

H. M. SCHWARTZ.

DIE.

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956,434.

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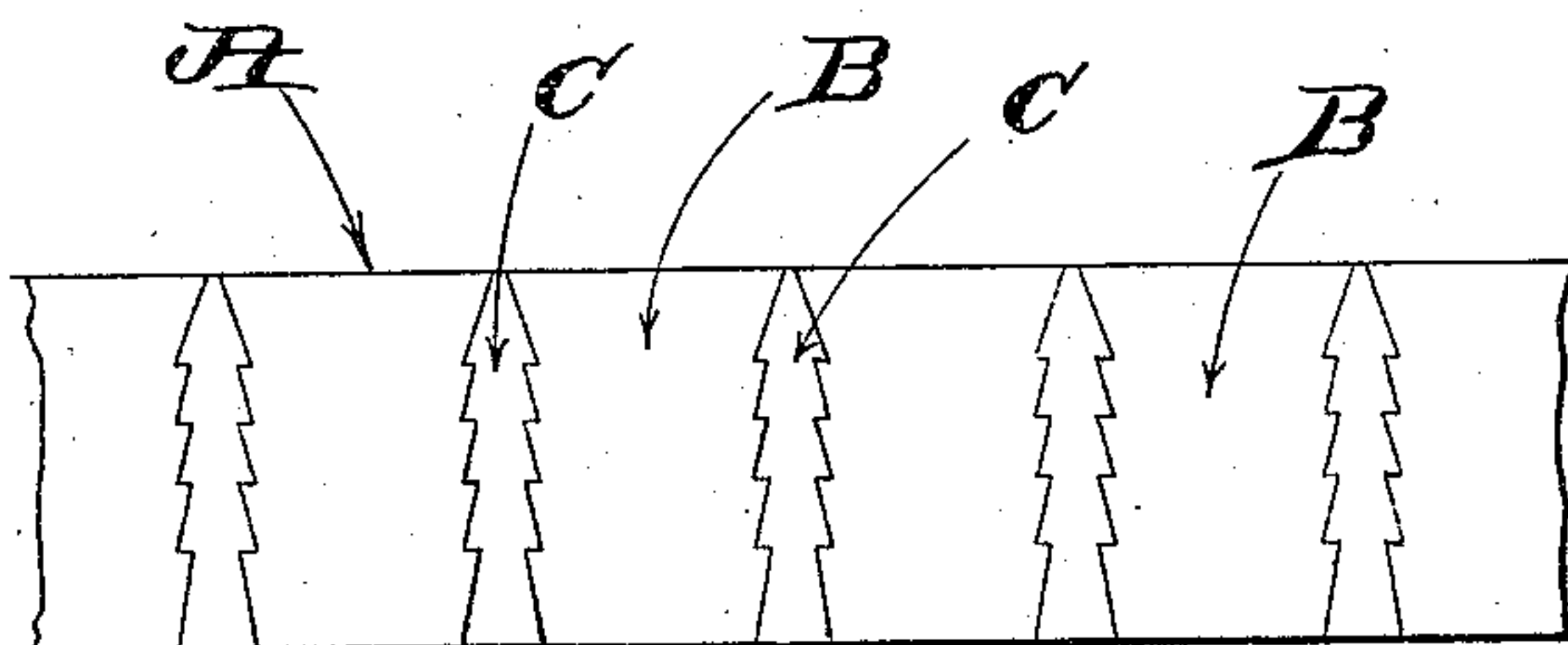
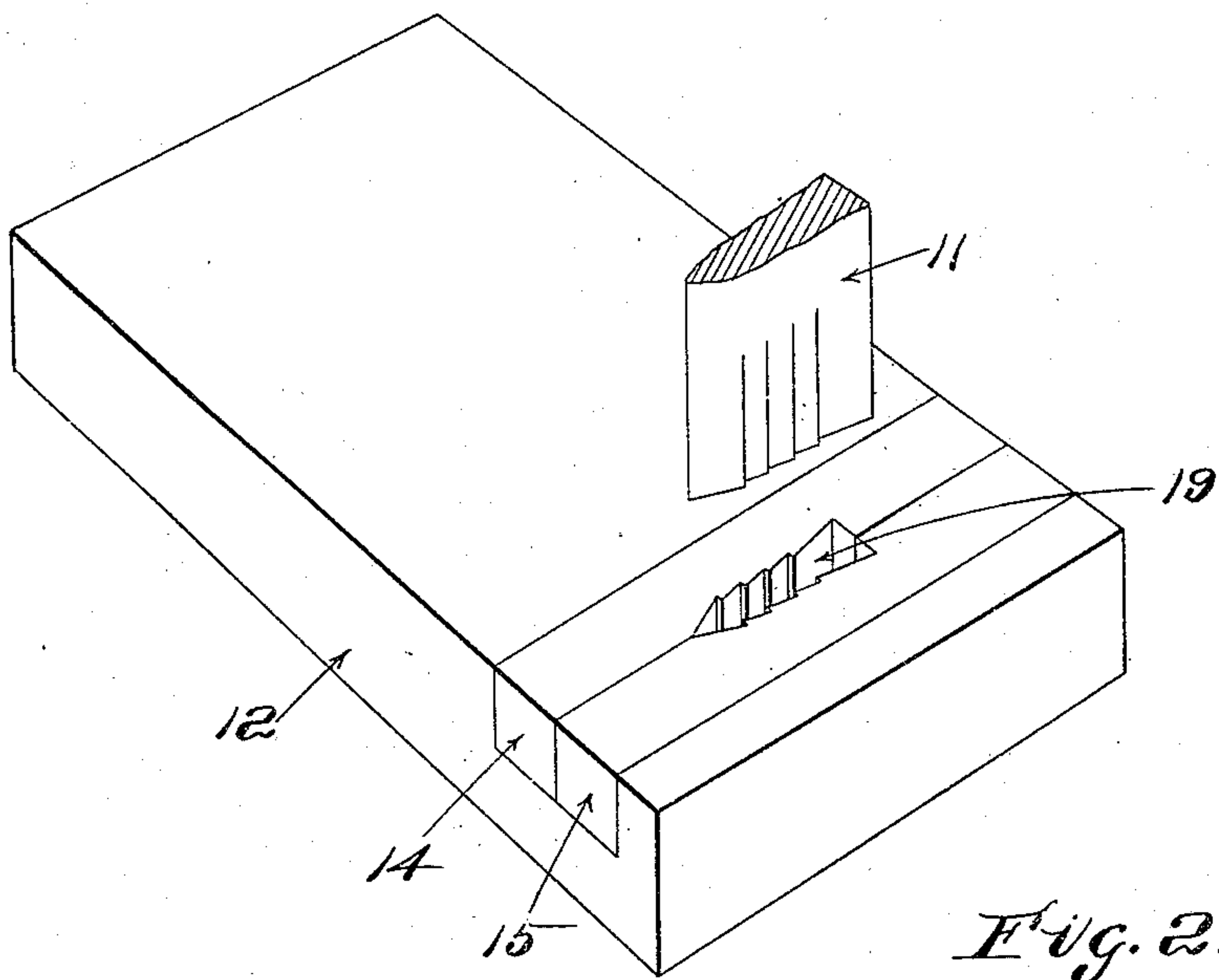


