Dec. 31, 1929. J. FULENWIDER ET AL 1,742,031

LOCK ROOFING FORMING MACHINE

Filed June 28, 1926 3 Sheets-Sheet 1

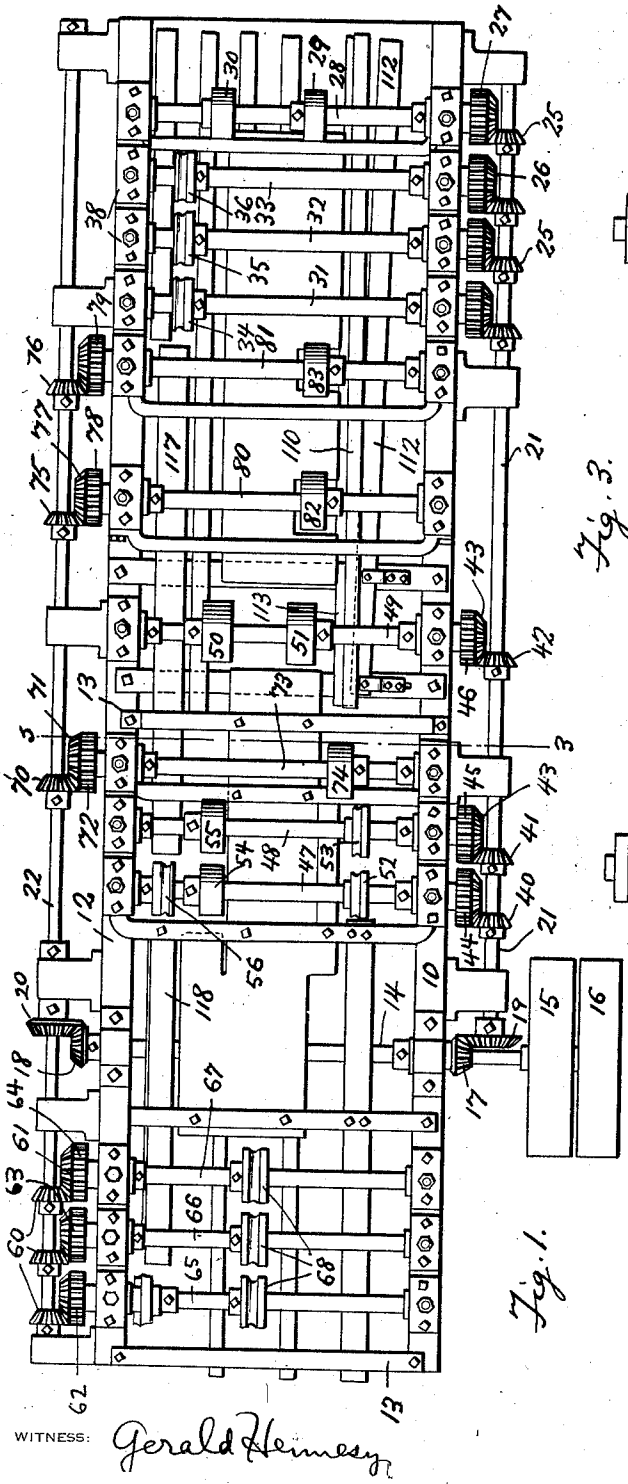


Fig. 1.

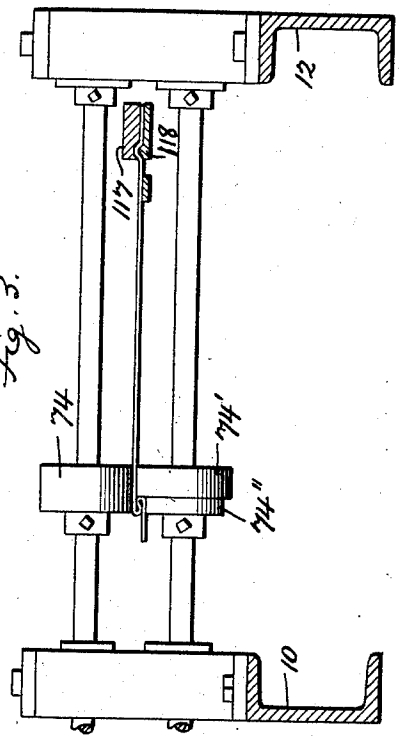


Fig. 3.

