S. H. WRIGHT.

Machine for Manufacturing Boxes and Trays.

No. 208,661. Patented Oct. 1, 1878.

Fig. 1.

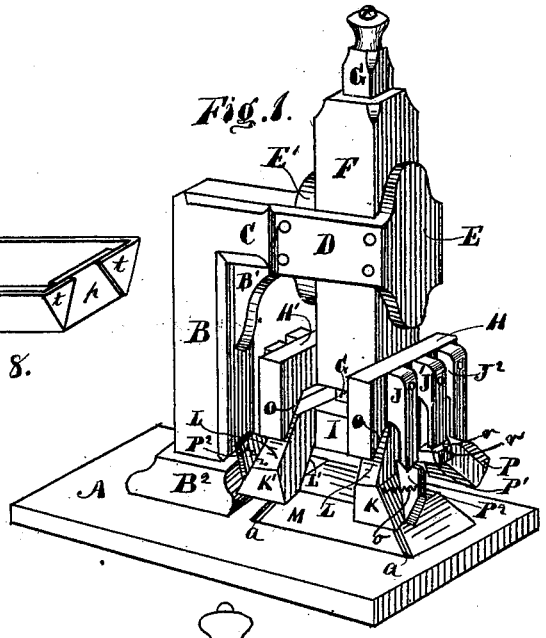


Fig. 8.

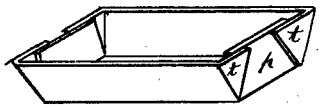


Fig. 7.

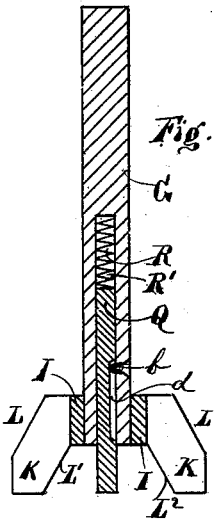


Fig. 2.

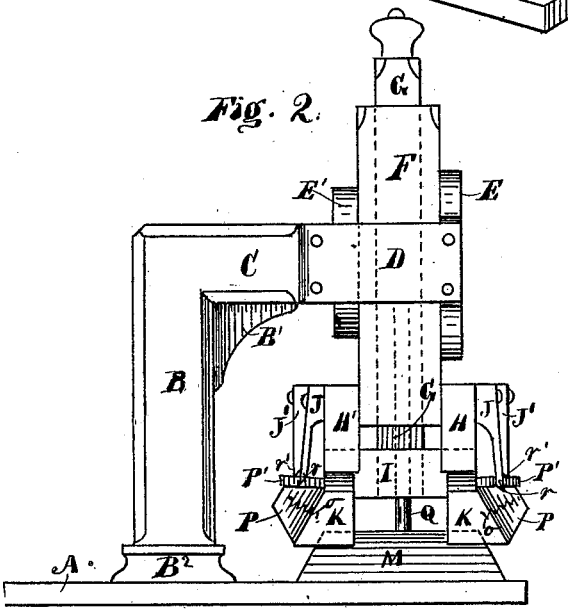


Fig. 3.

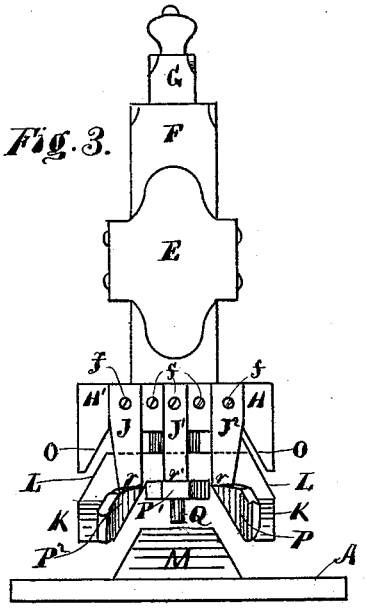


Fig. 4.

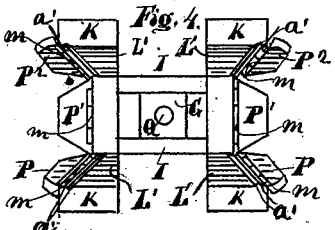


Fig. 5.

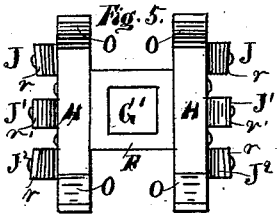
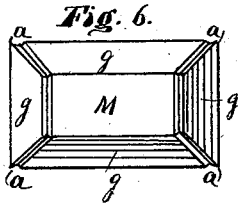


Fig. 6.



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SHEFFIELD H. WRIGHT, OF INDIANAPOLIS, INDIANA.

IMPROVEMENT IN MACHINES FOR MANUFACTURING BOXES AND TRAYS.

Specification forming part of Letters Patent No. **208,661**, dated October 1, 1878; application filed July 19, 1878.

To all whom it may concern:

Be it known that I, SHEFFIELD H. WRIGHT, of Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Machine for Manufacturing Boxes and Trays, of which the following is a description, reference being had to the accompanying drawing.

My invention relates to a new machine for making boxes and trays from blanks of pasteboard or veneer.

The object of my invention is to provide a system of newly constructed and arranged devices, having new modes of operating, whereby blanks of veneer or pasteboard are bent and formed into boxes or trays.

My invention consists, mainly, in the new construction, arrangement, and application of devices; also, in the new combination of old elements, all of which, singly or combined, are deemed essential in my newly-organized machine, as will be hereinafter fully set forth and described.

