

(No Model.)

3 Sheets—Sheet 1.

M. E. ELLIOTT.
DIE FOR MAKING CLAW BARS.

No. 465,627.

Patented Dec. 22, 1891.

Fig.1.

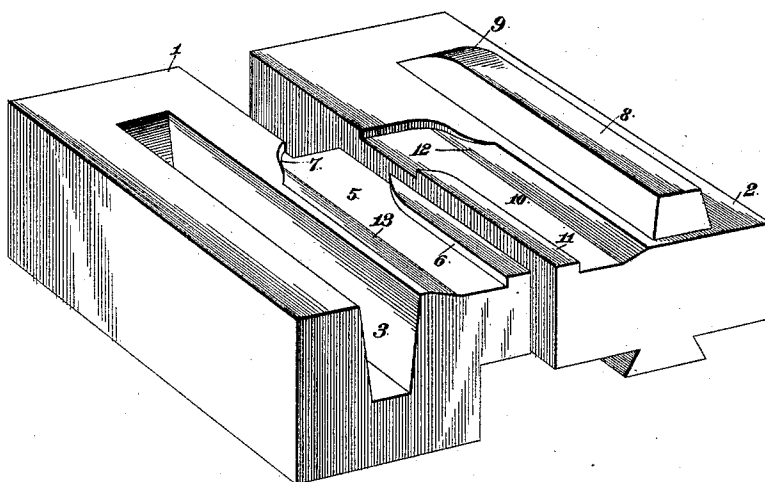


Fig.2.

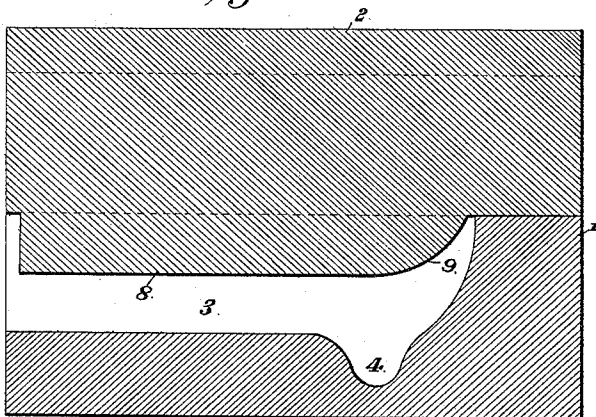


Fig.3.

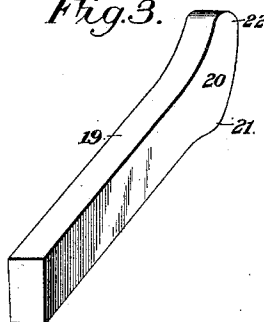
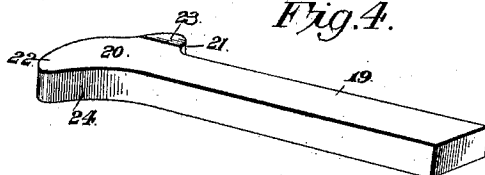


Fig.4.



