

W. GOLDIE, JR.
 APPARATUS FOR MAKING TIE PLATES.
 APPLICATION FILED NOV. 12, 1908.

968,148.

Patented Aug. 23, 1910.

2 SHEETS—SHEET 1.

FIG. 2

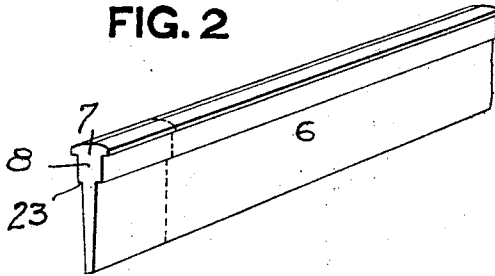


FIG. 1

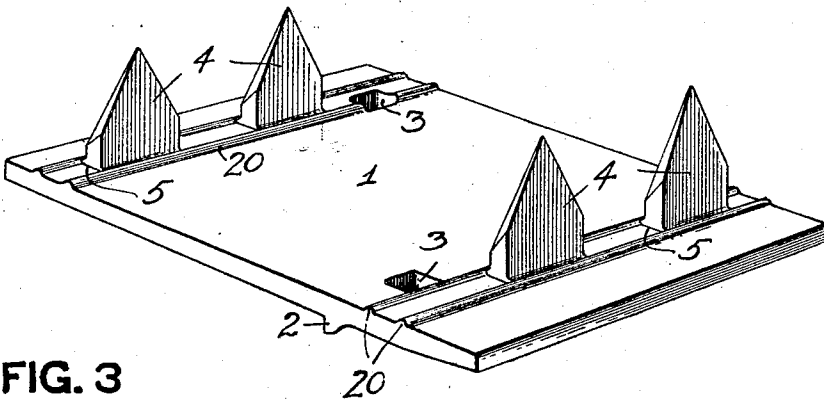


FIG. 3

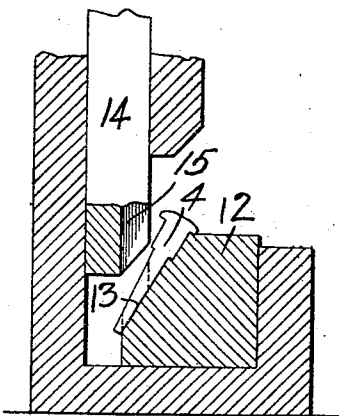
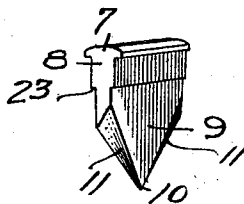


