

Patented Nov. 24, 1868.

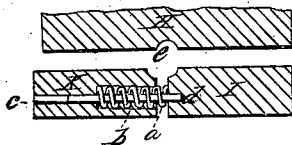


Fig. 4.
By H. James Walton,
Attorney.

United States Patent Office.

EDWARD BROWN, OF NEW YORK, N. Y.

Letters Patent No. 84,256, dated November 24, 1868.

IMPROVED HINGE-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, EDWARD BROWN, of the city, county, and State of New York, have invented a certain new and improved Machine for Finishing Hinges; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object of my invention is to improve the form and finish of hinges, by pressing them between dies, whereby the pipe of the hinge is rendered perfectly cylindrical, or nearly so, and the leaves are flattened and bent, so as to lie in the proper plane relative to the axis of the hinge, and the hinge is thus made much more neat in appearance, symmetrical in shape, and durable, than before being operated upon by my invention.

In order to carry out this object, my invention consists in the combination, with the dies and the frame and the working-parts of a press, in the manner hereinafter described, of levers and springs, by which a hinge-finishing machine is produced which is effective, cheap, and little liable to get out of order.

The machine hereinafter described, in which my invention is embodied or embraced, consists of a bed, from which rise two upright guide and supporting-posts, in which are bearings for the driving-shaft, and between which slides a gate to which the upper die of the machine is affixed, the lower die being supported on yielding levers. This lower die is in two pieces, one being fixed and the other movable, the whole being so arranged that the pipe is pressed into a proper cylindrical shape by the advance or approach of the dies, both laterally and vertically, the lower dies being supported or pressed up to their work by springs and levers, which yield when a larger hinge than usual is between the dies, thus allowing the machine to accommodate itself in some degree to the form and size of the hinge, and preventing the breaking of the parts.

In the accompanying drawings—

Figure 1 is a front elevation of my machine.

Figure 2 is a section of the lower part of it, on a vertical plane, passing lengthwise through the centre of the machine.

Figure 3 is a plan of my machine.

Figure 4 is a view in detail of the dies, being a vertical section on an enlarged scale, passing through the axis of one of the springs.

Figure 5 shows a hinge before being operated upon by my machine.

Figure 6 shows a hinge after being operated upon by my machine.

A is the bed of the press, B and C are the uprights, D, the main shaft, and E, the gate. To the gate, which has a reciprocating vertical motion imparted to it by the crank G, on the main shaft D, is secured the upper die, H, in the usual manner, and working up and down with it. The lower die, the form of which is clearly

seen in fig. 4, is in two pieces, which are held apart by the spiral spring *a*. This spring rests in a recess, *b*, in the body of the movable portion being coiled on the rod or guide *d*, which is fastened at one end into the piece I, which is stationary, and slides freely in an opening, *c*, in the movable piece, K. In the upper and inner corners of these pieces I and K, the depression or face of the die for giving form to the pipe of the hinge, is formed. It is nearly of the form of a quarter of a hollow cylinder. The upper half of the said pipe is pressed and finished by the upper die, H, a depression or groove, *e*, being formed in it for that purpose, and the leaves are pressed flat, and bent to the proper angle, radially to the axis of the hinge, by the flat surfaces of all three of the dies. The die K is operated by a rod, L, which receives motion from the cam M, on the main shaft D, through the lever N. The cam M rests against a spring, O, which is coiled on the main shaft D, and is held against the cam by the collar P. A sleeve, Q, and collar, R, prevent the cam from being forced too far in the opposite direction. The cam M and sleeve Q have each a projecting teat or rib, which slides in the groove *f* in the main shaft, and thus allows them to move along, but not to turn, except with the shaft. When a hinge having a larger pipe than usual, or than the dies will wholly receive, is introduced into the machine, the spring O yields, and thus permits the motion of the die K to accommodate itself to the diameter of the said pipe, while, at the same time, the pressure is continued sufficiently to perfect the pressing and finishing of the pipe. The dies K and I rest in a recess or seat made to receive them, in the plate or yielding bed S, which is supported on four levers, T, T¹, T², and T³. These levers have their fulcrums, *g*, *h*, *i*, and *j*, in a raised portion, U, of the bed A, and their inner and shorter arms are held up to and support the bed at the proper height, by the springs V, V¹, V², and V³. These springs are coiled around screws *k*, *l*, *m*, and *n*, which are hung in bearings, so they will vibrate freely in the direction of length of the levers. The springs are held down to the levers, and the amount of pressure necessary to make the bed S yield, is made greater or less by operating nuts on the said screws. When a hinge having greater thickness of leaves or diameter of pipe is introduced into the machine, these levers and springs allow the bed S to sink sufficiently far to admit the greater bulk of such hinge, yet the pressure is continued sufficiently to insure the pressing and finishing of the hinge as far as may be.

In fig. 5 is shown a hinge in which the leaves and pipe have not been acted on by my machine. It will be seen that the sections of the pipe do not form one continuous cylinder, nor set snugly up against the pivot; neither are the leaves in the proper position relative to the plane passing through the radius of the hinge. In fig. 6 is shown the same hinge, after being pressed and finished by my machine.

If it is desired to increase the pressure of the spring

O, it may be done by setting the collar P farther out, or nearer the cam M.

Power to drive the machine is applied to the driving-shaft by means of the pulley *w*, which may be made loose on the shaft, and a suitable clutch for connecting and disconnecting the power may be interposed. In using this machine, the hinges are laid, one at a time, on the dies K and I, the pipe of the hinge dropping in between the said dies, and the leaves lying on their flat upper surfaces. The gate now descends, and at the same time the die K is moved up by the cam M, and they at once force the sections of the pipe snugly into place, and give the proper form to it and the leaves, as seen in fig. 6.

By means of the levers T, T¹, T², and T³, with their corresponding springs, applied to the support of the dies K and I, and the spring O, lever N, and rod L, applied to the die K, the breaking or injuriously strain-

ing of the parts of the machine, by the introduction into it of a hinge somewhat larger than the dies will accommodate, is effectually prevented, and it thus is made practicable to press and finish hinges in the manner shown and described, and to make the same profitable.

Having thus fully described my invention,

I claim the combination, with the bed A, posts B, shaft D, and gate F, with their connections, constituting the frame and moving-parts of a press, of the die H, the yielding dies K I, the levers T, T¹, T², T³, and N, and their corresponding springs, substantially as and for the purpose set forth.

EDWARD BROWN.

Witnesses:

A. M. C. SMITH, Jr.,
H. JAMES WESTON.