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LOCK ROOFING FORMING MACHINE

Filed June 28, 1926 3 Sheets-Sheet 2

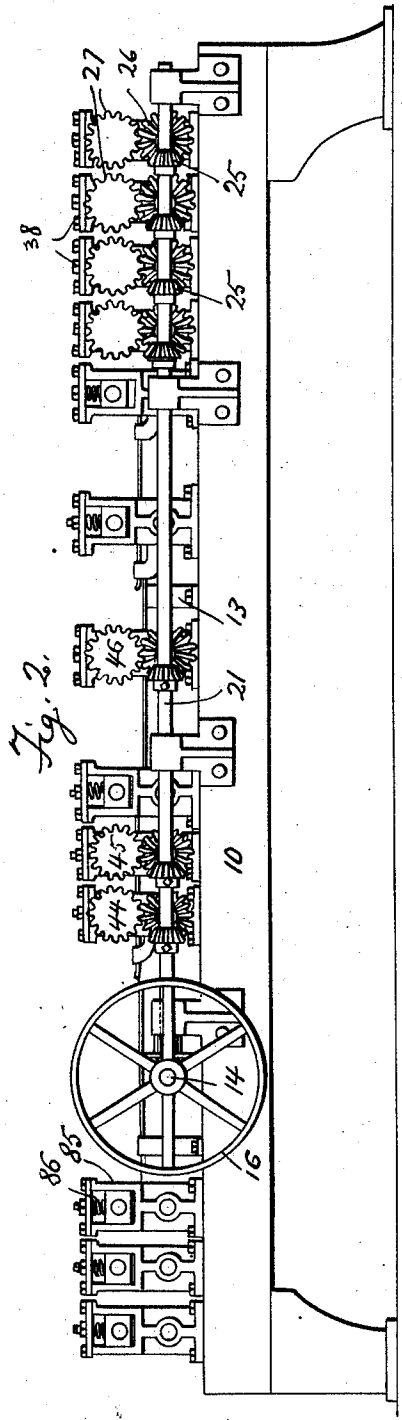


Fig. 2.

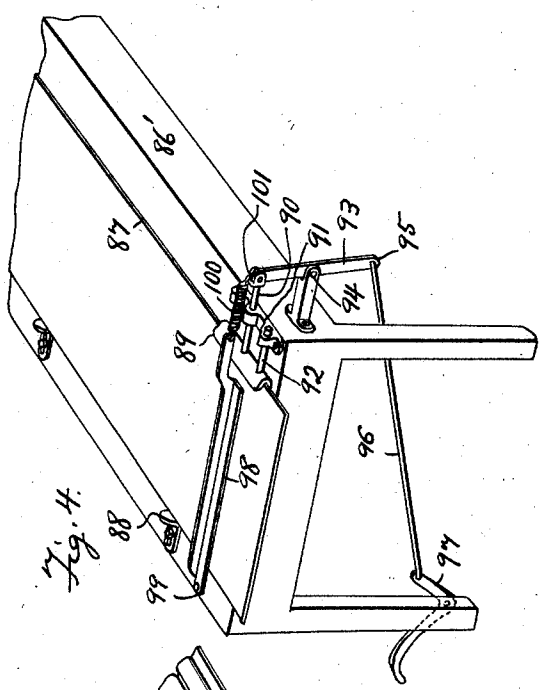


Fig. 4.

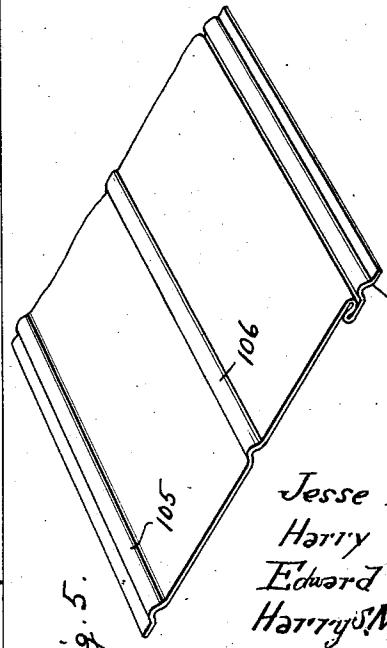


Fig. 5.

