J. T. ASHLEY.

PAPER FEEDING MACHINE.

No. 173,573. Patented Feb. 15, 1876.

*Fig. 1*

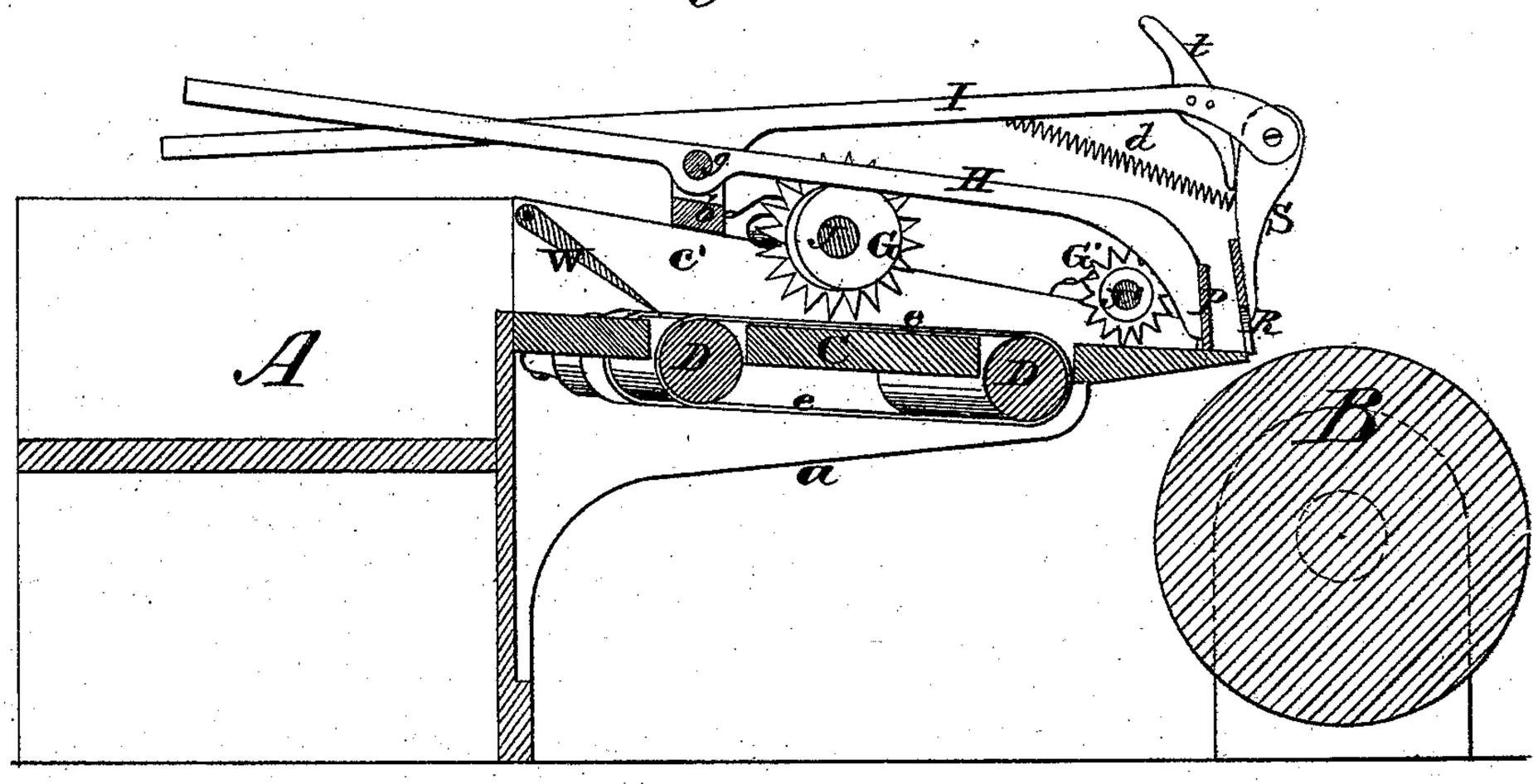
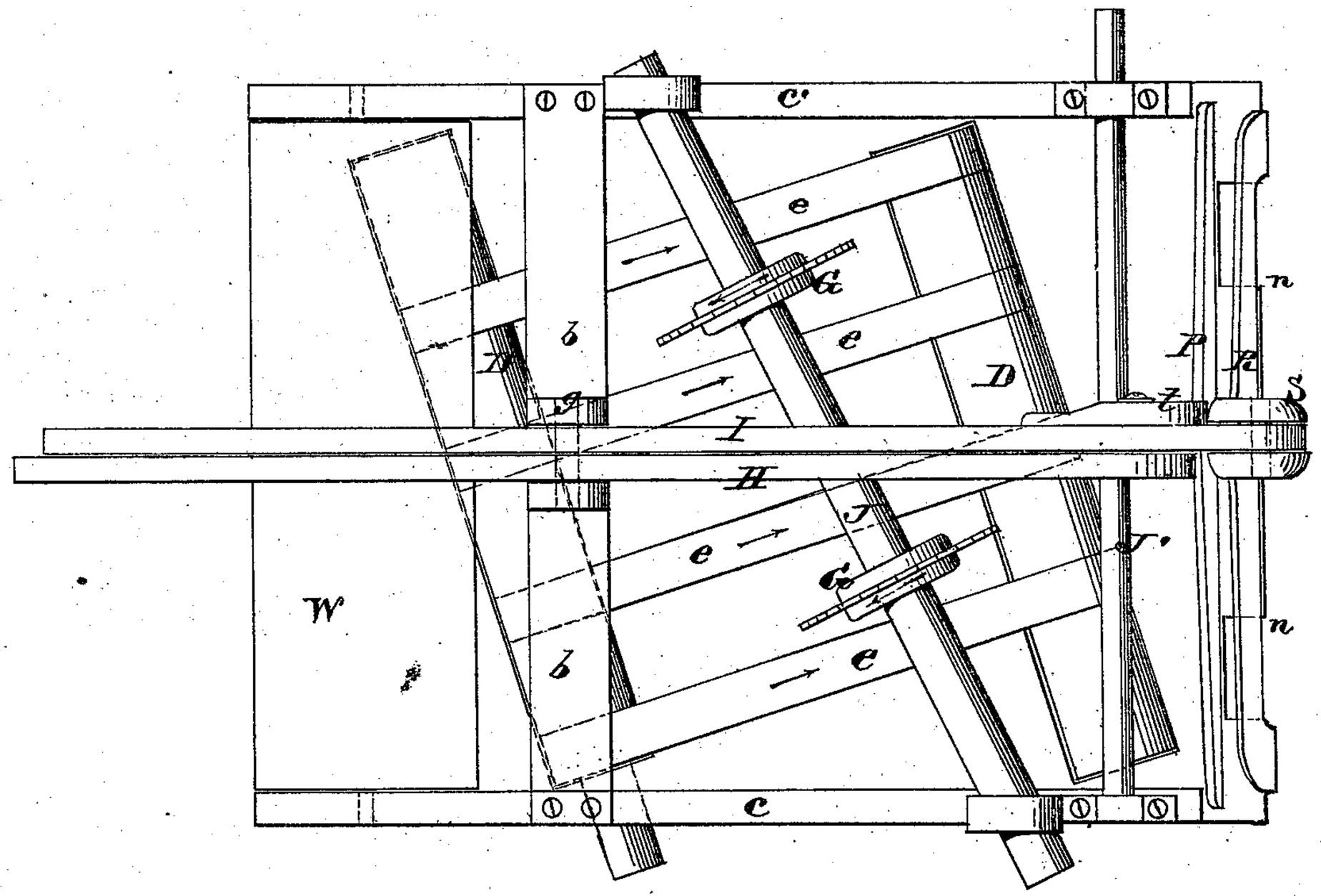



