(No Model.)

J. F. W. DORMAN.

PRINTING PRESS.

No. 432,382. Patented July 15, 1890.

Fig 1.

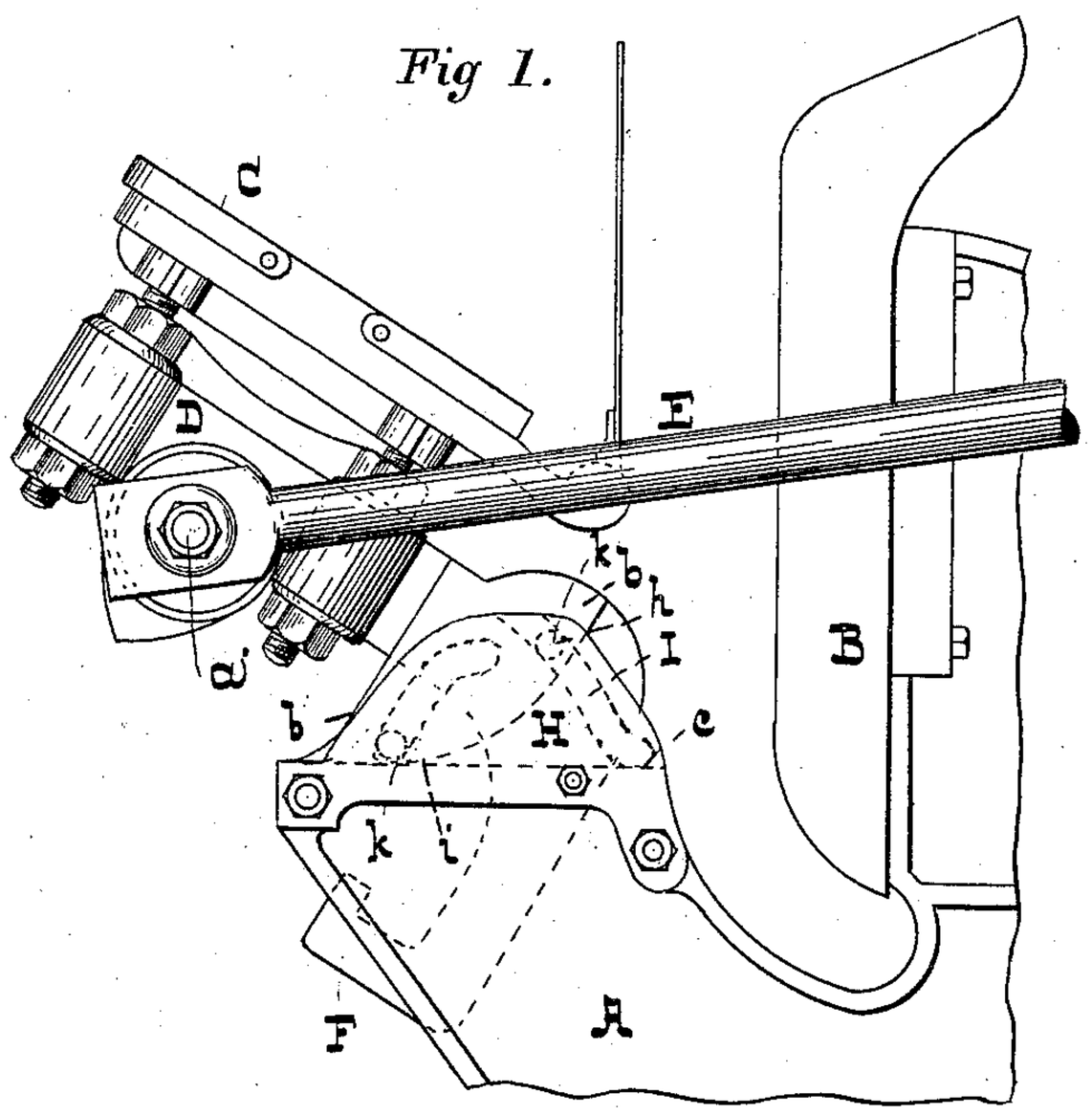


Fig 3.

