

(No Model.)

3 Sheets—Sheet 1.

W. C. DEMAIN.

PACKING BOX FOR RULING MACHINES.

No. 275,606.

Patented Apr. 10, 1883.

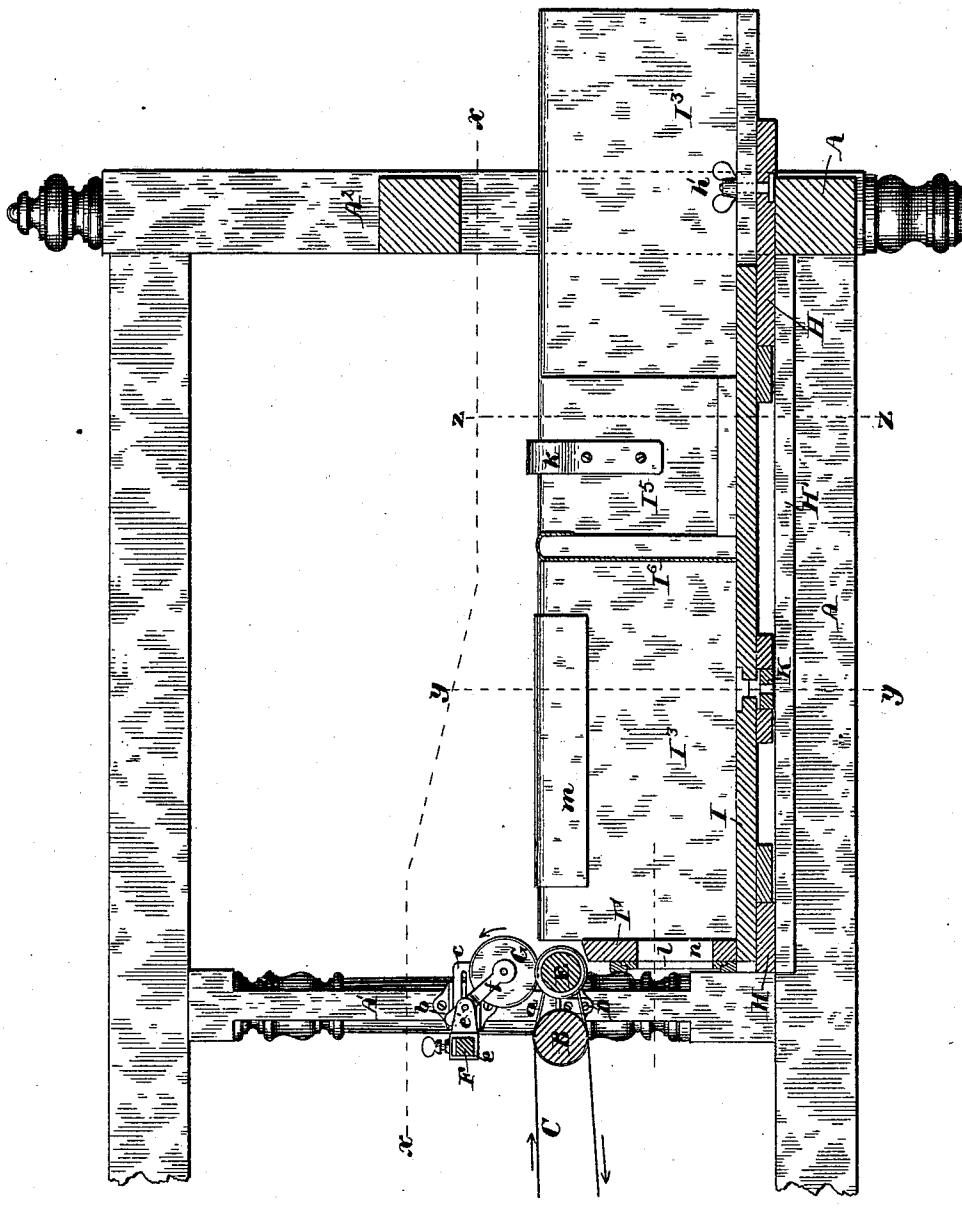


Fig. 1

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Walter E. Lombard

Inventor:

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by *N. C. Lombard*
Attorney.

(No Model.)

