

Sheet I.

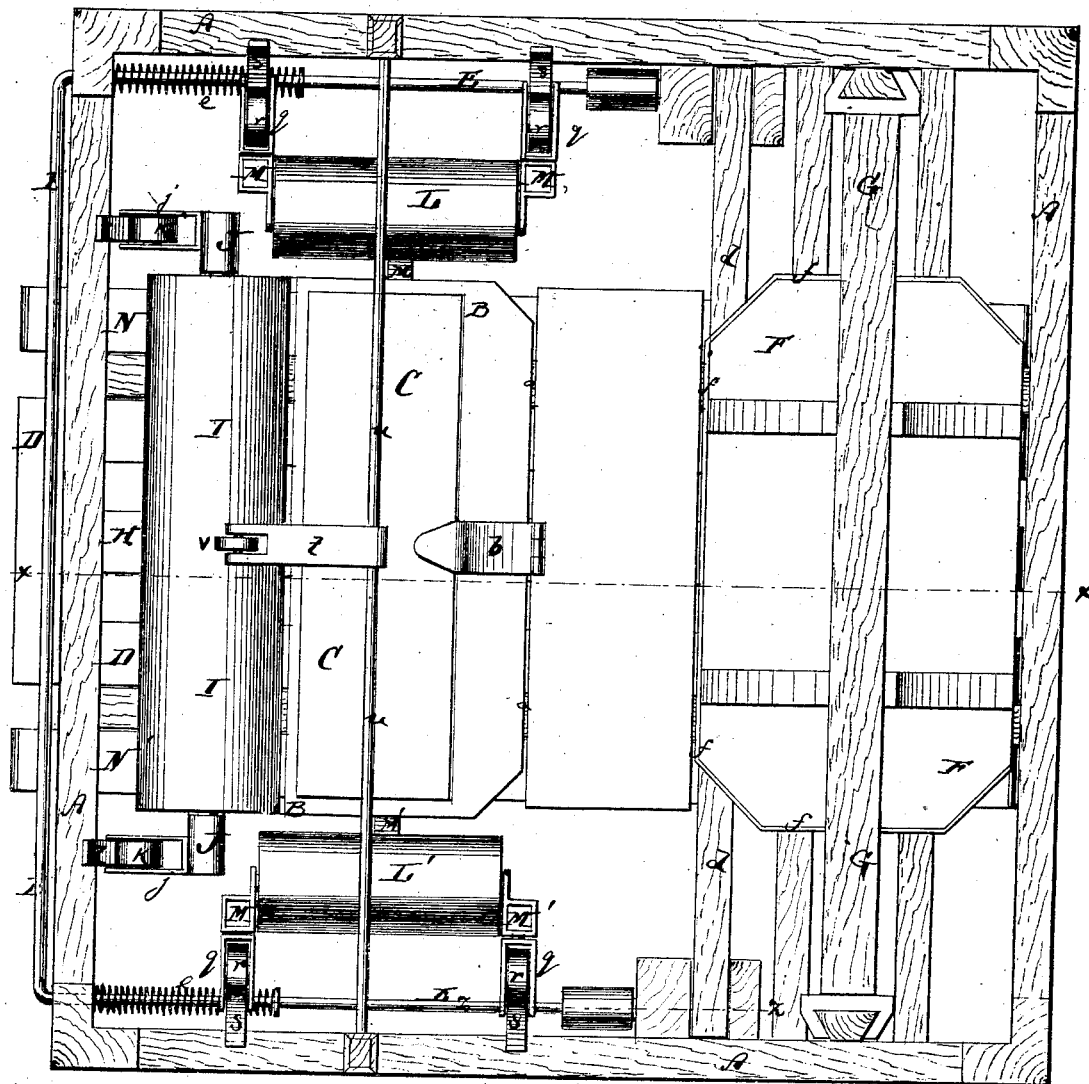
3 Sheets.

*J.R. Mailland. Mach. for Cutting & Bending
Sheet Metal.*

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Fig. 1.

