

(No Model.)

C. J. COLLING.
MACHINE FOR BENDING SHEET METAL.

No. 475,299.

Patented May 24, 1892.

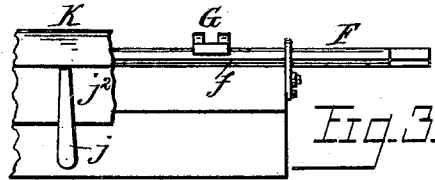
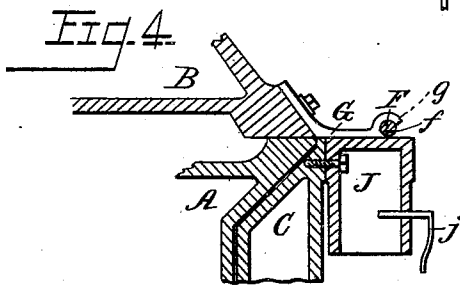
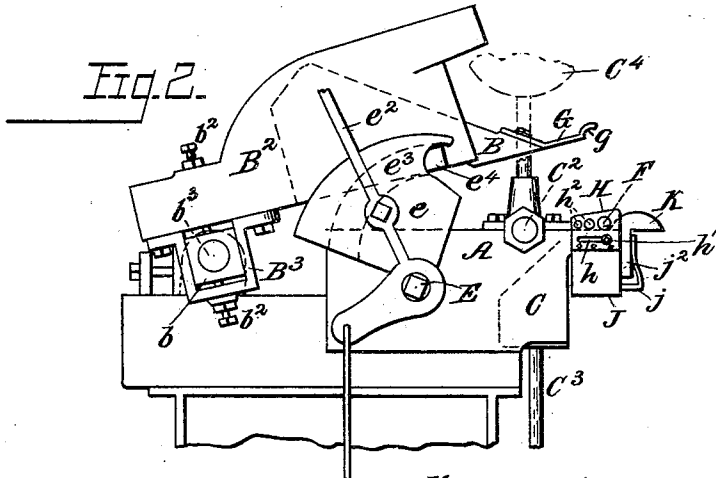
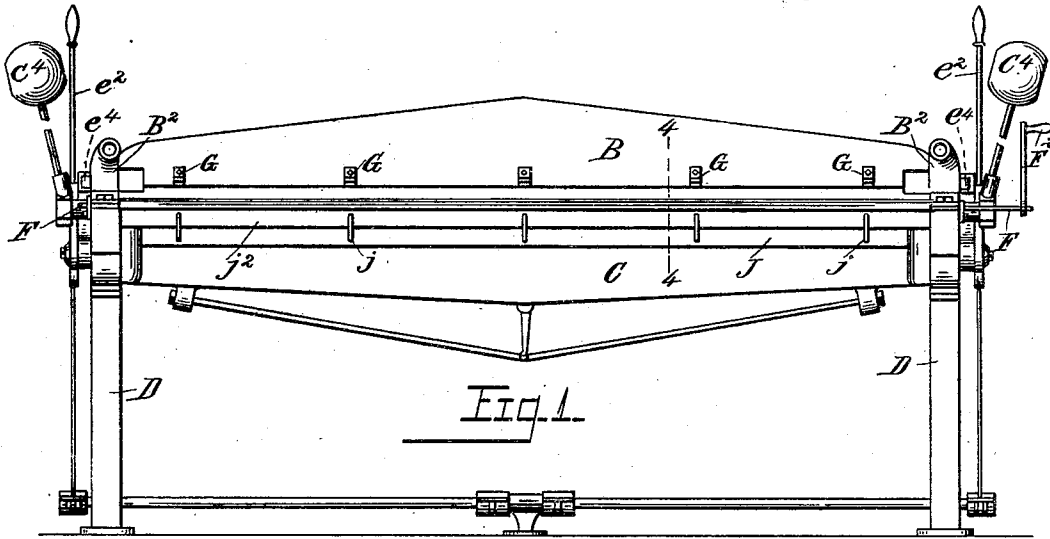
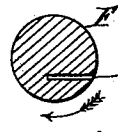


Fig. 5.

Fig. 5.



Witnesses.
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UNITED STATES PATENT OFFICE.

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MACHINE FOR BENDING SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 475,299, dated May 24, 1892.

Application filed March 7, 1892. Serial No. 423,995. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. COLLING, a citizen of the United States, residing at Cincinnati, in the county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Machines for Bending Sheet Metal, of which the following is a specification, reference being had to the accompanying drawings.

10 The object of my invention is to provide a means for forming a bead or roll along the top outer edge of a metallic gutter, said invention consisting of certain attachments hereinafter set forth and connected to what is known to
15 the trade as a "cornice-brake machine."

In the accompanying drawings, Figure 1 is a front elevation of a machine with my newly-invented attachments connected thereto in an operative position, said view showing the clamp-jaw of the machine elevated. Fig. 2 is an end view of the machine and attachments, shown in Fig. 1 on an enlarged scale. Fig. 3 is a detail view of the mandrel clamp-former and supporting-base, a portion of said former being broken away and illustrating the relative position of said parts in an operative position. Fig. 4 is a vertical section taken on the dotted line 4 4 of Fig. 1, on an enlarged scale, with the top horizontal clamp-jaw lowered and the former removed. Fig. 5 is a transverse section through a gutter beaded on my improvements. Fig. 6 is a transverse section through the mandrel-rod.