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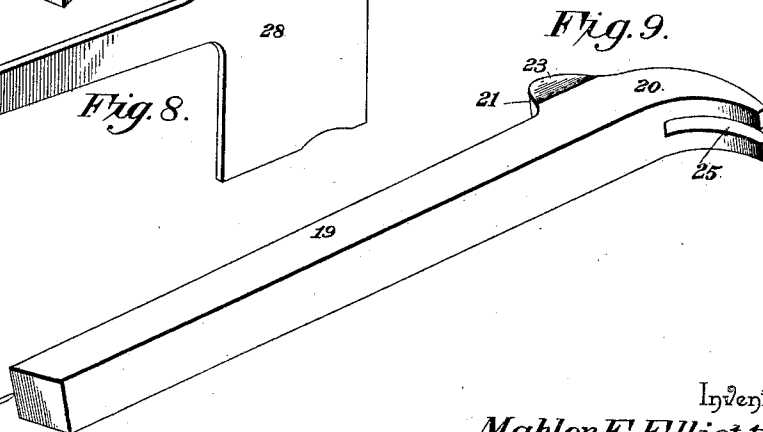
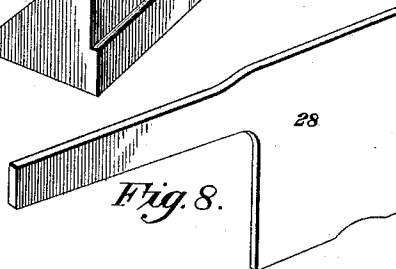
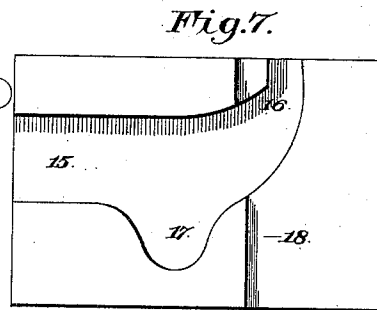
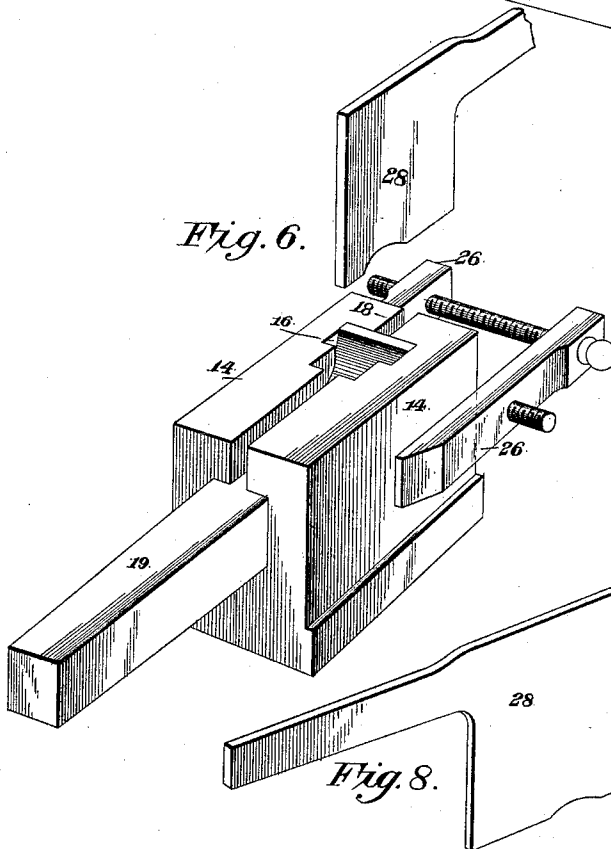
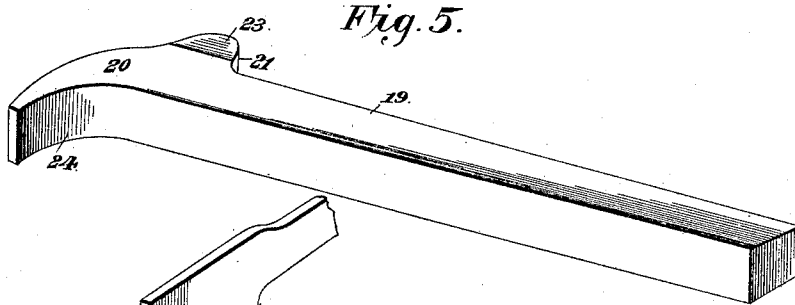
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Fig. 10.

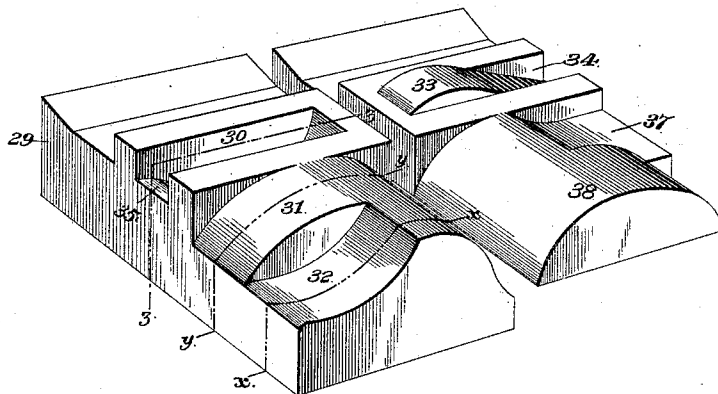


Fig. 11.

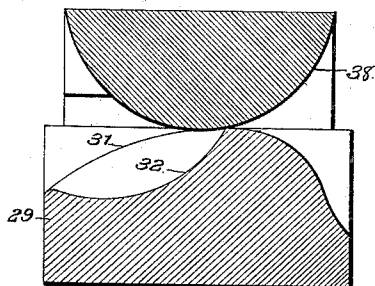


Fig. 12.

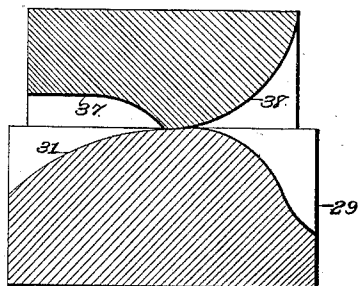
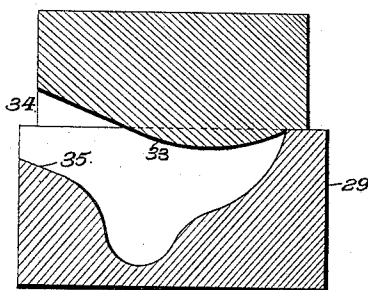


Fig. 13.



