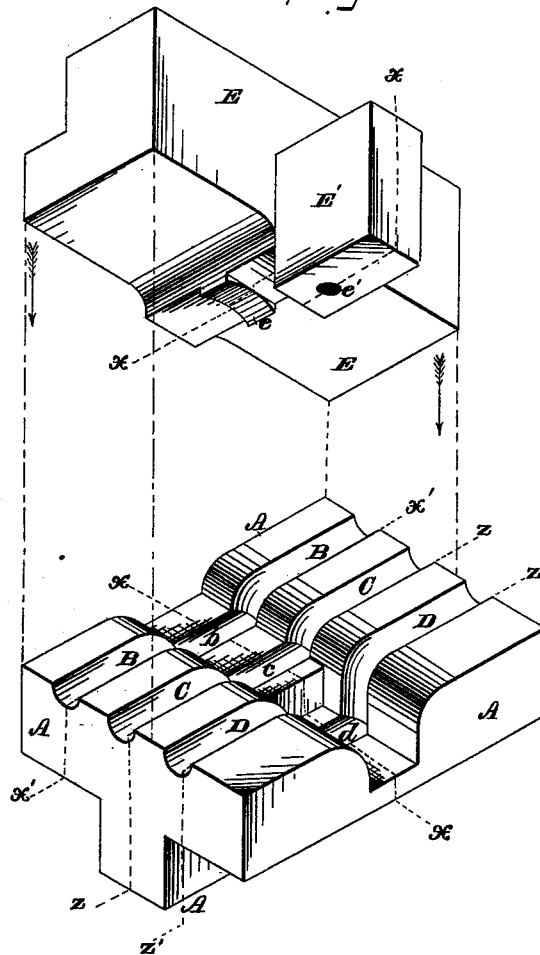


R. R. MILLER.
Die for Making Carriage-Clips.

No. 214,172.

Patented April 8, 1879.

Fig-1.



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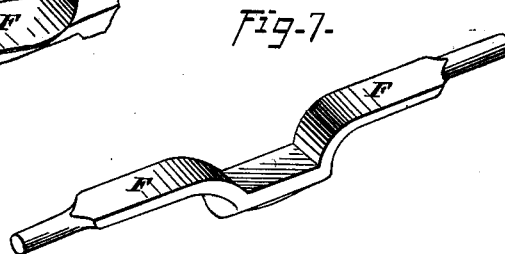
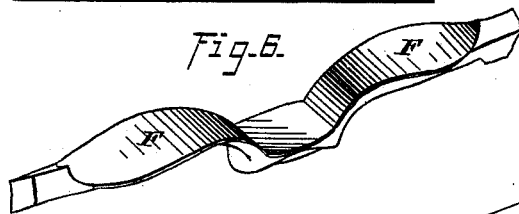
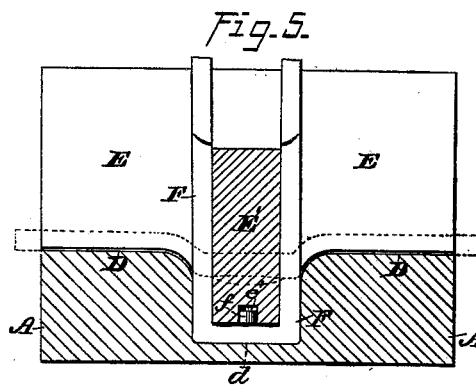
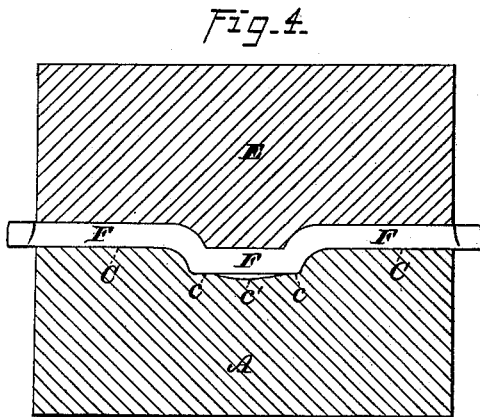
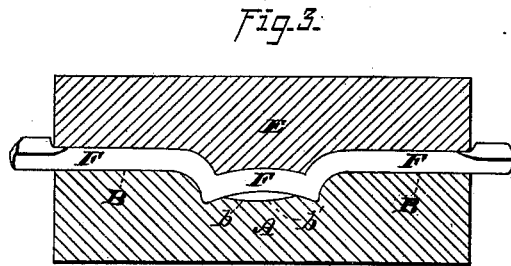
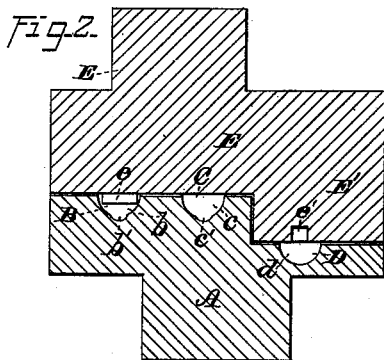
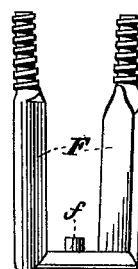
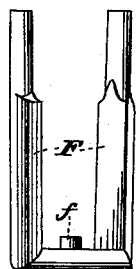


Fig. 8.