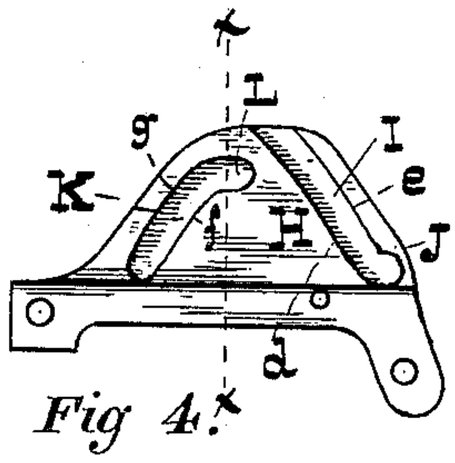


Fig 4.

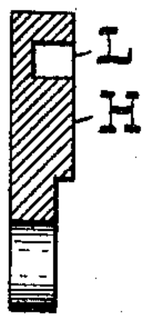
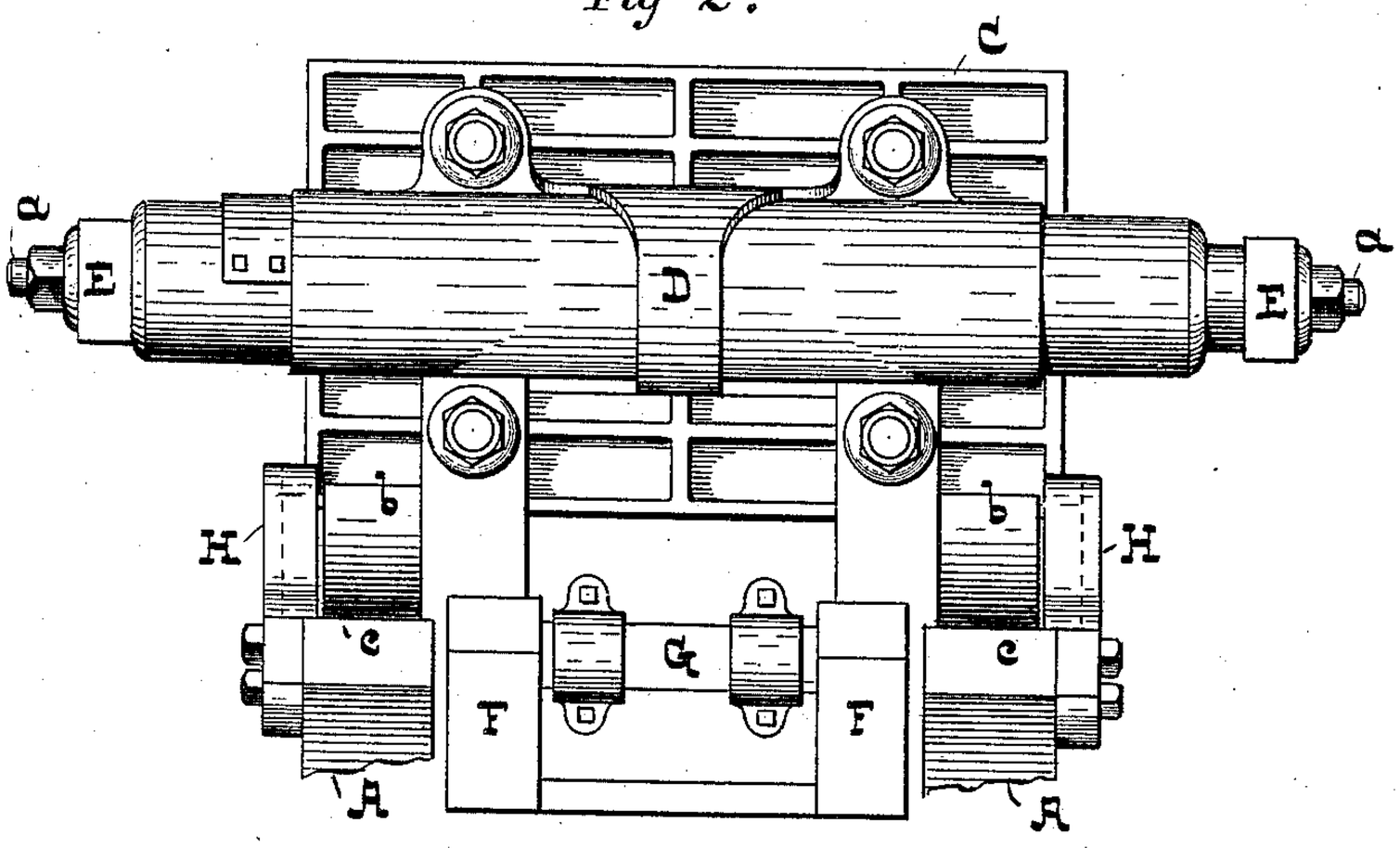


