C. Kenney,

Making Hinges,

Patented Aug. 7, 1844.

No. 3,690.

Fig. 4.

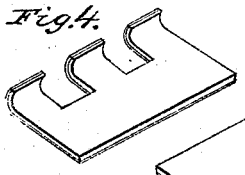


Fig. 3.

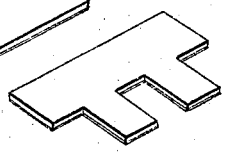


Fig. 2.

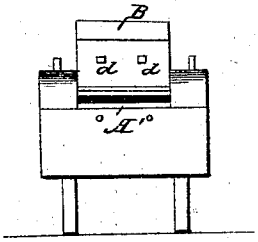


Fig. 1.

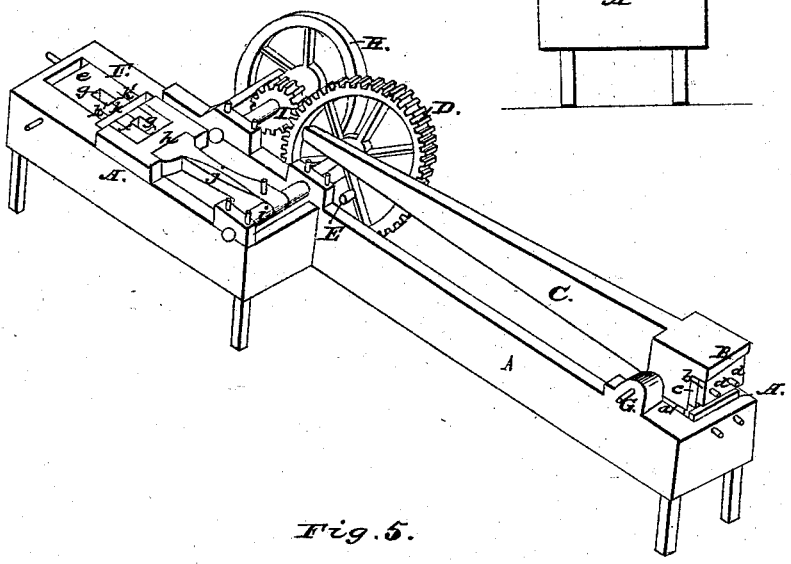
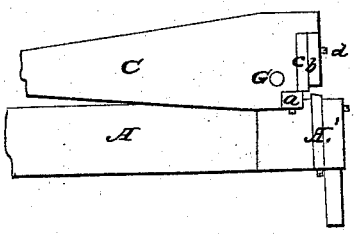


Fig. 5.



UNITED STATES PATENT OFFICE.

CYRUS KENNEY, OF TROY, NEW YORK.

MACHINERY FOR MAKING BUTT-HINGES OF WROUGHT-IRON.

Specification of Letters Patent No. 3,690, dated August 7, 1844.

To all whom it may concern:

Be it known that I, CYRUS KENNEY, of the city of Troy, in the county of Rensselaer, in the State of New York, have invented a new and improved manner of constructing machines to be used in the manufacturing of butt-hinges from wrought-iron or other malleable metal; and I do hereby declare that the following is a full and exact description thereof.

The butt hinges that are to be manufactured by the aid of my machine are such as are formed from wrought iron or other malleable metal. In the manufacture of such hinges their flaps or halves are first cut out of rolled, or sheet, metal, with the pieces projecting from one side thereof which when bent are to form the knuckles, this cutting being effected in a manner well known. The first operation to be performed on the flaps so prepared, consists in the bending of the projecting pieces at their extreme ends, so as to form about one-fourth part of a circle, and this is done preparatory to the operation of bending these projecting pieces into a complete circle for the formation of the knuckles, and the reception of the joint pin. This second bending is to be performed by means of another machine, either by that known as Rouse's hinge machine, or by any other that will produce a like effect. In the final bending of the part which constitutes the knuckle so as to form a full circle the metal constituting it becomes elongated so that the two halves of the hinge will not go together without first shortening a knuckle, or knuckles. I have invented a machine to obviate this difficulty by trimming off a small portion on the sides of the projecting pieces previously to their being bent, and have obtained Letters Patent therefor; but my second improvement in the machine which I am now about to describe consists in another method of attaining the same end, namely, by upsetting the knuckles after they have been completely formed by bending into cylindrical tubes.