Fig. 9.



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UNITED STATES PATENT OFFICE.

ROBERT R. MILLER, OF PLANTSVILLE, CONNECTICUT.

IMPROVEMENT IN DIES FOR MAKING CARRIAGE-CLIPS.

Specification forming part of Letters Patent No. **214,172**, dated April 8, 1879; application filed February 20, 1879.

To all whom it may concern:

Be it known that I, ROBERT R. MILLER, of Plantsville, in the county of Hartford, and in the State of Connecticut, have invented certain new and useful Improvements in Dies for Making Carriage-Clips; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my dies separated from each other. Fig. 2 is a cross-section upon line *x x* of Fig. 1. Figs. 3, 4, and 5 are longitudinal sections upon lines *x' x'*, *z z*, and *z' z'*, respectively, of Fig. 1. Fig. 6 is a perspective view of the blank after it has passed through the first stage of the process. Fig. 7 is a like view of said blank after it has been trimmed and had its ends rounded. Fig. 8 is a perspective view of said blank after it has passed through the finishing-dies, and Fig. 9 is a like view of the same after having been polished and threaded.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to enable carriage-clips to be made by dies with greater facility and at a less expense than has heretofore been practicable; to which end it consists, principally, in the dies employed for forming the blank, substantially as and for the purpose hereinafter specified.

It consists, further, in the dies used for completing the clip, substantially as and for the purpose hereinafter shown.

It consists, finally, in the series of dies used, substantially as and for the purpose hereinafter set forth.

In the construction of my dies, I preferably form all of the lower or female dies within one block, and the upper or male dies within a second block; but, if desired, each may be made separate from the others.

In the annexed drawings, A represents a block of metal, which, near one edge, is provided within its upper side with a half-round groove, B, that extends from end to end, and at its longitudinal center for a distance of about one and a half inch is depressed about one-half inch below the portions upon each side of the same. The depressed portion *b* is

slightly curved, so as to make its ends the lowest, and at its transverse center has a small half-round groove, *b'*, which, being horizontal, is deepest at its longitudinal center, and runs out at the ends of said depressed part. From the depressed center *b* the groove B extends upward and outward in a curve, as shown in Fig. 3. Adjacent to and parallel with the groove or die B is a second die, C, which is in all respects like the former, except that the bottom of its central portion, *c*, has slightly less depth, is horizontal, and its small groove *c'* has a downward curve at its center. A third die, D, is provided adjacent to the die C, and is similar to the same, except that its central portion, *d*, has a depth of at least one inch below its ends, has a horizontal bottom, and is without any small groove.

The surface of the block A is caused to conform to the longitudinal shape of the dies B, C, and D, the contiguous metal upon each side of each of said dies having a uniform height above the bottom of the groove at all points between its ends.

The upper or male die, E, has the form shown in Fig. 1, its horizontal shape being such as to cause it to cover the portion of the block A within which are formed the dies B and C, while upon its front side said die has a projection, E', that corresponds to and fits into the central part, *d*, of the die D. The lower face of said die E corresponds to and may be caused to bear upon the upper face of said block A, its general shape being the reverse of the general form of the latter. The central portion of the die E, directly over the die B, has a projection, *e*, which is curved downward at each end to correspond to the similar curve of the depressed center *b* of said die B, while in the portion E' directly over the central part, *d*, of the die D, is provided a round cavity, *e'*, that has a diameter of about one-fourth of an inch, and a depth of about one-eighth of an inch.

The dies are now complete, and, being placed within a drop-press or other like mechanism, are used as follows, viz: A bar of iron, preferably square, having a diameter of about one-half inch, is heated and placed within the first die, B, and subjected to one or more blows of the upper die, E, by which means it is caused

to assume the form shown in Fig. 6, the same being the blank F of my clip. The blank F is now placed within a trimming-die, for the purpose of removing the fin from its edge, its ends are rounded, and it is then placed within the second die, C, and given one or more blows by the upper die, E, after which said blank is placed within the third or last die, D, and given one blow by said die E, which causes it to assume the form shown in Fig. 8, its arms being parallel, and at the same time forms upon the lower or inner face of the head of said clip a teat, *f*, that corresponds in size and shape to the like features of the recess *e'* of said die E'.

In consequence of the downward-curving ends of the central portion, *b*, of the die B, and of the projection *c* of the die E, the metal is pressed outward into the ends of said part *b*, so as to produce full, sharp corners upon the clip F, while by means of the groove *b'* within the bottom of said central portion, *b*, and the groove *c'* in the central portion, *c*, of the die C, enough extra metal is secured at the center of the head of the clip to form the teat *f*.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. The die B *b b'*, constructed as shown, in combination with the die E *e*, substantially as and for the purpose specified.

2. The die C *c c'*, in combination with the die E, substantially as and for the purpose shown.

3. The die D *d*, in combination with the die E E', having the cavity *e'*, substantially as and for the purpose set forth.

4. The series of dies B, C, D, and E, substantially as and for the purpose shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of February, 1879.

R. R. MILLER.

Witnesses:

HENRY C. HAZARD,

JAS. E. HUTCHINSON.