

No. 654,254.

Patented July 24, 1900.

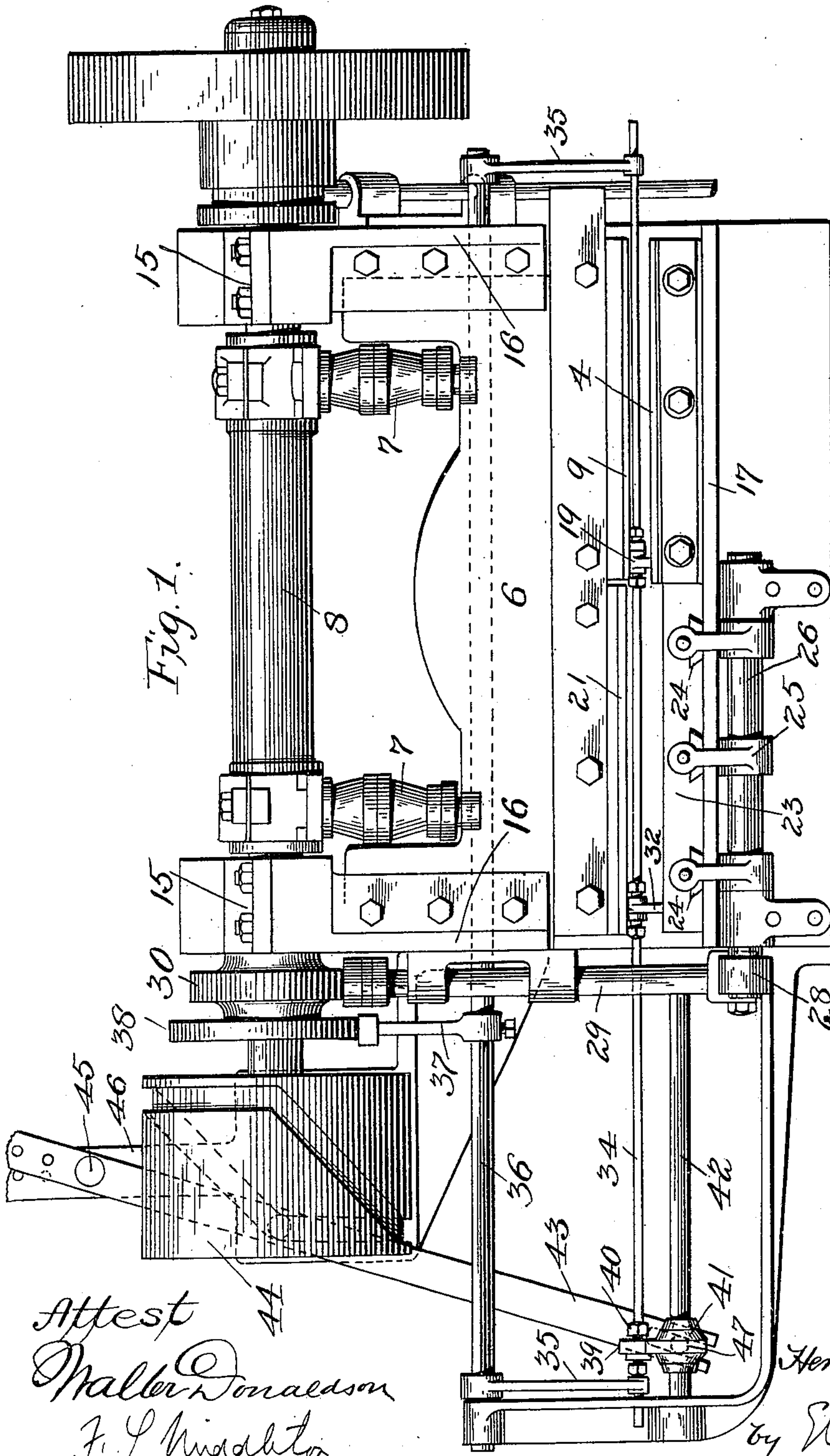
H. C. HUNTER.

