

C. CHAMBERS, Jr.

Packing-Boxes for Paper-Folding Machines.

No. 141,486.

Patented August 5, 1873.

Fig. 1.

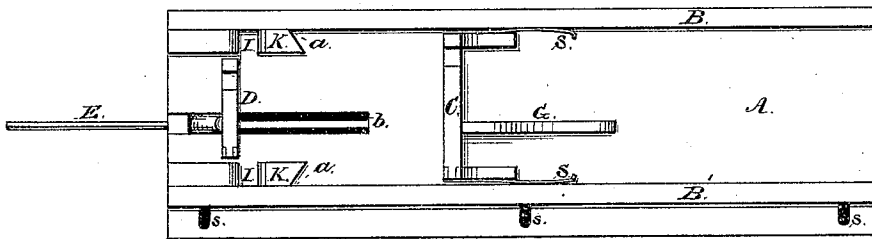


Fig. 2.

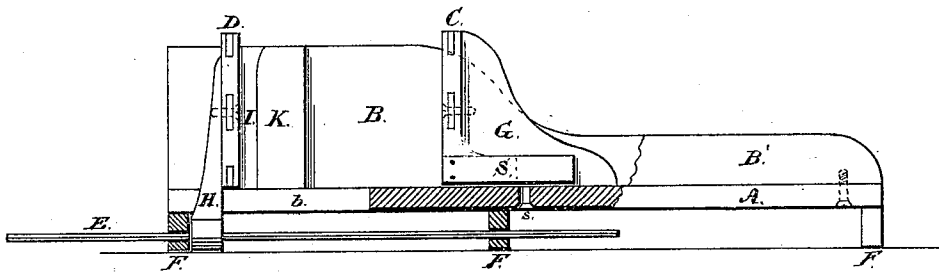


Fig. 3.

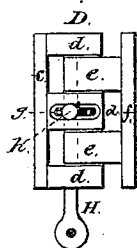
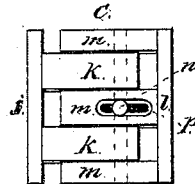


Fig. 4.



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IMPROVEMENT IN PACKING-BOXES FOR PAPER-FOLDING MACHINES.

Specification forming part of Letters Patent No. **141,486**, dated August 5, 1873; application filed May 10, 1873.

To all whom it may concern:

Be it known that I, CYRUS CHAMBERS, JR., of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Packing-Boxes for Folding-Machines; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a top view of my improved packing-box. Fig. 2 is a vertical longitudinal central section of the same. Fig. 3 is an elevation of the face of the reciprocating-plunger. Fig. 4 is an elevation of the face of the sliding back board.

The same part is marked by the same letter of reference in all the figures where it occurs.

This invention relates to the packing-boxes which are used in paper-folding machines to receive and pack the folded sheets as they are delivered from the folding mechanism. It consists in provisions for adjusting the width of the packing-box to suit varying sizes of sheets; for diminishing the friction of the sliding back board; for giving a corresponding adjustment to the plunger and back board to accommodate their width to variations in the width of the packing-box; and for preventing the sheet from bending or buckling at the side edges during the operation of packing, all as herein-after particularly set forth.

My improved packing-box consists of a bottom board, A, supported on cleats F F F, and having two side boards, B B', one of which, B', is adjustable on the bottom board by means of set-screws passing up through slots *s s* into the lower edge of board B'. The movable side B' can thus be set at any longitudinal angle that may be desired with the fixed side B, and at any required distance from that side. At the front end of the bottom board is a slot, *b*, in which works the brace or arm H of the reciprocating plunger D attached to the plunger-rod E. This rod reciprocates in holes in the cleats F F, as shown in Fig. 2.

The construction of the plunger is clearly shown in Fig. 3. To two side pieces, *c f*, are attached, respectively, the sliding slats *d d* and *e e*. These slats slide upon each other, so as to increase or diminish the width of the plunger as may be required. The middle slat

d has a slot, *g*, in it, through which passes a set-screw, *h*, which clamps that slat to the brace H in any desired position. As the slats *e e* are fixed to the brace H when the set-screw *h* is tightened all the slats are prevented from moving laterally.

The sliding back board C has a similar construction and method of adjustment, as seen in Fig. 4. To the side pieces *j l* are attached, respectively, the slats *k k* and *m m m*. The slats *k k* are firmly attached to the brace G, which supports the back board. The slats *m m* slide on the slats *k k*, the middle slat *m* having a slot, *p*, in it, through which a set-screw, *n*, passes into the brace G to hold the several parts in position when properly adjusted. To the sides of the back board C are attached springs S S, which react outward, and press against the sides B B' of the packing-box, and adapt themselves to the varying width of the box.

When these sides are set at longitudinal inclination to each other, so that they are further apart at the rear than at the forward end of the box, the tension of the springs will constantly diminish as the back board slides toward the rear end of the packing-box. Thus the frictional resistance to the movement of the packed sheets along the box will constantly and uniformly diminish as the number of sheets in the box increases, equalizing the resistance to the plunger and the compression of the packed sheets. This diminution of friction is effected in folding-machines made under my patent in April 5, 1859, in a different manner, in connection with a packing-box of different construction, but its object and effect were the same.

I mark the slits into which the folded sheet falls from the folding mechanism. The cleats K K are directly back of these slits, and form their rear sides. I give them such a shape as to form the acute angles *a a* with the sides of the box, as shown in Fig. 1. The object of this construction is to straighten out the side edges of the sheets which have been bent by being forced by the plunger through the narrow space between the cleats K K. The elastic reaction of the pack of folded sheets tends to drive the last sheets back as the plunger recedes. While thus being pressed back their

edges are caught by the inclined faces of the cleats, and are straightened out so as to lie flat in the pack, and will not be doubled or broken, as they frequently are when the cleats or stationary catches K K are at right angles to the sides of the trough.

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

1. The adjustable side B', united to the bottom board A of the packing-box of a folding-machine by means of set-screws passing through the slots *s* in the bottom board, substantially in the manner and for the purpose specified.

2. The plunger D, made adjustable as to its width by means of the slats *d e* united to the side bars *e f*, and sliding upon one another in the manner substantially as set forth.

3. The sliding back board C, made adjustable as to its width by the sliding slats *k m*, and provided with the frictional springs S S, as and for the purpose stated.

4. The inclined faces of the cleats K K, forming the acute angles *a a*, for the purpose of straightening out the folded sheet in the manner described.

The above specification of my said invention signed and witnessed at Philadelphia this 1st day of May, A. D. 1873.

CYRUS CHAMBERS, JR.

Witnesses:

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MARIS CHAMBERS.