PATENTED MAY 2 1871



Witnesses:

*E. Wolff
L. S. Mabee*

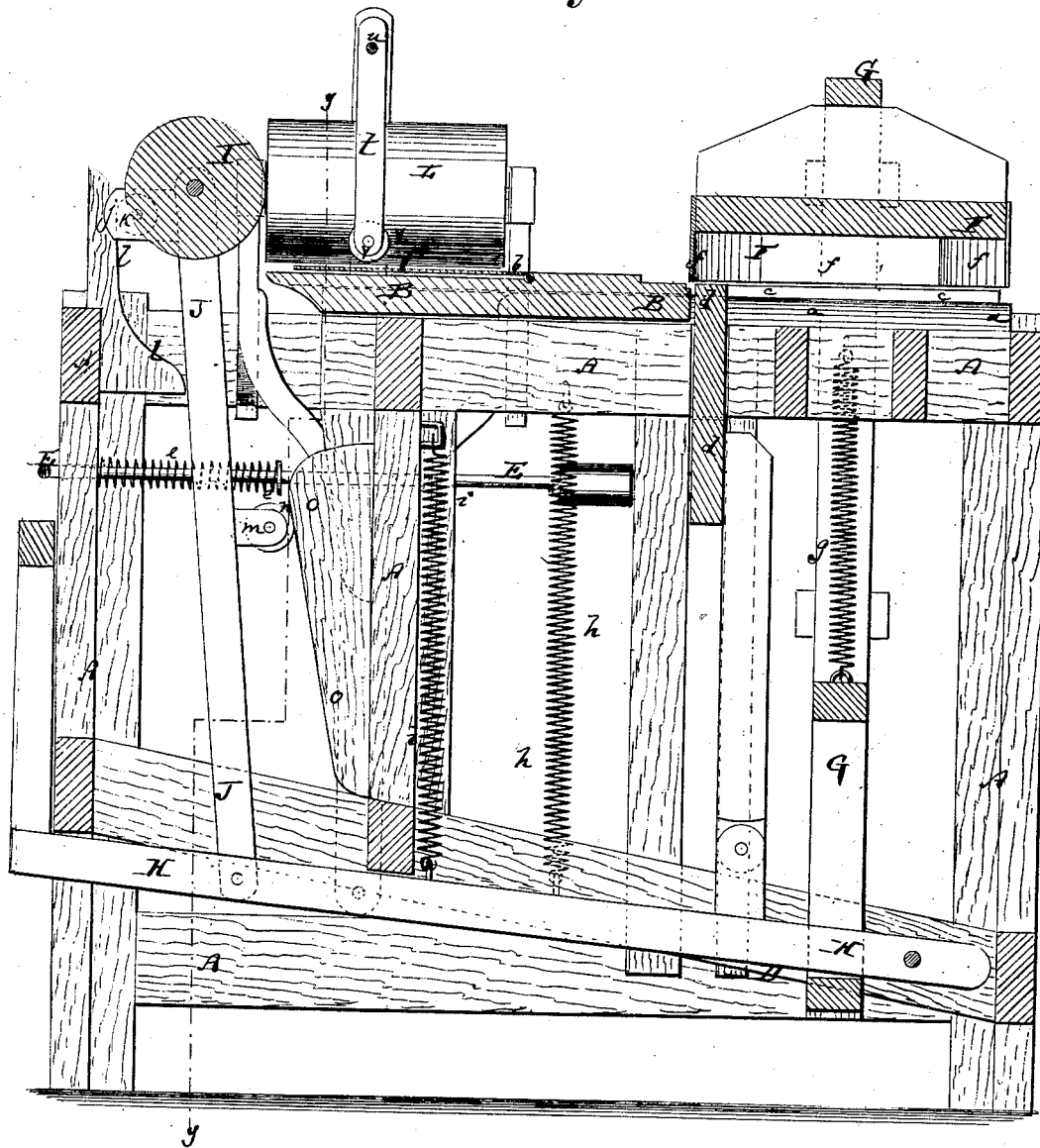
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Sheet II.

3 Sheets.

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Fig. 2.



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J.R. Maitland. Mach. for Cutting & Bending
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Fig. 3.