Fig 2.



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UNITED STATES PATENT OFFICE.

JOHN F. W. DORMAN, OF BALTIMORE, MARYLAND.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 432,382, dated July 15, 1890.

Application filed July 15, 1889. Serial No. 317,552. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. W. DORMAN, of the city of Baltimore, in the State of Maryland, have invented certain Improvements in Printing-Presses, of which the following is a specification.

This invention relates to certain improvements in that class of printing-presses in which the bridge carrying the platen is provided with rockers, upon which it rolls, the object of the rockers being to effect a tilting motion of the bridge and platen.

In presses of the above class many devices have been used for governing the rocking movement of the bridge and platen, and thereby prevent noise and jar when the press is running at a high speed. Among these are springs and cams, which are employed in various ways and positions, but without entirely effecting the required result.

My invention, as hereinafter described, effectually governs the motion of the platen and bridge, and the press is practically noiseless and without jar.

In Letters Patent No. 405,832, granted to me on the 25th day of June, 1889, for certain improvements in printing-presses, is shown and described a bridge having extensions provided with cap-pieces, the overhanging lips of which pass over the upper surface of a square bar held immovably to the frame as the platen is drawn to the bed and sustain the platen and bridge in a vertical position. The platen and bridge are brought to such position as will admit of the passage of the lips over the upper edge of the square bar by means of rockers, as is usual, and rollers which project from the sides of the rockers directly under the bridge. To the sides of the frame are secured lugs or cams provided at their inner sides, which are exterior of the rockers, with horizontal grooves or channels and inclined faces which lead from the said grooves. The grooves extend from the inclined faces toward the bed of the press, and the inclined straight faces fall back from the point of intersection; but in view of the said rollers and inclined faces being so far removed from the lips, which, in connection with the square fixed bar, support the bridge and platen in a vertical position, it is impossible with these devices alone to prevent a slight drop of the bridge and platen as the lips pass from the said square bar. In a fast-working press this drop, slight as it is, causes a disagreeable jar; and it is the object of the present invention to prevent the falling of the lips until they shall have passed entirely clear of the upper edge of the square bar upon which they rested.

With this in view the present invention consists in providing the rear end of the bridge, or that part thereof which is nearest to the lips to be supported, with rollers similar to those described in the said Letters Patent, and the lugs or cams with inclined and horizontal faces, against which the said rollers bear in the backward motion of the platen and bridge. These inclined and horizontal channels are arranged in an exactly-opposite position to those described in the said Letters Patent, but, in connection with the rollers which bear upon them, co-operate with those used in the patent.

