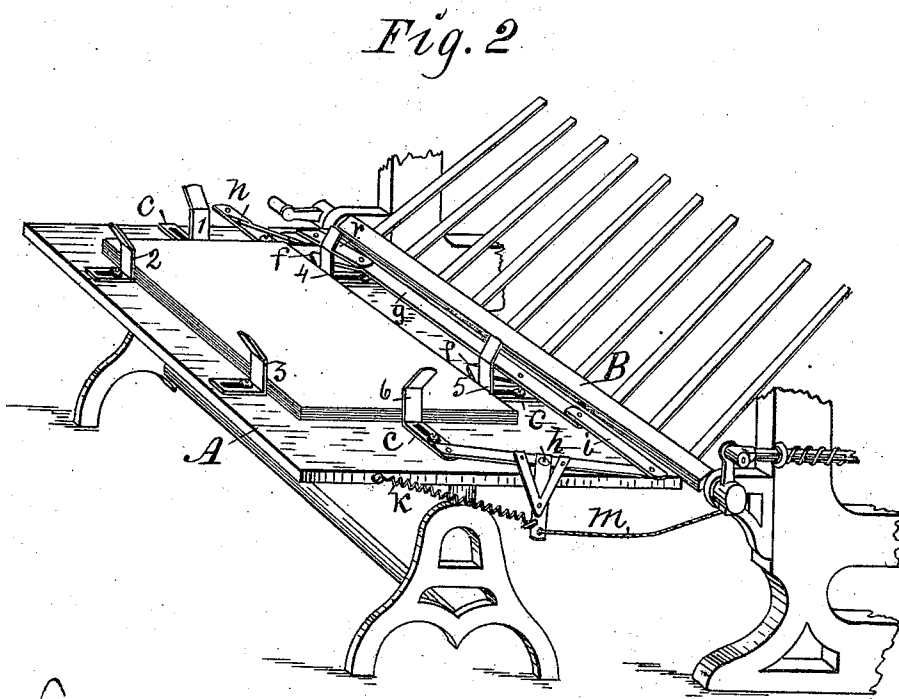
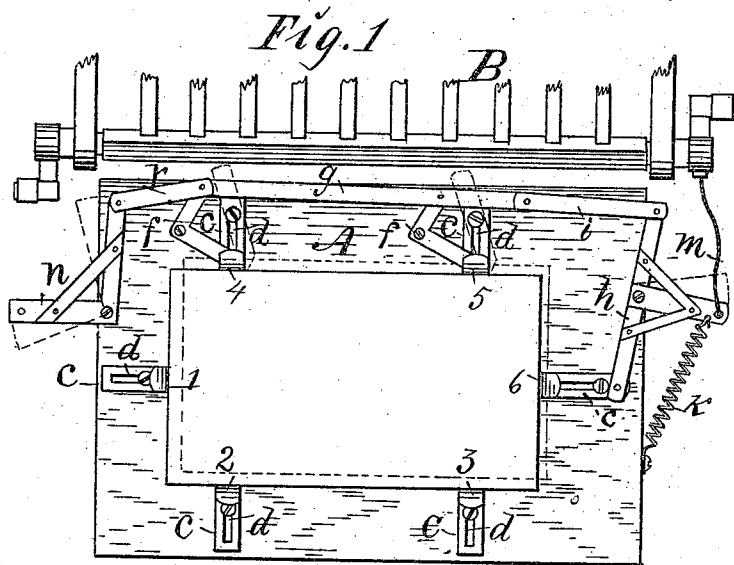


A. BINKARD.
 Device for Straightening Paper as Delivered from
 Printing-Machines.
 No. 227,344. Patented May 11, 1880.



Witnesses :
R. G. Orwig.
Frank W. Heers.

Inventor :
Alfred Binkard,
 By *Thomas G. Orwig, atty.*

UNITED STATES PATENT OFFICE.

ALFRED BINKARD, OF DES MOINES, IOWA, ASSIGNOR TO MILLS & CO.,
OF SAME PLACE.

DEVICE FOR STRAIGHTENING PAPER AS DELIVERED FROM PRINTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 227,344, dated May 11, 1880.

Application filed December 13, 1879.

To all whom it may concern:

Be it known that I, ALFRED BINKARD, of Des Moines, in the county of Polk and State of Iowa, have invented a Printing-Press Attachment for Straightening Paper, of which the following is a specification.

The object of my invention is to save time and labor in getting printed sheets of paper placed squarely upon each other as required to bring their edges even before cutting and folding them.

It consists in forming and combining with the fly-board and fly of a printing-press a series of adjustable standards, and also a corresponding series of operating-standards, that will be automatically moved in concert with the fly to push each sheet of paper as it is delivered by the fly into its proper position on the fly-board, as hereinafter fully set forth.

Figure 1 of my drawings is a top view of my apparatus connected with the fly and fly-board of a printing-press. Fig. 2 is a perspective view of the same.

Together they clearly illustrate the construction, application, and operation of my complete invention.

