Nov. 9, 1926. 1,606,473

J. H. KILLION

MACHINE FOR MAKING GROOVED STRIPS

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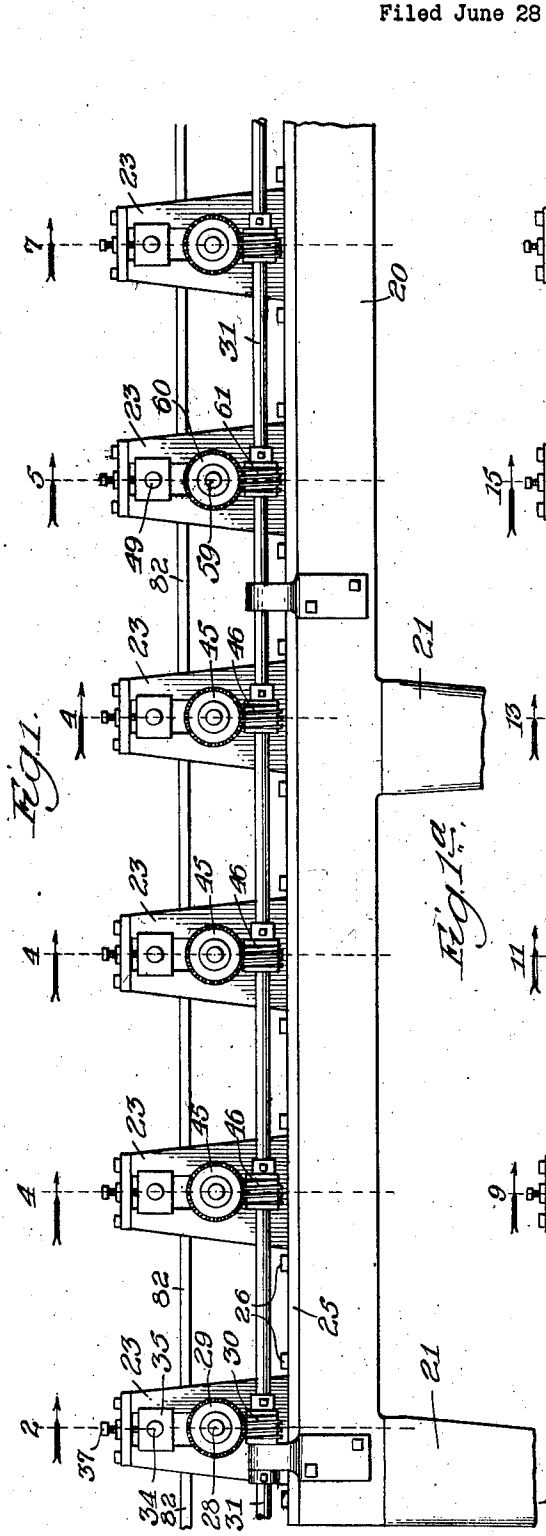


Fig. 1.