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UNITED STATES PATENT OFFICE.

MAHLON ERSKINE ELLIOTT, OF CUMBERLAND, MARYLAND, ASSIGNOR OF TWO-THIRDS TO THOMAS A. HICKS AND WILLIAM C. DICKEY, OF PHILADELPHIA, PENNSYLVANIA.

DIE FOR MAKING CLAW-BARS.

SPECIFICATION forming part of Letters Patent No. 465,627, dated December 22, 1891.

Application filed January 22, 1891. Serial No. 378,699. (No model.)

To all whom it may concern:

Be it known that I, MAHLON ERSKINE ELLIOTT, a citizen of the United States, residing at Cumberland, in the county of Allegany and State of Maryland, have invented a new and useful Machine for Making Claw-Bars, of which the following is a specification.

This invention relates to a machine for molding claw-bars.

Heretofore claw-bars for drawing railroad-spikes have been forged by hand, whereby their production was attended with considerable tedious work and consequent expense.

By my invention I propose to form claw-bars by machinery constructed in a cheap and simple manner, thereby lessening the cost of the claw-bar and increasing the production without in the least impairing their general efficiency and durability.

With the above and other objects in view the invention consists in certain features of construction hereinafter specified, and particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective of a male and female die constructed in accordance with my invention and adapted to form a claw-bar, with the exception of the claw thereof. Fig. 2 is a longitudinal section of the die, the same being closed. Fig. 3 is a detail in plan of the blank previous to submitting the same to the action of the die. Fig. 4 is a similar view of the blank after the first step. Fig. 5 is a similar view after the second step, or after it has been submitted to the die. Fig. 6 is a perspective of the bar-clamps for holding the same while the claw is formed. Fig. 7 is an inner face view of one of the clamps. Fig. 8 is a view in perspective of the punch for forming the claw. Fig. 9 is a perspective in detail of the completed claw-bar. Fig. 10 is a perspective view of a male and female die, the same being opened and of a modified construction. Fig. 11 is a section view on the line *xx* of Fig. 10. Fig. 12 is a similar section on the line *yy* of said figure. Fig. 13 is a similar view on the line *zz* of Fig. 10.

Like numerals of reference indicate like parts in all the figures of the drawings.

Referring to Fig. 1, 1 designates the female

die, and 2 the male die, and the same are substantially oblong, and the former die is provided with a longitudinally-disposed recess or die-opening consisting of a shallow portion 3, rectangular in cross-section, which recess merges at its inner end into a deepened substantially V-shaped portion 4. At one side of the recess 3 is formed a shallow depression or recess 5, the outer wall 6 of which is at a right angle to the bottom of the depression, while the inner wall is inclined toward the inner edge of the recess 3. The recess 5 is open at both ends and at its rear end has a curved inner end wall 7. If desired, the die-recess 5 may be formed in a separate die from that containing the recesses 3 and 4, and the same are merely formed in the present die.

The male die 2 (illustrated in Fig. 1) is provided with a projection 8, of a width adapting the same to close within the recess 3 and of a depth whereby it about half fills said recess. The inner end of the enlargement 8 is rounded or beveled, as at 9, and at its extremity meets the edge of the depression 4. In this instance at one side of the enlargement 8 there is formed in the inner face of the die 2 a depression 10, having an outer straight wall 11—that is, at a right angle to the bottom of the depression—and having its inner wall inclined, as at 12, to correspond with the inner inclined wall 13 of the recess or depression 5.

Referring to Fig. 6, 14 designates a pair of clamping blocks or dies, which are similar in construction and facial contour. Upon the inner faces said dies are provided with recesses or depressions corresponding to the general shape of an ordinary claw-bar—that is, having the shank-receiving recess 15 merging into the well-known foot, consisting of the toe 16 and the heel 17, the latter having its bottom inclined. In front of the heel portion of the recess the dies or clamps have corresponding portions of their inner faces removed, forming a vertical slot 18 between the faces of the dies or clamps.

