J. T. WILLMARTH.

Swaging Metals.

No. 15,588. Patented Aug. 19, 1856.

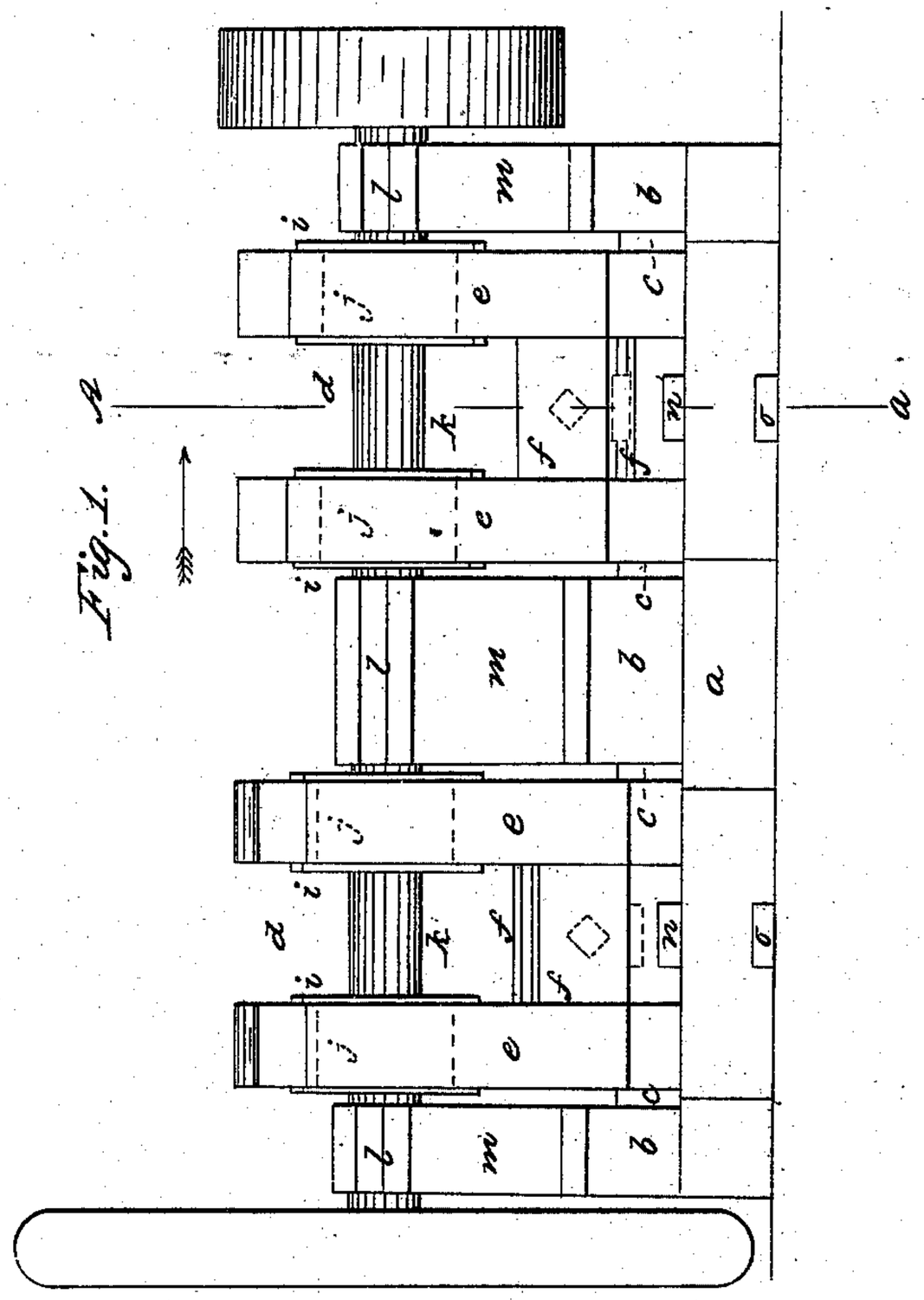

Fig. 1.