3 Sheets—Sheet 3.

W. C. DEMAIN.

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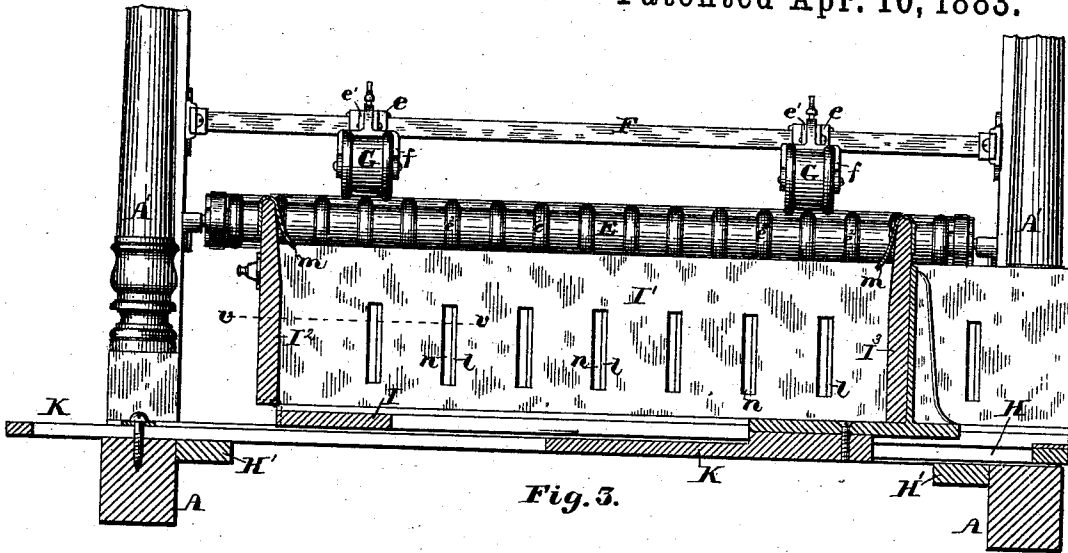


Fig. 3.

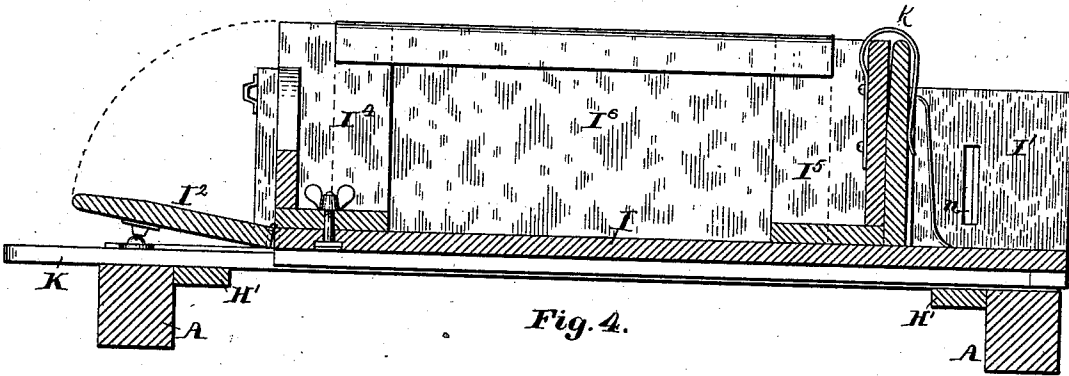


Fig. 4.

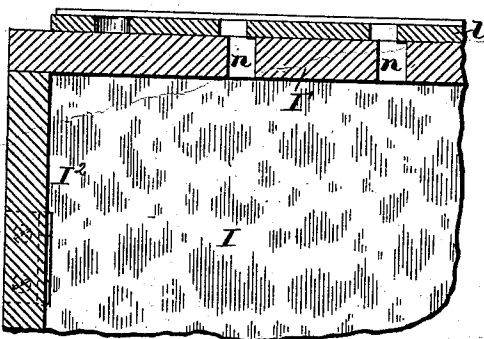


Fig. 5.



Fig. 8.

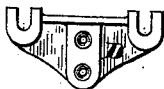


Fig. 7.

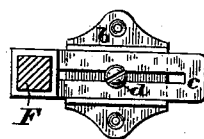


Fig. 9.

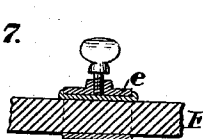


Fig. 11.

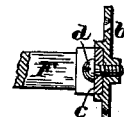


Fig. 10.

