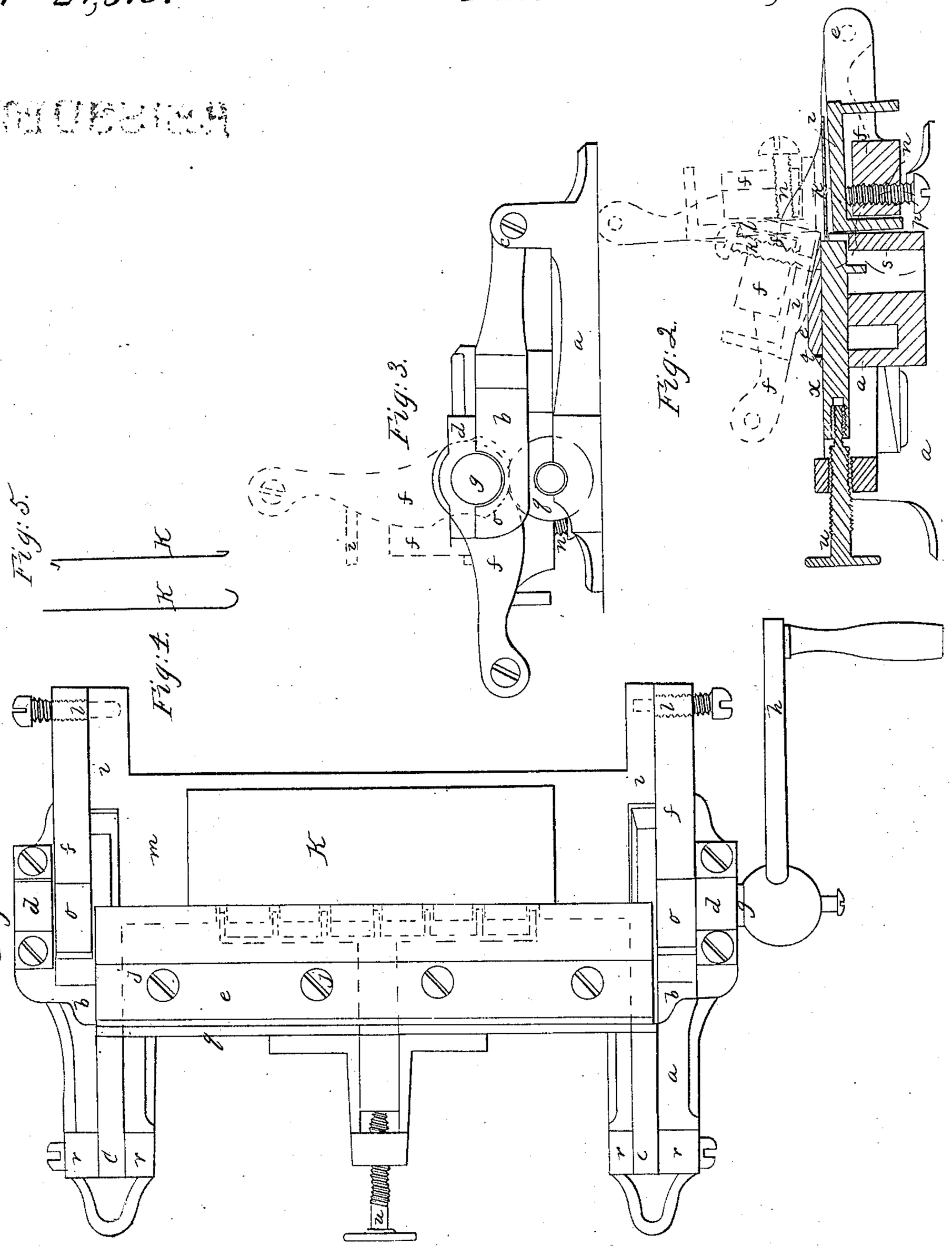
O. W. Stow,

Edging Sheet-Metal.

No. 27,319. Patented Feb. 28, 1860.



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ORSON W. STOW, OF PLANTSVILLE, CONNECTICUT.

IMPROVEMENT IN BENDING SHEET METAL.

Specification forming part of Letters Patent No. **27,319**, dated February 28, 1860.

To all whom it may concern:

Be it known that I, ORSON W. STOW, of Plantsville, county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Machines for Bending Sheet Metal; and I do hereby declare that the same are described and represented in the following specification and drawings; and to enable others skilled in the art to make and use the same, I will proceed to describe its construction and operation, referring to the drawings, in which the same letters indicate like parts in each of the figures.

This improvement consists, first, in making the folding-bar commonly used in such machines in two parts, one part being adjustable in respect to the folding-plate by means of set-screws or other equivalent means, so as to form a close or open lock for joining two pieces of metal plate, or closing around a wire; and, second, it consists in arranging the gripping-jaw with the folding-bar in such a manner that on motion being given to the folding-bar on its axis the gripping-jaw is made to close on the folding-plate and at the same time carry along with it the folding-bar into such a position as will bring its axis of motion nearly into a line with the edge of the folding-plate, thereby placing the folding-bar in position to be turned over on the folding-plate, and this necessarily and simultaneously with the motion of the folding-bar on its axis.

The object of the first part of my improvement is to enable the operator with one and the same machine to form close locks for joining metal plates, and also to form locks or bends for closing around a wire, and by means of the adjustability of the parts forming bends to fit any size wire.

The object of the second part of my improvement is to utilize and simplify the machine for a more convenient use in the hands of inexperienced workmen by uniting its parts together in such a manner as to harmonize its action.