In the accompanying drawing, in which like letters of reference in the different figures indicate like parts, Figure 1 represents a perspective view of my new machine. Fig. 2 is a side elevation, and Fig. 3 is a front elevation, of the same. Fig. 4 is an end view of the bending-head and folding devices. Fig. 5 is an end view of the slide and head with arms for operating the folding devices. Fig. 6 is a plan view of the former-block. Fig. 7 is a sectional view of the bending-head slide, and Fig. 8 is a perspective view of a tray as made by my new machine.

A is the bed-plate, on which is secured an upright standard, B^1 B^2 B, with an arm, C, projecting forward. The front end of the arm C is provided with a square vertical opening formed by the sides D D, the front E, and back E′, in which operates the hollow slide F, to the lower end of which is attached the head H, on which the arms J J^1 J^2 are secured for operating the folders. Inside of the hollow slide F the slide G operates, to the lower end of which is attached the bending and folding head I K K′. The bars K of the bending-head are beveled near each end, as at L′, and these beveled parts are designed to fit over the beveled sides *g g* of the former-block M. To the outer beveled edges of the inclined parts L′ of the bars K K′, and hinged at *m*, are the inclined folding-wings P P^2, and between said wings, on each bar K, are also hinged the horizontal wings P^1, as shown in Figs. 1, 2, 3, and more fully in Fig. 4.

In the center of the slide G, at the bottom, is a hole, R′, in which is a spring, R, and a sliding plug, Q. The plug Q is provided with a keyway, *d*, in which a screw or pin, *b*, is inserted, by means of which the plug is prevented from dropping out. The end of said plug rests on the former-block M, or on a blank when said blank is to be formed into a tray or box.

The head of the slide F is provided with two bars, H H′, and may have beveled parts O at each end, that are designed to fit over the beveled parts L formed on the ends of the cross-bars K of the bending-head, for the purpose of guiding the arms J J^1 J^2 on the folding-wings P P^1 P^2, and preventing the material that is being formed into a tray from crowding the head H and arms J out of line with the former M. Each folding-wing P is provided with a spring, *o*, for the purpose of holding said wings up while a blank is being inserted between them and the former-block.

The outer arms, J J^2, of the head H are beveled at their lower ends, *r r*, so as to operate at an angle on the outer inclined wings, P P^2, on each of the bars K, and fold said wings against the material at the ends of the former-block M.

The central arms, J^1, have their lower ends, *r′*, square, and operate on the horizontal wings P^1 P^1 simultaneously with the other arms as the slide F is forced down, or the central wings, P^1, may be folded down slightly in advance of or after the side wings, P P^2, which is preferred to operate in advance, as will be hereinafter described.

The former-block M is made to correspond with the shape of the tray required, and at each corner and end are formed sharp edges *a a*, as shown. The beveled parts L′ of the bender and folding head may also be provided with similar sharp edges, *a′ a′*, as shown in Figs. 4 and 6.

Having thus described the construction and arrangement of parts in my machine, I will now describe its mode of operation.

The two slides F and G, with their respective heads, are raised, and a blank of veneer or pasteboard is placed on the former-block M. The slide G is then lowered, and the plug Q rests on the center of the blank, thus holding the central part down on the former and preventing it from rising or moving as the bending device forms the sides of the tray. The slide G is then forced farther down, and the beveled parts L′ bend the sides of the blank over the sides of the former-block M, after which the slide F is forced down and the central arms, J^1 J^1, come in contact with the central folding-wings, P^1 P^1, just before the outer arms, J J^2, encounter the inclined side wings, P P^2. Thus the central wings bend the central part of each end of the blank first, and the inclined side wings, following, bend the corner parts of each end of the blank alternately, and lap them over the central parts until the ends are formed as shown at *p t t* in Fig. 8. The sharp edges *a a* at the corners and ends of the former-block, and *a′ a′* in the bending-head, when closed together on the blank, prevent said blank from splitting as the ends are bent, and at the same time allow the fiber of the material to be broken at the corners by the folding-wings, for the purpose of forming well-defined sharp corners to the tray, so as to more fully retain its shape after being removed from the machine. This is an essential feature, especially when veneer is used.

The ends of the tray are secured by staples or tacks, and then the slides F and G, with their respective heads, are elevated and the tray removed.

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

1. In a tray or box forming machine, the slide F, with head H, having beveled guides O O, and the wing-operating arms J J^1 J^2, substantially as shown and described.

2. The slide G, with head K K, having beveled parts L′ L′ L′ L′, with sharp edges *a′ a′*, combined with the slide F and the former M, having grooved edges *a a*, substantially as shown and described.

3. The slide G, with frame-bars K K, having beveled parts L′ L′ L′ L′, and the folding-wings P P^1 P^2, substantially as shown and described.

4. In combination with a former-block, M, the slide G, having head K, with beveled parts L′ and hinged wings P P^1 P^2, whereby the sides and ends of a tray are folded as the head K is forced onto the blank on the former-block and the wings operated, substantially as shown and described.

5. In combination with the beveled former M, the slide G, having horizontal folding-wings P^1, inclined folding-wings P P^2, beveled sides L′ L′, and sliding plug Q, whereby the blank is held in position, the sides bent with the grain of the wood, the central part of each end bent down, and the corner parts of each end folded, substantially as shown and described.

6. In combination with the slide G, having central horizontal folding-wings P^1 and inclined side-folding wings P P^2, the slide F, having arms J J^1 J^2, whereby the horizontal and inclined wings are operated, the central part of each end of the blank bent down, and the corners folded, thus forming a tray with inclined or tapering sides, substantially as set forth and described.

7. The former-block M, with beveled sides, having sharp edges *a a* at the corners and ends, combined with the folding-die or pressure-head K, having beveled parts L′, whereby the material that is being formed into a tray is firmly held at the corners and ends, thus preventing the material from splitting while the ends are being bent, substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SHEFFIELD H. WRIGHT.

Witnesses:
E. O. FRINK,
BYRON A. TYLER.