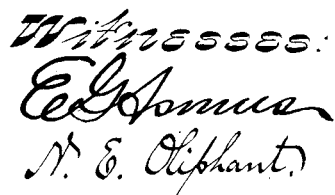


(No Model.)
H. LOEWENBACH & W. F. H. MATTER.
SHEET STRAIGHTENER FOR PRINTING PRESSES.

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Patented Apr. 24, 1888.



Inventors:-
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William F. H. Matter.
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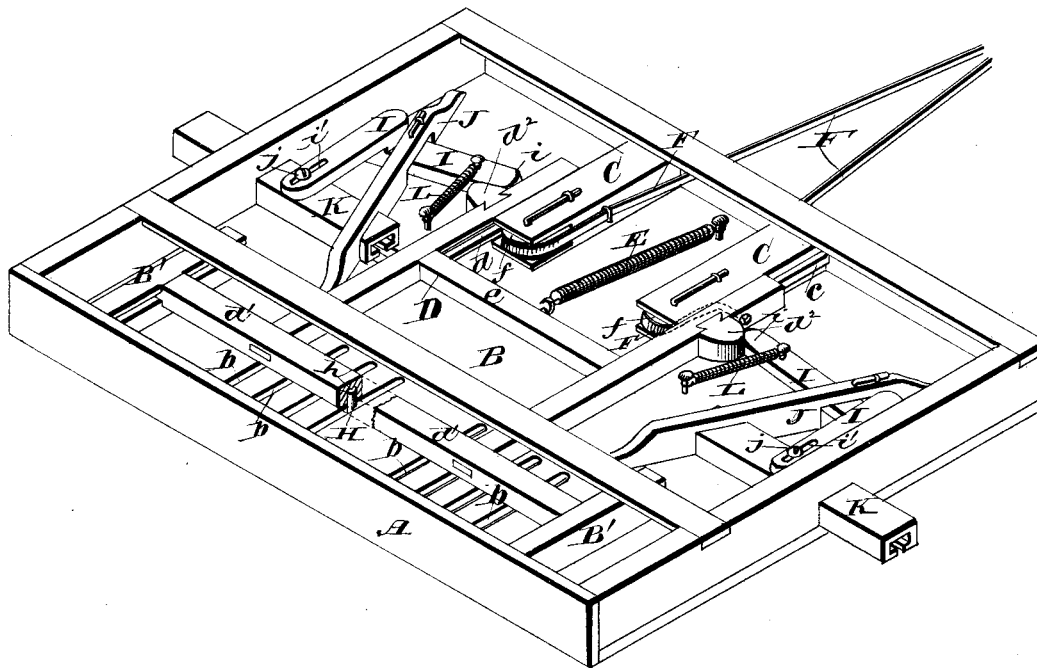
2 Sheets—Sheet 2.

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No. 381,800.

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Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

HUGO LOEWENBACH AND WILLIAM F. H. MATTER, OF MILWAUKEE,
WISCONSIN.

SHEET-STRAIGHTENER FOR PRINTING-PRESSES.

SPECIFICATION forming part of Letters Patent No. 381,800, dated April 24, 1888.

Application filed March 10, 1887. Serial No. 230,3-1. (No model.)

To all whom it may concern:

Be it known that we, HUGO LOEWENBACH and WILLIAM F. H. MATTER, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Sheet-Straighteners for Printing-Presses; and we do hereby declare that the following is a full, clear, and exact description thereof.

Our invention relates to sheet straighteners for printing-presses; and it consists in certain peculiarities of construction and combination of parts, to be hereinafter described with reference to the accompanying drawings, and subsequently claimed.

In the drawings, Figure 1 represents a perspective view of our sheet-straightener operatively connected to the fly of a printing-press; Figs. 2 and 3, vertical longitudinal sections of the same, illustrating its operation; and Fig. 4, a perspective view of our device inverted.

Referring by letter to the drawings, A represents the main frame of our device, that is designed to be clamped or otherwise suitably secured to the fly-table of a printing-press, said frame having a top, B, provided with a series of parallel transverse grooves, *a*, and longitudinal slots *b*. To the main frame beneath its top piece, B, are rigidly secured guide-blocks C, provided with tongues *c*, that engage corresponding grooves, *d*, in the side pieces of a sliding frame, D. A spiral spring, E, has its respective ends secured to the top B of the main frame and a cross-piece, *e*, of the sliding frame D, and suitably secured to the side pieces of said sliding frame are the ends of a strap, F, that runs over pulleys *f*, journaled in the guide-blocks C, and connects with an arm, *g*, projecting from the bottom of a press-fly, G.

