(No Model.) 2 Sheets—Sheet 1.

R. D. EVANS & R. M. GREEN.

MACHINE FOR BENDING METAL LINKS.

No. 256,104. Patented Apr. 4, 1882.

Fig. 1.

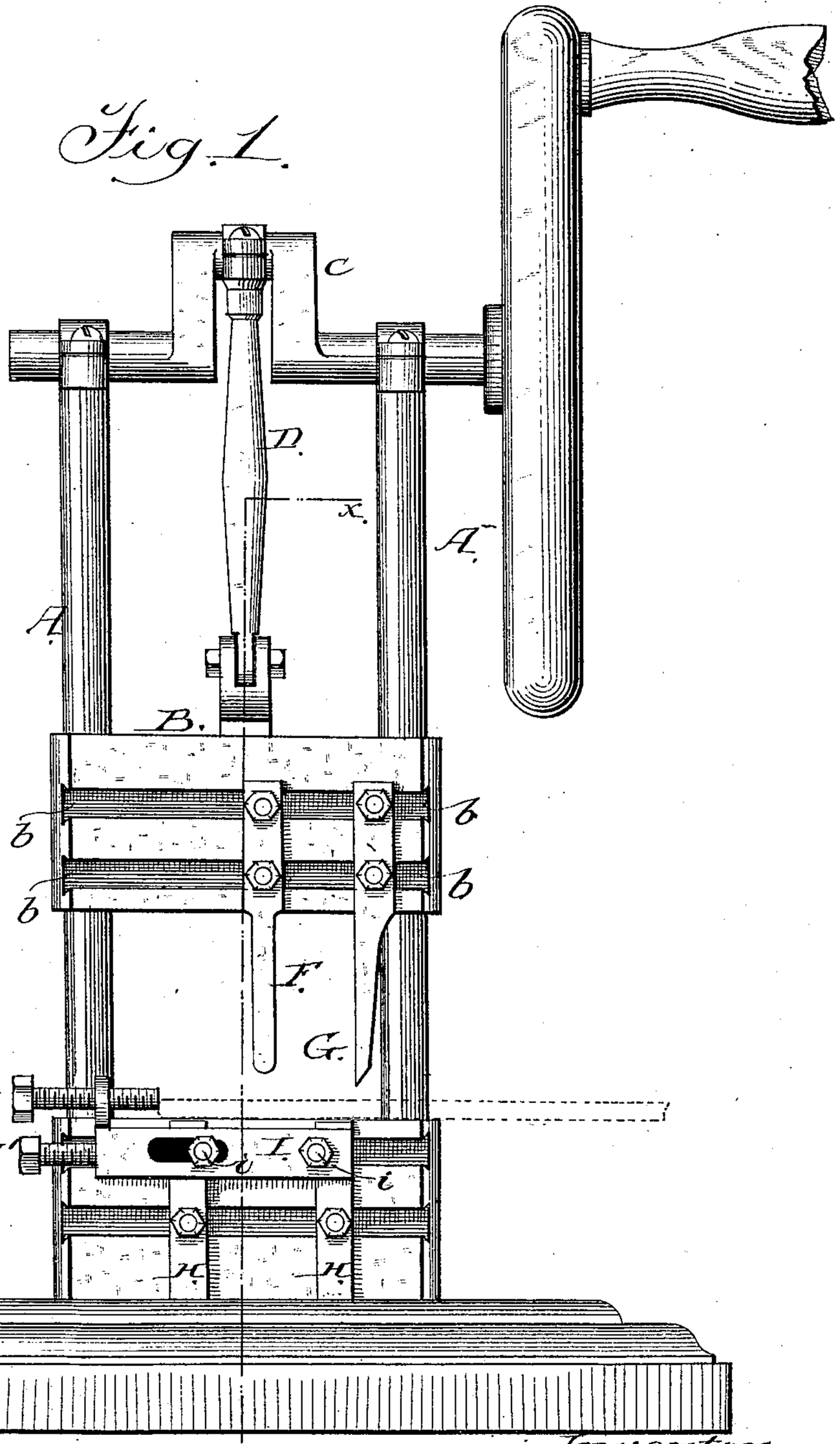
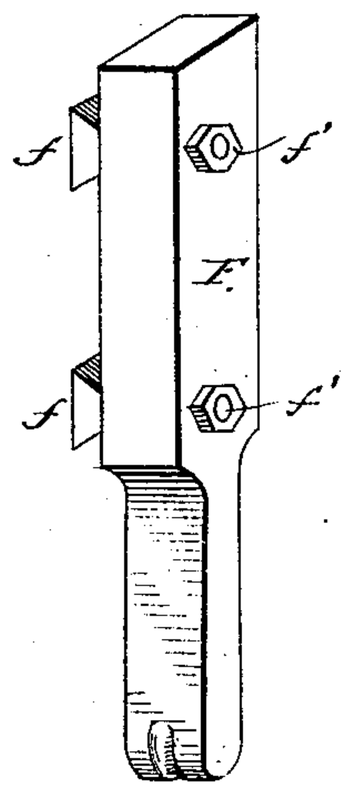


Fig. 4.



Witnesses;
Walter Fowler,
Warren Parsons.

