C. Kenney,

Making Hinges,

No. 3,717. Patented Aug. 23, 1844.

Fig. 1.

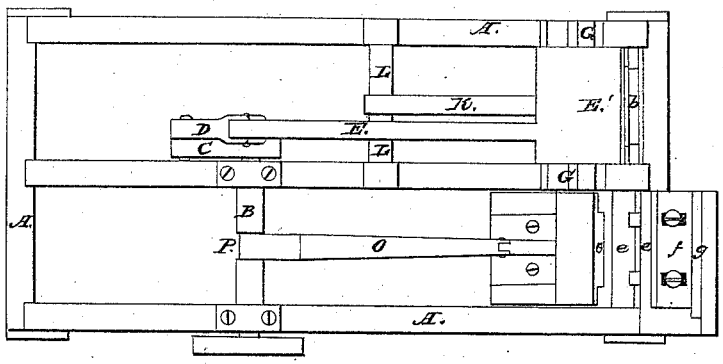


Fig. 3.

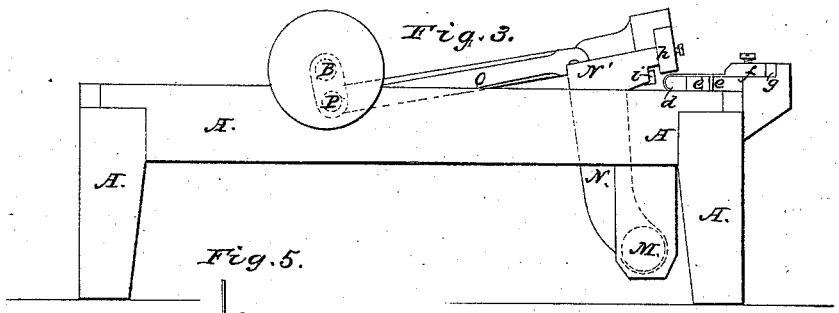


Fig. 5.

Fig. 2.

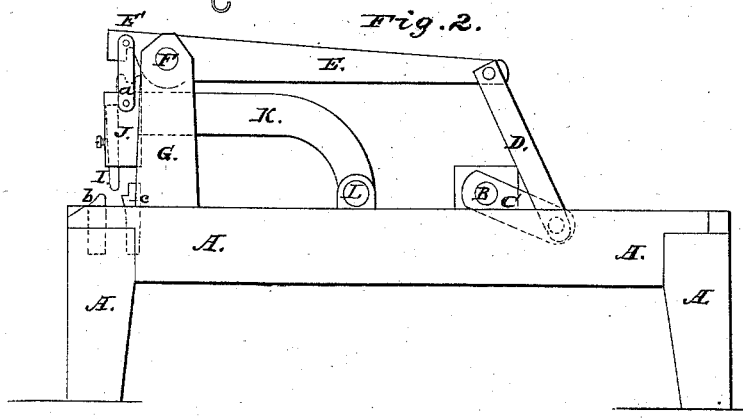
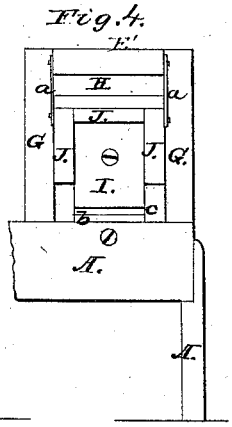


Fig. 4.



UNITED STATES PATENT OFFICE.

CYRUS KENNEY, OF TROY, NEW YORK.

MACHINE FOR BENDING KNUCKLES OF BUTT-HINGES MADE OF WROUGHT-IRON AND OTHER MALLEABLE METAL.

Specification of Letters Patent No. 3,717, dated August 23, 1844.