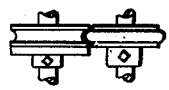


Fig. 8.

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LOCK ROOFING FORMING MACHINE

Filed June 28, 1926 3 Sheets-Sheet 3

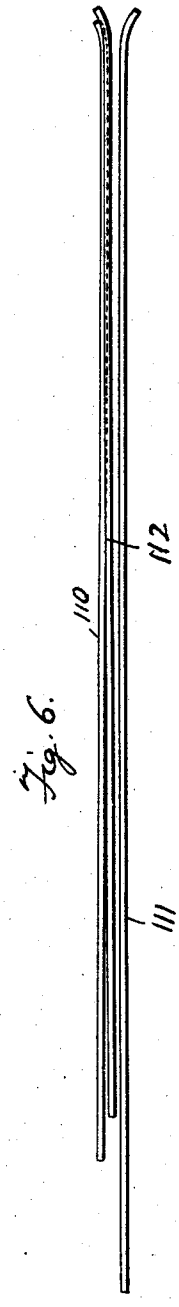


Fig. 6.

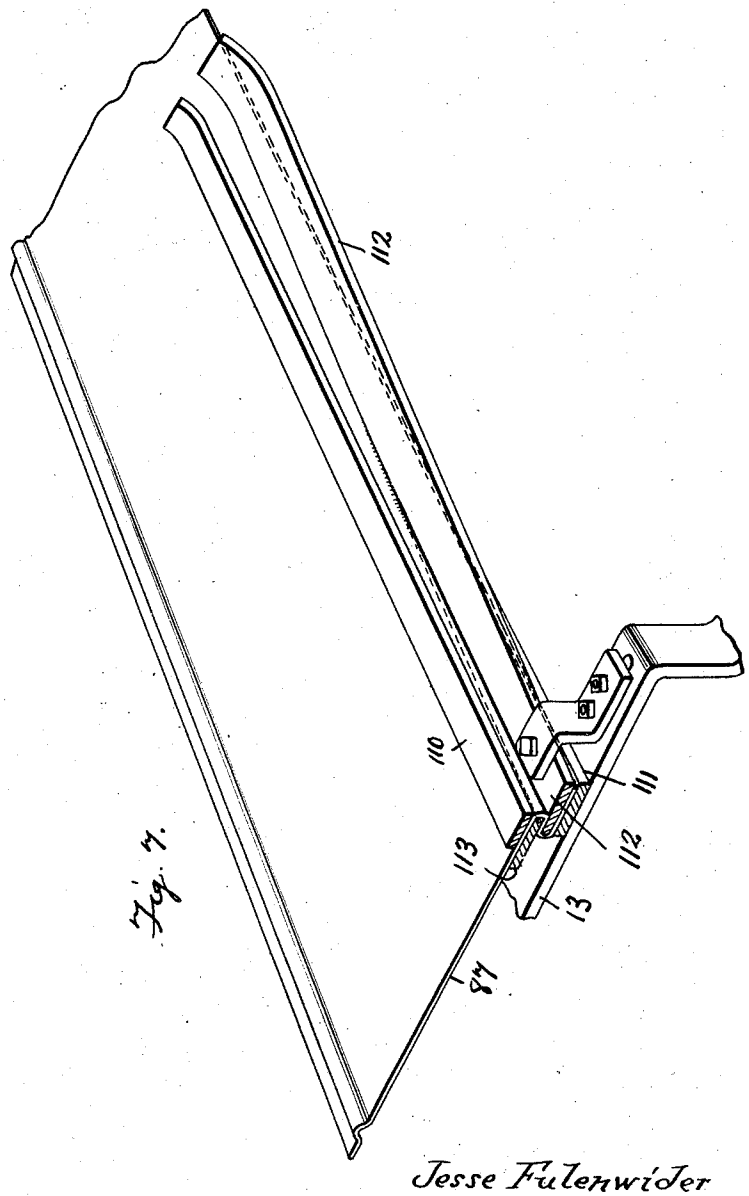


Fig. 7.

