

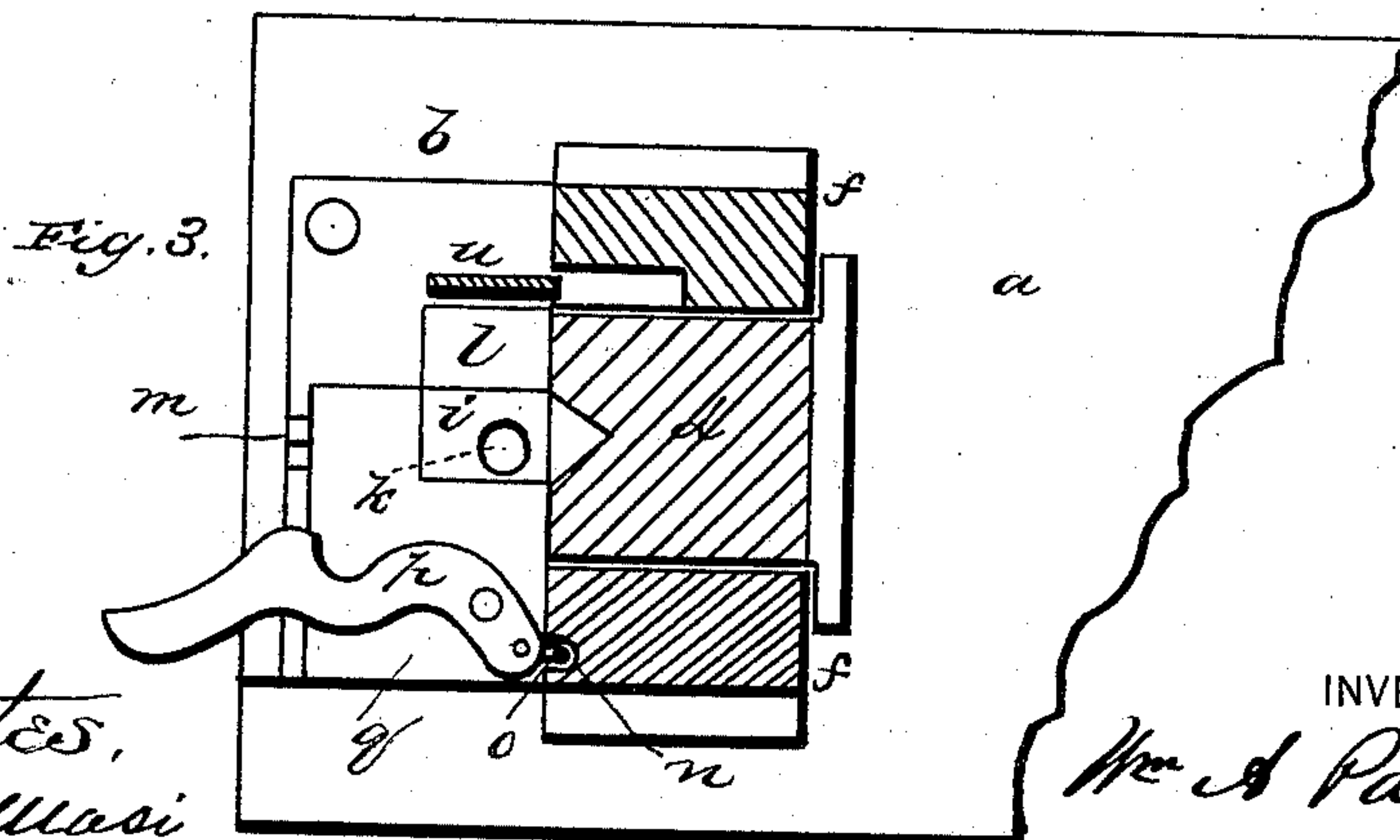
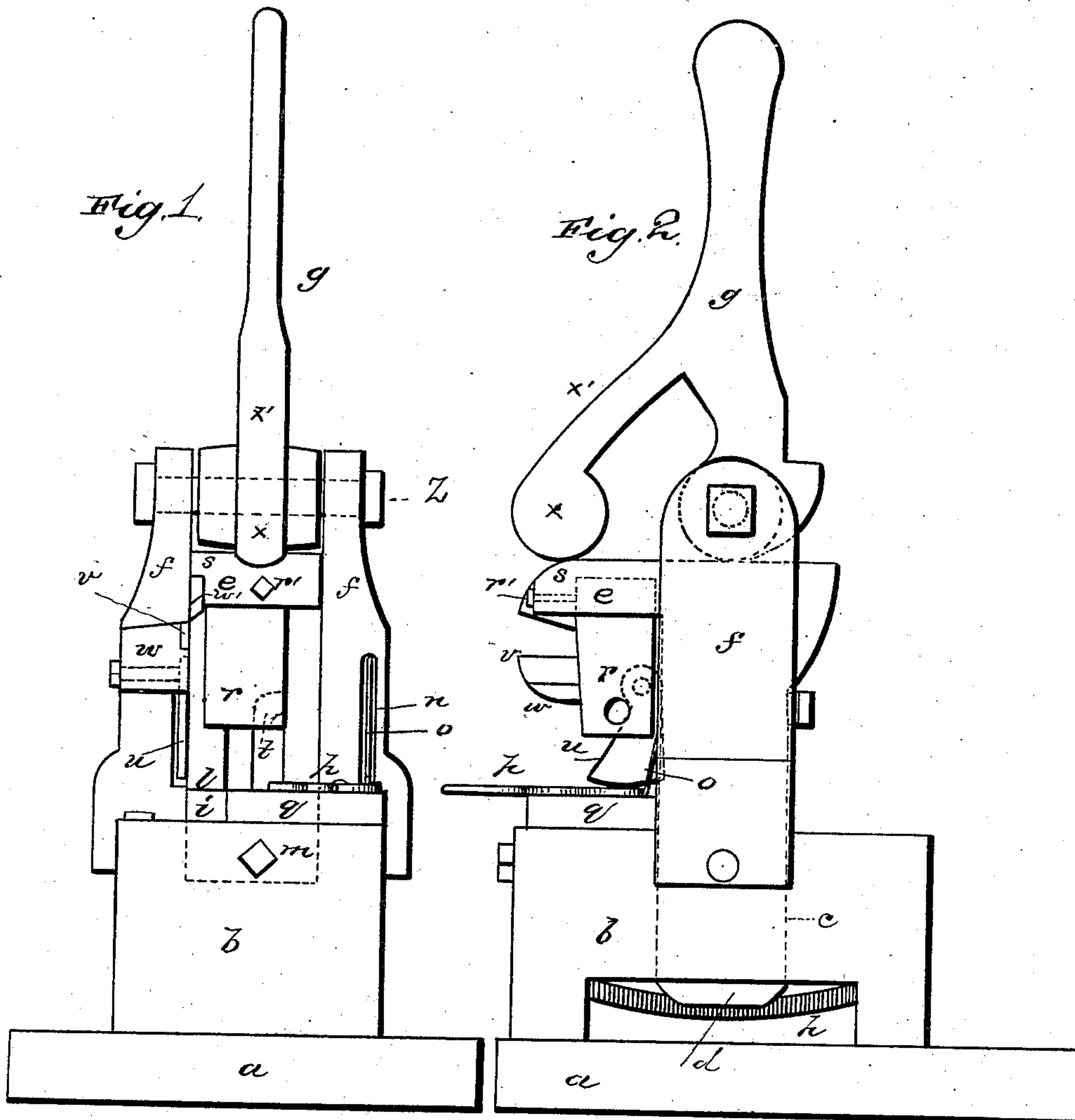
(No Model.)