*Fig. 2*

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## IMPROVEMENT IN PAPER-FEEDING MACHINES.

Specification forming part of Letters Patent No. **173,573**, dated February 15, 1876; application filed October 29, 1870.

*To all whom it may concern:*

Be it known that I, JOHN T. ASHLEY, of Brooklyn, E. D., in the county of Kings and State of New York, have invented a Feed-Board for supplying printing-presses, calenders, and ruling-machines with sheets of paper, one at a time; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a section taken longitudinally and vertically through the center of the feed-board, applied between the frame of a paper-feeder and the cylinder of a printing-press. Fig. 2 is a top view of the feed-board.

The object of my invention is to place between an automatic paper-feeder and a printing-press, or other machine to be fed, an apparatus adapted to receive from such feeder one sheet of paper at a time, and to adjust the same so as to place it in a proper position preparatory to its being taken by said printing-press or other machine. It may be used, also, to facilitate hand-feeding.

The nature of my invention consists, first, in combining with an inclined or horizontal board or suitable frame a guide and one or more adjusting devices, adapted to receive and adjust sheets of paper, as will be hereinafter explained; second, in combining with guiding and adjusting devices a flattening and steadying device, as will be hereinafter explained; third, in combining with these guiding and adjusting devices and this flattening and steadying device a movable stop to temporarily arrest each sheet and bring the front edge of the same parallel to the gripers of a printing-press, as will be hereinafter explained.

Before describing my invention, I will state that I have previously secured by Letters Patent, No. 107,851, in a paper-feeding machine, devices for adjusting sheets of paper in a pile, and therefore do not in my present application claim them.