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UNITED STATES PATENT OFFICE

JESSE FULENWIDER, HARRY FULENWIDER, EDWARD WILLIAM ROBINSON, AND HARRY S. NORRIS, ALL OF SAVANNAH, GEORGIA, ASSIGNORS TO SAID JESSE FULENWIDER AND SAID HARRY FULENWIDER

LOCK-ROOFING FORMING MACHINE

Application filed June 28, 1926. Serial No. 119,145.

The obect of this invention is to provide for forming a particular fold at the edge portion of a metallic roofing sheet, to permit of the connection of the sheet with an adjacent sheet, in an especially effective manner.

A further object is to provide a machine comprising a series of rolls and a plurality of forming bars, said bars converging in a special manner and producing a double fold, for the purpose specified.

With the foregoing and other objects in view, the invention consists in the novel construction and arrangement of elements described, illustrated and claimed, it being understood that modifications may be made within the scope of the claims without departing from the spirit of the invention.

In the drawings forming part of this application,

Figure 1 shows the machine in top plan.

Figure 2 is a view in side elevation.

Figure 3 is a section on line 3—3 of Figure 1.

Figure 4 is a perspective view showing means for holding the metallic sheet in position for feeding to the forming devices.

Figure 5 is a perspective view of the sheet after it has passed thru the machine.

Figure 6 is a detail view showing the relative position of the forming bars.

Figure 7 is a perspective view showing the sheet being folded by the forming bars.

Figure 8 is a detail view showing a pair of rollers, the upper roller being grooved circumferentially and the lower roller carrying a convex portion cooperating with the grooved portion of the upper roll.

The machine includes the longitudinally extending channel bars 10 and 12, and a plurality of transverse braces such as 13 connected with said bars, a main transverse shaft 14, mounting pulleys 15 and 16, thru one of which the drive is effected.

Shaft 14 carries pinions 17 and 18 meshing respectively with gear wheels 19 and 20 on line shafts 21 and 22. These shafts last named carry pinions thru which drive is imparted to the individual rolls.

At the right of Figures 1 and 2 pinions 25 mesh with the beveled face or gear portion 26 of gear wheels 27, one of the latter being mounted on shaft 28 carrying a roll 29 and a roll 30 adapted to engage the sheet of metal to be formed. The shafts 31, 32 and 33 carry rolls 34, 35 and 36, the latter being grooved and cooperating with lower rolls such as that shown in Figure 8. The bearings for the shafts 31, 32, 33 are designated 38, the boxes being mounted on one of the longitudinal elements of the frame.

Shaft 21 carries besides pinions 25, the pinions 40, 41 and 42 meshing respectively with the beveled gear faces 43 of gear wheels 44, 45 and 46. The wheels 44, 45 and 46 are mounted on shafts 47, 48 and 49, and shaft 49 carries smooth rolls 50 and 51, while shafts 47 and 48 carry respectively grooved rolls 52 and 53, adapted to cooperate with the lower rolls of the type shown in Figure 8. Shafts 47 and 48 further carry smooth rollers 54 and 55, and shaft 47 carries grooved roller 56.

Shaft 22 carries pinions 60 meshing with the beveled gear portions or faces 61 of wheels 62, 63 and 64, and these gear wheels last named are mounted on shafts 65, 66 and 67 carrying respectively grooved rollers, such as 68. It will be understood that the upper rollers 68 cooperate with lower rollers having convex edge portions, as in the previous instances.

Shaft 22 further carries a pinion 70 meshing with the beveled gear face 71 of gear wheel 72, the latter being on shaft 73 carrying a smooth wheel 74. Also on shaft 22 are pinions 75 and 76 meshing with the gear faces 77 of gear wheels 78 and 79, the latter being on shafts 80 and 81 mounting respectively smooth wheels 82 and 83. The various smooth upper rolls bear on the sheet.

The bearing boxes, wherever necessary are vertically movable in guides such as 85, the boxes being under pressure by means of springs 86.

