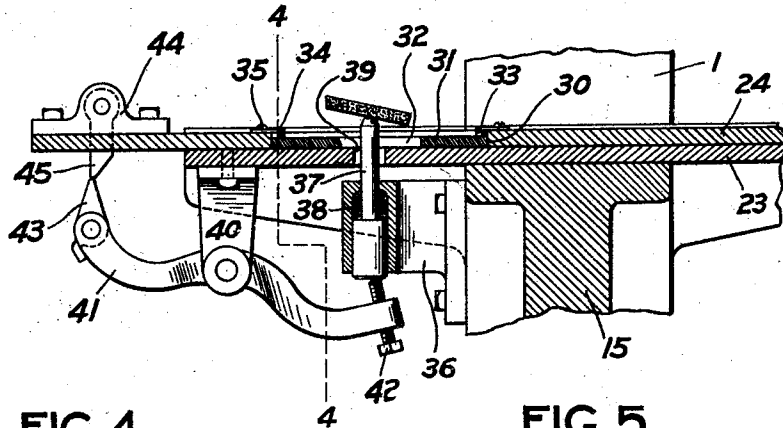


FIG. 4.

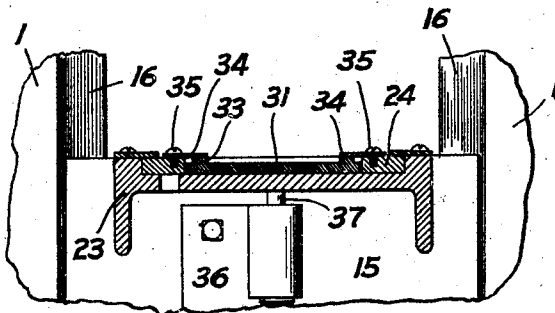
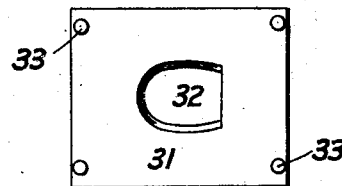


FIG. 5.



WITNESSES:

L. P. Thon
C. W. Carroll

INVENTOR:

Albert J. Bolton
by Cyril J. Davis
his atty

UNITED STATES PATENT OFFICE.

ALBERT J. BOLTON, OF ROCHESTER, NEW YORK.

MACHINE FOR FLATTENING TOP-LIFTS.

937,983.

Specification of Letters Patent.

Patented Oct. 26, 1909.

Application filed April 29, 1909. Serial No. 493,036.

To all whom it may concern:

Be it known that I, ALBERT J. BOLTON, a citizen of the United States, and resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Machines for Flattening Top-Lifts, of which the following is a specification.

This invention relates to machines for flattening top lifts, and has for its object the improvement of the dies used in such machines, particularly with reference to reduced cost of manufacture and simplicity of operation.

In the drawings:—Figure 1 is a vertical, longitudinal section of a machine embodying this invention; Fig. 2 is an enlarged sectional view of the die-carriage in operative position; Fig. 3 is a similar view, but showing the die-carriage in inoperative position, and the ejector discharging a lift therefrom; Fig. 4 is a cross-section on the line 4—4 of Fig. 3; and Fig. 5 is a top plan view of a die.

The machine has an upright frame 1, having a rearwardly extending base 2 that supports the main driving shaft 3. The latter carries a suitable clutch 4 that may be operated by a treadle 5 and so connect the shaft 3 with a pinion 6 that in turn meshes with a gear 7 on a countershaft 8. The latter has a crank 9 between its bearings, and a pitman 10 connects said crank with a pair of toggle-levers 11 and 12. The lever 12 is pivoted to the frame 1 at 13, but the lever 11 is pivoted at 14 to a crosshead 15 that is slidable vertically on guides or ways 16.

As the crank 9 revolves, the pitman moves forward and backward, and the resulting toggle-action of the levers 11 and 12 carries the crosshead 15 and parts thereon up and down. This motion ceases when the treadle 5 is released, as the shafts 3 and 8 are then disconnected by the freeing of the clutch 4.

The uprights of the frame 1 are connected at the top by a heavy crossbar 17. Through the latter extends a screw 18, having at its lower end two steel blocks 19 and 20, separated from each other by an elastic plate 21. These blocks are adjustable vertically

by means of the screw 18, which is turned by a hand-wheel 22.

On the upper end of the crosshead 15 is a table 23, having horizontal guideways to support a carriage 24. The latter is attached by an adjustable link 25 to a lever 26 that is pivoted on a bracket 27 (shown in dotted lines) on the frame 2. The lower end of said lever carries a roller 28 that fits a cam groove in a cam 29 on the shaft 8. When the latter revolves, the cam 29 acts on the lever 26, moving it backward and forward, and the carriage 24 is moved correspondingly on the table 23, at the same time moving up and down with the crosshead 15. The two movements are so timed that the carriage 24 is farthest forward when the crosshead 15 is down, and farthest toward the rear when said crosshead is up close to the block 20.

In the carriage 24 is a rectangular opening 30 (Figs. 2 and 3), in which is set a die plate 31, consisting of a flat plate of steel, in the center of which is an aperture 32 (Fig. 5), of the exact size and shape of the flattened top lift. The rear and side edges of the aperture 32, which constitute the die faces, are beveled outwardly (Fig. 3) to give the edges of the lift the proper taper.

