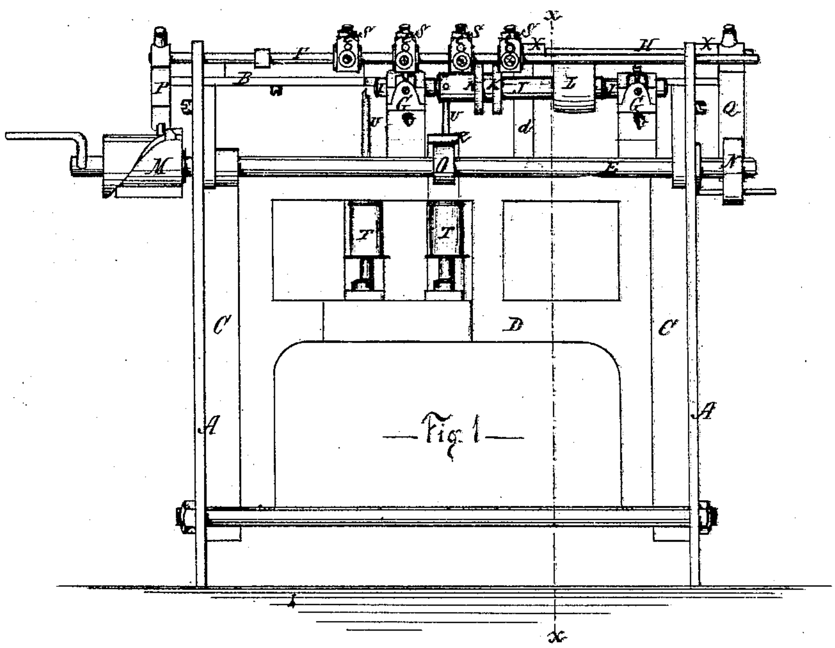
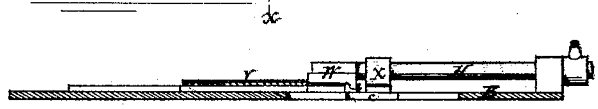
J. H. Baird,

Hinge Machine.

No. 101,210. Patented Mar. 29, 1870.

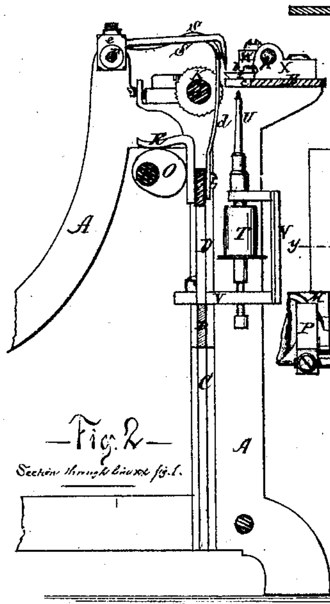


—Fig. 1—



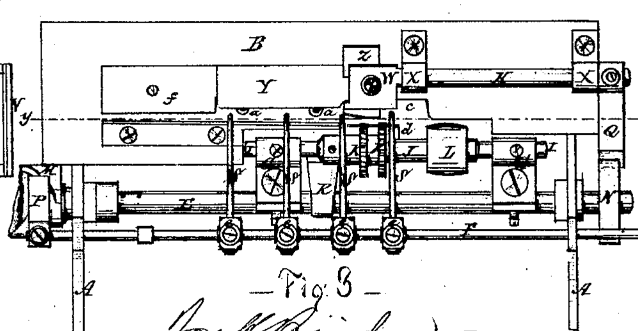
—Fig. 4—

Section through line y. y. fig. 3.



—Fig. 2—

Section through line x x fig. 1.



—Fig. 3—

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United States Patent Office.

JOSEPH H. BAIRD, OF OAKVILLE, CONNECTICUT.

Letters Patent No. 101,210, *dated March* 29, 1870.

IMPROVED HINGE-MACHINE.

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

I, JOSEPH H. BAIRD, of Oakville, in the county of New Haven and State of Connecticut, have invented a new and improved Machine for Automatically Countersinking and Milling Hinge-Blanks, of which the following is a specification.

Nature and Objects of the Invention.

My invention consists in certain novel combinations and arrangements of mechanism whereby blanks for the leaves of hinges or butts are automatically fed forward, countersunk to receive the screws, and milled to fit together, as will be fully set forth hereafter.