In Figure 4 the table 86′ provides a support for the metallic strip or sheet 87 to be fed to the machine, and adjustable guiding devices such as 88 are mounted near one edge of the table and are adapated to engage one edge of the sheet. The opposite edge of the

sheet is engaged by a channeled element 89 movable horizontally by means of a rod 90. This rod 90 is guided in an element 91 which also provides guiding means for rod 92 connected with element 89. Rod 90 is pivotally connected with an arm 93, the latter being pivotally mounted at 94, and having connection at 95 with a rod 96 adapted to be operated by a foot lever 97. This device aids in controlling the direction of movement of the sheet 87, and bearing on the upper surface of the sheet is a guiding bar 98 connected with the table at 99, in such manner as to permit moderate movement of said bar 98, and the latter is connected with a coiled spring 100, the opposite end of the latter being secured to a forked device 101 on rod 90, before mentioned. The spring 100 therefore resiliently acts upon both bar 98 and rod 90, permitting movement of these elements and effecting return to normal position.

The sheet passes under the smooth and grooved rolls of Figure 1, and is engaged and operated upon by the forming bars shown in Figures 6 and 7 and elsewhere, by means of which bars the double fold of Figure 5 is produced. The fold is flattened to a sufficient extent by the upper roll of Figure 3 and lower grooved roll 74′ having a reduced portion 74″.

Corrugations 105, 106 and 107 are produced by the grooved rolls, as the sheet moves from right to left in Figure 1.

Upper and lower bars 110 and 111 bear on the upper and lower surfaces of the sheet 87, and bar 112, converging with reference to the other bars, guides the sheet under bar 113, the sheet folding around the edge of bar 113 and around the edge of bar 112 next below.

When free from the forming bars, the sheet passes to the rolls of Figure 3, and thence to the grooved rolls at the left of the central portion of Figure 1, forming the corrugation 107 of Figure 5, and then the corrugation 106. Corrugation 105 was formed by the rolls at the right of Figure 1, and the bars 117, 118, grooved as in Figure 3, maintained the position of the sheet in passing through the machine.

Having described the invention what is claimed is:—

1. In a machine of the class described, a main frame, rolls mounted in the frame, means for driving the rolls, and a plurality of flat bars mounted in approximate alinement with the rolls, the bars being in overlapping relation transversely of the frame, and having adjacent parallel surfaces co-extensive with the length of the bars.

2. In a machine of the class described, a main frame, a plurality of series of rolls mounted within said frame, the rolls of the separate series being mounted respectively near opposite sides of the frame, means for driving the rolls, and a plurality of flat bars mounted in approximate alinement with one of the series of rolls, the bars being in overlapping relation transversely of the frame and having adjacent parallel surfaces co-extensive with the length of the bars.

3. In a machine of the class described, a main frame, a plurality of series of rolls mounted within said frame, the rolls of the separate series being mounted respectively near opposite sides of the frame, means for driving the rolls, and a plurality of longitudinally converging flat bars mounted in approximate alinement with one of the series of rolls, the bars being in overlapping relation transversely of the frame and having adjacent parallel surfaces co-extensive with the length of the bars.

4. In a machine of the class described, a main frame, a plurality of series of rolls mounted within said frame, the rolls of the separate series being mounted respectively near opposite sides of the frame, means for driving the rolls, and a plurality of bars mounted in approximate alinement with one of the series of rolls, the bars being in overlapping relation transversely of the frame, and a plurality of flattening rolls in approximate alinement with the bars for closing the folded portion of a sheet after it has been formed by the bars.

5. In a machine of the class described, means for guiding a sheet, a plurality of bars for producing a fold longitudinally of the sheet, said guiding means including a channel element for engaging one edge of the sheet, a rod and resilient means connected therewith for holding the channel element against the sheet, and a bar for contact with the upper surface of the sheet, said bar being connected with the resilient means, these means acting to return either the bar or channel element to normal position when deflected therefrom.

6. In a machine of the class described, a main frame, a plurality of series of rolls mounted within said frame, the rolls of the separate series being mounted respectively near opposite sides of the frame, means for driving the rolls, a plurality of bars in approximate alignment with one of the series of rolls, one of the bars including a longitudinal rib and the other being grooved longitudinally, and a plurality of bars in the path of movement of material between the rolls on the opposite side of the frame, the bars last named having opposite surfaces extending transversely in parallel planes, and these bars overlapping in a transverse direction.

In testimony whereof we affix our signatures.

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