A is the fly-board, resting upon a suitable base or bench. B is a vibrating fly, that has its bearings formed in or attached to the frame of the printing-press in any suitable way.

1 2 3 represent a series of adjustable standards. They are uniform in size and shape, and preferably made of plate-brass. Each standard is slightly inclined outward at its top, and bent outward at right angles at its bottom to produce a foot, *c*, and each foot has a longitudinal slot, *d*, through which a set-screw is passed into the fly-board A to clamp the complete standard to the board. One or more of these adjustable standards is placed at one end of the board and two or more at the side of the board, as shown, to form a right-angled line of standards, against which the printed sheets will be successively pushed by a corresponding right-angled line of moving standards.

4 5 6 represent a series of operating or moving standards, that correspond in size, material, and structure with the adjustable standards 1 2 3. They are connected with the board

A by means of screws being passed through their slotted feet *c d* and into the board; but they are not clamped fast by means of the screws. They are designed to slide on the board, and the screws serve to prevent them from rising on the board, to retain them in perpendicular positions, and to direct and restrict their sliding motions on the board.

f f are elbow-shaped levers pivoted to the fly-board. Their long arms are connected with the heels of the feet *c* of the standards 4 and 5, by means of rivets or in any suitable way, in such a manner that the standards can be operated therewith.

g is a rod or bar that connects the short arms of the levers *f*, as required to operate them jointly. *h* is a T-shaped lever pivoted near the end and corner of the board A. It is connected, at the end of one of its arms, with the bar *g* by means of a link, *i*. The end of the second arm, that is in line with the first and extends inward over the board, is connected with the toe or front end of the foot *c* of the movable standard 6. The third arm of this T-shaped lever extends at right angles from the first and second arms mentioned and outward over the end of the board, where a spring, *k*, is attached to the end of the lever and also to the end of the board at a distance from the lever.

In its normal condition the spring *k* retains the three levers *f f* and *h* in diagonal positions relative to the square-cornered fly-board A, and the movable standards connected therewith in right-angled lines relative to each other, and also the adjustably-fixed standards 1, 2, and 3, as required, to keep the sheets of paper placed between the two series of standards on a straight, square, and even-edged pile.

m is a flexible cord or chain that connects that end of the T-shaped or triple-form lever *h* that extends from the fly-board with the fly B at some distance from the fly's center of motion. It is attached to the end of the frame of the fly by means of a screw-bolt, or in any suitable way, in such a manner that when the fly moves rearward and downward to deliver a sheet to the fly-board the cord will be stretched as required to overcome the force of the spring *k* and to retain the moving stand-

ards 4 5 6 away from the sheets piled squarely against the stationary standards 1 2 3. A reverse movement of the fly allows the cord *m* to relax and the spring *k* to resume its normal position and to actuate the levers, and thereby move the sheet last delivered against the standards 1 2 3, and thus place it squarely upon the pile and sheet previously placed upon the board.

- 10 *n* is an elbow-shaped lever, pivoted to the board A at the end opposite from the lever *h*. It is connected with the bar *g* by means of a link, *r*. By reversing the position of the board the cord *m* may be attached to the end of the lever *n* to operate the moving standards 4 5 6, as required, to push the sheets toward the fly B and place them squarely upon each other and against the stationary standards 1 2 3 as the sheets are successively delivered to the board A by the fly B.

- In the practical operation of my invention, I can readily adjust the series of standards 1 2 3 relative to the size of the sheet to be printed and piled up squarely upon the fly-board by simply placing one of the sheets on the board and against the series of standards 4 5 6, when they are as near the center of the board as they can be moved by the action of the spring *k*, and then setting the adjustable standards against the opposite edges of the sheet, as shown in Fig. 1. When thus adjusted relative to the sheet, the board, and the moving standards, the area on the board between the two series of standards will be enlarged every time the fly delivers a sheet by the backward and outward motion of the mov-

ing series of standards, and diminished by the reverse motion of the fly and the forward and inward motion of the moving standards. An enlarged space is thus provided for the reception of each sheet, so that there is no danger of the paper being thrown upon the top of a standard and torn, and if the fly does not deliver it square upon the pile the moving series of standards will push and adjust it squarely and evenly with all the others.

The moving standards 4 5 6 do not move in straight lines, but in curves, and in such a manner that each standard will aid in moving each sheet in two directions, as required, to place it squarely against the standards 1 2 3 and all the sheets squarely and evenly upon each other.

I claim—

1. The series of movable standards 4 5 6, the pivoted levers *f f* and *h*, the connecting bars or links *g* and *i*, and the spring *k*, all attached to the fly-board A, in combination with the cord *m* and the fly B, substantially as shown and described, to operate in the manner set forth.

2. The board A, the series of adjustable standards 1 2 3, the series of moving standards 4 5 6, the operating mechanism *f f g h i k m*, and the fly B, of a printing-press, arranged and combined substantially as shown and described, to operate in the manner and for the purposes set forth.

ALFRED BINKARD.

Witnesses:

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