In the accompanying drawing Figure 1 is a perspective representation of the whole machine, A, A, being the frame, and the end B, that at which the partial bending is performed, and the end F, that at which the upsetting is effected after the knuckle has been otherwise completely formed. Fig. 2, is an end view of the part of the machine used for bending. Fig. 3, one of the flaps as it comes from the cutting machine. Fig. 4, a flap with the partial bend produced by my machine, and Fig. 5 a vertical section lengthwise of the machine through the bending head B.

The frame A, A, of the machine may be made of cast iron; the dimensions of the respective parts may be varied according to the kind of work that it is intended to perform; but as a guide to others I have given the size of certain parts taken from a machine in actual operation.

A′ is what I denominate the rest, which is of tempered steel: this may be from six to nine inches long, four inches wide, and half an inch thick; it is set in a recess formed to receive it in the head, or bed piece, of the frame; and is adjusted by set screws, so as to stand about half an inch above said bed piece.

C, is a lever, its shorter end B constituting a head, which receives two dies *b* and *c;* these two dies may be of the same length and thickness with the bed piece. They are sustained at top by passing under a projection at the front of the head B, and are held in place by screw bolts *d*, *d*. The die *b*, may be three inches, and the die *c*, three inches and an eighth wide, and this latter extends down an eighth of an inch below the die *b*. The die *b*, stands with its lower edge immediately over the rest, but it extends back nearly an eighth of an inch, or the thickness of the sheet of which the butt is to be made, beyond the back face of the rest, to allow room for the bending down of the metal. A steel gage piece *a*, which is made adjustable by set screws working in slots, is affixed to the under side of the lever *c*, and is so set as to regulate the length of the bend on the projecting pieces of the flaps. The fulcrum G of the lever C, is about four inches from the face of the front die.

H, is a fly or crank wheel on the driving shaft I, which has a pinion on it that gears into the wheel D. The wheel D, carries a lifting pin on one of its arms, as at E, which serves to raise the lever C. The lifting part should be so arranged as that the jaws by which the bending is effected may be raised about three-eighths of an inch, to admit of the free feeding in and delivery of the flaps. To give the proper bend to the projecting pieces of the flaps, they are placed on the rest, their ends being in contact with the gage, and, under the foregoing arrangement,

as the dies descend, they will receive the bend required. After this bending has been effected, the knuckles are to be formed by a subsequent bending in a separate machine, as before indicated; they may be upset by the apparatus which I am now about to describe.

In Fig. 1 *e*, is a steel die which is fixed by set screws in the frame of the machine; *f*, is a similar die, which is fixed in a slide *h*, that is moved back and forth on the bed of the machine, by means of a crank shaft *i*, carrying a connecting rod, or shackle *j*, which is jointed to the slide *h*. In each of the dies there are mortises, or openings *g*, *g*, sufficiently wide and deep to receive the hinge knuckles entirely, and sufficiently long to allow the die *f*, to move back and forth, say to the distance of about three-sixteenths of an inch. The dies are to be so adjusted as that the space between them, when they approach each other most nearly, shall be equal to the exact length intended to be given to the knuckle by upsetting; *k*, *k'*, *k'*, are grooves or keys, cut in the dies, sufficiently wide to admit the flaps of the hinges edgewise. The dies must, of course, be of sufficient thickness to embrace and upset the whole circle of the knuckle. When a single knuckled piece is to be upset, the edge of the flap may be passed into either of the grooves *k*, *k'*, *k'*, with the knuckle occupying the space between the dies; where there are three knuckles two of them will be received into the openings *g*, *g*, the middle one occupying the space between the dies.

Having thus fully described the nature and operation of my machine for manufacturing butt hinges of malleable metal, and shown the manner in which the same operates, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The method of bending the ends of the projecting pieces which are to form the knuckles, by combining the rest, dies, and gage, under an arrangement substantially as herein set forth, so as to adapt them to the partial formation of the knuckles of butt hinges.

2. I also claim the method herein described of upsetting the knuckles of butt hinges, by providing the pressing dies with grooves and mortises, or openings to hold the flaps, and receive the knuckles, for the purpose and in the manner described.

CYRUS KENNEY.

Witnesses:
THOS. P. JONES,
EDWIN L. BENNDAGE.