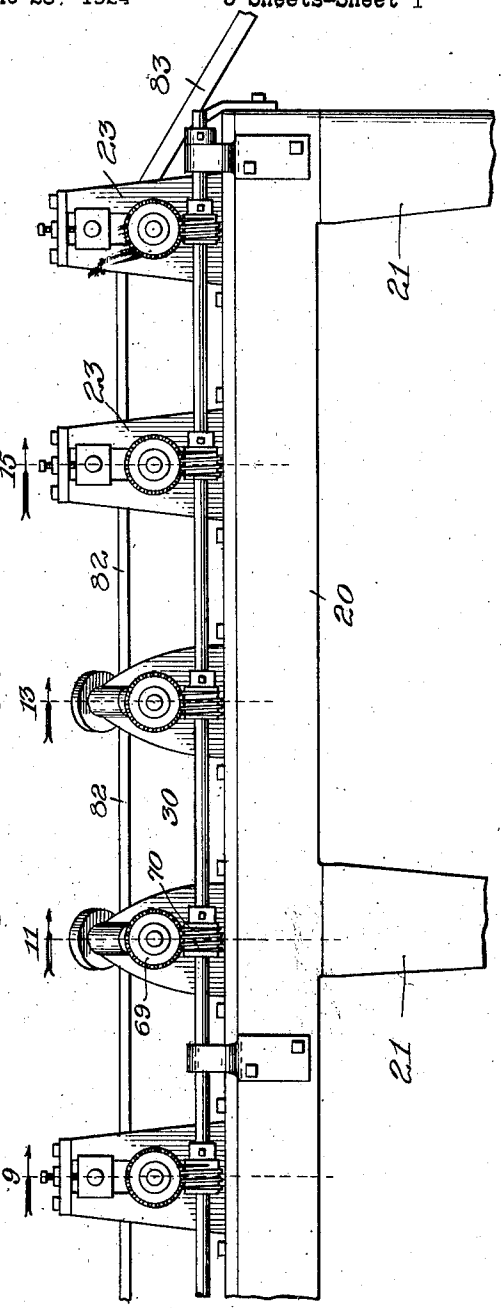


Fig. 1a.

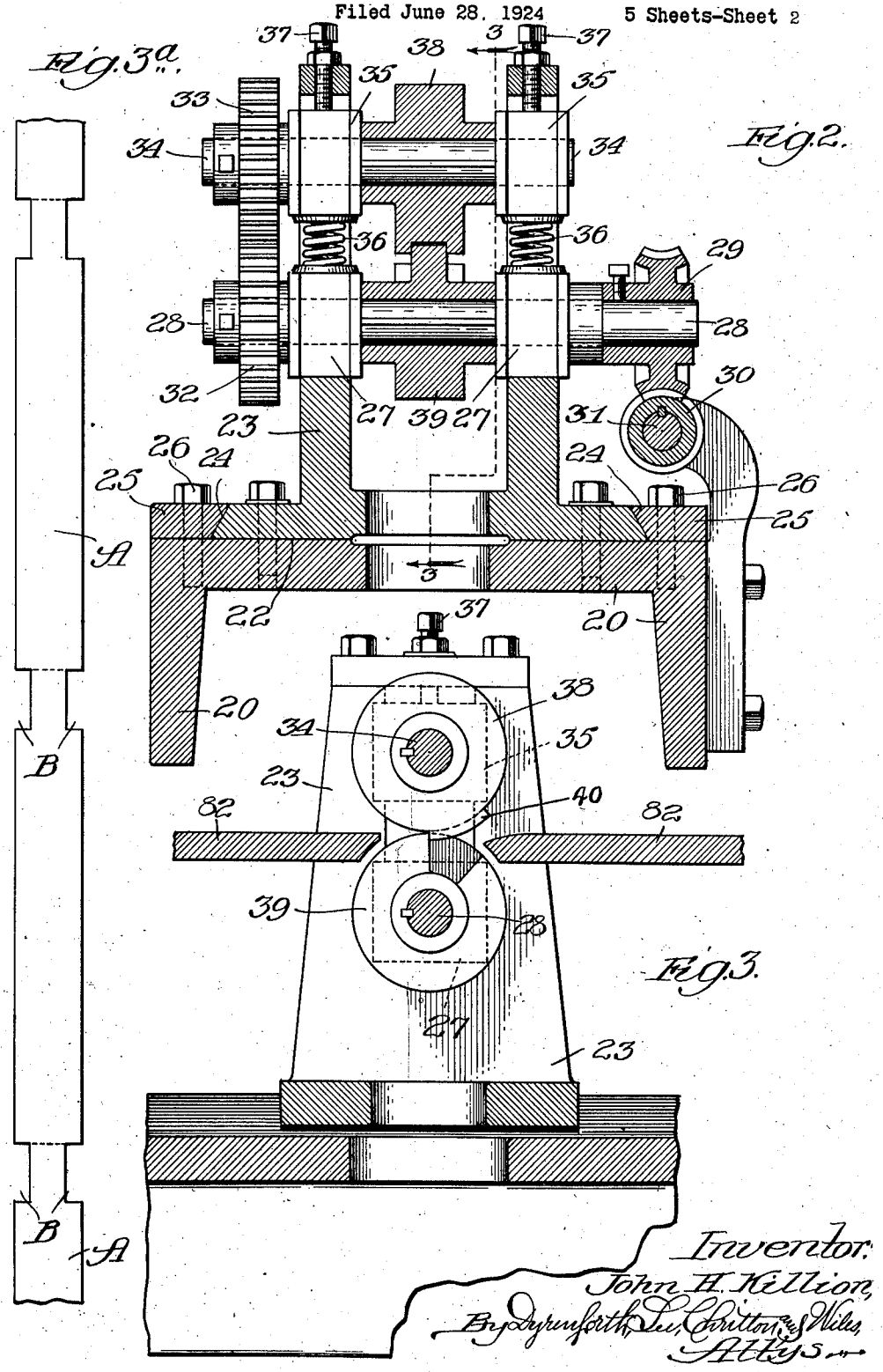
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MACHINE FOR MAKING GROOVED STRIPS