The machine proper consists of a stationary jaw A, an upper horizontal movable jaw or brake B, and when constructed as illustrated is also provided with a horizontal jaw or brake C, the latter depending at substantially right angles from the top face of jaw A, as more clearly shown in Figs. 2 and 4.

To each end of the movable jaw B is cast or otherwise suitably connected the frame-portion B², which latter is provided at rear with a bracket B³, having therein a bearing b, which latter is made adjustable therein by means of the set-bolts b², as shown in Fig. 2. This bearing rests and rocks upon the journals b³ at each end of the machine, said journals being connected to suitable supports on
50 the end supporting-frames D. To the hori-

zontal shaft E is connected at each end thereof the lugs e, having a handle e² connected thereto, each of said lugs having an inner eccentric groove e³. (See dotted lines, Fig. 2.) To the lower front portion of frames B² is connected lugs e⁴, which latter engage within said eccentric grooves e³, and as said lugs e through the medium of handles e² are rocked backward or forward the clamp-jaw B is correspondingly elevated or lowered by reason of said lugs e⁴ sliding within said eccentric grooves e³. The lower brake C depends from the journals C², the former being provided with handles C³ and a counter-balance C⁴, as shown.

The aforescribed construction of machine is adapted for use in bending metal to various shapes and angles, and is substantially the same as that set forth in Letters Patent No. 393,583, dated November 27, 1888, to James M. Robinson.

The brake-machine just described is illustrated in order to show the application of my invention thereto, and I do not limit my invention to said machine; but the same may be applied to any brake-machine having a horizontal movable jaw or brake adapted to operate in connection with a stationary jaw or base.

My invention consists of a mandrel-rod F, having therein a longitudinal slot f in connection with fingers G, rigidly connected to the movable clamp B, said fingers having on their lower end portion the concave portion g, which portion is adapted to fit over the mandrel F and shape the metal thereto, as hereinafter set forth. This mandrel-rod F is preferably supported in bearing-plates H, the latter being adjustably connected to base J by means of slot h and bolt h'. Said plates are also preferably provided with bearing-openings h² of varying diameter in order to accommodate varying diameters of mandrel-rods.

When used in connection with a machine such as shown, the base J is connected to the outer depending face of brake C, as more clearly shown in Fig. 4. This base J is detachably connected to the machine, and is used only in connection with the other features of my invention.

To the detachable base J are connected the clamps *j* for retaining the mandrel K in position thereon, as shown. This mandrel K is convexly circular in cross-section, conforming to the body portion of the gutter to be formed, and is provided with a downwardly-extending portion *j*² to be received by the friction-clamps *j*.

The operation of my improved device for bending sheet metal is as follows: The clamps G rest at their outer concave portion on the mandrel-rod F, and are held firmly to position thereon by the weight of clamp bar or brake B. The operator takes a sheet of metal of the desired length and width and places one longitudinal edge portion thereof in the groove *f* of the mandrel-rod, at which time the latter is rotated by a suitable crank F² in the direction indicated by the arrow in Fig. 6, which operation will cause the metal to be drawn upward around said rod and beneath the concave portion of clamps G, which latter serve to keep the metal from buckling and also cause it to conform to the shape of said rod, forming a bead *l* on one edge of the gutter, as shown in Fig. 5. The body portion L of the gutter may be next formed by pressing the metal down over the mandrel K, after which the other bead *l* may be formed in the manner just described. After the bead is formed on the gutter the operator grasps the handle *e*², throwing it backward, which operation will cause the front longitudinal portion of brake B to become elevated and with it the clamps G, after which the mandrel-rod F is removed from said bead.

The advantages of my improved attachments for the purpose designated are apparent, being simple and durable in construction, reliable in operation, and cheap of manufacture. The said improvements may be readily attached to any of the well-known forms of brake-machines having a horizontal movable clamp-bar, thus dispensing with the

necessity of building a special machine to form said beaded gutters.

I am aware that it is not new, broadly, to provide a mandrel-rod with a longitudinal groove therein to form a bead on metal, the same being old and well known; but

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

1. The mandrel-rod having a longitudinal groove therein, in combination with a movable brake B, suitably journaled in frame-supports, clamps G, rigidly connected to said brake, the free end portions of said clamps being adapted to engage and rest over said mandrel-rod, and suitable means for supporting and rotating the latter, substantially as set forth.

2. The combination of movable brake B, clamps G, rigidly connected thereto, detachable base J, mandrel-rod F, having a groove *f* therein, said rod being suitably supported on said detachable base, and means for operating said brake and mandrel-rod, substantially as set forth.

3. The mandrel-rod F, having a groove *f* therein, said rod being supported in bearing-plates H, adjustably connected to a base J, in combination with movable brake B and clamps G, connected thereto, the lower outer face of said clamps being formed concave, and suitable means for operating said brake and mandrel-rod, for the purposes specified.

4. In combination with a brake-machine having a horizontal movable brake B, suitably journaled in the end frames thereof, the clamps G, connected to said brake, detachable base J, mandrel-rod F, having a groove *f* therein, and mandrel K, connected to said base, and suitable means for operating said brake and mandrel-rod, substantially as specified.

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Witnesses:

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