W. A. PALMER.

SHEARING, PUNCHING, AND RIVETING MACHINE.

No. 284,054.

Patented Aug. 28, 1883.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

WILLIAM A. PALMER, OF ROME, GEORGIA.

## SHEARING, PUNCHING, AND RIVETING MACHINE.

SPECIFICATION forming part of Letters Patent No. 284,054, dated August 28, 1883.

Application filed April 9, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. PALMER, a citizen of the United States, residing at Rome, in the county of Floyd and State of Georgia, have invented certain new and useful Improvements in Shearing, Punching, and Riveting Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a front view of my machine. Fig. 2 is a side view, and Fig. 3 is a horizontal sectional view, of the same.

This invention has relation to machines for shearing, punching, and riveting bale-ties, iron hoops, and the like; and it consists in the construction and novel arrangement of devices hereinafter fully described, and particularly pointed out in the claims appended.

The main object of the invention is to cause the rivet itself to form the punch, which is effected by providing the lower die with a seat to hold the head of the rivet in position, and in providing the female die, which also constitutes the hammer, with an exit for the escape of the metal displaced by the rivet during the operation of punching the metal. The shearing mechanism and the arrangement for feeding the rivets to the seat in the lower die are also of great importance, and reference will now be made by letter to the drawings, in order that those skilled in the art to which the invention pertains may be enabled to construct and use the same.

*a* designates the table, bench, or other foundation upon which the machine is mounted, and this may be constructed in any convenient manner.