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MACHINE FOR MAKING GROOVED STRIPS

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Fig. 4.

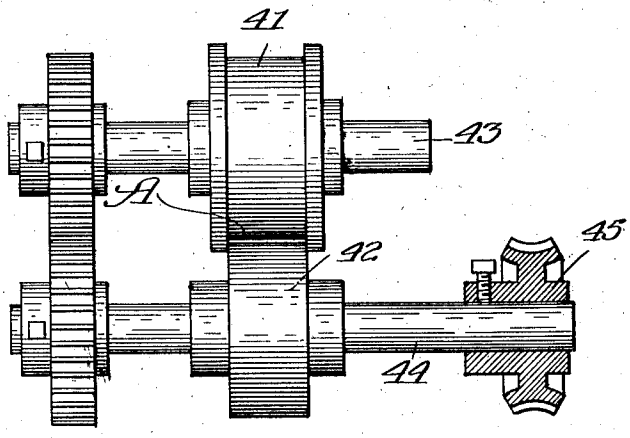
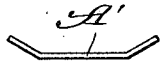


Fig. 6.



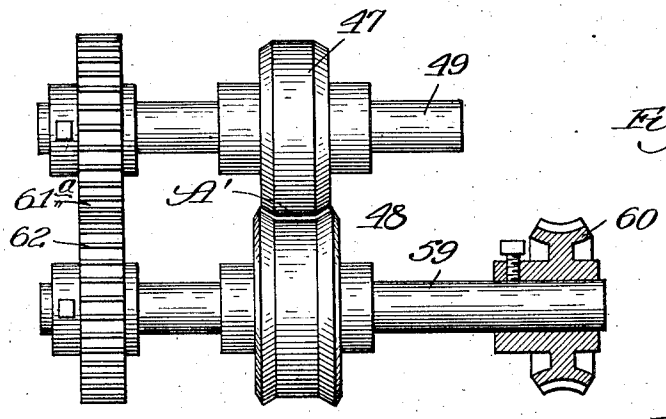


Fig. 5.

Fig. 8.

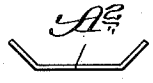


Fig. 10.



Fig. 9.

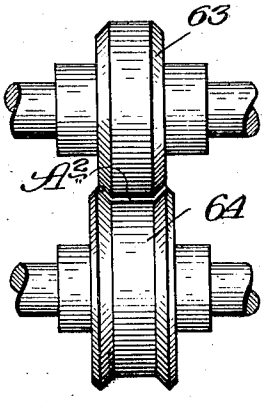
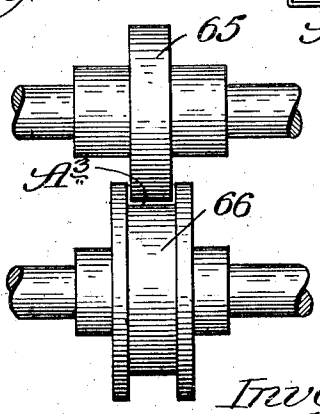


Fig. 7.



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Fig. 11.