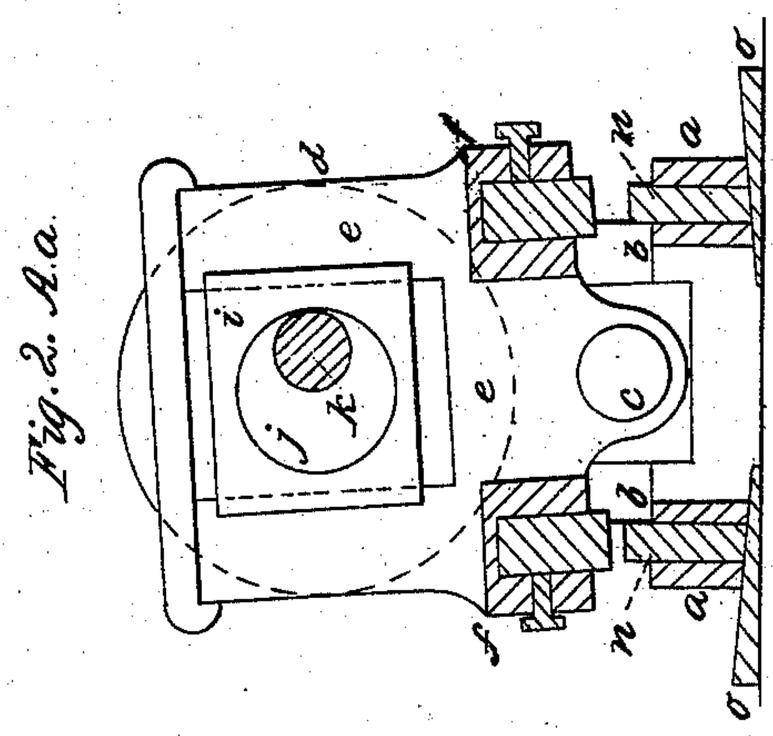

Fig. 2. A.a.

Witnesses:
Wm H Bishop
A V Browne

Inventor:
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UNITED STATES PATENT OFFICE.

JOHN T. WILLMARTH, OF WORCESTER, MASSACHUSETTS.

MACHINE FOR SWAGING IRON.

Specification of Letters Patent No. 15,588, dated August 19, 1856.

To all whom it may concern:

Be it known that I, JOHN T. WILLMARTH, of Worcester, in the State of Massachusetts, have invented certain new and useful Improvements in Machines for Hammering or Swaging Iron and other Metals, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a front elevation; and Fig. 2 a cross vertical section taken at the line A, of Fig. 1.

The same letters indicate like parts in all the figures.

My invention is of a machine for hammering or swaging iron and other metals which is partially described and represented in Letters Patent granted to me by the United States and bearing date the 16th day of January 1855, for improved dies for making bolts, and therein described as the means of operating the dies and not claimed in the said patent as it constitutes a different subject matter.

My said invention consists in mounting the faces of two hammers one on each side of a rocking frame having its axis of vibration on opposite sides of two anvils, and the said rocking frame being caused to vibrate and strike a blow alternately on opposite sides by the rotation of a shaft provided with eccentrics fitted to work in boxes sliding in suitable housings in the rocking frame by means of which arrangement the reaction induced by striking a blow with one hammer on one side will aid the driving power in vibrating the rocking frame to strike a blow with the other hammer on the opposite side.

In the accompanying drawings *a*, *a* represent the base composed of two longitudinal bars and three cross bars *b*, *b*, *b* firmly secured to the upper surface, or if made of metal the whole may be cast in one piece and firmly secured to the foundation timbers of the shop. To the upper surface of the cross bars are secured suitable boxes to receive the journals *c* of two rocking frames *d*, *d*. These rocking frames should be made of great strength and to consist each of two cheeks *e*, *e*, connected by cross bars *f*, *f* one on each side. The under faces of these cross bars, which should be above the axis of vibration, are formed like hammer faces or with sockets to receive the hammers or swages which can be held in place by temper screws (or other equivalent means) as represented by dotted lines. The cheeks are cut out to form ways to which are fitted housings *i*, *i*, that slide therein freely but accurately. And these housings embrace eccentrics *j*, *j* on a shaft *k*, there being two more or less such eccentrics for each rocking frame and the shaft *k* being mounted in suitable boxes *l*, *l*, *l* in standards *m*, *m*, *m* secured to the top of the cross bars *b*, *b*, *b*, of the bed. The longitudinal bars *a*, *a* of the bed are formed with sockets to which are accurately fitted anvils or swage dies *n*, *n* one under each hammer and so located that as the rocking-frames vibrate each hammer will act on its appropriate anvil. The lower end of each anvil rests on a cross wedge *o* fitted to move in a suitable hole for that purpose in the longitudinal bars *a*, *a* so that by moving the wedges in and out the anvils can be elevated or depressed at pleasure whether before or during the operation of hammering or swaging.

From the foregoing it will be seen that for each rotation of the shaft the hammers on each rocking frame will each strike a blow, as one hammer is attached on each side of the axis of vibration the rebound due to the striking of one hammer will aid in striking the blow with the hammer on the other side. The two rocking frames are alike, and the two sets of eccentrics on the shaft are placed at 180 degrees so that one hammer of each rocker frame on opposite sides should strike at the same time, thus equalizing the resistance.

It will be seen that any form of swage dies or hammers and anvils may be used at pleasure.

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

Mounting the hammers on opposite sides of a rocking frame operated by eccentrics, or their equivalents substantially as specified, in combination with the anvils placed on opposite sides of the axis of vibration of the said rocking frames, as described and for the purpose specified.

J. T. WILLMARTH.

Witnesses:

A. P. BROWN,

WM. H. BISHOP.