The machine which I have now invented, and will hereinafter explain, is not intended to pick up sheets of paper from a pile and feed them, but simply to receive and adjust them, one at a time, preparatory to their being taken by the machine to be fed. To this end, the frame A of a paper-feeding machine is supplied with suitable supports, *a*, for sustaining the necessary adjusting devices. When the apparatus is used to facilitate hand-feeding, it may be set upon the frame of the press; or if for ruling-machines, calenders, &c., then upon a suitable table.

In the accompanying drawing, Fig. 1, A represents the frame of a paper-freding machine, the same being adapted to the picking up of sheets of paper from a pile and feeding them in a forward direction. B represents the cylinder of a printing-press. Between this cylinder and the frame of the feeder I arrange my apparatus for receiving and adjusting the sheets of paper put upon it. C represents a board or suitable frame, over which the sheets of paper are moved on their way to the printing-press or other machine, which board or frame may be inclined or horizontal. On the opposite sides of this frame or board are ledges, *c* and *c'*, one of which, *c'*, is so arranged in relation to the machine to be fed as to serve as "side guide" to each sheet of paper while being fed. This ledge may be adjustable toward or from the opposite ledge, to adapt it to sheets of different widths. Rollers, D D, and endless tapes, *e*, or their equivalents, as endless apron or a succession of rollers, are to move the sheet of paper diagonally and forward. G' is a device for securing extra adjustment against the front stop R.

At or near the edge of the board or frame C, next to the paper-feeder, I employ a depressing device, W, pivoted at its ends, so as to allow of its being set at different angles with reference to the face of the said board or frame. This device may be a leaf, or may consist of a set of bars placed longitudinally in the direction of the movement of the paper, and made movable, laterally, on a rod extending across the machine.

The recesses *n n* at the front of the feed-board are to let the gripers of a press take hold of the sheets of paper. R is a front stop, corresponding in its use to the ordinary "front guides" of printing-presses. I connect it with my feeding apparatus, in order that said apparatus may be complete in itself in construction and action, and free from de-

pendence upon the co-operation of any outside means for accomplishing the desired end. This stop is a narrow strip, arranged across the front of the feed-board, and made to rest against its end. It is secured to a piece, S, and this is pivoted to the lever I, the fulcrum of which is at *g*. The piece S is held against a check, *t*, by means of a spring, *d*. This spring causes the inside face of the stop, when down, to keep close to the edge, against which it rests, while the check prevents its being drawn so far in as not to slide over said edge when lowered. The clamp P is a suitable strip parallel with, and in the rear of, the stop R. It is operated by the lever H, the fulcrum of which is also at *g*. The use of this clamp is twofold—first, to press out any buckle that may be in the front of the sheet, and next, while holding the sheet flat, to steady it until taken by the gripers of the press.

Both of these devices—the stop and clamp—receive their action from a shaft having its bearings upon the frame A. These two parts of my invention apply particularly to printing-presses, and, in this connection, are of much account.

The operation of this invention may be described as follows: Upon the sheets of paper being deposited, one at a time, upon the feed-board, they are, each in its turn, moved diagonally by means of the devices described.

To feed light or small sheets of paper, the rollers and bands or apron, or a succession of rollers, will answer; but if the sheets are heavy, as in the case of card-board, then the upper frictional devices G may be used, with the lower means of motion, and in this way act on both sides of the sheet at once. By the diagonal movement of the sheet the side edge is brought against the side stop *c'*, and the front edge against the front stop R.

Upon the sheet being brought into proper rectangular position, the clamp P descends upon its front and presses this part of it flat, and holds it steady until the gripers of the press take it. At the moment the gripers act, the stop and clamp rise and release the sheet, to allow of its being carried by the cylinder. When this feed-board is applied to other machines than printing-presses, such as ruling-machines, calenders, &c., where the feed is to be rapid and as continuous as possible, the stop R and clamp P are not used. In such case the sheets of paper are borne diagonally to the side stop, when, as they can go no farther in that direction, they continue to move forward into the machine being fed, and are caused to enter said machine in a line with the side stop.

Sheets are often out of square, and as it is important to have the front edge of each sheet parallel to the gripers of the press, the device G' is intended to make a final adjustment of the front edge of the sheet against the front stop, in case, through want of squareness, it should be drawn away, in course of finding its bearing against the side stop.

When feeding rapidly, or in a current of air, the device W may be used with advantage to depress the sheets of paper toward the face of the feed-board while in the act of being fed from the paper-feeding machine.

Having described my invention, what I claim as new is—

1. The diagonal feeding-bed, as described, in combination with a side stop, substantially as and for the purpose set forth.

2. The front stop R hung upon the feed-board C, so as to descend below the surface and in front of said board, and to rise above the same, in combination with the pressing and smoothing device P, substantially as and for the purpose set forth.

3. The adjusting device G' in combination with the adjustable stop R hung on feed-board C, substantially as and for the purpose described.

4. The adjustable pressing and smoothing device P in combination with the feed-board C, substantially as and for the purpose described.

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Witnesses:

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