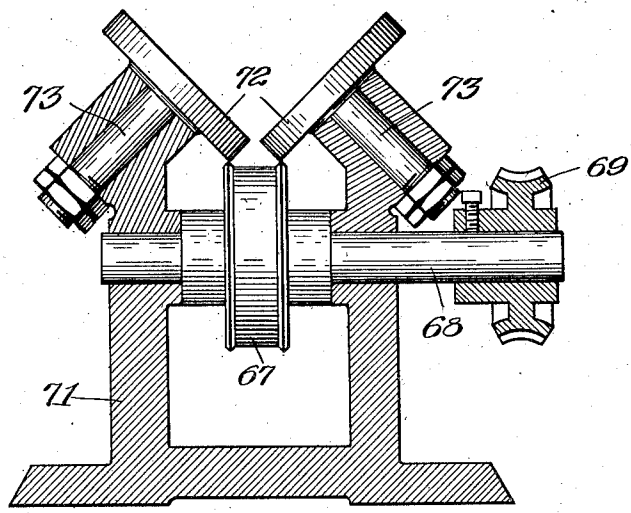


Fig. 12.



Fig. 14.



Fig. 13.

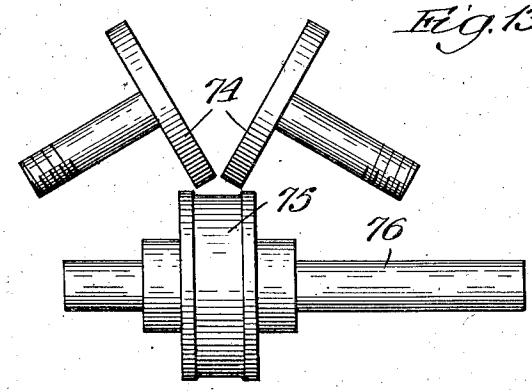
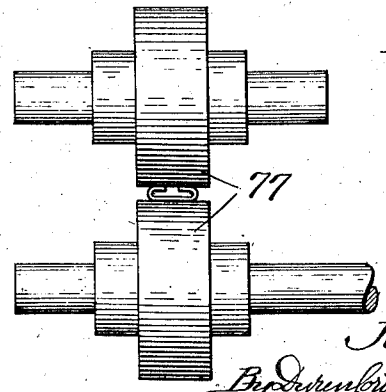


Fig. 16.



Fig. 15.



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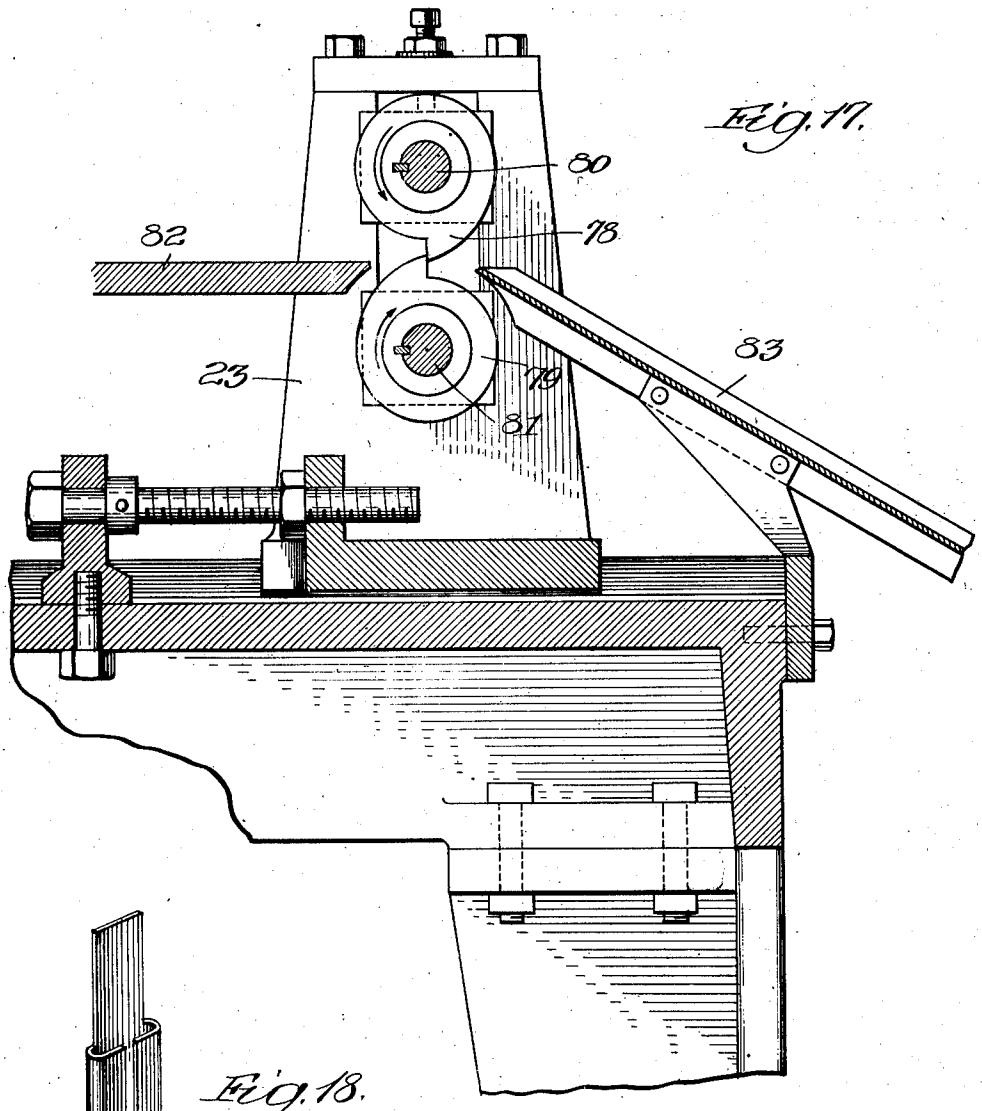


