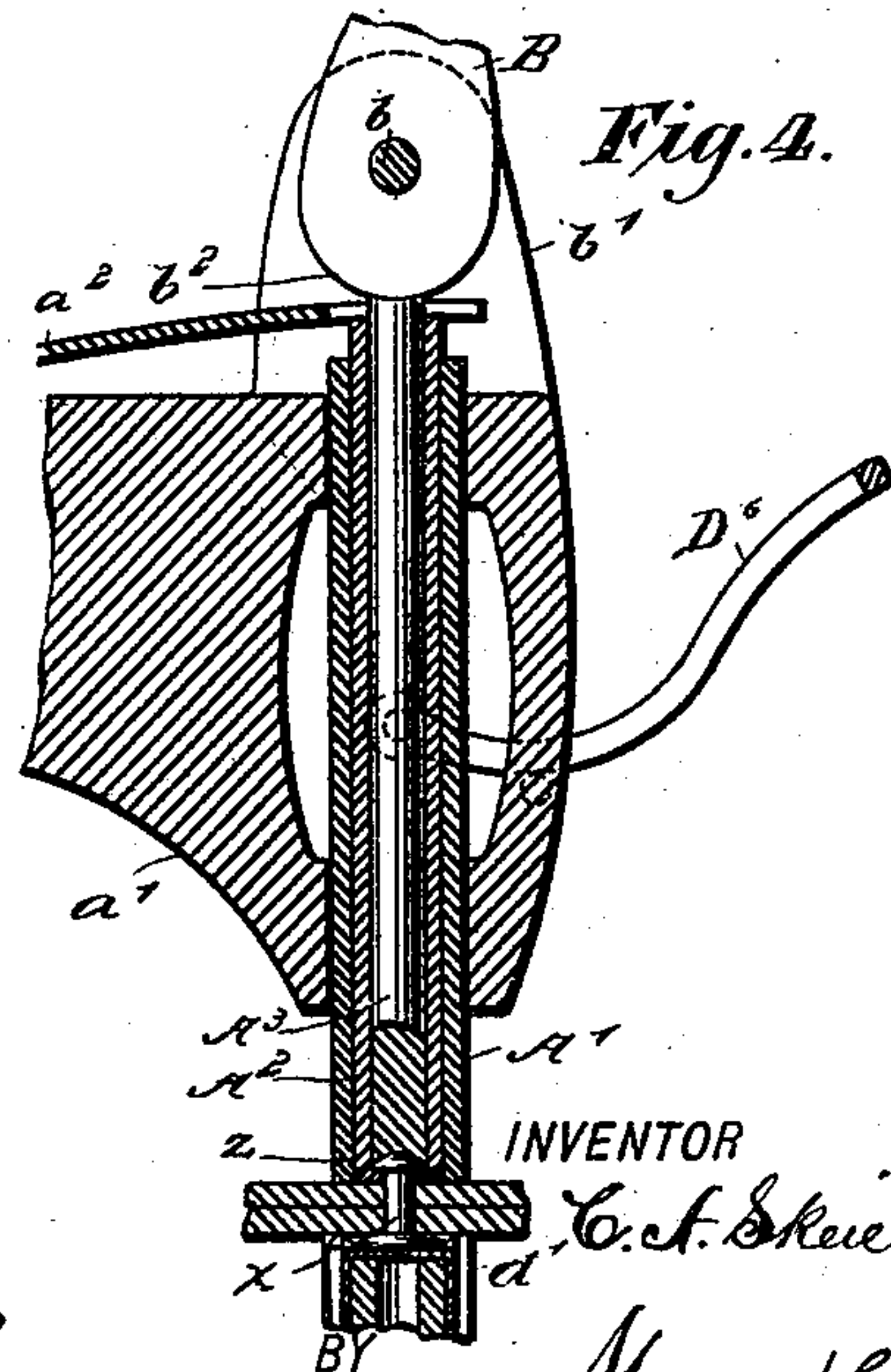
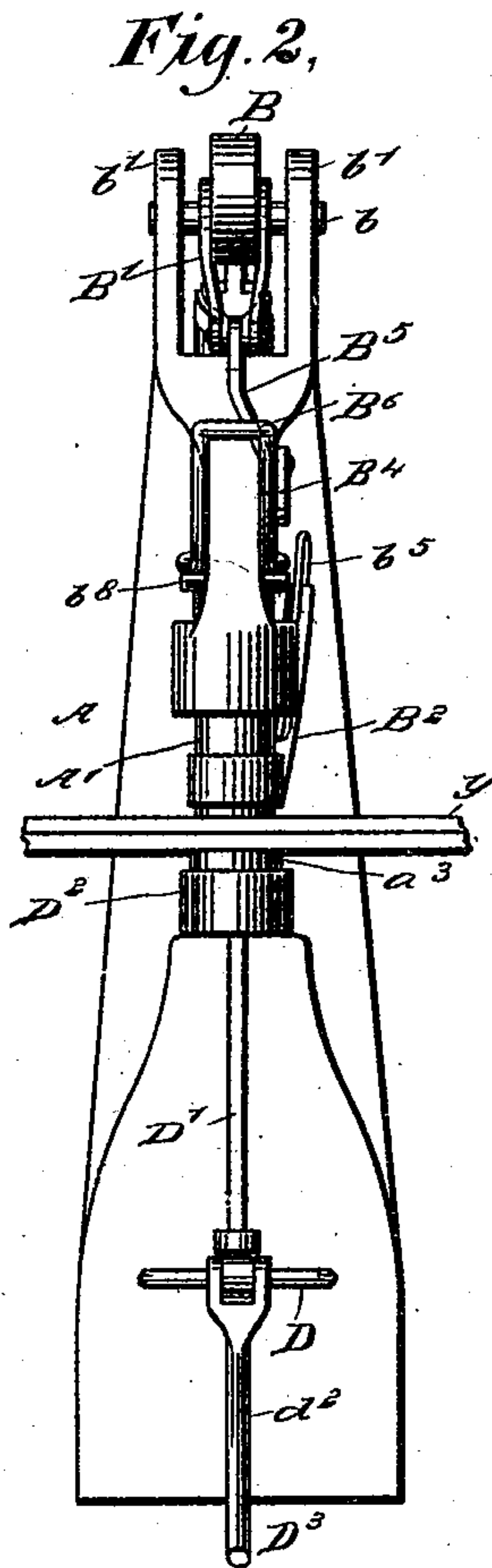