In the accompanying drawings, Figure 1 is a top view of the machine in position for receiving and bending metal plates. Figs. 2 and 3 are end sectional views exhibiting the parts more in detail. Figs. 4 and 5 show close and open locks or bends made on the edge of metal plates.

a are foot-pieces attached to the end and at right angles with the cross-bar *a'*, and forms a bed-plate, by which it (the machine) may be secured to a desired place for use, and to or upon which the mechanism or the peculiar modification of the parts are secured and operated. In one end of the said foot-pieces *a* are made apertures and bearings, in which are placed friction-wheels *p*. On the other end of the foot-pieces *a* are formed hinge projections *r*, in which are secured, by screws or other suitable fastenings, the ends of the arms of the frame *b* at *c*. The folding-plate *e*, being made in the usual or proper form and shape, is also placed and secured onto the top edge of the cross-bar *a'*, and against the shoulder *q*, formed on the back edge of the said cross-bar *a'*, by means of screws *j*.

b is a frame hinged to the bed-plate *a* by screws at *c*, (its upper side shape partly hidden by the folding-plate *e* is shown by red dotted lines in Fig. 1,) and has journal-boxes *d* on each end of it. The part *s* (elsewhere called a cross-bar *s*) of this frame *b* forms a gripping-jaw with the folding-plate *e*, between which jaw *s* and plate *e* the plate metal *k* is held fast while the bend is made.

In the upper edge of the cross-bar or jaw *s* of the frame *b* are or may be formed slits 1, as shown by red dotted lines, Fig. 1, in which the gage *x* is fitted and works back and forth by means of a right and left hand screw, *u*.

f is a frame having journals *g* fitted to the boxes *d* in the frame *b*. The journals at one end project sufficiently to receive a crank, *h*, by the use of which the machine is operated.

i is still another frame, made to overlap the bar *f* of the frame *f*, forming a bed or table, *m*, on which the metal plate *k* is placed previous to its being bent. The two frames *f* and *i* are secured together at *l*. Thus it will be seen that the bed or table *m* may be readily adjusted by the set-screws *n*, or the equivalents therefor, in its relation to the folding-plate *e*, so as to form a close or open lock. (The two frames *f* and *i*, taken together, constitute what I have in these specifications elsewhere called the "folding-bar.")

Upon the hub or shoulders of the journals *g* are formed cams *o*, resting upon the friction-rollers *p*, which have their bearings in the bed *a*.

To operate this machine, place the metal

plate *k* on the table *m*, between the plate *e* and jaw *s*, and against the gage *x*, as shown by red dotted lines in Fig. 1, and then by turning the crank from right to left, thereby causing the bar *f* and *i* to make about one-half a revolution, the lock is formed.

To form a close or open lock, as shown in Figs. 4 and 5, set the frame *i*, by the set-screws *n*, so that when it is turned over upon the folding-plate *e* the table *m* shall press more or less closely on said plate *e*, according as a close or open bend is desired. Now, it will be clearly seen that on motion being given to the folding-bar (which is made up of the frames *f* and *i*) on its axis, the cams *o* produce a clamping of the edge of the metal plate *k* between the bar or jaw *s* of the frame *b* and the folding-plate *e*, and at the same time the folding-bar *f*, or *f* and *i* combined, rises with the jaw *s* into such a position that it can be turned over on top of the plate *e*, thus forming the lock or bend of the metal plate *k*, as shown in Figs. 4 and 5.

I am aware that a close lock, or one nearly so, may be formed by making the plate *m* fixed, (not adjustable,) while the whole machine otherwise remains substantially the same in its construction and operation. I do not wish, therefore, to limit myself to the adjustable feature exclusively, as that would deprive me of the benefit of an important part of my improvement.

I have carefully compared my improvement with the following patents: Nos. 16,456, 13,046, 8,012, and others, and I desire to say I do not wish to claim the device as shown and claimed by either of them. Neither do I claim any of the parts, when separately considered, as shown in my improvement.

Having thus described the construction and operation of my improvement in machines for bending sheet metal, and in doing so have shown the nature of the improvement and its advantages over others now in use, what I claim therefore, and desire to secure by Letters Patent, is—

1. Making the folding-bar commonly used in such machines in two parts, *f* and *i*, one part, *i*, being adjustable in respect to the folding-plate *e* by means of set-screws *n*, or other equivalent means, so as to form a close or open lock for joining two pieces of metal plate or closing around a wire, substantially in the manner as described.

2. Arranging the gripping-jaw *s* with the folding-bars *f* and *i* in such a manner that on motion being given to the folding-bar *f* on its axis *g* the gripping-jaw *s* is made to close on the folding-plate *e*, and at the same time carry along with it the folding-bar *f* into such a position as will bring its axis, *g*, of motion nearly into a line with the edge of the folding-plate *e*, thereby placing the folding-plates *f* and *i* in position to be turned over onto the folding-plate *e*, necessarily and simultaneously with the motion of the folding-bar *f* and *i* on its axis *g*, substantially in the manner as described.

3. The bed-plate proper, *a a'*, to which is secured the folding-plate *e*, in combination with the hinged frame *b*, having journal-boxes *d*, and gripping-jaws *s*, the folding-bars *f* and *i*, fixed or adjustable, and having journals *g*, cams *o*, arranged and operating together substantially in the manner as and for the purpose described.

In testimony whereof I have hereunto set my hand and affixed my seal.

ORSON W. STOW. [L. S.]

Witnesses:
R. C. MIX,
LUCIUS UPSON.