MACHINE FOR MAKING SEAMING STRIPS.

(Application filed July 23, 1898.)

(No Model.)

3 Sheets—Sheet 1.



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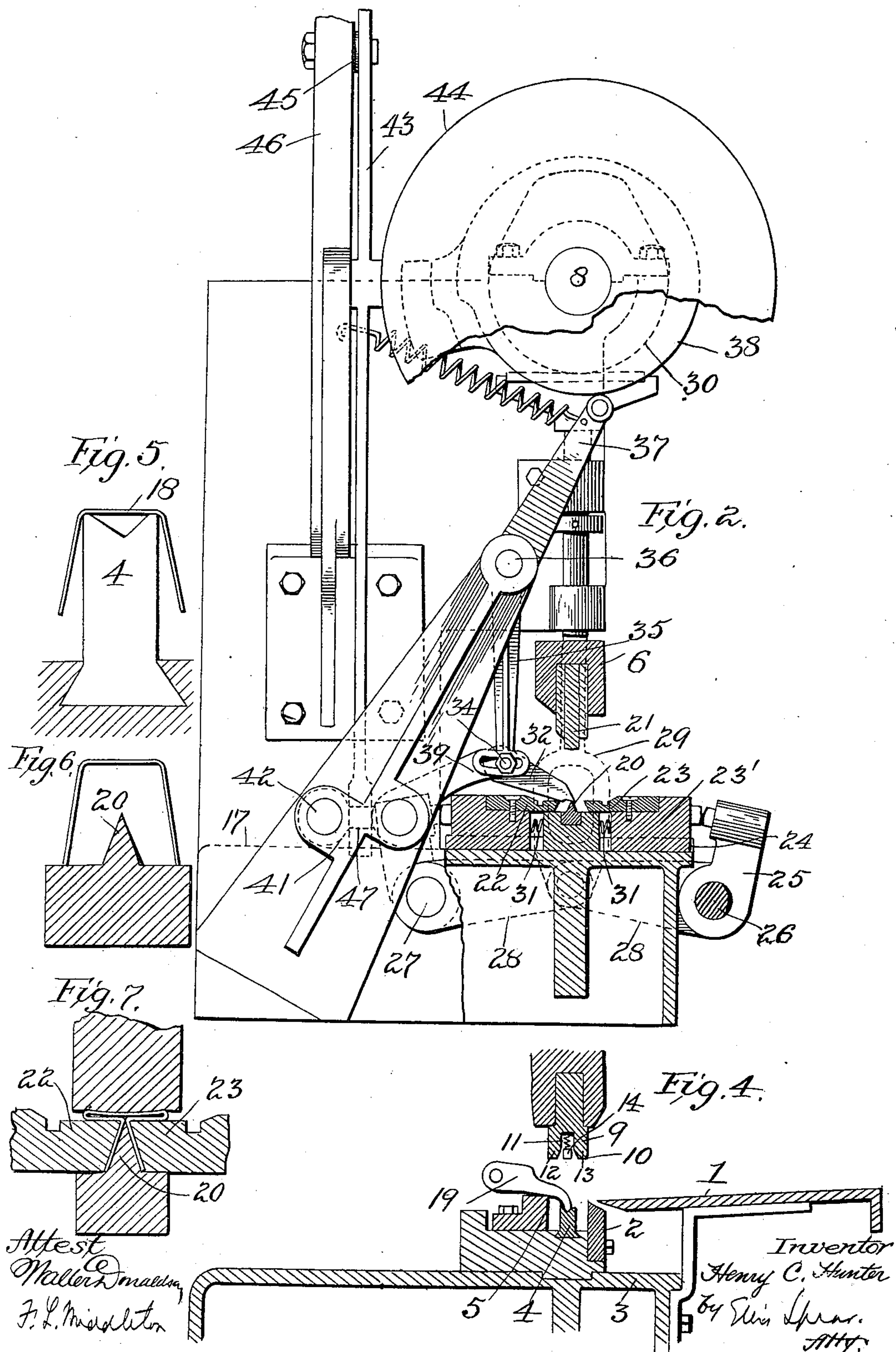
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MACHINE FOR MAKING SEAMING STRIPS.