To hold the plate 31 in place in the carriage 24, it has studs 33 that project slightly above the top of said carriage, and clips 34 on the carriage 24 are held down upon said studs by screws 35. On loosening the screws, the clips 34 may be swung aside and the die-plate removed, a new one with a different sized aperture being inserted in its place.

In operating the machine, an unflattened lift is laid in the die-aperture 32 when the table 23 is lowermost, and the carriage 24 farthest forward. The lift of course projects above the top of the die-plate 31. The treadle 5 is then depressed, and the clutch 4 is thereby engaged and the shaft 8 is revolved. The cam 29 swings the lever 26, moving the carriage 24 rearwardly and the crank 9 throws the pitman 10 forward, extending the toggle-levers 11 and 12. When the carriage 24 has moved far enough to

bring the center of the die aperture in line with the screw 18, a "dwell" on the cam 29 holds it so, and the crosshead 15, continuing its upward movement, brings the top of the lift against the bottom of the block 20. The pressure exerted by the toggle action of the levers 11 and 12 then forces the lift into the die-aperture 31, and flattens it. The pressure may be regulated by the raising or lowering of the block 20 by the screw 18. The rubber plate 21 acts as a cushion or buffer to prevent excessive pressure. As the shaft 8 continues to revolve, the crosshead 15 and carriage 24 are lowered, and the movement of the lever 26 by the cam 29 throws said carriage forward again. When it reaches a certain point, automatic mechanism is brought into operation, whereby the flattened lift is discharged from the die-plate 31. Said mechanism is shown in Figs. 2 and 3.

Attached to the crosshead 15 is a hollow bracket 36, in which is a plunger 37, normally held downward by a spring 38. Said plunger projects slightly into a hole 39 in the table 23. Another bracket 40 projects from the under side of the table 23 and carries a pivoted lever 41. The rear end of this lever has an adjusting-screw 42 that bears against the plunger 37 to support it, and the front end of the lever carries a pivoted dog 43. The latter is arranged to tilt backwardly only.

On the upper side of the carriage 24 is a pivot-support 44, in which is hung a dog 45 that is adapted to swing forwardly only, being prevented by suitable means from moving any farther toward the rear than shown in Fig. 2.

When the carriage 24 moves forward, the dog 45 strikes on the dog 43, and the outer end of the lever 41 is depressed. The rear end of said lever is of course raised as the front end is depressed. This movement is very rapid, because of the approximately vertical contact faces of the dogs 45 and 43, and occurs just before the center of the aperture 32 comes into line with the plunger 37. The latter therefore is driven upward through the hole 39, and strikes the under side of the lift, throwing it out of the die, as shown in Fig. 3. The spring 38 forces the plunger downward, as soon as the dog 45 passes the dog 43, and the plunger 37 is therefore retracted immediately. The carriage 24 remains stationary at its forward position for a short space, to enable the operator to insert a new lift in the die-plate. A "dwell" is provided in the cam 29 to accomplish this. When the carriage 24 is moved backward, the lever 41 remains as shown in Fig. 2, as the dogs 45 and 43 tilt in opposite directions as they pass each other. The ejecting apparatus is therefore

automatic in its action, and requires no attention from the operator.

What I claim is:—

1. In a machine for flattening top lifts, a block, a table, a carriage movable horizontally on said table, a die mounted on said carriage, a self-retracting plunger carried with said table and under the path of the die, a lever pivoted to said table and engaging said plunger, means for moving said table to and from the block, means for reciprocating said carriage whereby the die is moved under the block as the table approaches it and is moved away as the table recedes therefrom, and a trip on said carriage for actuating the lever when the die passes the plunger.

2. In a machine for flattening top lifts, a block, a table, a carriage movable horizontally on said table, a die mounted on said carriage, a self-retracting plunger carried with said table and under the path of the die, a lever pivoted beneath the table and engaging the plunger at one end and having a dog pivoted on the other end, said dog being adapted to tilt in one direction only, means for moving said table to and from the block, means for reciprocating the carriage whereby the die is moved under the block as the table approaches it and is moved away as the table recedes therefrom, and a tilting dog on said carriage adapted to engage the dog on the lever to actuate the latter when the carriage moves in one direction, and to tilt with the other dog when they engage on the return movement of the carriage.

3. In a machine for flattening top lifts, a block, a table, a carriage movable horizontally on said table, a die mounted on said carriage, a self-retracting plunger carried with said table and under the path of the die, a lever pivoted beneath the table and engaging the plunger at one end and having a dog pivoted on the other end and extending above the pivot of the lever and having a vertical face, means for moving said table to and from the block, means for reciprocating the carriage whereby the die is moved under the block as the table approaches it and is moved away as the table recedes therefrom, and a tilting dog on said carriage adapted to tilt in one direction only and having a vertical face for engaging the vertical face of the other dog for actuating the lever when the carriage moves in one direction, and to tilt with the other dog when they engage on the return movement of the carriage.

4. In a machine for flattening top lifts, a block, a table, a carriage movable horizontally on said table, a die mounted on said carriage, a self-retracting plunger carried with said table and under the path of the die, means for moving said table to and

from the block, means for reciprocating said carriage whereby the die is moved under the block as the table approaches it and is moved away as the table recedes therefrom, 5 a lever pivoted to said table and engaging said plunger, and a dog pivoted to one of the parts last mentioned (the lever or table) adapted to tilt in one direction only and adapted to engage the other said part to move the lever when said carriage is moved 10 in one direction and to tilt when said parts engage on the return movement of said carriage.

ALBERT J. BOLTON.

Witnesses:

H. L. OSGOOD,
C. W. CARROLL.