C. A. SKEIE.
RIVETING MACHINE.

Patented Dec. 31, 1895.



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RIVETING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 552,398, dated December 31, 1895.

Application filed May 11, 1895. Serial No. 548,952. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN A. SKEIE, of St. Hilaire, county of Polk, State of Minnesota, have invented certain new and useful
5 Improvements in Riveting-Machines, of which the following is a full, clear, and exact description.

This invention relates to machines for inserting rivets in material and upsetting their
10 ends.

I design particularly to employ the machine in riveting together pieces of leather; but it is to be understood that the machine is adapted for use in connection with other material.

15 The invention consists in a series of plungers or rods adapted to puncture the material, insert the rivet and washer, and upset or head the end of the rivet-shank.

It further consists in the construction and
20 novel arrangement of parts, as will hereinafter appear, and be more particularly pointed out in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification,
25 in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a riveting-machine embodying my invention with a portion of the frame or casing broken away. Fig.
30 2 is a front elevation thereof. Fig. 3 is a sectional elevation of a portion of the machine, and Fig. 4 is a sectional elevation of another portion of the machine.

Referring to the drawings, A designates a
35 frame having a hollow bed portion a and a forwardly-projecting arm a' . The frame is of suitable metal and is designed to be secured to a bench or similar support.

A' is a presser-plunger movable vertically
40 in a vertical opening or openings in the arm a' . The plunger A' is tubular and has movable vertically in it a washer-holding plunger A^2 , which is also tubular, to receive a riveting-plunger A^3 . The upper end of the plunger
45 A^2 extends above the upper end of the plunger A' , and the plunger A^3 extends above the upper end of the plunger A^2 . A spring-plate a^2 attached to the frame A has its bifurcate end loosely surrounding the extended end of the
50 plunger A^3 and bearing upon the upper end of the plunger A^2 . This spring serves to force

the plunger down upon a washer, as will hereinafter appear.