Fig. 17.



Fig. 18.

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UNITED STATES PATENT OFFICE.

JOHN H. KILLION, OF CHICAGO, ILLINOIS.

MACHINE FOR MAKING GROOVED STRIPS.

Application filed June 28, 1924. Serial No. 723,019.

This invention relates to machines for making grooved strips, and is fully described in the following specification as shown in the accompanying drawing in which:—

Figure 1 is a partial side elevation of a machine embodying the invention;

Fig 1ª is a continuation of the same;

Fig. 2 is an enlarged vertical section on the line 2 of Fig. 1;

Fig. 3 is a partial longitudinal section on the line 3—3 of Fig. 2.

Fig. 3ª is a front elevation of a strip of the metal acted upon.

Fig. 4 is a vertical section on the line 4 of Fig. 1.

Fig. 5 is a similar view on the line 5 of Fig. 1.

Fig. 6 is a cross section of the metal strip as it emerges from the forming rolls of Fig. 5.

Fig. 7 is a broken elevation on the line 7 of Fig. 1.

Fig. 8 is a cross section of the strip as it emerges from the rolls of Fig. 7.

Fig. 9 is a broken elevation of the forming rolls taken on the line 9 of Fig. 1ª;

Fig. 10 is a cross section of the strip as it emerges from the forming rolls of Fig. 9;

Fig. 11 is a transverse section on the line 11 of Fig. 1ª;

Fig. 12 is a transverse section of the strip as it emerges from the forming rolls as shown in Fig. 11;

Fig. 13 is a transverse vertical section on the line 13 of Fig. 1ª;

Fig. 14 is a section through the strip as it emerges from the rolls of Fig. 13;

Fig. 15 is a broken elevation of the forming rolls as shown on the line 15 of Fig. 1ª;

Fig. 16 is a transverse section through the strip as it emerges from the forming rolls of Fig. 15;

Fig. 17 is a vertical longitudinal section through the tail end of the machine showing the rotary shears; and

Fig. 18 is a partial perspective of one of the strips after having been sheared off.

The embodiment illustrated comprises a machine having a main frame 20 which is supported upon suitable legs 21, and which has a machined upper surface 22 to which is bolted a casting 23 having beveled edges 24 which are held between longitudinal strips 25 which extend throughout the machine and which are screwed to the frame by means of screws 26 thereby permitting longitudinal movement of the casting 23.

The casting 23 as shown in Fig. 2 carries boxes 27 in which is journalled a shaft 28 which carries a worm wheel 29, the latter meshing with a worm 30 on the shaft 31 which extends throughout the length of the machine and which is driven by any suitable source of power not shown.

The shaft 28 has keyed thereon a gear 32 which meshes with a gear 33 on the shaft 34, the latter being journalled in suitable bearings 35 which are separated from the bearings 27 by means of springs 36 and pressed down by means of adjusting screws 37.

