No. 641,190. Patented Jan. 9, 1900.

F. CANFIELD.

APPARATUS FOR MANUFACTURING FASTENING CLIPS.

(Application filed June 26, 1899.)

(No Model.)

Fig. 6.

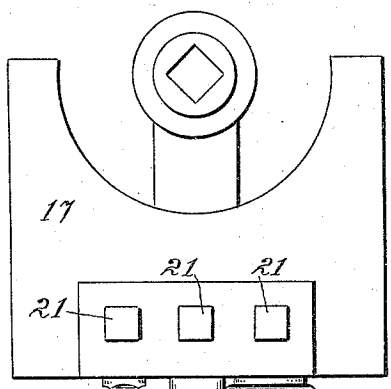


Fig. 1.

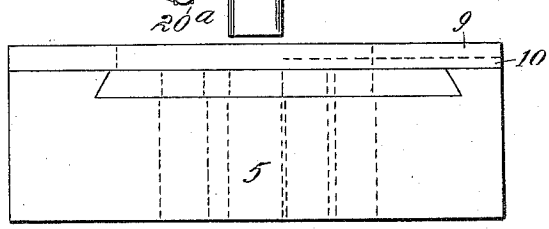


Fig. 7.

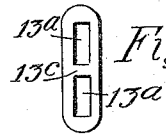


Fig. 8.

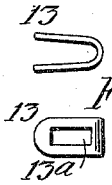


Fig. 2.

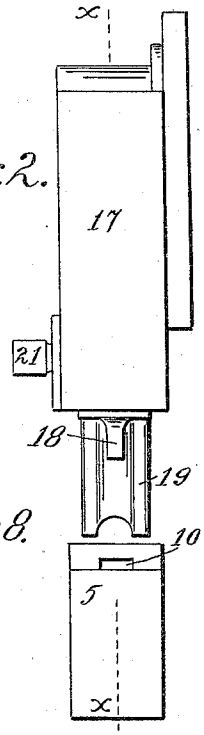
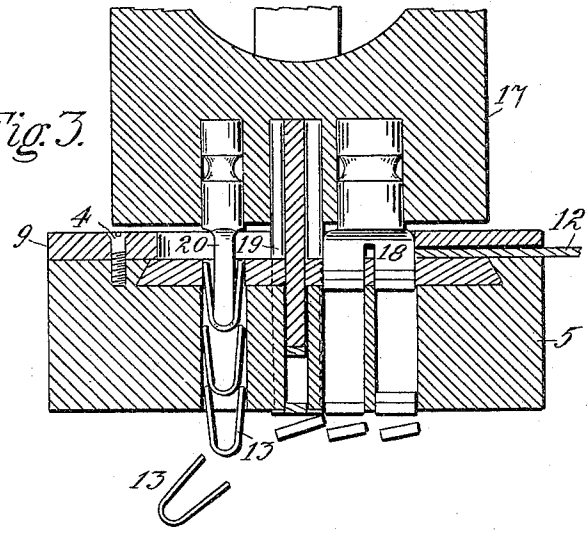


Fig. 3.



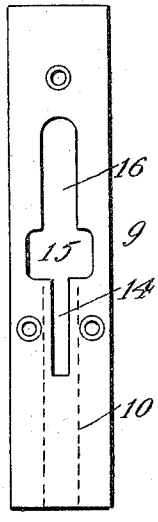


Fig. 5

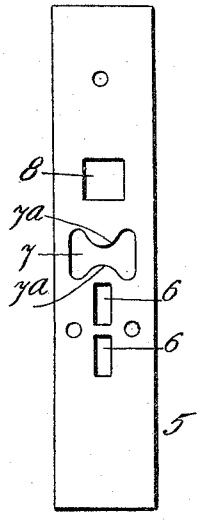


Fig. 4.

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By
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANK CANFIELD, OF BOULDER, COLORADO, ASSIGNOR TO THE AMERICAN WIRE FENCE COMPANY, OF COLORADO.

APPARATUS FOR MANUFACTURING FASTENING-CLIPS.

SPECIFICATION forming part of Letters Patent No. 641,190, dated January 9, 1900.

Application filed June 26, 1899. Serial No. 721,833. (No model.)

To all whom it may concern:

Be it known that I, FRANK CANFIELD, a citizen of the United States of America, residing at Boulder, in the county of Boulder and State of Colorado, have invented certain new and useful Improvements in Apparatus for Manufacturing Fastening-Clips; 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 the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in apparatus for manufacturing clips for use in wire-fence construction; and it consists of the features hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a side elevation of the die-block and punch arranged in operative position, the punch being raised. Fig. 2 is a side view of the same. Fig. 3 is a sectional view showing the punch lowered to engagement with the die. Fig. 4 is a top view of the die with the guide or stripper removed. Fig. 5 is a similar view of the guide or stripper. Fig. 6 shows one of the punch bits or tools in detail. Fig. 7 shows the clip-blank with the holes punched before bending. Fig. 8 illustrates the completed clip, shown in two positions.