B is a lever pivoted on a pin b extended between lugs b' projected upward from the arm
55 a' . This lever B has a cam end b^2 adapted to bear upon and force the riveting-plunger downward. A bifurcate lever B' has its arms fulcrumed on the pin b at opposite sides of the lever B, and the rear end of this lever B'
60 is extended in the line of movement of the lever B, so that said lever B' may be rocked in one direction by the lever B.

B^2 is a washer-chute communicating with an opening b^3 in the lower portion of the plunger
65 A' . This chute is extended rearward with a slight lateral inclination and is curved upward. The edges are turned upward and inward to form guides for a pusher-plate B^3 . An opening b^4 is formed in the top of the chute
70 through which the washer may be placed in the chute, and a spring-finger b^5 is employed to hold the washer in place in the chute; but this finger will yield sufficiently to allow a washer to be forced from under it by the
75 pusher.

The pusher B^3 has a curve corresponding to the curve of the chute, and at its upper end it is pivotally connected to a lever B^4 , pivoted
80 between its ends on a stud projected through a side opening in the arm a' , from the plunger A' . The forward end of the lever B^4 has a pivoted link connection B^5 with links b^6 , which have pivotal connection with the forward end of the bifurcate lever B' . From the
85 pivot connecting the links $B^5 b^6$ a bifurcate link b^7 extends to a loose connection with the upper end of the plunger A^2 .

B^6 is a lever having two parallel arms fulcrumed respectively on pins b^8 extended from
90 the sides of the arm a' , and at their ends have pivotal connection with the plunger A' .

The base a has an upwardly-extended tubular portion a^3 , within which an anvil C operates in line with the plunger, as hereinbefore described. The lower end of the anvil
95 has a link connection c with a rock-arm C' pivoted in the base a , and the opposite end has a link connection with a rod c' extending to a driving power, (not shown;) but a foot-
100 treadle is intended to be used.

The pivot c^2 connecting the link c to the

anvil C is rigidly connected to the link, and extended through slots or openings c^3 in the sides of the anvil. Spring fingers or plates c^6 extend over the top of the anvil C to close the upper end of the opening; but these fingers or plates may be pushed apart into recesses c^7 in the portion c^3 by the puncturing-tool when it is forced upward.

C^2 is the puncturing-tool or awl movable in a vertical opening or hole in the anvil. The lower end of the puncturing-tool is attached to a yoke-plate c^4 , the two arms of which have pivotal connection with the pivot c^2 . A coiled spring c^5 is interposed between the upper end of the yoke c^4 and the upper wall of an enlarged chamber in the lower portion of the anvil. Obviously, as the pivot c^2 is movable in the slots c^3 , vertical motion may be imparted to the puncturing-tool without imparting motion to the anvil when it is desired to puncture the leather or other material to receive the shank of a rivet.

D is a yoke having its two arms extended through holes in the front wall of the hollow base a and movable longitudinally. Springs d surround the inner ends of the yoke-arms, bearing at one end against the wall of the base a and at the other end against a head on the arms, as plainly shown in the drawings.

A rivet-pusher finger D' has its lower end rigidly secured to the yoke D, and its upper end extended through a slot opening in the bottom of a rivet-tray D^2 , extended forward from the upper portion of the tubular portion a^3 .

The tray communicates with the interior of the tubular portion a^3 through an inverted-T-shaped opening d' in the front wall of the said tubular portion. It will be understood that the head of the rivet x passes through the horizontal opening and the shank through the vertical portion of said opening.

An angle or cam lever D^3 has pivotal connection with the yoke D, and its angle portion d^2 is designed to contact with the casing A, as clearly shown in the drawings.

A stop-pin D^4 is mounted on the pusher-finger D' , and its free end projects through a vertical slot in the casing or frame A and is adapted to enter between the upper end of the link c and the inner face of the yoke-plate c^4 or to bear against shoulders d^3 of the bifurcate end of the anvil, as shown in dotted line in Fig. 1. The stop-pin has a loose connection with the finger D' , so that it may move longitudinally thereof.

A spring d^4 , affixed at one end to the frame A and at its other coiled end to the rock-arm C' , serves to rock the forward end of the arm downward.

