(No Model.) 3 Sheets—Sheet 1.

C. CRAWFORD.

BOX MAKING MACHINE.

No. 363,592. Patented May 24, 1887.

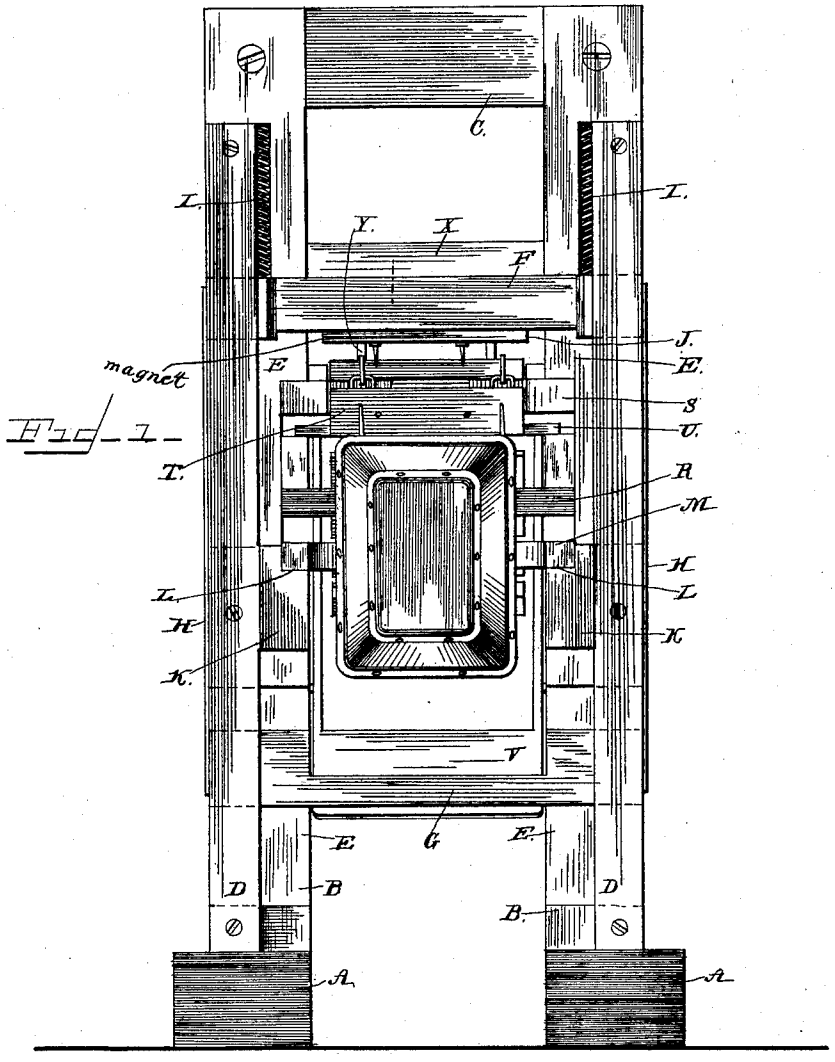

Fig. 1.

Witnesses
R. W. Bishop.
Jno. Finch.

Inventor
Charles Crawford
By his Attorney
H. J. Ennis

N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 2.