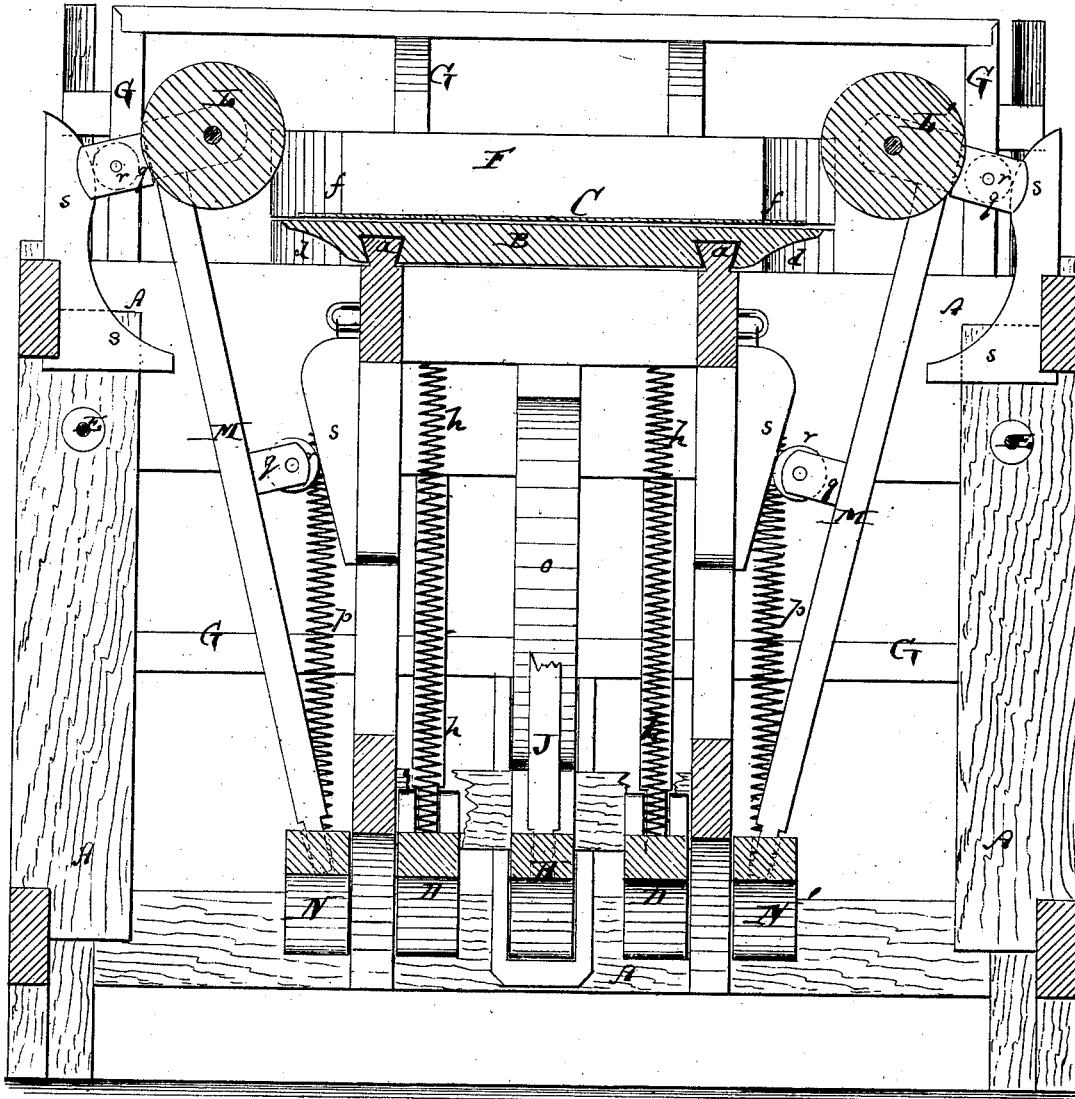
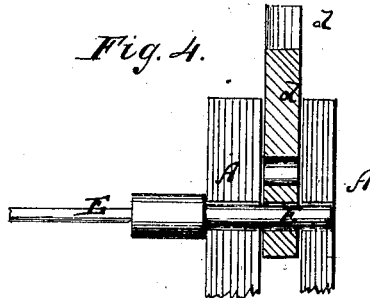


Fig. 4.



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United States Patent Office.

JONES R. MAITLAND, OF LITTLE ROCK, ARKANSAS.

Letters Patent No. 114,311, dated May 2, 1871.

IMPROVEMENT IN MACHINES FOR CUTTING AND BENDING SHEET METAL.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JONES R. MAITLAND, of Little Rock, in the county of Pulaski and State of Arkansas, have invented a new and improved Machine for Cutting and Bending Sheet-Metal Roofing-Plates; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a plan or top view of my improved machine for bending and cutting sheet metal.

Figure 2 is a vertical longitudinal section of the same taken on the plane of the line *x x*, fig. 1.

Figure 3 is a vertical transverse section of the same, taken on the plane of the line *y y*, fig. 2.

Figure 4 is a detail sectional view of the same taken on the plane of the line *z z*, fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to a new machine for preparing sheet-metal roofing-plates by properly cutting and bending the same, so that they will, when removed from the machine, be ready for use.