The shafts 28 and 34 carry rotary shearing rollers 38 and 39, the former having an extension 40 which shears out notches B from the strip A (Fig. 3ª) as the strip passes through the shearing rolls. These notches will occur at regular intervals in the strip A.

Following the first set of cutting rolls are three sets of feeding rolls, as shown in Fig. 4, for upper and lower rolls 41 and 42, which are mounted upon shafts 43 and 44, which are journalled in casting 23 as shown in Fig. 2, the shaft 44 having a worm wheel 45 which is driven by a worm wheel 46 on the shaft 31.

Following the three sets of feeding rolls is the first pair of forming rolls 47 and 48 which are carried by shafts 49 and 59 which are similarly mounted in bearings carried by castings 23, as shown in Fig. 2, the lower shaft 59 carrying the worm wheel 60 which meshes with a worm wheel 61 on the shaft 31, the two shafts being geared together by means of gears 61ª and 62. As the flat strip A emerges from the feed rolls 41 and 42 it passes through the first pair of forming rolls 47 and 48 emerging therefrom in the form A^1 of Fig. 6.

Fig. 7 shows a second set of forming rolls 63 and 64 which deepen the depression shown in the strip which emerges therefrom in the form A^2 shown in Fig. 8.

Fig. 9 shows another pair of forming rolls 65 and 66 which are similarly mounted and driven, through which the metal strip passes, emerging in the form A^3, as shown in Fig. 10.

Fig. 11 shows the next set of forming rolls, the lower roll 67 being mounted on a shaft 68 which has a worm wheel 69 which

is driven by means of a worm 70 on the shaft 31. The shaft 68 is mounted in a casting 71 which is held between longitudinal strips 25 in the same way as the castings 23.

Idlers 72 are mounted upon shafts 73 which are journaled in the casting 71, the faces of the idlers lying near the flanged edges of the roll 67 so as to bend down the sides of the strip A^4, as shown in Fig. 12.

A second set of idler rolls 74, as shown in Fig. 13, overlie roll 75, which is mounted on a shaft 76. These idlers and shafts are driven in the same manner as shown and described in Fig. 13. When the strip A^5 emerges from this set of folding rolls it has the form shown in Fig. 14.

Fig. 15 shows a set of flattening rolls 77 both of which are driven, as in Figs. 5 and 7, and are similarly mounted in casting 23. These serve to flatten the strip shown at A^6, Fig. 16.

The final operation, severing the finished strips, is accomplished by the shearing rolls, shown in Fig. 17, wherein the shearing rolls 78 and 79 are mounted upon shafts 80 and 81, which are journalled and driven, as has been previously described. These rolls are provided with registering lips which shear the strip at the dotted lines (Fig. 3^a), these rolls being properly timed for this purpose.

Between the several rolls is a table 82, as shown in Figs. 1, 3, 17 and the like, which carries the strip between sets of rolls. After passing the cutting off rolls, as shown in Fig. 17, the severed strips pass down chute 83.

While I have shown and described but a single embodiment of this invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made which do not depart from the spirit and scope of the appended claims.

I claim:

1. A machine for forming grooved strips from flat metal strips comprising a pair of shearing rolls for necking said strips at spaced intervals, means for bending the edges of the strips upwardly and inwardly between the necked in portions, means for forcing said strips through said machine, and means in timed relation to said machine for cutting off said strips at said necked in portions.

2. A machine for forming grooved strips from flat metal strips comprising a pair of shearing rolls for necking said strips at spaced intervals, rolls in the path of said strips for bending the edges of the strips upwardly and inwardly between the necked in portions, and means for forcing said strips through said machine.

3. A machine for forming grooved strips from flat metal strips comprising a pair of shearing rolls for necking a strip at spaced intervals, means for bending the edges of the strip upwardly and inwardly between the necked in portions, means for shearing said strip at one end of said necked in portion, and means for forcing said strip through said machine.

4. A machine for forming grooved strips from flat metal strips comprising a pair of shearing rolls for necking a strip at spaced intervals, a series of rolls in the path of said strip for gradually creasing said strip longitudinally and for bending the edges upwardly and toward each other between the necked in portions, and means for driving some of said rolls to force the strip through the machine.

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