Fig. 1.

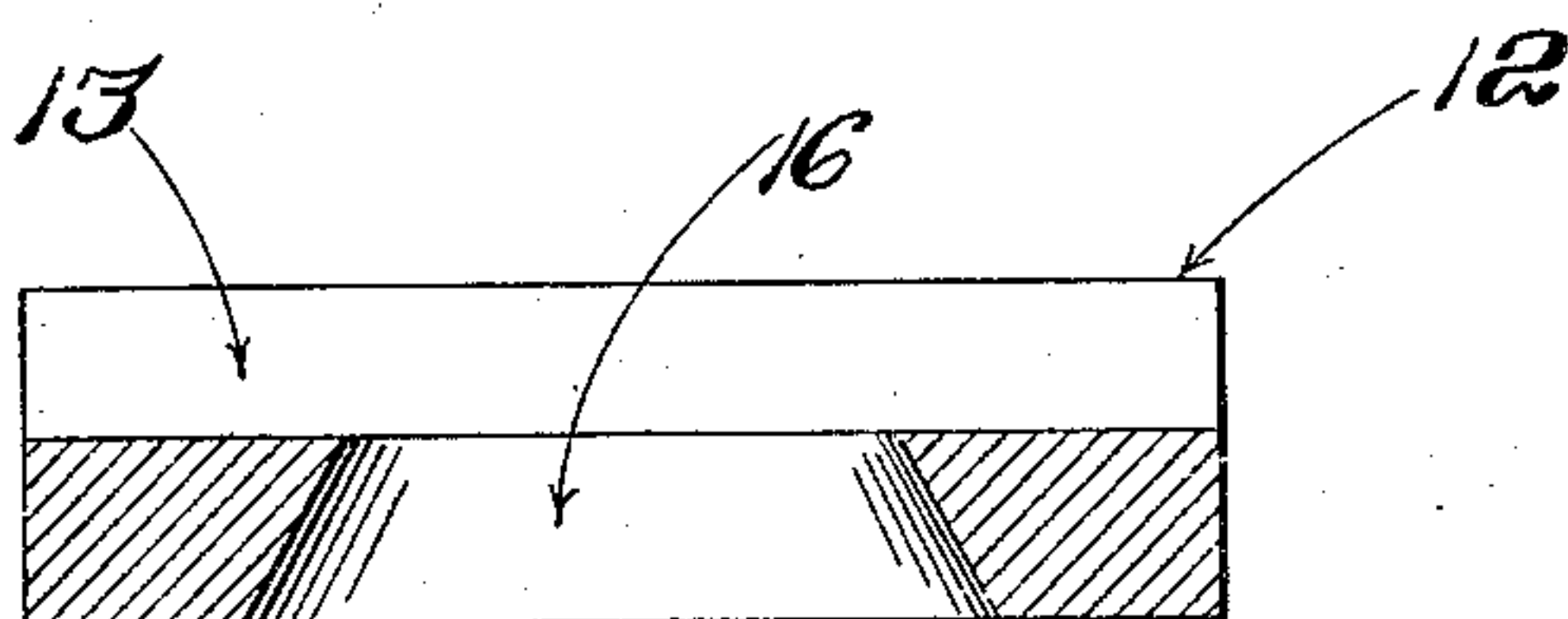


Fig. 3.

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UNITED STATES PATENT OFFICE.

HERMAN M. SCHWARTZ, OF NORTHAMPTON, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO FRANK N. LOOK, OF NORTHAMPTON, MASSACHUSETTS, WILLIAM A. MACLEOD, OF WESTWOOD, MASSACHUSETTS, AND GEORGE H. BURR, OF NEW YORK, N. Y., TRUSTEES.

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To all whom it may concern:

Be it known that I, HERMAN M. SCHWARTZ, a citizen of the United States, residing at Northampton, county of Hampshire, State of Massachusetts, have invented a certain new and useful Improvement in Dies, of which the following is a specification, reference being had therein to the accompanying drawings.

10 In machines for setting the tufts of bristles in brushes by means of metallic anchors, the said anchors are cut from strips of some suitable material by means of a punch and female die which form part of the operative
15 mechanism of the machine. The anchors cut by this means and employed in many brushes, such, for instance, as tooth brushes, are very minute and great difficulty has, therefore, been experienced in making the
20 female dies, especially as the female die has no opening on the side. The difficulty of making the female die is especially great in the case of anchors which are provided upon their edges with minute projections or
25 prongs which engage the sides of the holes in which the tufts of bristles are set. The anchors are made from metal of various kinds, frequently bronze or German silver. This requires that the die and punch be
30 made from the finest tool steel, in order that they may not require to be renewed too frequently.

My invention has for its object to afford a new and improved female die which may be
35 readily made without expending a large amount of trying hand labor in its manufacture, as has heretofore been necessary.