Description of the Accompanying Drawings.

Figure 1 is a front elevation of my improved machine.

Figure 2 is a sectional view through the line *x x*, fig. 1.

Figure 3 is a top view of fig. 1.

Figure 4 is a sectional view through the line *y y*, fig. 3.

General Description.

The parts which constitute the frame of the machine, and which support its various operative mechanism, consist of the side pieces A A and plate B, firmly bolted and secured together.

The main shaft E is held in bearings in the side-frames A A, and operates the cams M, O, and N, secured upon it in proper position.

The first cam, M, operates the shaft F, upon which the feeders S S are adjusted.

The center cam, O, actuates the frame D, carrying the countersinking and milling-mechanism.

The third cam, N, imparts the proper movements to the clamping-jaw W.

The feeding-mechanism consists of a series of fingers, S, held in adjustable bearings *e* upon the shaft F, which are so operated that the blanks laid upon the feed-plate *f* are fed forward to the action of the countersinks U U and cutters K K, the motions imparted to the fingers through the medium of the grooved cam M and arm P consisting of a forward, an upward, a backward, and a downward positive motion.

The countersinking and milling-mechanism are held in bearings in the reciprocating frame D, which slides in the guides C C, secured to the frame of the machine.

The countersinks U U are supported in the adjustable bearings V V, and, when raised to act upon the blank, they project through the apertures *a a*, immediately under the plate Y. This plate is so arranged as to hold the blanks down when they are being acted upon by the countersinks.

The rotary cutters K K are arranged upon the shaft J, which is supported by the adjustable arbors I I, held in the bearings G G upon the reciprocating frame D, and are arranged to admit of their being removed for the purpose of inserting other cutters when desired, as, when cutting blanks of a larger size, for instance, it may be necessary to employ a greater number of cutters, or others of a larger diameter.

The shafts of the cutters and countersinks are provided with pulleys L T, through the medium of which they are driven.

Upon the plate B is held in bearings *x x* the shaft H, which operates the clamping-jaw W. This jaw holds the blank to the action of the cutters after it has been fed forward from the countersinks U U, and it is so operated by the cam N, through the arm Q, that the blank is clamped between its under surface and the upper surface of the plate Z at the proper moment.

The jaw W is provided also with a stop, *b*, which serves to arrest the motion of the blank, and to insure of its proper adjustment in relation to the cutters.

The guide *d*, screwed to the frame D, acts to keep the edge of the blank always in a plane parallel with the axis of the cutters, and to prevent its being accidentally thrown out of position before it is seized by the clamp W.

After the blank has been acted upon by the cutters, and released by the clamp, it is dropped through the opening *c* by the action of the feeders in presenting another blank to the cutters.

Operation.

The blanks are first pressed out of the proper form, with holes to receive the screws, and are then acted upon by a machine which bends the knuckles, after which they are ready to be fed to the countersinks and milling tools, which act upon them as follows:

The blanks being laid upon the table or feed-plate *f*, in regular succession, are fed forward by the fingers S to the countersinks U. The first countersink acts upon the first hole in the first blank, and cuts it to the proper depth; the second blank in the row, at the next movement of the feeders, is brought in position to be acted upon by the first countersink, which cuts also the first hole in this blank. As this feed movement continues, the first blank will be brought over the second countersink, so that it will act upon the second hole of the blank, and thus the first holes in the blanks are cut in succession by the first countersink, and the second holes by the second countersink.

The parts of the machine which guide and hold the hinges during the successive operations should be ad-

justable for hinges of various sizes, which can easily be arranged by having slots for the screws which hold the parts, either in the parts themselves or in the bed.

As adjustable devices are common to all such machines, a further description is considered unnecessary.

Claims.

I claim as my invention—

1. The combination, with the feeder S, of the countersinks U, plate Y, and cam M, constructed substantially as described and specified.

2. The combination, with the feeders S, of the countersinks U, cutters K, and jaw W, constructed substantially as described and specified.

3. The combination of the stop *b*, jaw W, and cutters K, substantially as described and specified.

4. The arrangement of mechanism for operating the feeders, consisting of the cam M, lever P, and rod F, substantially as described and specified.

JOSEPH H. BAIRD.

Witnesses:

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