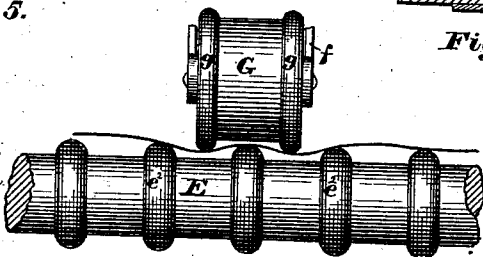


Fig. 6.

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Inventor:

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UNITED STATES PATENT OFFICE.

WILLIAM CHARLES DEMAIN, OF MEDFORD, MASSACHUSETTS.

PACKING-BOX FOR RULING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 275,606, dated April 10, 1883.

Application filed November 9, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CHARLES DEMAIN, of Medford, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Packing-Boxes for Ruling-Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to an improved packing-box for paper-ruling machines, and has for its object a more perfect piling of the paper as it is discharged from the ruling machine, whereby a considerable saving of labor is made in "jogging up" or evening the sheets in the pile; and it consists in certain novel constructions, arrangements, and combinations of devices, which will be best understood by reference to the description of the drawings and to the claims to be hereinafter given.

Figure 1 of the drawings is a central vertical longitudinal section through a portion of the rear end of a paper-ruling machine with improved packing-box applied thereto. Fig. 2 is a horizontal section of the frame on line *x x* on Fig. 1, and showing my improved packing-box in plan. Fig. 3 is a vertical transverse section on line *y y* on Figs. 1 and 2. Fig. 4 is a vertical transverse section on line *z z* on Figs. 1 and 2, with the hinged side of the box turned down. Fig. 5 is a partial horizontal section of the box on line *v v* on Fig. 3; and Figs. 6, 7, 8, 9, 10, and 11 are details to be hereinafter referred to.

A A' A² are parts of the frame of an ordinary paper-ruling machine; and B is the rear apron-roll, which carries the endless delivery-apron C, which moves in the direction indicated by the arrows in Fig. 1. The roll B has its bearings in two stands or brackets, D, secured to the uprights A' of the frame—one upon either side of the machine—as shown in Fig. 2. The stands or brackets D are shown in detail in Figs. 7 and 8, respectively in elevation and inverted plan, where it will be seen that each stand has formed therein two bearings, in one of which one end of the roll B is mounted. The other bearing is intended to receive the journal of the ribbed roll E, as shown in Figs. 1 and 2. The roll E is revolved at a somewhat greater speed than the roll B by means of one or more belts, *a a*, which lead

from the roll B upon reduced portions of the roll E, as shown in Fig. 2.

F is a rectangular bar, adjustably secured to the uprights A' by means of the plates *b*, the slotted socketed arms *c*, and the screws *d*, as shown in Figs. 1, 3, 9, and 10.

Upon the bar F is adjustably secured one or more rectangular sleeves, *e*, from each of which project two ears, *e'*, to which is pivoted a forked lever, *f*, carrying in its forked end a flanged truck, G, arranged to rest upon the ribbed roll E, with its flanges *g* upon opposite sides of one of the ribs *e²* of the roll E, as shown in Figs. 3 and 6.

Two light wooden boards, H, are fitted to rest upon the lower girts, A, of the machine-frame, and between the posts or uprights A' and A², which prevent them from moving in the direction of the length of the machine, said boards being connected together and prevented from moving transversely of the machine by strips H', secured to their under sides, the edges of which abut against the side girts of the machine, as shown in Fig. 3.

The packing-box, which rests upon the frame H H', is composed of the bottom I, the front end, I', permanently attached to the bottom, the side I², hinged to said bottom so that it can be turned down to facilitate the removal of the pile of paper from the box, the side I³, adjustably mounted upon said bottom, so that it may be moved toward or from the side I² to adapt the box to the width of the paper, the adjustable brackets I⁴ and I⁵, and the sheet-metal plate I⁶, co-operating with said brackets I⁴ and I⁵ to form the rear end of the box, which may be adjusted in length and toward and from the front end, I², to adapt the length of the box to the length of the paper. The side I³ of the packing-box is firmly secured by the metal bracket J to the slotted arm K, by means of which and the clamp-screws *h* and *h'* it may be secured at any desired distance from the hinged side I², according to the width of the paper to be ruled. The bracket I⁴ is secured to the bottom I by means of the thumb-screw *i* and the longitudinal slot *j*, formed in said bottom, as shown in Fig. 2. The bracket I⁵ is secured to the side I³ by means of the spring-clamp *k*, so that it may be adjusted upon said side to a greater or less distance