*b* designates the base of the machine, preferably rectangular in form, and of cast or wrought iron, having a central rectangular vertical slot, *c*, through which the shank or stem *d* of the female-die carrier *e* works vertically between standards *f f*, secured to or rising from the base *b*, and between which standards is pivoted the weighted cam-lever *g*. Below the shank *d* a spring, *h*, is placed, which

is intended to return the shank *d* and its adjuncts to their normal position after operating the cam-lever to shear or punch the metal to form the ties or hoops. The male die *i* is secured to the top of the base, as shown, and is provided near one end with a recess or seat, *k*, in its face for the reception of the head of the rivet. The plain portion *l* of this male die *i* is to be used as an anvil to upset the rivet after it has been used to punch the holes through the ends of the overlapped pieces to be united. This die *i* is removable, and is held in its seat by a set-screw, *m*, so that when worn out by use it may be readily replaced by a new one. One of the arms *f* is provided with a vertical recess, *n*, in which a spring, *o*, connected at its lower end to a pivoted lever, *p*, is secured, to return the said lever *p*, which is designed, to feed the rivets to the seat in the male die *i*, to its normal position. The rivets are to be placed by hand on the table or plate *q*, (secured to the base,) in front of the lever *p*, (which is pivoted to said table *q*,) and moved thence by the lever *p* into the recess or seat *k* in the die *i*.

The female die *r* is detachably connected by a set-screw, *r'*, to the head *s* of the die-carrier *e*. This die *r*, as well as the die *i*, is of steel, and the latter one, *r*, is provided with a vertical recess, *t*, conforming to the shape of the shank of the rivet, and a curved opening or exit leading out therefrom at one side of the die *r*, through which the metal displaced by the rivet escapes, and thereby keeps the female die always in condition automatically. The face of the female die extends over the anvil portion of the male die, so that by operating the lever the rivet, after it has punched the lapped straps to be connected, can be shifted and the rivet upset. Between the arm *f*, opposite the one provided with the spring for controlling the feed-lever, and the shank *d* is pivoted a vertical keeper, *u*, for holding the metal strips in place while being punched and riveted, said keeper swinging automatically to place after the lapped metal strips have been placed above the male die or upon the rivet.

The shearing mechanism is quite simple and easily operated. One of the blades, *v*, is secured to the inner face of an arm, *w*, connected



to one of the standards *f*, and the other blade is secured in a recess, *w'*, made in the vertical face of the head *s* of the die-carrier next to the standard to which the arm *w* is secured. This arm *w* is located near to the head *s* when the latter is in its normal position, and consequently but a small stroke of the cam-lever is required to shear the straps.

The cam-lever *g* is pivoted between the up- rights *f*, near their upper ends, by means of a transverse bolt, *z*, and is provided with a weight, *x*, at the end of an arm, *x'*, whereby it is located eccentrically to the fulcrum of the lever *g*, and thereby assists the operator in elevating the female die. It is of course obvious that two persons are required to manipulate the machine—one to feed the metal strips and rivets to the dies and one to operate the cam-lever. The fact, however, that no previous punching of the metal is required before the insertion of the rivets, is of sufficient importance, aside from the fact that a simple shifting of the strips and inserted rivet enables the rivet to be upset, and the tie or hoop to be connected at the lap and thus completed.

The rivets may be fed to the seat in the male die by hand; but the use of the feed-lever is preferable on account of its certainty and rapidity.

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

1. The herein-described process of punching and riveting lapped metal strips, consisting of first inserting the rivet by seating it in a recess in a lower die, then placing the strips to be punched upon the point of the rivet and forcing a female die down upon the strips to cause the rivet to penetrate the metal, and then

shifting the strips and rivet horizontally to the anvil of the male die, and then upsetting the rivet by a hammer forming a part of the female die, substantially as specified.

2. In a punching and riveting machine, a pivoted swinging keeper placed above the anvil and at the side of the hammer, for holding the metal upon the anvil or the rivet-point, substantially as specified.

3. The combination, with the male die provided with the recess for seating the rivet, and the anvil for receiving the same during operation, of the feed-lever *p*, pivoted to the table or plate *q*, and the spring *o*, seated in the recess *n* of one of the uprights *f*, substantially as specified.

4. The metal shearing, punching, and riveting machine herein described, consisting of the base *b*, provided with a central rectangular opening, and uprights or standards *f f*, the spring *h* beneath said opening, the removable dies *i* and *r*, operating-lever *g*, arm *w* and head *s*, carrying cutters *r'* and *v*, the swinging keeper *u*, and anvil *l*, all constructed, combined, and adapted to operate substantially as specified.

5. The combination, with a lower die having a recess to seat a rivet-head, of an upper die and mechanism to cause the same to be brought down forcibly upon the metal strips, to cause the rivet to punch its own way through the lapped ends or edges thereof that are to be riveted together, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

WM. A. PALMER.

Witnesses:

THEO. MUNGEN,  
PHILIP C. MASI.