

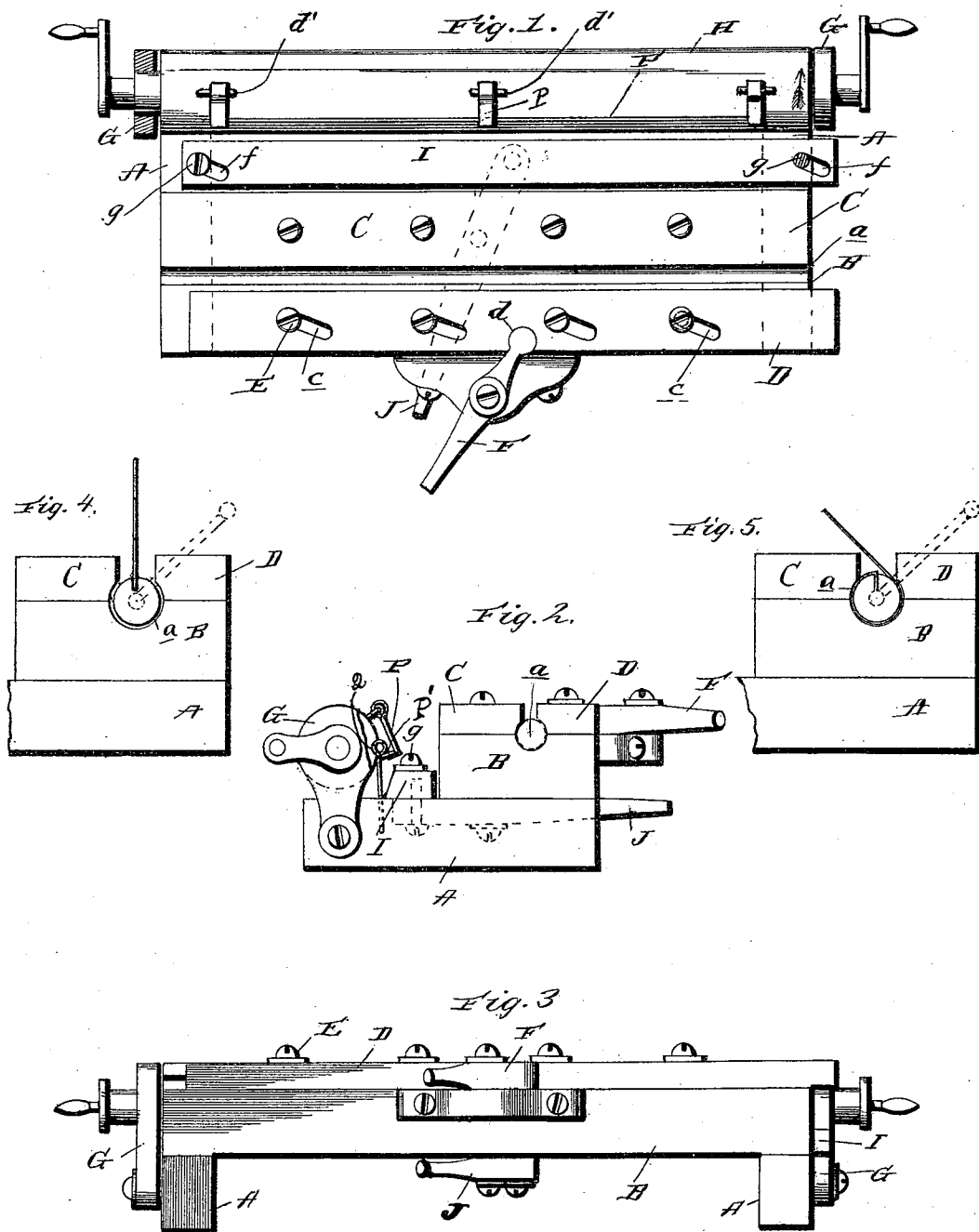
(No Model.)

J. KLEIN.

MACHINE FOR FORMING EAVES TROUGHS.

No. 460,584.

Patented Oct. 6, 1891.



Witnesses:

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#1071

UNITED STATES PATENT OFFICE.

JOSEPH KLEIN, OF CASS CITY, MICHIGAN.

MACHINE FOR FORMING EAVES-TROUGHS.

SPECIFICATION forming part of Letters Patent No. 460,584, dated October 6, 1891.

Application filed June 6, 1891. Serial No. 395,386. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH KLEIN, a citizen of the United States, residing at Cass City, in the county of Tuscola and State of Michigan, have invented certain new and useful Improvements in Machines for Forming Eaves-Troughs; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to improvements in sheet-metal-working machines; and it has for its general object to provide a machine of a cheap, durable, and efficient construction adapted more especially for forming sheet-metal eaves-troughs, &c.

The improvements will be fully understood from the following description and claims, when taken in conjunction with the accompanying drawings, in which—

Figure 1 is a top plan view of my improved machine. Fig. 2 is an end elevation of the same. Fig. 3 is a rear longitudinal elevation. Fig. 4 is an enlarged detail end elevation of the fixed plate and the clamping-plate, illustrating the beading-rod in position ready to form a bead; and Fig. 5 is a similar view with the bead formed.

Referring by letter to said drawings, A indicates transverse beams or ledges, which are mounted upon a suitable supporting-frame and upon which the bed-plate B of my improved machine is mounted. This bed-plate B, which is suitably secured or attached to the ledges A, is provided in its upper side with a longitudinal central groove *a*, of a semicircular contour in cross-section, which groove is designed to seat a beading-rod in the formation of a bead upon the metal or tin, as will be presently described.