The operation of the machine is as follows: First press the lever D^3 downward, as indicated in full lines in the drawings, which will place the parts D' D^4 in the position shown in Fig. 3, then place the rivet in the tray D^2 , and then operate the foot-treadle to force the anvil

C to the position shown in Fig. 3. Now the plunger A' is to be raised by means of the lever B^6 and the work y placed in position and the plunger allowed to return to bear upon the work. By rocking the lever B' in the direction of the arrow 1, Fig. 1, the washer z will be pushed to the interior of the plunger A' and upon the work. The parts being in this position the treadle is operated to force the puncturing-tool through the material, and after the puncturing the anvil and puncturing-tool return downward to the position shown in Fig. 1. The angle-lever D^3 is now released, which allows the finger D' to move inward to force the rivet into position, and at the same time the stop-pin D^4 is pushed into position. The anvil is then pushed upward to force the shank of the rivet through the perforation in the material y and through the washer. Next the levers B B' are moved in the direction of the arrow 2, Fig. 1, which will allow the plunger A^2 to descend under the influence of the spring a^2 to bear upon the washer. By a continued movement of the lever B in the direction of the arrow 2, its cam-shaped end will force the riveting-plunger down upon and upset the end of the rivet, as indicated in Fig. 4.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a riveting machine, the combination with a riveting plunger, of a vertically movable tubular anvil, a puncturing tool movable longitudinally therein, mechanism for moving the tool independently of the anvil, and means comprising a pin movable between the lower portion of the puncturing tool and the part for moving the anvil for causing the said puncturing tool and anvil to move together, substantially as specified.

2. In a riveting machine, the combination with a riveting plunger, and a frame having a tubular portion in line with the plunger, of a tubular anvil movable vertically in said tubular portion, a puncturing tool in said anvil and movable relatively thereof and also movable therewith, a rivet tray communicating with the tubular portion of the frame, a pusher finger extended into the tray, and a stop carried by the finger for connecting the anvil and puncturing tool, substantially as specified.

3. The combination with the anvil, mechanism for operating the same, and the rivet tray, of the yoke having its arms extended through openings in the base of the machine, the springs surrounding the arms, the rivet pusher finger rigidly connected thereto, and a cam lever for drawing the yoke outward, substantially as specified.

4. The combination with a tubular anvil, a puncturing tool movable with and also independently of the anvil, and a rivet tray, of the spring-impelled yoke, the pusher finger connected thereto, the cam lever pivotally

connected to the yoke, and the stop pin carried by the pusher for engaging the anvil with the puncturing tool, substantially as specified.

5 The combination with a riveting plunger, of the vertically movable tubular anvil, a rock arm, a link having a pivotal connection with the rock arm and a pivotal lost motion connection with the anvil, the puncturing tool in the anvil and carried by the pivot connecting
10 the link and anvil, and a stop pin movable between the link and puncturing tool for causing a connected movement of the puncturing tool and anvil, substantially as specified.

6. In a riveting machine, the combination
15 with an anvil, of a vertically movable presser plunger, a riveting plunger within the presser plunger, a pivoted lever for forcing the riveting plunger downward, a washer chute mounted on and communicating with the interior of
20 the presser plunger, a pusher operating in said chute, a lever fulcrumed on the pivots of the pivoted lever, and link and lever connections between the said fulcrumed lever and the pusher in the chute, substantially as specified.

25 7. In a riveting machine, the combination with an anvil, of a tubular presser plunger, a washer chute carried thereby and communi-

cating with the interior thereof, a lever fulcrumed on pins and having pivotal connection with the presser plunger for raising the same, 30 a pusher in said chute, a spring finger for holding a washer in place in the chute, the riveting plunger within the presser plunger, and a cam lever for forcing the riveting plunger downward, the said cam lever also 35 serving to operate the pusher in the washer chute, substantially as specified.

8. In a riveting machine, the combination with an anvil, of the tubular presser plunger, a lever for lifting the plunger, a chute carried 40 by and leading to the interior of the plunger, a pusher for operating therein, a spring finger for holding a washer in place in the chute, a washer-holding plunger in the presser plunger, a riveting plunger in the holding plunger, 45 a cam lever for operating the riveting plunger, and a lever operated by the cam lever and having connections for operating the washer pusher, substantially as specified.

CHRISTIAN A. SKEIE.

Witnesses:

ANDREW S. HALL,
JAMES MOODY.