FIG. 4

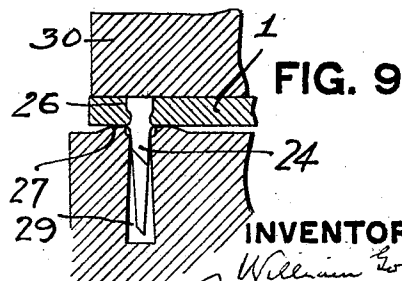
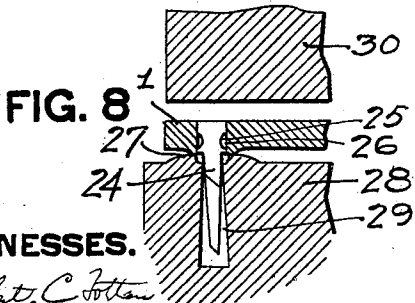
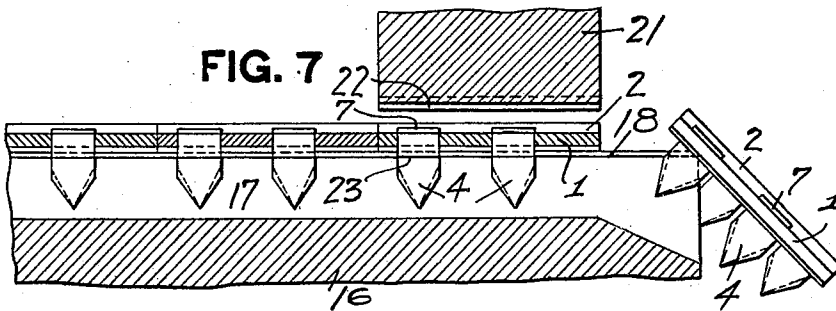
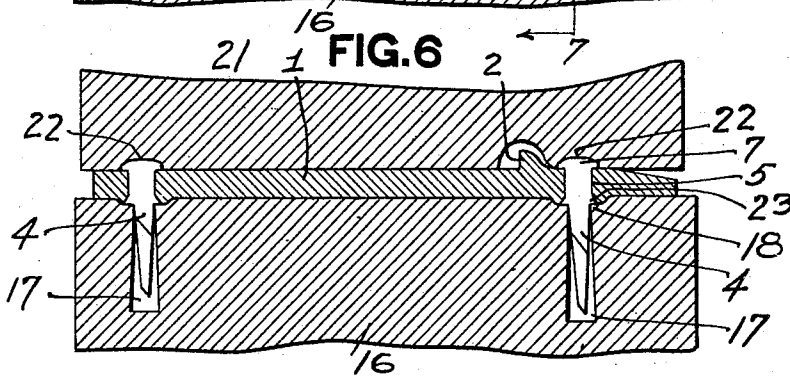
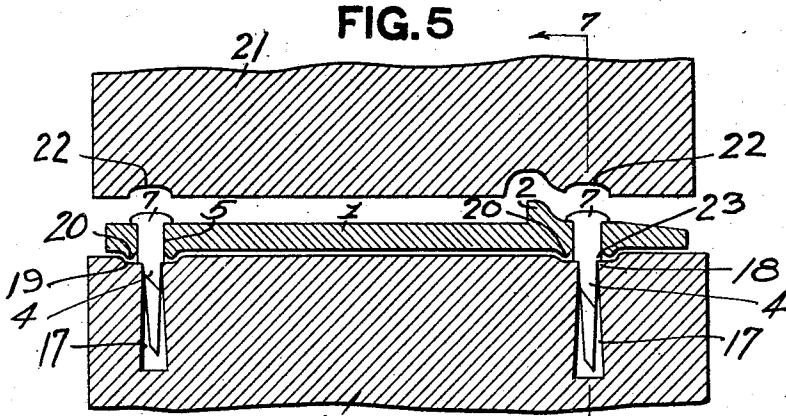


WITNESSES.

Robert C. Fother
 J. R. Keller

INVENTOR.

William Goldie
 By Kay & Fother
 Attorneys



WITNESSES.

Robert C. Cotton
J. R. Keller

INVENTOR.

William Goldie
Ray & Cotton
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM GOLDIE, JR., OF BAY CITY, MICHIGAN.

APPARATUS FOR MAKING TIE-PLATES.

968,148.

Specification of Letters Patent. Patented Aug. 23, 1910.

Application filed November 12, 1908. Serial No. 462,299.

To all whom it may concern:

Be it known that I, WILLIAM GOLDIE, JR., a resident of Bay City, in the county of Bay and State of Michigan, have invented a new and useful Improvement in Apparatus for Making Tie-Plates; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to the manufacture of tie plates, its object being to provide apparatus which will produce a plate having claws on its lower surface in a cheap and easy manner.

It is especially adapted to make plates of a nature described in an application for Letters Patent filed by me, Serial No. 404,933, and by the method described in application filed by me, Serial No. 404,932.

To these ends my invention consists, generally stated, in an anvil die having a groove formed therein to receive the claws, and a reciprocating riveting die above the same to rivet the claws as the plate passes longitudinally over the anvil die.

It also consists in certain other improvements hereinafter described.

In the accompanying drawings Figure 1 is a perspective view of a complete tie plate of the nature to manufacture which my invention is primarily intended; Fig. 2 is a perspective view showing the bar from which the claws are formed; Fig. 3 is a view partly in section showing the apparatus for sharpening the claws cut from the bars of Fig. 2; Fig. 4 shows a finished claw; Fig. 5 is a sectional view showing the riveting mechanism with the riveting die raised; Fig. 6 is a like view with the riveting die lowered; Fig. 7 is a longitudinal section on the line 7-7, Fig. 5; and Figs. 8 and 9 illustrate modifications of the die to be used where a different form of claw is desired.