Suitably connected in a fixed manner to the upper side of the bed-plate B is a plate C, which has the lower corner of its inner longitudinal edge grooved in a curvilinear manner, as illustrated, so as to conform with the groove *a* in the bed-plate, with which it operates in conjunction.

D indicates a clamping-plate, which is adapted to act in conjunction with the bed-plate B and the plate C to hold the beading-rod during the operation of forming the bead.

This clamping-plate D is provided at intervals in its length with parallel vertically-disposed oblique slots *e*, through which pass vertical guide-studs E, which rise from the bed-plate B and are preferably headed and provided with friction-disks, as illustrated.

In the forward edge of the clamping-plate D, about midway the length thereof, I provide a circular recess *d* to receive the corresponding head of a pivoted lever F, which is designed and adapted to manipulate the clamping-plate to carry the same toward and from the stationary plate C, whereby it will be seen that the beading-rod and sheet metal may be readily introduced between the plates C and D from the top thereof, instead of endwise, in the ordinary manner.

Fixedly connected to the edges of the ledges A are the standards G, in which is journaled the shaft of the forming-roller H, which carries crank-arms at its ends.

The forming-roller H, which is preferably of the proportional diameter, as illustrated, and extends the full length of the bed, is provided in its periphery with a longitudinal groove 2, of semicircular form in cross-section, to seat the bead of the metal during the operation of forming the sheath or trough. The roller H is further provided at intervals in its length with eyes or hinges *d'*, which are arranged in line and are adapted to receive hooks P, which are provided at their free ends with inwardly-directed angular branches, to which is attached the longitudinally-extending strip or bar P', which is of a width slightly less than the length of the angular branches, whereby the ends of said branches engage the head and serve in conjunction with the bar P to hold the same in the groove of the forming-roll.

I indicates a slide-plate, which is provided adjacent to its ends with parallel vertically-disposed oblique slots *f* to receive vertical guide-studs *g*, rising from the ledges A in rear of the fixed plate C. Pivotaly connected to the under side of the slide-plate I and to the bed-plate B is a lever J, which extends to the rear side of the machine and is adapted to manipulate the slide-plate I to force the same against the periphery of the forming-roller to hold the metal or tin thereon.

In operation the bead is formed at the edge

of the metal in the manner clearly shown in Figs. 4 and 5, after which the clamping-plate D is moved from the plate C, when the bead may be readily removed. The bead is then placed in the groove of the forming-roll, and the hooks and bar are adjusted down upon the same to hold it therein, after which the plate I is manipulated to force the metal against the forming-roll, and the said roll is turned in the direction of the arrow indicated in Fig. 1, when the metal will be formed into a curvilinear trough.

Although I have specifically described the construction and relative arrangement of the several elements of my invention, yet it is obvious that in practice such changes may be made as fairly fall within the scope of my invention.

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

1. In a sheet-metal-working machine, the combination, with a bed-plate having a central longitudinal groove of semicircular contour in cross-section and a plate rigidly fixed upon said bed-plate, so that its inner edge will be in alignment with one edge of the groove therein, of a clamping-plate having parallel vertically-disposed oblique slots at intervals in its length, studs rising from the bed-plate and passing through the slots of said plate, and a suitable means for adjusting the clamping-plate to and from the fixed plate, substantially as specified.

2. In a sheet-metal-working machine, the combination, with a forming-roller having a longitudinal groove in its periphery of a curvilinear form in cross-section adapted to receive the beaded end of the metal and a suitable means for securing the bead in said groove, of a sliding plate adapted to be adjusted to and from the forming-roller, substantially as specified.

3. In a sheet-metal-working machine, the combination, with a forming-roller having a longitudinal groove in its periphery of a curvilinear form in cross-section, and also provided with eyes or hinges arranged at intervals in line upon its periphery, hooks connected to

the said eyes or hinges and provided with an inwardly-directed angular branch at their free ends, and a longitudinal bar connected to the angular branches of the several hooks, of a sliding plate having parallel vertically-disposed oblique slots adjacent its ends, studs rising from supports and passing through the slots of the plate, and a suitable means for adjusting said plate to and from the forming-roller, substantially as specified.

4. In a sheet-metal-working machine, a bed-plate having a central longitudinal groove of curvilinear form in cross-section, a plate rigidly fixed upon said bed-plate, and a laterally-adjustable clamping-plate mounted upon the bed-plate and adapted to be adjusted to and from the fixed plate, in combination with a forming-roller having a longitudinal groove of a curvilinear form in cross-section in its periphery adapted to receive the beaded end of the metal, and a suitable means for securing the bead in said groove, and a sliding plate adapted to be adjusted to and from the forming-roller, substantially as specified.

5. In a sheet-metal-working machine, the combination, with a supporting-bed, a forming-roller journaled thereon and having a strip or bar pivotally connected to its periphery, a sliding plate having parallel vertically-disposed oblique slots adjacent its ends, studs rising from a supporting-bed and passing through the slots of the plate, and a lever pivotally connected to and adapted to manipulate said slide-plate, of a bed-plate having a central longitudinal groove in its upper side, a plate rigidly fixed to the upper side of said bed-plate, a clamping-plate having parallel vertically-disposed slots at intervals in its length, studs rising from the bed-plate and passing through the slots of the clamping-plate, and a lever pivotally connected to said clamping-plate and adapted to manipulate the same, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH KLEIN.

Witnesses:

MARTIN DEW,
J. C. LAING.