

(No Model.)

C. C. HARE.

SHEET METAL BENDING MACHINE.

No. 320,653.

Patented June 23, 1885.

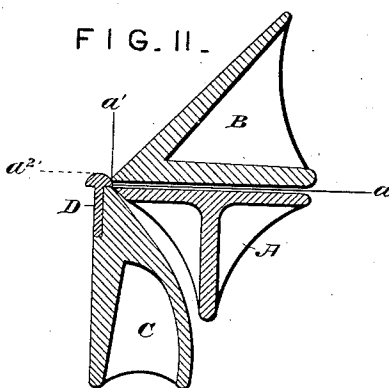
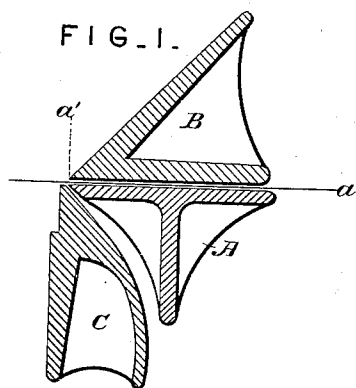
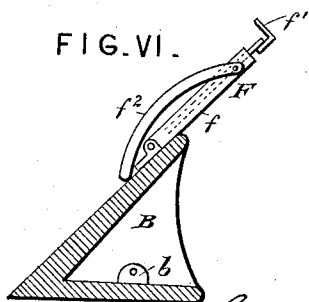
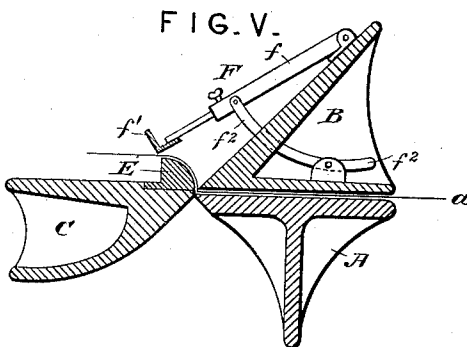
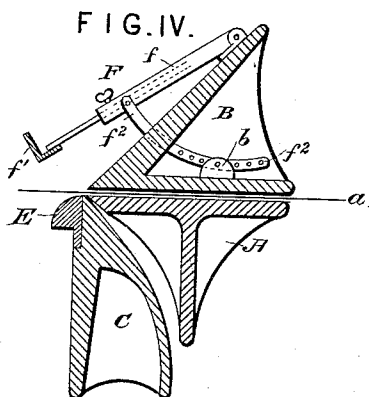


FIG. III.



Attest
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CHRISTOPHER C. HARE, OF KANSAS CITY, MISSOURI.

SHEET-METAL-BENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 320,653, dated June 23, 1885.

Application filed October 2, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHRISTOPHER C. HARE, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Sheet-Metal-Bending Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure I is a transverse section of the three jaws of a sheet-metal-bending machine of ordinary construction, which is adapted to make angular bends only. Fig. II is a similar view showing a former of the usual construction attached to the edge of the folding jaw or leaf, and adapted to make a circular bend only after the angular bend has been made by the device shown in Fig. I. Fig. III shows a piece of metal which has had an angular and circular bend imparted to it. Fig. IV is a similar view showing my improvement applied, which consists of an additional folding-leaf and a former of peculiar construction, which will be hereinafter described, the parts being shown in readiness for producing an angular and curved bend in a sheet at one operation. Fig. V is a similar view showing the sheet bent and the parts in the position they occupy at the completion of each operation. Fig. VI is a transverse section of the movable jaw of the clamp, showing the additional folding-leaf turned back out of operative position.

This invention relates to that class of machines used for bending sheet metal in forming cornices, moldings, and other articles to which it may be adapted; and in order that the improvement may be fully understood the state of the art will be briefly referred to.

Machines for producing angular bends have heretofore been constructed of three jaws or leaves, A B C, as represented in Fig. I. Of these A is the stationary and B the movable jaw of the clamp for holding the sheet to be bent, while C is the folding jaw or leaf. To produce a single angular bend the jaws A and B are opened and the sheet a placed between them, with the necessary length projecting beyond their front edges. The leaf or folder C is then raised until the bend in the metal reaches the desired angle. (Here represented by a dotted line, a' , as at right angles to the body or main portion of the sheet.) This done,

to produce a curved bend in the same sheet it must be put into another machine or a former, D, secured to the edge of the folder C of the same machine. This former will be seen to consist of a bead of semicircular shape placed in a horizontal position, or with its longest diameter flush with that part of the metal which is between the jaws A B. The sheet being in the position shown in full lines in Fig. II, it is seized by hand and bent over the circular former D until the desired curve is imparted to it. (Here represented by the dotted line a'' as parallel with the main portion or body of the sheet.) The sheet is then of the shape represented in Fig. III, which, with machines commonly in use, requires the two operations just described to produce.

The object of my present invention is to produce a simple machine, whereby a sheet may be given this shape by a single operation, the machine being also adapted for producing angular or curved bends only when desired. To this end I secure to the bending-edge of the folder C a curved or other former, E, the zenith of which is flush, or nearly so, with the plane of the meeting faces of the jaws of the clamp or the sheet to be bent. By the addition of a former of this construction the machine, as ordinarily constructed, is adapted to form curved or angular bends at will. The former results are produced by bending the sheet downward over the former E until the desired curve is produced, and the latter by raising the folder C until the desired angle is produced. In order to produce both of these bends at a single operation, I employ an additional folding leaf or jaw, F. (Represented in Figs. IV, V, and VI.) This is preferably a skeleton jaw, consisting of any desirable number of arms, f , pivoted at their upper extremities to the front of the movable jaw B of the metal-clamp, and connected at their lower extremities to a folding-bar, f' , extending the entire width of the machine.

It will be observed that to form a curve of ninety degrees the folding-edge of the leaf F should be placed at the zenith of the arc upon which the said curve is to be constructed, as represented in Fig. V; hence, to construct curves of different radiuses it is necessary that the leaf F should be adjustable in width. The folding-bar f' is therefore connected with the

arms f of the leaf by a sliding joint or other means which will permit of its extension. The leaf F is held in the proper place by arcuate supports or braces f^2 , which are pivotally connected to the arms f , and, passing through apertures in the face of the jaw B , are held by a suitable detent, b , which may be, as here represented, a simple pin passed through a perforated lug and through one of a series of perforations in the brace f^2 . I do not, however, limit myself to any particular means for supporting and holding the leaf F in operative position, nor to any particular means for rendering it adjustable in length, as there are obviously many ways equally as efficient as those herein described and shown in the drawings.

By the use of this additional folding-leaf in combination with the folder C , having the former of substantially the shape described, an angular and a circular bend will be produced in the sheet at every operation, thus effecting a great saving in time, labor, and machinery. When it is desired to produce a circular or an angular bend only, as above described, the leaf F is turned back out of the way, as represented in Fig. VI.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The combination, with the clamp, of a folding jaw or leaf having a folding edge or former, and a second folding-leaf for bending the metal over the aforesaid former, said second leaf and clamp being relatively adjustable, substantially as set forth.

2. The combination, with the clamp A B and the folding-leaf C , having the former E , substantially as described, of the folding-leaf F , pivoted to the front of the jaw B , so as to be capable of being turned back, as set forth.

3. The combination, with the clamp A B and the folding-leaf C , having the former E , of the additional folding-leaf, F , adjustable in length, and having a brace for supporting it in any desired position, as set forth.

CHRISTOPHER C. HARE.

Witnesses:

WILL C. HARE,
WILLIAM L. VANCE.