(Application filed July 23, 1898.)

(No Model.)

3 Sheets—Sheet 2.



UNITED STATES PATENT OFFICE.

HENRY C. HUNTER, OF HAMILTON, CANADA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE CANISTER MANUFACTURING COMPANY, OF PHILLIPSBURG, PENNSYLVANIA.

MACHINE FOR MAKING SEAMING-STRIPS.

SPECIFICATION forming part of Letters Patent No. 654,254, dated July 24, 1900.

Application filed July 23, 1898. Serial No. 686,733. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. HUNTER, a citizen of the United States, residing at Hamilton, Ontario, Canada, have invented certain new and useful Improvements in Machines for Making Seaming-Strips, of which the following is a specification.

My invention relates to the manufacture of seaming-strips for use in making packing-cans such as those disclosed in Letters Patent of the United States granted to me on the 7th day of March, 1893, Nos. 492,805 and 492,806. These seaming-strips are intended to unite the edges of the fibrous body-blanks; and they consist of a base portion formed by doubling the metal back upon itself toward the center and a pair of divergent flanges extending from the central part of the base and forming extensions of the doubled metal, the said divergent flanges being adapted to be hammered down to grip the edges of the fibrous board between them and the base portion.

In carrying out my invention I aim to provide a machine for cutting the strip of the proper size from a sheet of tin or like material, for shaping this strip into channel form, and for then forming the channeled strip into complete form consisting of the double base portion and the divergent flanges.

In the accompanying drawings, Figure 1 represents a front view of the machine; Fig. 2, an end view with parts broken away and parts in section; Fig. 3, a plan view partly in section; Fig. 4, a detail sectional view showing the means for cutting the strips from the sheet material and for shaping them into channeled form; and Figs. 5, 6, and 7 are detail sectional views representing the different operations, which take place in the order named.

The sheet of tin or other material from which the strips are formed is fed by the operator over the plate or table 1, so that its inner edge will extend across and beyond a stationary cutting-knife 2, fixed to the bed 3, and over a forming block or mandrel 4, its extreme edge bearing against the stop or ledge 5. These parts—the knife, mandrel, and ledge—are of considerable length as compared with

their width, conforming to the longest desired length of the strip. When the blank has thus been fed over these parts, the cross-head 6 is lowered through its link connection 7 with a crank-shaft 8, and a plunger 9, carried by this cross-head, acting in connection with the stationary knife 2, will sever the required width of strip from the sheet, and continuing in its downward movement the said strip will be pressed into its channeled form, (shown substantially in Fig. 5,) the said plunger having a knife-edge 10, to effect the cutting, and a recess 11, adapted to receive the mandrel 4, so as to shape the strip to its channeled form, the arms 12 13 of the plunger passing downwardly on each side of the mandrel. The recess of the plunger is provided with a spring-piece 14, which will serve to hold the strip in position on the mandrel and to eject the strip when the plunger recedes, and thus leave it upon the mandrel, as shown in Fig. 5. The crank-shaft 8 is journaled in bearings 15 of standards 16 at the ends of the main table 17 of the machine. The mandrel 4 has a channeled upper face, and the base portion 18 of the strip extends across this, as shown in Fig. 5, so that a feeding-finger 19, having its end resting in the said recess, will be in a position to engage the base of the strip and feed it longitudinally of the machine and mandrel and carry it from said mandrel onto a forming-die 20, which is of elongated form and is arranged in line with the elongated mandrel. This feeding action of the finger 19 is given through mechanism hereinafter described. The die 20 has an inverted-V-shaped rib extending upwardly therefrom, and the partially-formed strip is fed into position over this rib, as shown in Fig. 6. The cross-head 6 carries a movable die 21, and this coöperates with side dies 22 23, arranged in front and in rear of the fixed die 20 and operating horizontally in the same plane therewith. These dies operate simultaneously with the vertically-movable die 21, and their action is illustrated in Fig. 7, from which it will be seen that the side dies press the flanges of the strip against the inclined sides of the fixed

