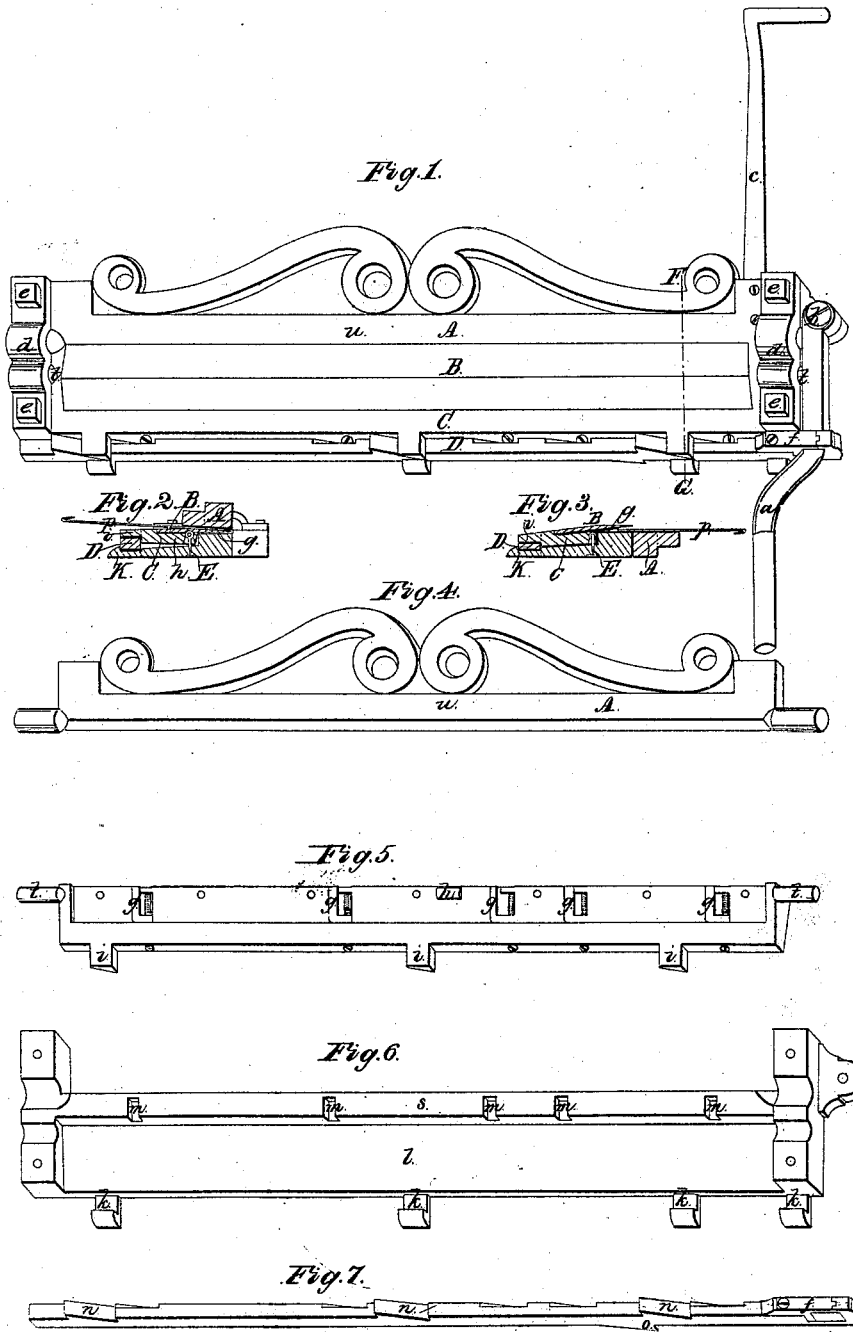


H. A. Roe,
Edging Sheet-Metal.

N^o 4,187.

Patented Sep. 11, 1845.



UNITED STATES PATENT OFFICE.

HENRY A. ROE, OF ERIE, PENNSYLVANIA.

IMPROVEMENT IN MACHINERY FOR BENDING SHEET METAL.

Specification forming part of Letters Patent No. 4,187, dated September 11, 1845.

To all whom it may concern:

Be it known that I, HENRY A. ROE, of Erie, in the county of Erie and State of Pennsylvania, have invented new and useful improvements in machines for folding the edges of sheet metal in making lock-joints in sheet-iron and other sheet metal; and I do hereby declare that the following is a full, clear, and exact description of the principle or character thereof, and of the manner of making and using the same, reference being had to the accompanying drawings, which make part of this specification, in which—

Figure 1 is a perspective view of the entire machine; Fig. 2, a transverse section of the same with a sheet of metal folded, and Fig. 3 the same with a sheet of metal just introduced preparatory to folding. The other sections will be referred to in their appropriate places.