My invention is devised especially to manufacture claw tie plates of the kind shown and covered by said application Serial No. 404,933. It is not specifically limited to their production, however, as it covers all uses to which it may be put. These tie plates have the main body portion 1 with the shoulders 2, spike holes 3 and the claws 4, which claws, as illustrated, are formed separate and secured within slots 5 formed in the body of the tie plate by riveting the claws and plate together, such plates being described in detail in my said applica-

tion. The body portion of these claw plates are formed by suitable rolling, shearing and punching operations which form no part of my present invention. The claws 4 are first sheared from the claw bar 6, as illustrated in Fig. 2. These claws have the head portion 7, the relatively thick body portion 8 of a depth slightly greater than the thickness of the plate, and the thinner claw portion 9. The claws have V-shaped points with the inclined faces 11. To produce this sharpened claw from the form sheared from the claw bar I provide the apparatus illustrated in Fig. 3. This comprises the inclined anvil die 12 having the shearing edges 13 and the reciprocating riveting die 14 with the V-shaped shearing recess 15. This apparatus when operated shears obliquely through the claw blank shown in Fig. 4, and forms the point 10 and inclined faces 11 of the finished claw. The body portion 8 of the claw is left deeper than the thickness of the body portion 1 of the tie plate. The apparatus illustrated in Figs. 5 to 9, forming the subject matter of this application, is designed to rivet such claws firmly and securely into the tie plate. It consists in the anvil die 16 having the grooves 17 therein. These grooves extend the full width of the anvil die, as shown in Fig. 7, so that the tie plates may be fed along such die and ejected therefrom after the riveting operation. The grooves 17 are slightly deeper than the claw portions 9 of the claws and have the shoulder portions 18 fitting closely against the shoulders 23 on the claws formed by the extension of the head portion 7 of the claws below the bottom of the plate when inserted in the slots 5 therein. As illustrated, the anvil die has also the longitudinal depressions 19 which serve to receive the shallow flanges 20 which extend across this tie plate inclosing the slots 5 therein. The reciprocating die 21 is provided with longitudinal recesses 22 corresponding in shape to the heads 7 of the claws. This riveting head has a stroke adapted to force down the claws and upset the shoulders 23 of the claw body by means of its shoulder 18 at the top of the groove 17 and so secure the claws rigidly to the plates. As illustrated in Fig. 7 it will be seen that the anvil die 16 is of much greater width than the riveting head 21, and so constructed as to support several plates for riveting. After the insertion of the claws in the tie plates the plates carrying the same

may be fed longitudinally under the reciprocating head, passing under the reciprocating head 21 and the claws traveling within the grooves 17 of the anvil. Under the stroke of the reciprocating head these claws are riveted within the tie plates by the spreading of the lower shoulder portions 23 at the base of the body portions 8 of the claws. This riveting operation can be carried on rapidly by pushing the plates successively over the anvil die 16, with their claw portions traveling within the grooves 17, the reciprocating head performing the riveting operation no matter what the position of the tie plate may be upon the anvil and the plates being simply pushed off the anvil at the opposite end, dropping off the machine in finished condition.

Substantially the same riveting means may be employed, no matter what may be the shape of the claw or the character of the riveting. For example, in Figs. 8 and 9, the claw 24 is provided with side recesses 25 formed in its thick body portion; and to hold it in place the lower edges of the slots 26 through which the claw projects can, by a like riveting means, such as by the ribs 27 formed on the top face of the anvil 28 on each side and above the groove 29 receiving the pronged portion of the claw, by the stroke of the reciprocating head 30 be forced into said recesses and so rivet the claws in their slots.

This apparatus is simple and inexpensive in construction and effective in operation, as by the use of suitable feeding means the tie plates may be fed continuously thereto with the claws loosely inserted in the slots and taken therefrom in finished condition at the other end of the anvil. The waste of

metal which has heretofore occurred where claws were formed from integral flanges rolled on the bar and then sheared out is entirely obviated. Besides, longer claws may be employed and they may be located in any part of the plate and at any stagger on the plate, and with their inclined faces in either direction, which was impossible under the old method because the sharpening could not be done unless the claws were located very close to the edge and could only be done inwardly.

What I claim is:

1. In apparatus for forming claw tie plates, the combination of an anvil die, and a reciprocating riveting die, one of said dies having a groove formed therein to receive the claw, said groove having a riveting shoulder at its outer end.

2. In apparatus for forming claw tie plates, the combination of an anvil die having a groove extending across the same and a reciprocating riveting die above the same, said reciprocating die having a heading recess extending across in its lower face.

3. In apparatus for forming claw tie plates, the combination of an anvil die having a groove extending across its face to receive the claw, and a reciprocating riveting die above the same, the anvil die being made of greater width than the width of the reciprocating die to provide for the longitudinal feed of the tie plates along the anvil die and under the reciprocating die.

In testimony whereof, I the said WILLIAM GOLDIE, Jr., have hereunto set my hand.

WILLIAM GOLDIE, JR.

Witnesses:

W. A. WRIGHT,
HERMAN BENEMAN.