die 20, while the vertically-movable die presses upon the base of the strip, and in connection with the side dies it forms the doubled flanges of the base. The dies are carried by blocks 23', movable on dovetailed ribs 24, fixed to the bed or table of the machine, and these blocks are forced inwardly by means of arms 25, carried on rock-shafts 26 27, journaled in bearings on the bed. The shafts are rocked through arms 28, connecting with the pitman 29, as shown in dotted lines in Fig. 2, the said pitman having at its upper end a cross-piece in contact with a cam 30 on an extension of the shaft 8. When the pitman is forced downwardly, both sets of arms are rocked toward the fixed die 20, so as to force the side dies to their work. The side dies have beveled faces to fit the inclines of the fixed die. Springs 31 return the die-carrying blocks to their open positions. After the strip has been completely formed it is discharged from the machine by a discharge-finger 32, carried by a rod 34, which also carries the feed-finger 19. This rod is given a reciprocating movement toward and from the front of the machine by arms 35, connected therewith at their lower ends and carried by a rock-shaft 36, extending from end to end of the machine, said rock-shaft being operated by an arm 37 from a cam 38 on an extension of the shaft 8. In addition to this forward and backward movement the fingers have a movement longitudinally of the machine to feed and discharge the strips, and for this purpose the rod 34 is moved longitudinally by means of an arm 39, having its end arranged between nuts or bearings 40 on the said rod, the said arm being carried by a block 41, sliding on guide-rods 42 and operated by a lever 43 from a cam 44 on the extension of the shaft 8, the said lever being pivoted at 45 to a bracket 46, extending from the end standard. The lower end of the lever is forked to embrace the cross-piece 47 of the sliding block, and it is adjustable at its upper end to increase or diminish the throw. The arm 39 is slotted so that the forward and backward movement of the shaft 34 is permitted, while still maintaining the connection necessary to move the said rod 34 longitudinally. By means of this mechanism the feed and discharge fingers are moved longitudinally along the mandrel and die to feed the channeled strip from the mandrel onto the die and to discharge the complete strip from said die, and when this longitudinal movement is completed toward the left of Fig. 1 the rod 34, through its pivoted arm 37 and cam 38, will be given a movement rearwardly, so that the feeding and discharge fingers will be retracted from the mandrel and fixed die, respectively, and then the rod 34 will be given a longitudinal movement in the opposite direction, or toward the right of Fig. 1, and the feed and discharge fingers will thus get in position beyond the right-hand ends of the strips, and the rod 34 then being moved to its forward position will cause the fingers

to locate themselves adjacent to the ends of the strips for a new action. The fingers are pivoted to the rod 34 and fall into place by their own weight. It will be seen from the above that the work goes on rapidly, as upon each downward movement of the cross-head 6 a fresh blank is cut out and partially formed on the mandrel, while another blank is completely formed on the die, and at each feeding movement of the rod 34 the completed strip will be discharged from the machine, while the partially-formed blank will be fed from the mandrel onto the die.

I claim as my invention—

1. A machine for making seaming-strips comprising means for cutting the blanks from sheet metal and for forming it into channeled shape by one movement of said means in one direction and die mechanism for forming the completed strip from the channeled blank, said die mechanism comprising a plurality of dies arranged to form a base of double thickness with flanges projecting therefrom, substantially as described.

2. In combination, a mandrel adapted to form a blank, of a die mechanism adapted to receive the partially-formed strip from said mandrel and a cross-head carrying a cutting and forming plunger and a die and cooperating with the mandrel and die mechanism, whereby the blank is cut from the sheet, pressed into U shape and then pressed into final shape, substantially as described.