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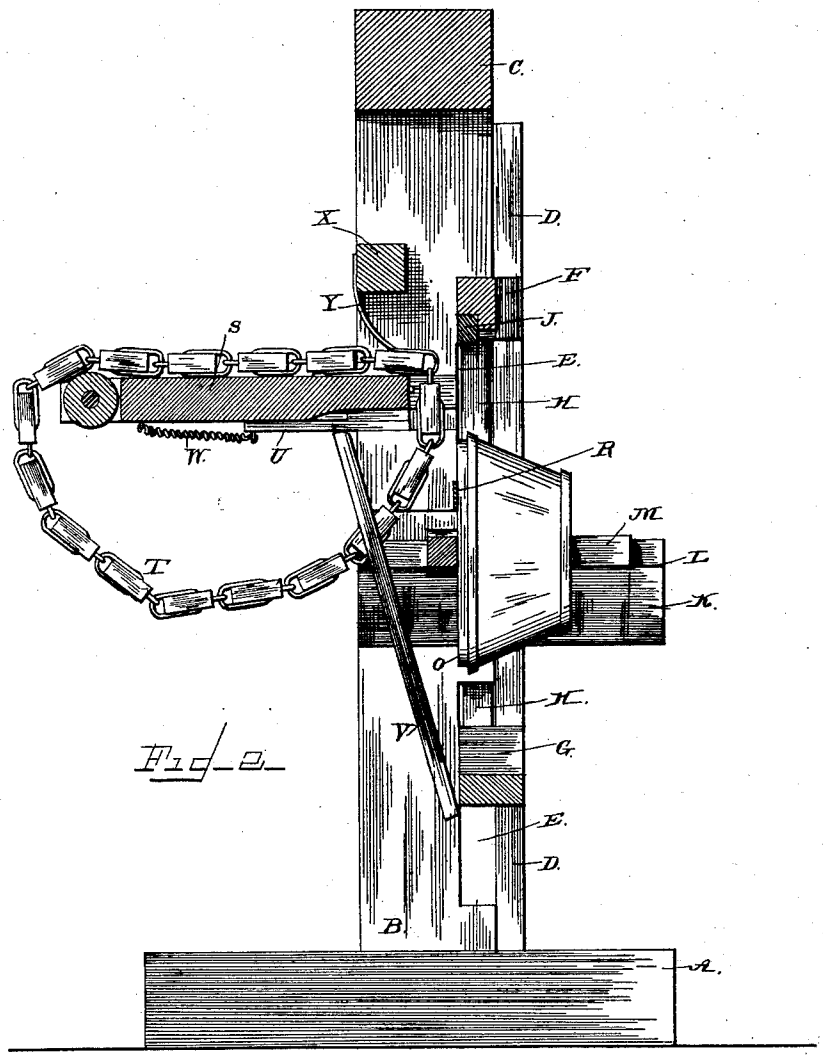

Fig 2.

Witnesses
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Jno. Finch.

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N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 3.

C. CRAWFORD.

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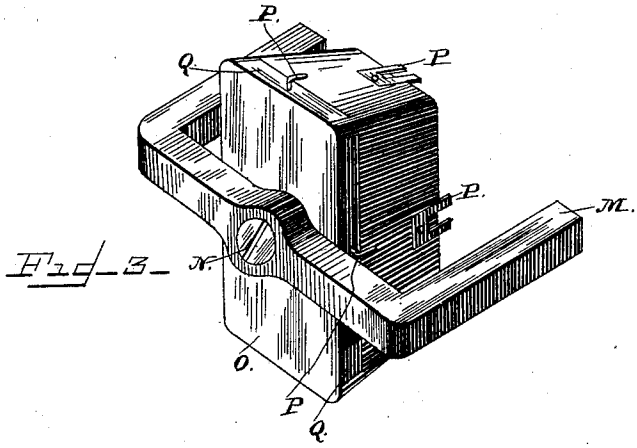

Fig 3.

Witnesses
A. W. Bishop.
Jno. Finch.

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N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

CHARLES CRAWFORD, OF CLINTONDALE, NEW YORK, ASSIGNOR OF ONE-THIRD TO SOLOMON P. THORN, OF SAME PLACE.

BOX-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 363,592, dated May 24, 1887.

Application filed September 30, 1886. Serial No. 214,945. (No model.)

To all whom it may concern:

Be it known that I, CHARLES CRAWFORD, a citizen of the United States, residing at Clintondale, in the county of Ulster and State of New York, have invented certain new and useful Improvements in Box-Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in machines for making boxes and baskets for holding fruit and similar articles, and aims to facilitate and accelerate the manufacture of the same.

It consists in certain novel features of the device shown in the accompanying drawings, in which—

Figure 1 is a front elevation of my improved machine. Fig. 2 is a view partly in side elevation and partly in section, and Fig. 3 is a detail perspective view of the box former and holder.

Referring to the drawings by letter, A designates the base, which may be of any size and may be made in one piece, or in two pieces, as shown. Upon this base I erect two standards, B B, which are connected and braced at their upper ends by a cross bar or beam, C, as shown. These standards B B may be erected upon the floor of the factory and the base or bases A A dispensed with. The standards B B have guide rails or bars D D secured to their front sides, which are provided with recesses E just behind the bars D, as shown most clearly in Fig. 2. The hammer F works in these recesses between the guide-bars D and the standards B, and consists of the hammer proper and the treadle G, connected by the straps H, as shown. Coiled springs I, secured in recesses in the upper ends of the standards B, are connected to the hammer F, and hold the same up off the basket or box when in its normal position. The hammer F is provided with a bar-magnet, J, permanently secured in its lower face, the function of which will hereinafter appear.