In Fig. 3 I have illustrated the blank from which the claw-bar is formed, and the same is simply an ingot, one end of which is spread laterally, inclined, and having its extremity

slightly drawn out. In this figure 19 designates the ingot, which has been drawn out or upset to form the foot 20, having the heel portion 21 and the toe 22, which latter is reduced toward its extremity, as is evident. The blank thus approximating the shape of the completed claw-bar is of a uniform thickness at its shank, toe, and heel portions, and for the purpose of reducing the latter portions at opposite sides, as shown in Fig. 4 at 23, the same is placed in the recess 5 of the female die 1 and the male die mounted thereover and the two subjected to the action of a steam or other impelled hammer. Such action reduces the heel of the blank, and by the peculiar configuration of the die-recesses gives the blank the shape shown in Fig. 4. The now partially-formed claw-bar is withdrawn from the recess 5 and placed edgewise into the recesses 3 and 4 of the female die, after which the male die is replaced upon the female die and the two again submitted to the action of the steam or other impelled hammer. The curvature of the recess 4 at its inner end gives the curvature 24 to the claw-bar, as illustrated in Fig. 5, and in fact completes said claw-bar, with the exception of forming the slot 25. (Shown in Fig. 9.) Heretofore this slot has been formed by drilling a hole in the toe of the bar and then cutting the metal away from the hole to the extremity of the toe. A variety of ways may be devised for forming this slot, all of which I consider within the scope of my invention, and I will now proceed to describe one way which experience has taught me to be both expeditious and effective.

Reference is now had to the clamping-dies. (Illustrated in Figs. 6 and 7.) These dies, as heretofore described, have facial depressions that exactly agree with the contour of the completed claw-bar, and into these depressions the now nearly completed claw-bar is introduced, and the die is closed and placed between two clamping-jaws 26, whereby the dies and the claw-bar may be held immovable. By reason of the slot or opening 18, formed in the inner faces of the clamping-dies, the toe portion of the claw-bar extends thereinto. Any suitable punch—for instance, the punch 28 (illustrated in Fig. 8)—may be introduced into the slot and the clamp passed under the hammer, whereby it is driven through the toe to form the claw 25 for engaging the spikes. By this means I provide a system of dies which will readily and rapidly form claw-bars of the ordinary shape and heretofore tediously formed by hand and hammered to shape.

It will be evident that other constructions of dies may be substituted for the one herein shown, and I have herein illustrated and will proceed to describe one form of die that may be devised.

In the substituted device I employ the two dies, both male and female, the latter designated as 29, having the depression or recess 30 formed upon its inner face and correspond-

ing to the claw portion of the completed article. At one side of the same there is provided a curved face 31, extending from about the longitudinal center of the die to the edge of the same and corresponding to the inner curved portion of the claw-bar. At one side of the curved face 31 is a curved depression 32, also extending from the longitudinal center of the female die to the outer edge of the same and corresponding to the under or outer curved face of the foot of the claw-bar.

The male die is provided with a depending curved enlargement or face 33 and in rear of the same with a recess 34, cut into the face of the die, the latter corresponding with the inclined wall 35 of the recess 30 and the depending curved portion 33 corresponding with the upper curved portion of the toe of the claw-bar.

At one side of the die portions 33 and 34 and opposite the curved face 31, which forms or partially forms the inner curved part of the toe, there is formed in the male die a curved sheet or face 37, which somewhat approximates the under side of the foot of the claw-bar. At one side of the face 37 is a convexed rounded face 38, which combines with the concaved face 32 to form the toe portion of the foot of the claw.

The convexed and concaved faces 31 and 37 first receive the blank, which is of the same form as submitted to the die first described. Here the toe is partially shaped or the metal slightly reduced, and after such operation the blank is removed, inverted, and placed between the concaved and convexed faces 32 and 38, respectively, where it is still further reduced. After this operation the now partially-formed claw-bar is introduced into the recess 30 and the die is again closed. The dies are now submitted to the action of a steam or other impelled hammer and the claw-bar completed, with the exception of the formation of the slot, which may be produced in the heretofore-described manner or by other punching means.

By the employment of the clamping-dies the metal at the toe of the claw-bar is prevented from spreading at the time of punching.

It will of course be understood that claw-bars consisting of simply the bifurcated foot, minus the heel and the shank, may be formed by simply omitting the deepened portion of the recess in the female die. (Shown in Fig. 1.)

Having described my invention, what I claim is—

1. The combination, with the female die having a recess corresponding to the foot and shank of a claw-bar, of a male die having a projection on its inner face, extending into the shank-forming recess of the female die and having its end terminating close to the inner end of the foot-forming recess of the female die, substantially as specified.

2. The combination, with the female die having a recess approximating the shape of a claw-bar, of a male die having a similar re-

cess, the rear walls of said die being inclined, as shown at 13 and 12, substantially as specified.

5 3. The combination of the male and female dies having the recesses 5 and 10, the outer walls of which are inclined, the female die 1 having the recesses 3 and 4 and the male die 2 having the facial projection 8, partially filling the recess 3 and having its inner end

rounded and terminating at the end of the recess 4, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

MAHLON ERSKINE ELLIOTT.

Witnesses:

W. PEARRE,
ZACK LANEY.