3. In combination a mandrel, a stationary cutter, a stop to hold the sheet material in the proper position in relation to the mandrel and cutter and a plunger having a cutting edge and a forming-recess to fit over the mandrel and operating in conjunction with the fixed cutter and mandrel to cut the blank from the sheet and for forming it into channeled shape in one movement of the plunger in one direction, substantially as described.

4. In combination, a machine for making seaming-strips, a fixed die, the movable side dies operating on each side of the same and conforming in shape thereto and a die operating in line with the fixed die and at a right angle to the side dies, substantially as described.

5. In combination, the fixed die having the inclined side or sides, the side dies having inclined end faces conforming thereto and having flat faces in the same plane and a die operating toward and from the upper edge of the fixed die at right angles to the side dies, with its face overlying the flat faces of the side dies, substantially as described.

6. In combination a projecting mandrel over which the blank is formed into channeled shape, a die arranged in line therewith, and also projecting means for feeding the channeled blanks from the projecting mandrel onto the projecting die and a plunger and a die operating in conjunction with the mandrel and fixed die respectively, substantially as described.

7. In combination, a mandrel, a die mechanism, a cross-head carrying a plunger and a die for operating simultaneously upon the mandrel and the die mechanism and means
5 for feeding the partially-formed blank from the mandrel to the die mechanism, substantially as described.

8. In combination, a mandrel, an elongated die arranged in line therewith, means for forming the strip in connection with the mandrel
10 and the die, a feeding device for feeding the partially-formed strip from the mandrel to the die and a second discharge device independent of the first for simultaneously moving the completed strip from the die, substantially
15 as described.

9. In combination with the elongated mandrel, an elongated die mechanism and with the plunger and vertically-moving die, the
20 feed and discharge fingers with means for giving the same a reciprocating movement both longitudinally and transversely in relation to the mandrel and die, substantially as described.

25 10. In combination the vertically-movable die, the cross-head carrying the same, the fixed die, the side dies operating in the same plane with the fixed die, the arms, a rock-shaft for moving the side dies, the pitman and
30 cam for operating the rock-shafts and means for reciprocating the pitman, substantially as described.

11. In combination, the mandrel, a fixed die with the plunger, a vertically-moving die, the
35 feed and discharge fingers, the rod 34 carrying the same, the oscillating levers carrying the rod and means for moving the rod longitudinally consisting of the sliding block having slotted connection with the rod and means
40 for operating the sliding block, substantially as described.

12. In combination, the mandrel, the fixed cutter, the die mechanism comprising the fixed and movable side dies, the vertically-
45 moving die, the cross-head carrying the same,

the plunger carried by the cross-head, the feed-fingers, the rod 34 carrying the same, the crank-shaft connected with the cross-head, the rock-shaft and arms for operating the side
50 dies, the cam on the crank-shaft, the pitman connection between the cam and the rock-shaft, the oscillating arms connected with the rod 34, the cam mechanism for oscillating the arms, said cam being on the crank-shaft, the
55 sliding block for reciprocating the rod 34 and the lever with the cam on the crank-shaft for operating the sliding block, substantially as described.

13. In combination, the die, a mandrel and a die projecting in relation thereto and in
60 alinement, a plunger having a forming-recess conforming to the mandrel so as to bend the blank upon each side of the same, a movable die cooperating with the projecting die and means for moving the blank from the man-
65 drel over the projecting die with means cooperating with the projecting die and movable die for giving the blank its final shape.

14. A machine for making seaming-strips comprising means for cutting the blanks from
70 sheet metal and for forming it into channeled shape by one movement of said means in one direction and die mechanism with means for transferring the channeled strip from the cutting and forming means to the die mechanism,
75 substantially as described.

15. In combination, means for cutting the strip and giving it a channeled shape and die mechanism comprising reciprocating members arranged to form the strips with a base
80 of doubled thickness and divergent flanges extending at an inclination thereto, substantially as described.

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

HENRY C. HUNTER.

Witnesses:

J. W. TERRY,
H. C. GWYN.