To all whom it may concern:

Be it known that I, CYRUS KENNEY, of the city of Troy, county of Rensselaer, and 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 from 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 means of my improved machine have their two halves, or flaps 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. My improved machine is intended to bend these projecting pieces into a cylindrical form, so as to constitute the knuckles which it effects, at two operations. In the first operation the ends of the projecting pieces are so far bent as to cause them to assume the form of nearly half a circle, or rather a semi-cylinder. For this purpose the flap is fed into the machine by hand with the ends of its projecting pieces resting upon two stationary dies placed at such distance apart, (say one-fourth of an inch, or nearly so,) as shall be equal to the diameter of the knuckle. While in this position a movable die is brought down upon it, and made to force it between the two stationary dies, thereby giving it the first intended bend. The descending die is rounded at its lower edge, and its thickness is equal to the diameter of the joint pin which is to connect the two flaps. In order to complete the knuckle the partially bent flap is to be laid on a suitable bed with its back edge against a rest, or gage, which sustains it, and in this position a die is brought up against the curved part of the partially formed knuckles and is made to advance so far as to bend them into a complete circle, or cylinder ready to receive the joint pins.

In the accompanying drawing Figure 1 is a top view of my machine. Fig. 2 an elevation of it on that side on which the first, or partial, bending is to be effected. Fig. 3 is an elevation of it on that side on which the bending is to be completed.

A, A, is the frame work of the machine, which I intend to make of cast iron.

B, is a driving shaft, which is to be made to revolve by any adequate motive power. C, is a crank on this shaft, which carries a shackle bar D, that is connected to a vibrating lever E, having its fulcrum at F. The end E′ of the lever E, is made broad, as it receives the upper edge, and constitutes the support of a joint piece connecting the lever E with the die by which the bending is effected; the length of this joint piece may be eight or ten inches, more or less, dependent upon the size of the machine. In Fig. 4 which is a front elevation of that part of the machine by which the first bend is given this joint piece is shown at H. The descending die I, by which the first bend is given, is firmly secured in a head J, which is best made in one solid piece with an arm K, that is attached to a rock shaft L; *a*, is a bridle that connects the lever E, with the head J, there being such a bridle at each end of the joint piece H. *b* and *c*, are two dies fixed to the bed of the frame, and duly adjusted by set screws, wedges or otherwise; these dies are to sustain the flap to be bent; the flap is to be fed in so that the ends of the projecting pieces are received on the notch on the die *c*, which serves as a gage, or stop, in the feeding; the die I, is then brought down, and the first bending thereby completed, the ends of the projecting pieces having assumed the form shown at *d*, Fig. 5.

I will now describe the apparatus by which the second, or complete, bending is performed. In Figs. 1, and 3, *e*, *e*, is a bed upon which the partially bent flap is to be laid, with its back edge resting against the adjustable stop, or gage piece *f*, which may be regulated by a wedge *g*, or otherwise. The partially bent piece is shown at *d*. M, is a rock shaft, sustaining an arm N, the head N′, of which carries a check piece *h*, and a die *i*. The arm N, is moved back and forth by means of the schackle O, operated on by a crank at P on the driving shaft B. The piece to be bent being laid on the bed *e*, as shown in Fig. 3, and the die *i*, being brought forward against its curved part *d*, the bending will be thereby completed; the flap will be kept from rising by the check piece *h*, which will bear on its upper side, the respective parts having been previously adjusted to the width and thickness of the flaps.

The length of the knuckles may be regu-

lated by means of the machine for trimming, or that for upsetting them, for which I have obtained letters patent of the United States, or this may be effected in any other known way.

Having thus fully described the nature of my machine for bending the projecting pieces on the flaps of butt hinges, so as to form them into knuckles; and having also shown the manner in which the same operates, what I claim as new therein, and desire to secure by Letters Patent is—

The so combining and arranging its parts in the manner set forth as that the pieces to be bent shall first have one half of the intended curvature given to them by dies, formed and actuated in the manner of those shown at I, *b*, *c*, in the accompanying drawing; and shall subsequently have the bending completed by means of a die, check piece, bed and gage piece such as are shown at *i*, *h*, *e*, and *f*, in the said drawing, the respective parts of the whole machine being arranged and actuated substantially as herein fully made known.

CYRUS KENNEY.

Witnesses:
THOS. P. JONES,
WM. BISHOP.