(No Model.)

G. NAUMAN.

MACHINE FOR SHAPING SHEET METAL.

No. 419,344. Patented Jan. 14, 1890.

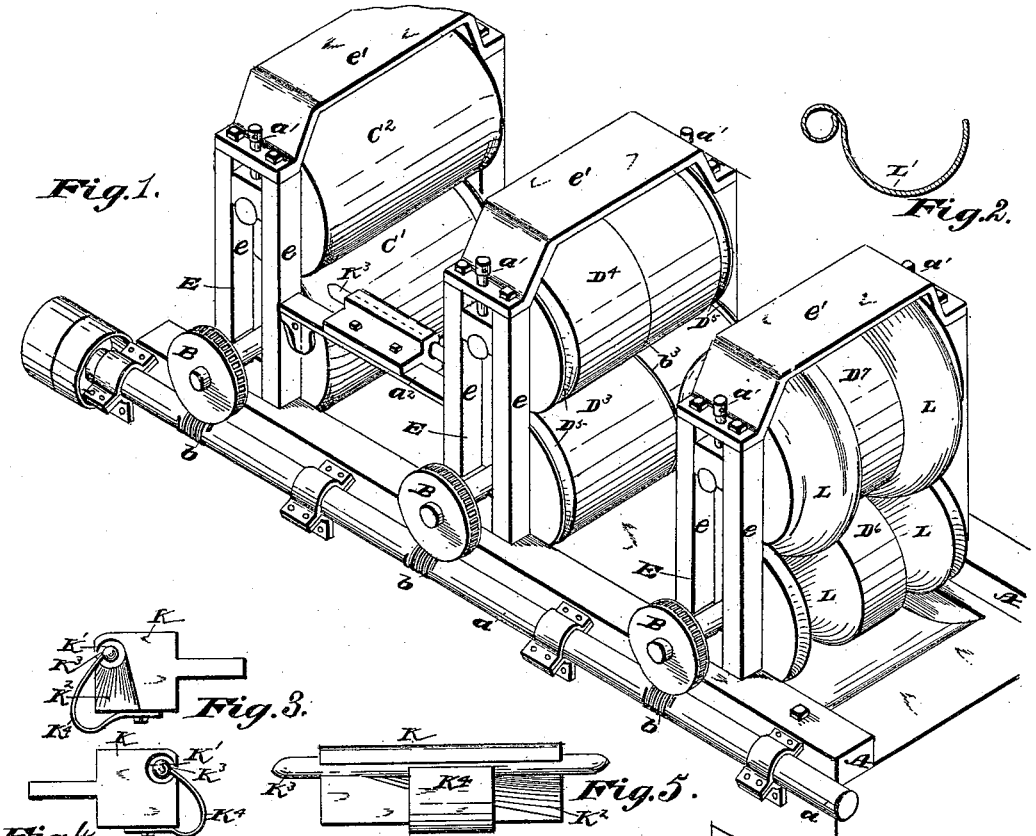

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

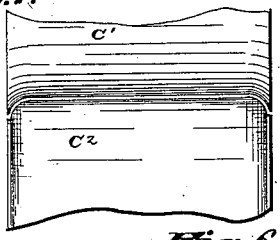

Fig. 6.

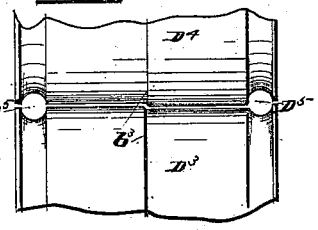

Fig. 7.

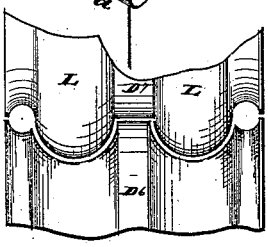

Fig. 8.

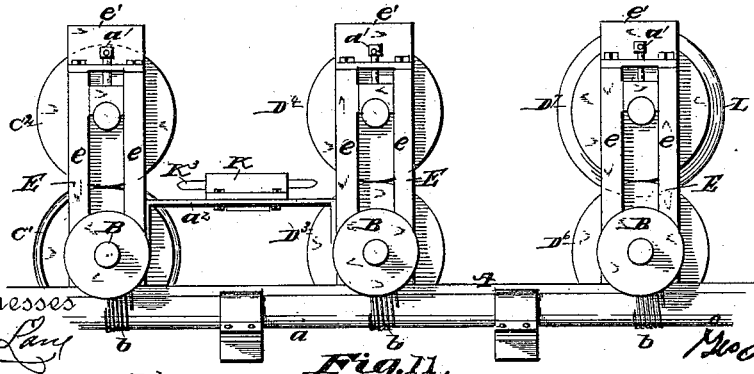

Fig. 11.

Fig. 9.

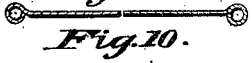

Fig. 10.

Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE NAUMAN, OF CANTON, OHIO.

MACHINE FOR SHAPING SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 419,344, dated January 14, 1890.

Application filed February 16, 1889. Serial No. 300,193. (No model.)