The invention consists in a novel arrangement of carriage for supporting the sheets and conveying them under the cutter and bending-rollers; also in a new vertically-adjustable cutter-guard, in the arrangement of guides for the bending-rollers, of a lid for holding the sheet on the carriage, and other minor details, as hereinafter more fully described.

A in the drawing represents the frame of my improved bending-machine. It is made of wood or other suitable material, of such proper form and size as to firmly support and hold the devices and mechanism employed thereon.

B is a sliding carriage supported by horizontal dovetail rails *a*, that extend from front to rear of the machine. The carriage is a plate of the requisite size, and is held down by the dovetail rails and longitudinally adjustable thereon.

C is a metal lid, hinged to the top of the carriage B for holding down the sheet to be cut. This lid has a shank, *b*, which may be bent to properly clear the upward-projecting back edge of the sheet during the last part of the operation.

On the back part of the machine are arranged projecting ribs or pieces *c c* and *d*, which form the cutter-guards, the front guard *d* being vertically adjustable and connected with a treadle, D, by which it can be drawn down.

A bolt or slide, E, is, by means of springs *e e*, forced through apertures of the guard *d* to lock the same in the upper or lower positions.

Springs *h* are connected with the treadle *b* for holding the guard *d* elevated.

F is the cutter. It is a plate of the size of sheet to be cut, with suspended knives *f f* at the edges, except in rear, where the sheet was straight when put in. Oblique knives are put in at the corners to clip the corners of the sheet.

The cutter F is secured to a vertical frame, G, which is connected with a treadle, H, whereby it is drawn down, springs *g* holding the same elevated when not used.

I is the main front bending-roller. It is hung with its ends in the forked upper end of an upright frame, J, whose lower end is pivoted to the front part of the treadle H, which is drawn up by a spring, *i*.

From the frame J project forward ears *j j*, carrying friction-rollers *k*, which, during the downward motion of the roller I, occasioned by the treadle H, fit against the roller I, on the frame A, for giving to the bent edge the desired shape. A similar ear, *m*, carrying a roller, *n*, projects from the back of the frame J against a track, O, as shown in fig. 2, and for the same purpose as the guiding apparatus in front.

L and L' are rollers for bending the ends of the sheet, they being arranged opposite the ends of the carriage. They are respectively hung in frames M M', that are pivoted to treadles N N', which are drawn up by springs *p*.

The frames M M' have inwardly and outwardly projecting ears *q*, with rollers *r* working against the tracks *s* in the same manner as the similar devices on the front roller.

t is a vertical arm suspended from a transverse wire, *u*, above the carriage, and provided with a roller, V, at the lower end for holding down the lid C.

The operation is as follows:

The treadle H is first moved to draw down the roller I for the admission of the sheet upon the carriage, the latter being on the front part of the frame. The end of the sheet is placed against a shoulder of the carriage provided for that purpose. The carriage is next moved back, but cannot enter under the cutter as long as the guard *d* is elevated. The bolt E is consequently withdrawn from the said guard and the treadle D worked down to lower the guard, when the bolt is released to lock the same in the lower position. The carriage can now be moved under the cutter.

After the carriage is moved under the cutter the guard *d* must again be raised, which is done by withdrawing the bolt E by means of the springs *h*. Then the treadle H is depressed for lowering the cutter, which will cut the sheet of the desired shape. The cutter is immediately elevated by the springs *g*. The carriage is now moved forward again between the

rollers, for which motion the guard *d* had to be once more lowered.

When the carriage is in the forward position the roller *I* is first drawn down by the treadle *H* for bending down the front edge. The roller *L'* is subsequently drawn down for bending one end of the sheet. The latter is now reversed on the carriage and the rollers *I* and *L* moved down for bending the remaining edges in a direction opposite to that in which the others were bent. By next raising the lid *C* the complete roofing-sheet will be exposed, and can be removed ready for use.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The sliding carriage *B*, containing the lid *C*, for holding the sheet to be cut, and bent substantially as herein shown and described.

2. The vertically-adjustable guard *d*, applied as set forth, so as to admit and lock the carriage, as specified.

3. The spring-lock *E*, combined with the adjustable guard *d*, substantially as and for the purpose herein shown and described.

4. The rollers *I L L'*, hung to pivoted frames, which have projecting ears for guiding them along curved tracks, substantially as herein shown and described.

5. The combination of the carriage *B* with the cutter *F*, rollers *I L L'*, and treadles *D, H, M*, and *M'*, all arranged to operate substantially as herein shown and described.

JONES R. MAITLAND.

Witnesses:

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