My invention also includes the process of making the said die. By the employment of
40 my new process, my improved die may be made directly by the use of a milling cutter and substantially without hand labor.

It will, of course, be understood that the punch and die hereinafter described do not
45 operate directly to cut the staple or anchor from the metal strip or ribbon, but remove the piece of waste from between the proximate anchors, as will be further explained.

The invention will be fully understood
50 from the following description taken in connection with the accompanying drawings, and the novel features thereof are pointed out and clearly defined in the claims at the close of the specification.

Referring to the drawings,—Figure 1 is a 55 view of a strip or ribbon of metal indicating how the anchors and the waste are cut therefrom. Fig. 2 is a perspective of a punch and die embodying my invention. Fig. 3 is a view of the base piece or bed member of 60 the die with the removable members removed.

In the drawings, at A is indicated a strip or ribbon of some suitable metal, as, for instance, German silver or bronze, from 65 which the staples B are cut. The waste which occurs between each pair of staples is indicated at C. As aforesaid, the staples B are formed from the strip A by punching out of the said strip the pieces of waste C, 70 between each pair of staples B by means of the punch and die. The punch used for this purpose is shown at 11 in Fig. 2. The die or female member consists of a bed member 12 which is provided with a slot 13 75 (see Fig. 3) of a suitable size to receive a pair of removable members 14 and 15, in which the cutting portion of the die is formed. The bed member 12 is provided with a hole 16, the upper edge of which is 80 substantially the same shape and size as the pieces of waste to be cut out. The hole 16 flares toward the bottom in any convenient manner, so as to afford sufficient clearance for the pieces of waste C which are cut out 85 by the punch 11 from between the staples. The bed member may be of any suitable or convenient form, since the two die pieces 14 and 15 are the essential parts of the female die, it being the function of the bed mem- 90 ber to maintain the two bed pieces in proper relation to each other. In the adjacent side faces of each of the two die pieces 14 and 15, there is formed a series of grooves, which, taken together, form the hole 19 cor- 95 responding in shape to the shape of the punch 11 and to the shape of the piece of waste to be cut. It will be seen that one-half of this hole is formed in the die member 14 and the other half is formed in the 100 die member 15. These grooves in the two pieces 14 and 15 may preferably be formed by the use of a suitable milling cutter or in any other convenient manner, but it is unnecessary to work out the hole 19 with a 105 fine drill and by hand, as was previously the case when the entire female die was made, as heretofore, from a single piece of tool

steel. After the grooves have been cut in the sides of the die members 14 and 15, the said die members are laid side by side in the proper position and inserted in the slot 13 in the bed member 12, the bottom of the said hole 19 formed by the said grooves being in registration with the top of the flaring hole 16 in the bed member 12. By making the parts 14 and 15 of the proper size, with relation to the slot or groove 13, when inserted in the said groove 13, they may become to all intents and purposes a part of the bed member of the die and the die thus formed is the same in its operation as if made of a single piece. The two removable pieces 14 and 15 may, however, readily be removed at any time when it is desired to replace them or to sharpen them.

What I claim is:

1. An improved die for machines of the character specified comprising a bed member having a straight groove in the surface thereof and a flaring hole therethrough intercepting the said groove and two removable die members having formed in their adjacent faces grooves which constitute the cutting edge of the die, said die members being secured in place by the closeness of

their fit in the groove and receiving their support from the walls of the said groove, the grooves of said die members which form the cutting edge thereof being in registration with each other and the hole formed thereby being in registration with the flaring hole in the said bed member.

2. An improved die for machines of the character specified comprising a bed member having a groove therein and a flaring hole therethrough, and removable die members having formed in their adjacent faces grooves which constitute the cutting edge of the die, said die members being fitted within the said bed member and filling the groove therein and being supported by the walls of the said groove, the grooves of the said die members which form the cutting edge thereof being in registration with each other and the hole formed thereby being in registration with the flaring hole in the said bed member.

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

HERMAN M. SCHWARTZ.

Witnesses:

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KARL W. BRADLEY.