The same letters are used in all the figures to indicate like parts.

The nature of my invention consists, first, in attaching what I term the "folding-plate"—that is to say, a plate which grips the edge of the sheet of metal, and on which the folding is effected by the folder—to a bed placed below it and hinged to the bed of the machine, so that the sheet of metal can be folded entirely over, instead of gripping the sheet by a square jaw extending above and forming a stock above the plane of the bed of the machine, as heretofore, which prevents the sheet from being folded entirely over, and therefore requiring a secondary operation to complete the folds; secondly, in supporting the said folding-bed to which the folding-plate is attached in the middle of its length by a joint-bolt, the head of which lies in a semicircular recess in the folding-bed and as near as practicable in a line with the axis of motion and secured in the bed of the machine; and, thirdly, in the employment of a slide-plate below the folding-bed and back of its journals provided with inclined planes on which projections from the back of the folding-bed rest, so that by the working of the slide-plate by a lever at the end of the machine the folding-plate can be made to grip and liberate the sheet of metal.

In the accompanying drawings, E is the bed of the machine, (represented separately at Fig. 6,) properly formed at the ends with boxes *d d* for the reception of the journals of the working parts. The face *s* is made smooth and on

a plane a little below the center of the journals of the folding-bed and folder, to be presently described, and the surface back of this is depressed to receive the folding-bed C, (represented separately in section 5 with the folding-plate removed,) which is hung on journals *t t*, and to it the folding-plate B is secured by screw-bolts, with the edge projecting sufficiently beyond it to admit of the widest fold, and below the folding-plate there are several sliding gages, *g g g g*, governed by screws to force them in and out, so that by properly regulating these gages the machine can be set to make any desired width of fold. That part of the folding-plate which projects beyond the edge of the folding-bed lies over the face *s* of the bed E, which has recesses *m m m m* in it to receive the ends of the gages *g* when projected out.

To prevent the folding plate and bed from springing in the middle, there is a screw-bolt, *h*, with a half-round head embedded in the folding-bed just under the folding-plate, and as near on a line with the axis of vibration of the bed as possible, which passes through the bed of the machine, and is there secured with a nut, so that all the strain is sustained by the two journals and this bolt. The folding-bed is cut out on each side of the bolt to give it free play. The folding-plate is made to grip the edge of the sheet of metal P by the operation of the slide-plate D, (the form of which is fully represented in section 7,) which slides in grooves in the projections *k* of the bed E, the upper surface being provided with inclined planes *n n n*, on which projections *i i i* of the folding-bed rest, so that when the sliding plate is moved to the right by the lever *a* turning on the fulcrum-pin *b* and connected with the slide at *f* the back part of the folding-plate is elevated and the sheet of metal gripped between the forward part and the faces of the bed, and when the slide is moved to the left the sheet is liberated.

The folder A (represented separately in Fig. 4) is made, in the usual manner, with journals at each end, which turn in appropriate boxes in the ends of the bed E, and so situated that the face *u* is below the line of their axes (when in the position represented in the drawings) a distance equal to the thickness of the sheet of metal intended to be operated on. It is provided with a handle, *e*, to work it with.

When the machine is in the position represented in Fig. 3, the sheet of metal is introduced between the bed E and folding-plate B until the edge comes in contact with the gages *g*. The sliding plate D is then drawn to the right by means of the lever *a*, which causes the folding-plate to grip the sheet. The folder A is then, by the handle C, turned over with the sheet of metal until it strikes the upper face of the folding-plate, as in Fig. 2, which represents the edge of the sheet as being entirely folded. The folder is then thrown back and the slide-plate moved back to liberate the folded sheet of metal and leave the machine prepared for another operation.

It will be obvious that if the folding-plate were attached to anything extending above the plane of the sheet of metal when put into the machine preparatory to folding, the folder could not be moved entirely over, and that as a consequence the fold could not be completed; but by this arrangement all the connections are placed below this plane, and, therefore, the end desired is fully attained.

I do not claim as my invention simply gripping the sheet of metal between the face of a stock and the bed, as this has heretofore been done; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. Making the folding-plate to project from and on top of the stock to which it is attached, or of which it makes part, arranged in combination with the bed of the machine, and the folder in the manner herein described by means of which the edge of the sheet of metal is gripped and folded entirely over, substantially as herein described.

2. In combination with this arrangement, the manner of preventing the folding-bed and folding-plate from springing in the middle of their length by means of the bolt with its embedded journal-head, substantially as herein described.

HENRY A. ROE.

Witnesses:

CHS. M. KELLER,

ARTHUR L. MCINTIRE.