At the proper height I secure to the standards, upon their inner sides and directly opposite each other, rails K, provided with shoulders or ledges L upon their upper edges, upon which the basket-holder frame M rests. This frame M is a U-shaped bar, as shown in Fig. 3, the arms of which rest upon the shoulders L. The cross-bar of the frame is provided with a central enlargement and opening, through which a pivot-screw, N, is passed into the former-block O. The former-block O has tapered sides, as shown, and is provided with fingers and catches P for holding the material of which the basket is formed on the block. It is also provided along its edges with metallic strips Q, as shown, the purpose of which will be presently set forth. A stop or bar, R, extends across the space between the standards and limits the motion of the box holder and former, preventing its being pushed inward too far for the proper operation of the device.

Secured to the standards B, and extending to the rear of the same, is a table, S, over which passes an endless belt, T, composed of brass plates connected by loops, as shown. A feed-plate, U, rests upon shoulders formed on the inner sides of the standards beneath the table S, and is operated by a U-shaped frame, V, which is pivotally secured to the standards and has the upper ends of its arms inserted in sockets in the plate U. A retracting-spring, W, is secured to the under side of the table S and to the rear edge of the plate U, the object of which will be specified hereinafter.

The plate U has a block secured upon its forward edge, which fits in a recess in the front edge of the table S when at rest, and in operation bears against one of the plates forming the endless belt T. A bar, X, extending across and secured between the standards B, has one or more leaf-springs, Y, depending from its rear edge and bearing upon the plates of the endless belt, to keep the same upon the table in proper position to be fed to the magnet on the hammer in the operation of the device.

My machine is intended for use in the manufacture of those fruit baskets or crates which are made of light thin woods or veneers.

In operation the material of which the basket is to be made is placed in shape upon

the former-block O and the binding strips or bands placed along the edges, as shown. The block is then pushed inward upon the rails K against the stop R, which will bring the box into proper position to be acted upon by the hammer F. The nails or tacks are placed in the brass plates composing the endless belt points downward, and are carried by the same toward the hammer F. The operator stands in front of the machine, with his foot resting upon the treadle G and against the pivoted U-shaped frame V. By pushing against the frame V the plate U will be shoved forward, and the block on its forward edge will consequently act upon the belt T and push one of the brass plates carrying the nails or tacks against the magnet J, which will attract and hold them, as will be understood. The pressure on the frame V is then relieved, when the spring W will draw the plate U back to its normal position. Pressure is then exerted on the treadle G, bringing the hammer down upon the basket, which will cause the tacks to enter the box, and, striking against the metal strips Q on the former-block, be clinched against the inner side thereof. The pressure being taken off the treadle G, the springs I will draw the hammer back to its normal position. The box is then swung around upon the pivot-screw N, so as to bring another side in position to be acted upon by the hammer, and the operation just described is repeated. When one edge of the box has been finished, the holder is removed from the rails K, and, after being reversed, is replaced and pushed backward, so as to bring the other edge of the box under the hammer.

The operation of my machine will be fully understood from the foregoing, and the advantages of the same will be apparent. The construction of the machine is simple, and boxes can be made by it rapidly and perfectly.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the box holder and former, of a magnetic hammer and a series of connected non-magnetic nail-feed plates, substantially as and for the purposes set forth.

2. In a box-machine, a removable box holder and former, consisting of the supporting-frame and the former-block pivotally secured thereto, the whole being capable of an adjustment to and from the main frame, substantially as set forth.

3. In a box-machine, the combination, with the main frame and former, of a power-hammer, a treadle connected to the hammer by straps, and springs secured to the hammer and the frame, all operating substantially as specified.

4. The combination, in a box-machine, of the sliding box holder and former and a stop for limiting the movement thereof, substantially as set forth.

5. The combination, with the main frame and a table extending therefrom, of an endless belt adapted to convey and supply fastenings passing over the table, a feed-plate working under the table and acting upon the endless belt, and an operating-frame pivoted to the main frame of the machine and connected to the feed-plate, substantially as described and shown.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES CRAWFORD.

Witnesses:
SOLOMON P. THORN,
CHARLES W. ELTING.