In the further description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is an exterior side elevation of certain parts of a printing-press embodying my improvements, with the bridge and platen thrown back; and Fig. 2, a rear view of the same, except that the bridge and platen are shown as forward or with the platen in its nearest approach to the bed. Fig. 3 is an inside view of one of the lugs or cams hereinbefore alluded to as provided with slots to guide the bridge and platen in their tilting motion. Fig. 4 is a section of Fig. 3, taken on the dotted line *x x*.

Similar letters of reference indicate similar parts in all the figures.

In the said drawings, A is the frame of the press, a portion only of which is shown.

B is the bed, and C the platen, secured in the usual manner to the bridge D, to which the draw-bars E are connected by means of bolts *a*. The bridge is provided, as is common, with rockers *b*, which rest on the upper surface *c* of the frame, and, as in the said patent, with extensions F, having lips, which, as the bridge approaches the bed, lap over the bar G and serve to lock it.

H H are lugs or cams bolted to the sides of

the frame A, and a portion of them overlap the face *c* of the frame, as shown in Fig. 2. By this means the said lugs are sustained firmly in position. The forward end of the lugs is provided with an inclined curved groove I, with its faces *d* and *e*, the latter having the same office as the inclined face described in the said Letters Patent. Leading from the lower end of the groove I is the horizontal groove J, which corresponds with the one described in the said Letters Patent. In addition to these grooves the lugs are furnished with inclined curved and horizontal grooves respectively denoted by K and L. It will be seen that these grooves are exactly the reverse as to position to those in the forward end of the lugs. The two faces of the inclined groove K are represented by *f* and *g*. The rollers which project from the sides of the rockers are respectively marked *h* and *i*, and they are placed loosely on pins *k*.

Supposing the platen to be in contact with the form on the bed and the press in operation, the first movement of the bridge is outward in a horizontal line, and this continues until the rollers *h* and *i* pass from the horizontal slots J and L into the inclined slots I and K, when the tilting of the bridge and platen begins. In this backward movement of the bridge and platen the rollers *h* and *i* bear, respectively, against the faces *e* and *f* of the slots, and this condition of the parts continues until the bridge attains its extreme backward position. (Shown in Fig. 1.) Upon the reversal of the movement of the bridge the rollers *h* and *i* bear against the faces *d* and *g* and continue in contact with them until they (the rollers) pass again into the horizontal slots J and L, and compression is effected. During the entire double stroke of the bridge and platen the rockers rest on the face of the frame, and as the curvature of the two slots I and K is that which the rollers describe as the bridge-rockers roll on the face of the frame the movement of the bridge and platen is positive and a smooth operation is effected, which cannot be produced with a single roller or two rollers without the rockers.

From the foregoing description it will be seen that the rollers are always in contact with a curved surface while in the slots I and K, and their positions control that of the bridge at any point or part of the movement, the rockers sustaining the weight of the moving mechanism.

It is impossible with the contrivances shown in the said Letters Patent alone to prevent a jar, as the rollers therein described pass from the horizontal grooves to the inclined faces, for the reasons hereinbefore stated, and for the further reason that as the bridge is forced back by the draw-bars the rollers are carried rearward too rapidly to admit of the rockers bringing them in contact with the inclined faces the moment they are free from the grooves, and an appreciable drop is experienced; but in the present invention this loose motion is counteracted by the rollers *i* passing out of the grooves L directly onto the inclined faces *f*, which support the bridge and its connections until the rollers *h* strike the inclined surfaces *c*.

Theoretically loose motion need not occur in a machine; but in practice no mechanism can be made entirely free from it, and hence the two sets of grooves and rollers, together with the rockers, are necessary to make the movement of the bridge and its connections noiseless.

I claim as my invention—

In a printing-press, the frame thereof having lugs or cams provided on their inner sides with two curved slots in opposite inclined positions, the said slots terminating one at the top and the other at the bottom in a horizontal slot, both of which lead toward the bed of the press, combined with a bridge on rockers having rollers on pins extending from their sides, which enter the said inclined and horizontal slots, substantially as and for the purpose specified.

JOHN F. W. DORMAN.

Witnesses:
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