from the end I' , and at the same time be capable of being adjusted to a greater or less distance from the bracket I^4 moving with the side I^3 . The front end, I' , of the box has formed therein one or more openings, n , for the escape of air from the box as a sheet of paper falls therein, said opening or openings being controlled by a sliding valve, l , by which they may be entirely or partially closed at will, as may be found to be desirable. The whole packing-box may be moved transversely of the ruling-machine, to adjust the side I^2 to one edge of the paper as it is delivered from the apron C, the weight of the box being sufficient to hold it in the desired position.

To enable the box to be adjusted to the largest and smallest sheets that it will be required to rule upon the machine, it will be necessary to have two or three different lengths of the sheet-metal plate I^6 . The plate I^6 has its upper edge bent, so that it will rest upon and embrace the upper edges of the brackets I^1 and I^3 , as shown in Figs. 1 and 2. The upper portions of the sides I^2 and I^3 are tapered upon their inner sides, and have hooked thereon the bent sheet-metal guards m , as shown in Fig. 3, the object of which is to assist in holding up the edges of the sheet of paper as it is projected over the box, and allow its middle to fall faster than its edges.

In the operation of my invention it is necessary that the sides and ends of the packing-box be nicely adjusted to the size of the sheet being ruled and to the position of the sheet as it is delivered from the apron C, and then, to insure the proper depositing of the successive sheets in the box, it is essential that the sheets should be projected over the box in substantially a horizontal position, or at least that its forward end shall not fall very much before its rear end has been delivered over the front end of the box. To insure such delivery of the sheet is the object of the ribbed roll E and the flanged trucks G, which co-operate to curve the sheet of paper transversely as it is delivered from the apron C, as shown in Fig. 6, and, by thus curving or corrugating the sheet transversely, stiffening it longitudinally, so that it may be projected across the box in nearly a horizontal position, when it falls gradually into the box, expelling the air therefrom through the openings n , the central portion of the sheet falling in advance of its edges until said edges have passed the guards m , which have served to help maintain the sheet in a horizontal position. When the sheet has gradually settled to the bottom of the box, or to a bearing upon the top of the pile, it will just cover the area of the space enclosed by the sides and ends of the box, and when the box is filled the sheets will be found evenly piled, and may be removed by turning

down the hinged side I^2 and wrapped for transportation without further labor in joggling up or evening the sheets.

This packing-box is very readily adjusted to any required size of sheet, and, by virtue of the sheet acting as a piston to expel the air simply by its weight, a film of air is retained between the sheets, which aids in drying the color and prevents the lines smutching.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In combination with the sheet-delivering apron of a paper-ruling machine, a packing-box for receiving the ruled sheets, having the following essential features, viz: a bottom, two sides, and two ends, so arranged relative to each other as to meet at the corners and form a tight box open only at the top, one side and one end being adapted to be adjusted relative to the other side and end to vary the size of the box and still maintain tight corners, and the whole adjustable relative to the center line of the delivering-apron, substantially as described.

2. In a packing-box for paper-ruling machines, the combination of the adjustable side I^3 , the adjustable bracket-pieces I^1 and I^2 , and the removable bent plate I^6 , all constructed, arranged, and adapted to operate substantially as and for the purposes described.

3. In combination with the sheet-delivery apron of a paper-ruling machine, the roll E, provided with two or more circumferential ribs, e^2 , having rounded outer edges, and one or more trucks, G, each provided with two rounded-edged flanges, $g g$, all arranged and adapted to operate substantially as and for the purposes described.

4. In combination with the sheet-delivering apron of a paper-ruling machine, the roll E, provided with two or more circumferential ribs, e^2 , having rounded outer edges, the adjustable bar F, and one or more trucks, G, each provided with two rounded-edged flanges, $g g$, connected thereto, and adapted to co-operate with the roll E to corrugate or curve the paper, substantially as described.

5. The combination of the sheet-delivering apron C, the grooved or ribbed roll E, one or more flanged trucks, G, a packing-box provided with adjustable sides and ends, and the guard-plates m , all arranged and adapted to operate substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 7th day of November, A. D. 1882.

WM. CHARLES DEMAIN.

Witnesses:

N. C. LOMBARD,
W. E. LOMBARD.