(No Model.)

J. E. HORNING & E. D. CLAPP.

LOCK-UP MECHANISM FOR PRINTERS' FORMS.

No. 473,750. Patented Apr. 26, 1892.

Fig. 1.

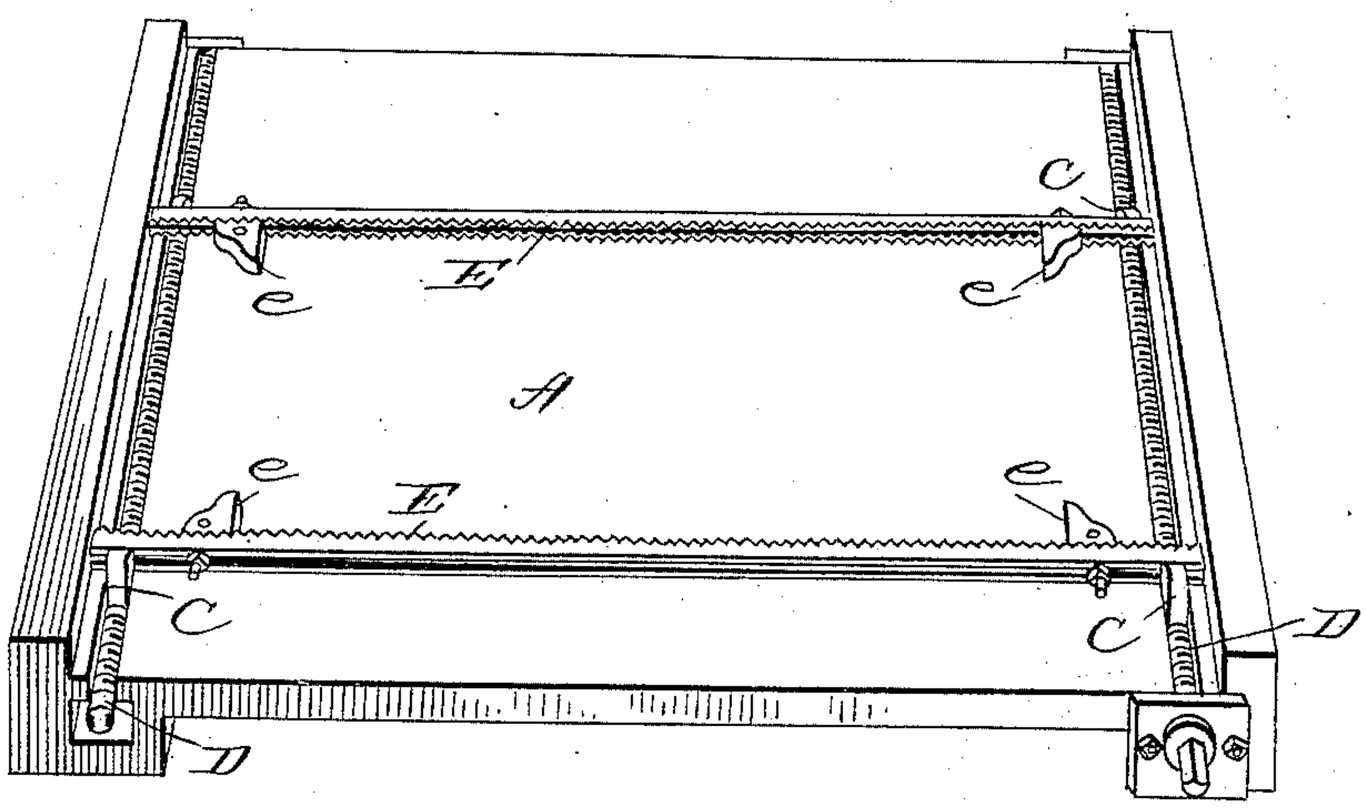


Fig. 2.

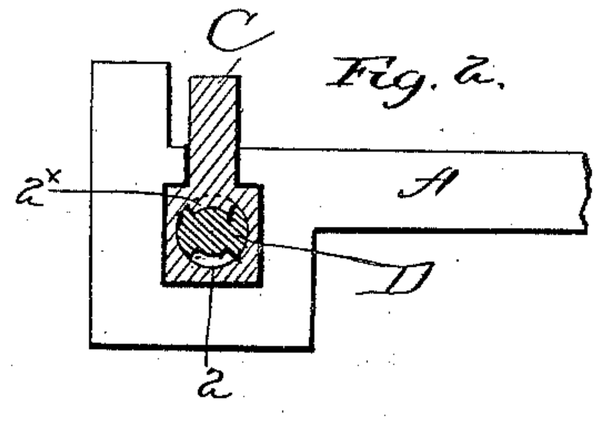


Fig. 3.

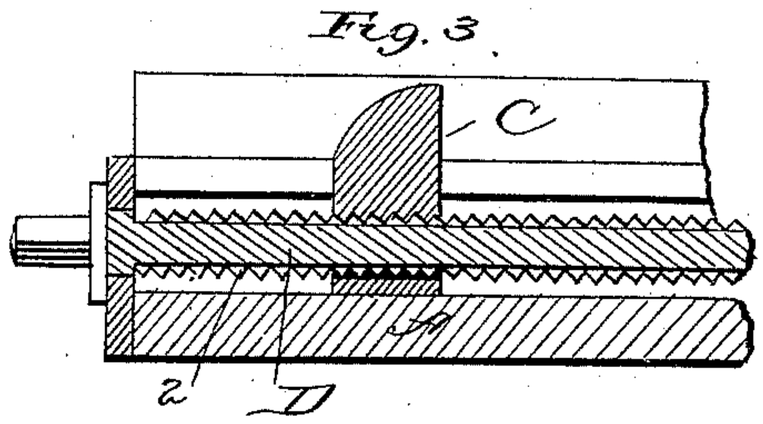


Fig. 4.