Similar reference characters indicating corresponding parts in these views, let the numeral 5 designate the body of the die, which is provided with two openings 6, an opening 7, and an opening 8. The openings 6 are rectangular in shape, the opening 7 is curved on two opposite sides, as shown at 7^a, while the opening 8 is rectangular, preferably square, as shown in the drawings. Secured to the top of the die-block 5 by means of screws 4 or other suitable fastening devices is a plate 9, whose under side is provided with a longitudinal guideway or groove 10, adapted to receive the metal strip 12, from which the clips 13 are formed. In this plate 9 is formed an opening comprising a narrow part 14, located directly above the openings 6, an enlarged central part 15 located above the opening 7, and the part 16, which is of a width equal to the width of the guideway 10.

The punching apparatus or male portion of the machine adapted to coöperate with the female portion thereof, already described, comprises a block 17, apertured to receive the shanks of punches 18, 19, and 20, which are detachably connected with the block by means of set-bolts 21. The punch 18 is provided with a central recess 18^a, corresponding in position to the partition separating the two openings 6 in the block 5. The punch 19 is hollowed out on opposite sides, giving it a shape which is the counterpart of the opening 7 with its side curves 7^a. The operating extremity of the punch 20 is considerably smaller than the opening 8 of the die-block, since its function is to bend the clip and push it out through the said opening. Hence room for the clip must be left in the opening on opposite sides of the punch.

The punch-block is operated by alternately raising and lowering the same, which may be accomplished by the use of any suitable mechanism, and as nothing is claimed thereon said mechanism need not be illustrated or described in detail.

In using the apparatus a strip of metal 12 of the proper width and thickness is fed into the groove or way 10 a sufficient distance at the beginning to allow it to be acted on by the punches 18 and 19. The punch 18 forms the holes 13^a, and the punch 19 rounds the end of the metal strip at the first stroke. The punch-block is then raised and the metal strip fed farther into the apparatus, so that the part 13^c lying between the holes 13^a of the blank lies in the path of the punch 20, which is provided with small teeth or projections 20^a, one on each side, adapted to enter the openings 13^a on opposite sides of the partition 13^c, whereby the blank is held securely in place after it is engaged by the punch. When the punch-block descends the second time, the punch 18 forms the holes 13^a in another blank. The punch 19 cuts off the first blank and rounds the end of the second blank, while the punch 20 bends the blank, completing the apertured U-shaped clip and forces it downward into the opening 8 in the die-

block. As the operation is continued the clips 13 are forced out in succession, those above crowding those below downward and out, as shown in Fig. 4. As the punch-block is raised the plate 9 strips or pulls the strip 12 from the punch-bit 18, thus preventing the metal strip from being displaced during the progress of the operation.

Having thus described my invention, what I claim is—

1. In a machine for forming apertured, U-shaped clips, the combination of a die-block having two separated openings 6, an opening 7 and an opening 8, a plate attached to the top of said die-block and having a continuous opening above the openings 6, 7 and 8 and registering therewith, a groove or way being formed in the lower surface of said plate to allow the feeding of the metal strip into the path of the punch-bits, and a vertical, reciprocating block provided with punch bits or tools adapted to enter the openings in the die-block for the purpose set forth.

2. In an apparatus for manufacturing clips of the class described, the combination of a die-block having two separated rectangular openings 6, an opening 7 and an opening 8, all of the said openings extending entirely through the die-block, a plate attached to the top of the die-block and having a continuous opening composed of parts 14, 15 and 16 registering with the openings 6 6, the opening 7 and the opening 8 of the die-block respectively, the said plate having a groove which is formed in its lower surface, of a width to receive the metal strip from which the clips are to be formed, and extending from one end of the plate underneath the opening part 14 to the opening part 15, and a vertically-reciprocating block provided with punch-bits 18, 19 and 20, the bit 18 being adapted to enter the opening 6 in the die-block and being provided with a central recess 18^a corresponding in width to the space separating the opening 6, the bit 19 being adapted to enter the opening 7 of the die-block and being longer than the bit 18, the bit 20 being adapted to enter the opening 8 of the die-block and engaging the clip centrally whereby the latter is bent and forced through the die-block.

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

FRANK CANFIELD.

Witnesses:

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A. J. O'BRIEN.