Inventors;
Robley D. Evans
Richard M. Green
per Attys. A. H. Evans & Co.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

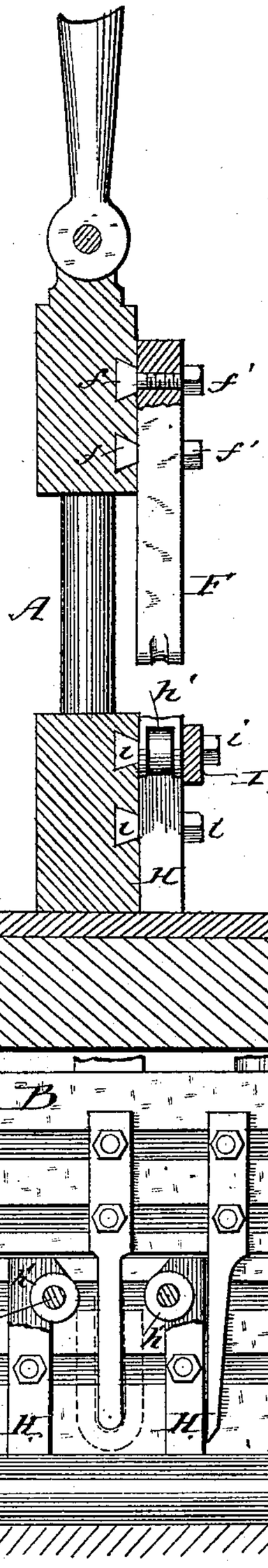

Fig. 3.

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Richard M. Green
per attys. A. H. Evans & Co

UNITED STATES PATENT OFFICE.

ROBLEY D. EVANS AND RICHARD M. GREEN, OF WASHINGTON, D. C.

MACHINE FOR BENDING METAL LINKS.

SPECIFICATION forming part of Letters Patent No. 256,104, dated April 4, 1882.

Application filed January 13, 1882. (No model.)

To all whom it may concern:

Be it known that we, ROBLEY D. EVANS and RICHARD M. GREEN, of Washington city, D. C., have invented a new and useful Improvement in Machines for Bending Metal Links, of which the following is a clear, full, and exact description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a front elevation of a link-bending machine with our improvements attached. Fig. 2 is a section through *x x* of Fig. 1. Fig. 3 represents the position of the parts after the link has been bent. Fig. 4 is a detail to be referred to.

Our invention relates to machines for cutting and bending metal links from cold iron; and it consists in the combination of devices hereinafter described and claimed.

To enable others to make and use our invention, we will proceed to describe the exact manner in which we have carried it out.

It is well-known that the fiber of iron is more or less injured by every heating of the metal, and to avoid a heating and consequent injury is one object of our invention. It is also well known that in bending heated iron none of its imperfections are exposed, and chains are liable to be made of imperfect and faulty metal, while the bending of the iron cold exposes any imperfections which may exist in the fiber of the metal, and all imperfect links can be rejected, and the best results secured.

In the drawings, A A represent vertical guides, and B a cutter-head sliding on the same and attached to the crank-shaft C by the connecting-rod D. The crank-shaft, as shown in the drawings, is operated by the hand-wheel E. While this arrangement is shown by us as one means of operating the cutter-head B in actual practice, the piston-rod of a steam-hammer is attached to and operates the cutter-head. This affords a power sufficient to cut and bend the links of cold iron two inches in diameter with great rapidity.

The cutter-head B is provided with dovetailed grooves *b b*, in which are held the bending-tool F and cutting-tool G by means of lugs (see Fig. 4) formed by heads of the screw-bolts *f f* fitting snugly in the grooves. These screw-bolts are loosened or tightened by means of the nuts *f' f'*. When the screw-bolts *f f* are loosened the bending-tool and cutter can be adjusted laterally to suit the work to be done, and when these bolts are tightened the bending-tool and cutter are held firmly in position. The die-block is grooved in similar manner to receive the heads of the screw-bolts *h h* and *i i*, which hold the dies in position, and by which these standards H H may be adjusted to their work like the bending-tool and cutter in the cutter-head. Each die is recessed in its face to receive the friction-rollers *h'*, which rest upon and revolve on the body of the screw-bolts *i*, as shown in Figs. 2 and 3. When the metal rod is in position, as shown in dotted lines in Fig. 1, for cutting and bending, the cutter-head descends and the cutter, being longer, severs the rod by the time and just as the bending-tool comes into action, and as the cutter-head continues to descend the bending-tool carries the link-piece down between the standards H H, the piece in its descent being caught upon the friction rollers *h'*, and thus protecting it from the injury which would result from its being forced against a stationary or rigid portion of the dies. These rollers allow the metal to bend without disrupting the fiber of the metal, which is an essential feature of our improvement.

Along the front and one side of the dies we pass the plate I, held in position by the bolts *i*. This plate is slotted, as shown in Fig. 1, to allow it to be adjusted on the bolts. The end of the plate furnishes bearing for the adjusting-screws J J'. The position of the screw J determines the distance the link-rod can be passed under the cutter, while the screw J' steadies and holds the die opposite to the cutter firmly in position during strain from the bending-tool. The face of the dies may be slightly grooved to furnish a bed to steady the link-rod while being cut and bent.

It has been ascertained by actual experiments that chain made from links bent while cold will stand a higher strain than those made from links bent while the metal is hot, which fact renders our invention of special value.

We are aware that devices in some respects similar to that herein described are found in staple-making machines; but these we disclaim.

We claim as our invention and improvement—

1. The cross-head B, having the dovetail grooves and the independent adjustable cutter and bender attached thereto by bolts having correspondingly-dovetailed heads, in combination with similarly-grooved die-block, and the standards carrying anti-friction rolls attached thereto and independently adjustable in a similar manner, substantially as described.

2. The combination, with the standards and the anti-friction rolls attached thereto, of the slotted plate I and the screws J J′, substantially as described.

ROBLEY D. EVANS.
RICHARD M. GREEN.

Witnesses:
H. K. GRAY,
FRANCIS WOOD.