J. W. BICKNELL.

Adjustable Boxes for Paper Calendering Rollers.

No. 209,954. Patented Nov. 19, 1878.

Fig. 1.

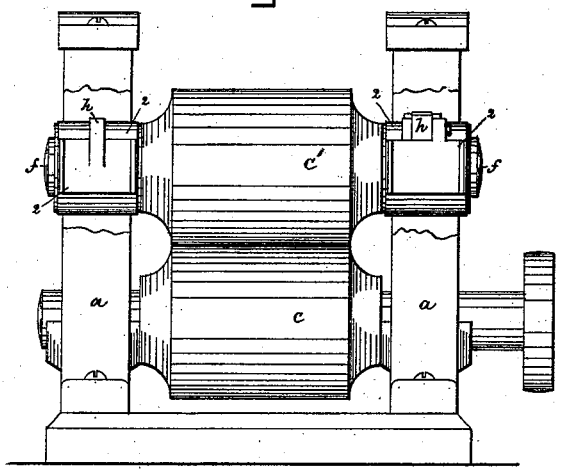

Fig. 2.

Fig. 3.

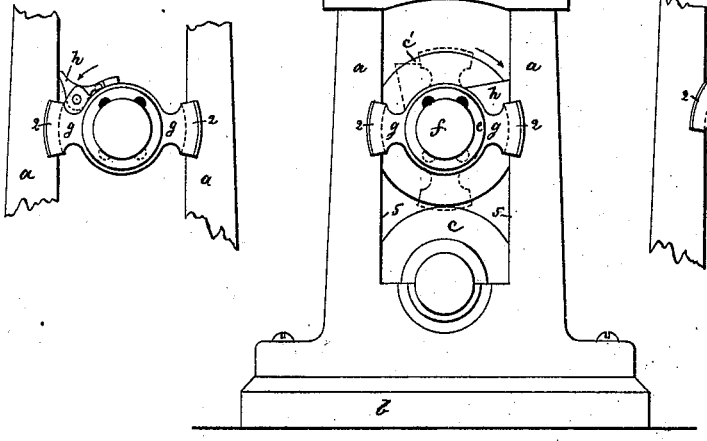

Fig. 4.

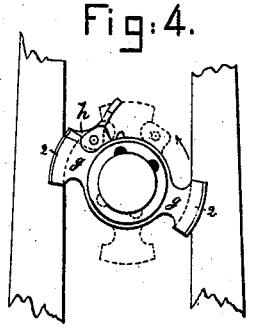

Fig. 5.

Fig. 6.

Witnesses.

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UNITED STATES PATENT OFFICE.

JAMES W. BICKNELL, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN ADJUSTABLE BOXES FOR PAPER-CALENDERING ROLLERS.

Specification forming part of Letters Patent No. **209,954**, dated November 19, 1878; application filed September 9, 1878.

To all whom it may concern:

Be it known that I, JAMES W. BICKNELL, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Adjustable Boxes for Calendering-Rollers, of which the following description, in connection with the accompanying drawing, forming a part thereof, is a specification.

This invention relates to improvements in machines for calendering paper, &c., and has special reference to the construction of the boxes which support the rollers, whereby the said boxes may be removed from between the housings without removing the boxes and rolls above them, as heretofore common.

It frequently happens that the boxes of calendering-rolls have to be removed to repair wear or to be cleaned; and in machines as now commonly made, (the rolls being arranged in sets of three or more, placed one above the other,) when it is desired to remove the boxes from an intermediate or lower roller it is necessary to remove all the rolls and boxes above it.

Figure 1 represents, in front view, two rolls of a calendering-machine, it being understood that in practice the usual number of rolls will be employed; Fig. 2, an end view of Fig. 1; Fig. 3, a modification; Fig. 4, a view showing the box in Fig. 3 in another position. Fig. 5 represents, in top view, a box removed from the housing; and Fig. 6, a modified form of flange or projection to prevent the box, when in working position, from moving longitudinally.

The housings *a*, rising from the bar *b*, and the rolls *c c'* are and may be of any usual construction common to paper-calendering machines.

The number of rollers in the vertical series may be increased at pleasure, two only being shown in the drawing to economize space.

In calendering-machines the surfaces of adjacent rollers are in contact except when separated by the material passing between them, and the boxes *e* are free to rise and fall with the rollers between the housings, but are prevented from moving laterally by means of the flanges 2 at the end of the boxes, the said flanges embracing the housings. These boxes are preferably made in one piece, are centrally bored to receive the journals *f* of the rolls, and when so bored they are centered upon a spindle whose axis of rotation coincides with the center of the box, and the box being rotated its arms *g* are turned or grooved by means of a tool, so that the faces 4, which bear against the inner faces, 5, of the housings, are exactly equidistant from the center of the said boxes.

Each box is provided with a rest, *h*, made either as a fixed lug (see Figs. 1, 2) or movable, as in Figs. 3, 4, which lug, bearing against the housing *a* as the roller is rotated in the direction of the arrow near it, prevents the box from rotating farther in the same direction with the roller.

As shown in Figs. 2 and 3, the full lines represent the boxes in operative position, the rests bearing against the housings. The boxes, when turned in the direction opposite the arrows in Figs. 2 and 4 into the position shown in dotted lines in the said figures, may be removed from the journals *f*, and be repaired, cleaned, or oiled, after which the said boxes, or new ones, may be quickly applied to the journals of the said rolls without removing them, or other rolls located above the said roll, the boxes of which were removed.

The boxes, constructed as described and illustrated in the drawing, are, when in the position shown in full lines, firmly held against lateral and rotative movement.

By boring the boxes centrally and then turning them, as described, in a lathe to form the faces which act against the housings, I am enabled to place the axes of each of the series in the same vertical plane, which is very difficult to accomplish with ordinary boxes.

Instead of flanges 2 to embrace the outer sides of the housings, as in Fig. 2, the boxes may be provided at each end with a vertical flange-projection (see Fig. 6) to enter a groove in the housing.

I claim—

1. In a calendering-machine, boxes *e*, flanged to engage the housings to prevent lateral motion of the boxes, and provided with rests to prevent rotation of the boxes in the direction of rotation of the rollers, substantially as described.

2. In a calendering-machine, the combina-

tion, with the journals of the rollers, of loose boxes, constructed substantially as described, placed between the housings, as set forth, to permit the boxes to be turned and disengaged from the housings and be removed from the journals of the rolls, substantially as and for the purpose set forth.

3. A one-piece centrally-bored journal-box, provided with turned faces 4, concentric with the central opening of the box to bear against the housings at equal distances from the center of the box, thereby placing the center of the box exactly central between the housings, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES W. BICKNELL.

Witnesses:
G. W. GREGORY,
N. E. WHITNEY.