The rear portion of the sliding frame D consists of a transverse piece, *d'*, that is laterally extended beyond the side pieces, to which it is made fast, and this portion *d'* of said sliding frame is provided with a series of sockets, *h*, for gage-pins H, that extend up through and beyond the slots *b* in the top B of the main frame. Guides B' are provided for the transverse piece *d'* of the sliding frame.

The gage-pins H may correspond in number

to the slots *b* in the top piece, B, of the main frame; or a less number of said pins may be employed and their positions varied with relation to the slots, according to the size of the sheets being delivered from the press.

The side pieces of the sliding frame D are provided with convex lugs *d''*, that come against the adjacent rounded ends *i* of bell cranks I, the latter being pivotally connected to guide-bars J, and having their other ends, *i'*, slotted to engage pins *j* on lateral slides K, that are seated in guides cut in the bars J and the sides of the main frame.

Spiral springs L have their respective ends secured to the bell cranks I and to the top piece, B, of the main frame, these springs serving to keep the ends *i'* of said bell-cranks in the path of the lugs *d''* on the sliding frame.

Pivotally secured to and laterally adjustable on each slide K are long and short gage-arms M N, and the free ends *m n* of these arms are designed to engage the grooves *a* in the top piece, B, of the main frame. We have shown and described two gage arms on each slide as the preferred construction; but it is obvious that one of these arms may be omitted, if desired.

Longitudinally and pivotally adjustable on the top piece, B, of the main frame are gage-arms O, said arms being retained in their fixed position after being adjusted.

In the operation of our invention the several gage-arms M N O are adjusted to leave a space on the top piece, B, of the main frame between them and the gage-pins H, that corresponds with the size of the sheets to be delivered from the printing-press to which our invention may be attached, this adjustment being best illustrated by Fig. 1. As shown by Figs. 1 and 2, the fly G is in position to receive the sheet as it comes from the press. When the fly is actuated to deliver the sheet, the strap F is pulled forward to operate the sliding frame D, and thereby carry the gage-pins H rearward, while at the same time the contracting force of the springs L will draw on the bell-cranks to cause a lateral movement of the slides K that carry the gage-arms M N. The sheet having been delivered, as shown by Fig. 3, and the fly carried back, the tension

on the strap F will be slackened and the contracting force of the spring E will draw the sliding frame back to its normal position, the lugs d^2 on said frame coming in contact with the bell-cranks I, whereby the latter are operated to draw in the slide K. The closing-in movement of the gage-pin H and gage-arms M N straightens the delivered sheet, and all the sheets are brought up snug against the fixed gage-arms O, as shown by Fig. 3.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A sheet-straightener for printing-presses, comprising a suitable main frame, stationary gage-arms arranged thereon, a sliding frame carrying gage-pins and having its sides provided with lugs, lateral slides operative in the main frame and carrying one or more gage-arms, bell-cranks connected to the slides and arranged to be actuated by the lugs on the sliding frame, and a strap for operatively connecting the latter frame with a press-fly, substantially as and for the purpose set forth.

2. A sheet-straightener for printing-presses, comprising a main frame having a top piece provided with a series of transverse grooves and a series of longitudinal slots, a sliding frame carrying gage-pins that engage the slots, slides operative in the main frame, one or more gage-arms pivotally connected to the slides to be laterally adjustable thereon and having their free ends arranged to play in the grooves of the main-frame top piece, normally stationary gage-arms pivoted to said top piece and longitudinally adjustable thereon, a lever

mechanism for actuating the slides simultaneously with a movement of said sliding frame, and a strap for operatively connecting the latter frame with a press-fly, substantially as and for the purpose set forth.

3. The combination of the main frame A, provided with the guide-blocks C, the sliding frame D, carrying gage-pins H and having its sides provided with lugs d^2 , pulleys f , journaled in the guide-blocks, the strap F, for connecting said sliding frame with a press-fly, the spring E, uniting both frames, the slides K, bell-cranks I, and springs L, the gage-arms M N, adjustably secured to said slides, and the gage-arms O, adjustably connected to said main frame, substantially as and for the purpose set forth.

4. The combination of the main frame A, provided with the guide-blocks C, the sliding frame D, carrying gage-pins H and having its sides provided with lugs d^2 , pulleys f , journaled in said guide-blocks, the strap F, for connecting said sliding frame with a press-fly, the spring E, uniting both frames, bell-cranks I, guide-bars J, slides K, springs L, and the adjustable gage-arms M N O, substantially as and for the purpose set forth.

In testimony that we claim the foregoing we have hereunto set our hands, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

HUGO LOEWENBACH.

WILLIAM F. H. MATTER.

Witnesses:

N. E. OLIPHANT,
WM. F. MAAS.