To all whom it may concern:

Be it known that I, GEORGE NAUMAN, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Metal-Forming Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is an isometrical view showing a train of rolls designed and calculated to simultaneously form two eaves-troughs. Fig. 2 is a view in cross-section of an eaves-trough properly formed. Fig. 3 is a view looking toward the mouth end of the bead-forming device. Fig. 4 is a view of the opposite or delivery end of the bead-forming device. Fig. 5 is a side view of the bead-forming device. Figs. 6, 7, and 8 are side elevations of the different rolls. Figs. 9 and 10 are transverse sections of the sheet after passing through the different rolls. Fig. 11 is a side elevation of the rolls, showing one of the bead-forming devices placed in proper position.

The present invention has relation to metal-forming machines; and it consists in the different parts and combination of parts hereinafter described, and particularly pointed out in the claims.

Similar letters of reference indicate corresponding parts in the figures of the drawings.

In the accompanying drawings, A represents the base-frame, which is substantially of the form shown in the drawings. To one side of the base-frame A is journaled the shaft *a*, which is located substantially as shown, and is provided with the screws *b*, which are for the purpose of communicating rotary motion to the rolls by means of the screw-wheels B, said wheels being securely attached to the shafts of the lower rolls C′, D^3, and D^6. The rolls C^2, D^4, and D^7 are located directly above the rolls C′, D^3, and D^6. These rolls are designed and calculated to form eaves-troughs, and are held in proper position by means of the housings E. Said housings are located substantially as shown in the drawings, and consist of the side uprights *e e*, having the top cross-pieces *e′ e′*, through which pass the set-screws *a′*, supporting the bearings for the upper rolls and adjustably limiting their vertical play.

The rolls C′ and C^2 are located at the front or forward end of the machine proper. The ends of the roll C′ are beveled or rounded, as illustrated, the ends of the rolls C^2 being formed with a flange to correspond with the beveled or rounded portion of the roll C′.

The object and purpose of the rolls C′ and C^2 are to bend or fold the edges of the sheet D^2, as shown in Fig. 9. At each end of the rolls C′ and C^2 are located the bead turning or forming devices. (But one bead turning or forming device is shown in Fig. 1.) These devices are located directly in line with the beveled or rounded portions of the rolls C′ and C^2, and are held in the desired position by means of the bars a^2 or their equivalents. (But one bar is shown in Fig. 1.)

The beading device consists of the bar K, which is provided with the groove K′ and the beveled portion K^2. Said beveled portion K^2 increases in size from its forward end to its rear end, and is substantially of the form illustrated in Fig. 5. For the purpose of causing the sheet D^2 to properly enter the groove K′, the bar or guide K^3 is provided, and is located within the groove K′. The ends of the bar or guide K^3 extend a short distance beyond the ends of the bar K. This bar or guide K^3 is held in proper position by means of the curved arm K^4, said arm being securely attached to the bar K by means of suitable clamping-bolts or their equivalents. It will be seen that as the sheet D^2 is moved along by means of the rolls C′ and C^2 the curved edges of said sheet will come directly above the extended front or forward end of the bar or guide K^3, and the portion of the sheet D^2 extending past or beyond the bar or guide K^3 will come in contact with the twisted beveled portion K^2 and gradually form the circular bead shown in the drawings. The opposite end of the bar K^3 is for the purpose of holding the sheet D^2 in proper position to enter the rolls D^3 and D^4. The rolls D^3 and D^4 are each provided with the grooves D^5, and are for the purpose of receiving the beads formed on the edges of the sheet D^2. The rolls D^3 and D^4 are for the purpose of cutting the sheet D^2 into two strips by means of the shear-flanges b^3. The rolls D^6 and D^7 are provided

with the grooves and flanges L, said grooves and flanges being for the purpose of forming the troughs L′.

It will be seen that by my peculiar arrangement and construction I am enabled to produce eaves-troughs of any desired length without seams or joints, thereby producing an eaves-trough much quicker and better than by the old way of forming an eaves-trough in short sections.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the base-frame A, having journaled thereto the shaft *a*, provided with the screws *b*, the screw-wheels B, the rolls C′ and C², provided upon their ends with beveled or rounded portions and corresponding beveled or rounded flanges, the rolls D³ and D⁴, provided with the grooves D⁵ and the intermediate shear-flanges *b*³, and the rolls D⁶ and D⁷, provided with the grooves and flanges L, each of said pairs of rolls being operated by the shaft *a* through the intermediate screw-wheels B, substantially as and for the purpose set forth.

2. The combination of the bar K, provided with the groove K′ and the beveled and twisted portion K², the bar or guide K³, centered in the said groove, and the arm K⁴, which supports the guide upon the bar K, substantially as and for the purpose set forth.

3. The combination, with the rolls C′, C², D³, D⁴, D⁶, and D⁷ and their housings E, of the bar K, provided with the groove K′ and the beveled portion K², and the bar or guide K³, centered in the groove K′ and extending a little beyond the ends of bar K, all located between the rolls C′ C² and D³ D⁴, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

GEO. NAUMAN.

Witnesses:
E. A. C. SMITH,
FRED W. BOND.