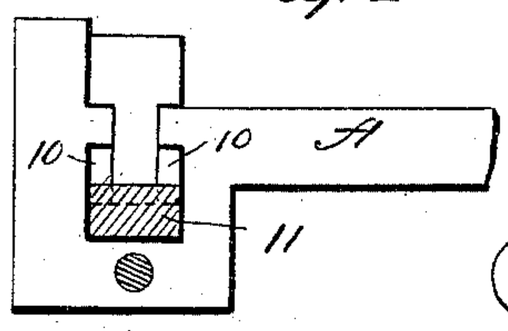
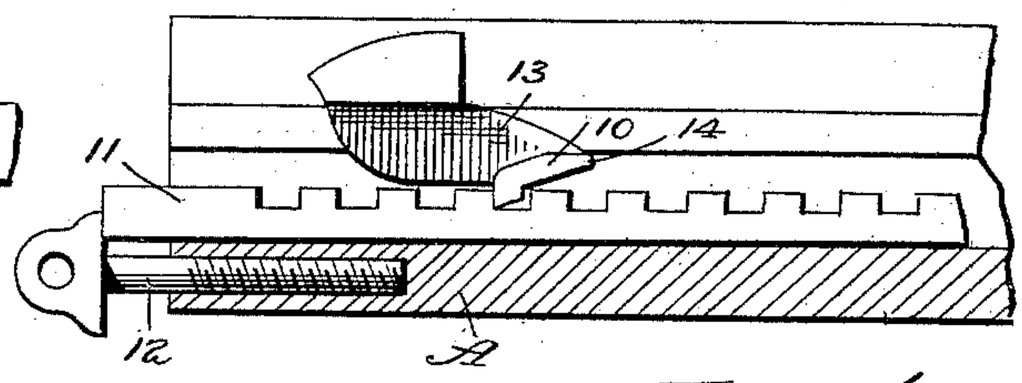


Fig. 5.



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UNITED STATES PATENT OFFICE.

JACOB E. HORNING AND EDWARD D. CLAPP, OF WASHINGTON, DISTRICT OF COLUMBIA.

LOCK-UP MECHANISM FOR PRINTERS' FORMS.

SPECIFICATION forming part of Letters Patent No. 473,750, dated April 26, 1892.

Application filed June 20, 1891. Serial No. 396,943. (No model.)

To all whom it may concern:

Be it known that we, JACOB E. HORNING and EDWARD D. CLAPP, citizens of the United States of America, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Lock-Up Mechanism for Printers' Forms, of which the following is a specification.

Our invention is designed to provide a simple and effective lock-up mechanism for printers' forms which will enable the pressman to adjust the form accurately and to clamp it expeditiously, parts of the mechanism being easily removable to leave the surface of the bed practically unobstructed for the handling of the forms in placing or removing them.

Our invention consists in dogs movable in grooves adjacent to the bearers of the bed and operated and held in said grooves to force and return a transverse bar or bars with which the dogs are combined firmly against the form for holding it or directly against the form itself.

The invention also includes other features hereinafter set forth.

In the drawings, Figure 1 is a perspective view of the bed with the lock-up mechanism. Figs. 2 and 3 are detail views of the dog and the operating-screw. Figs. 4 and 5 are similar views of a modification.

In the drawings, the bed A is provided with grooves in its upper surface close up to the bearers B on each side of the bed. These grooves are preferably dovetailed and in them are fitted dogs C C, formed with dovetails to correspond with the grooves, whereby they are retained against upward displacement. These dogs are operated by screws D D, specially formed, as hereinafter described, and located in the grooves and below the surface of the bed. The upper ends of the dogs, projecting out of the grooves, bear against the transverse bar E, which in turn presses directly against the form. The transverse bar is similar to that shown in United States Patent No. 454,047, granted to us on the 16th of June, 1891, and is combined with adjustable blocks *e* for holding the forms against lateral displacement. There is a dog at each end of the bar, and we prefer to employ two transverse bars, as shown, though only one may be used, each operated by dogs, in which case the screws may extend from end to end of the bed and be formed with right and left hand threads, so that by turning the screws at one end by a suitable wrench the bars will move toward each other, and thus clamp the form. Instead of this arrangement the two bars may be operated independently by separate pairs of screws.

The use of the device with only one transverse bar will be obvious, the opposite side of the chase from that on which the bar is used bearing against any suitable clamps or studs, as clearly shown in our former patent above mentioned. The threads of the screw-bars do not extend all the way around the bars, and a free space or groove 2 is thus left extending longitudinally and adapted to receive a projection $2^{\times}$ on the dog. This projection is threaded, while the other portion of the dog about the screw-bar is formed plain and without threads. By this construction the quick adjustment is effected as the screw is turned until the plain groove aligns with the threaded projection on the dog, and then the dog is easily slid along the screw by hand until the dog bears on the transverse bar or the form, as the case may be. The final adjustment and the clamping effect is then secured by simply giving the screw a partial turn, causing the threads of the screw to engage the threads of the dog and force the dog hard against the transverse bar. The form may be as readily unlocked by a reverse movement of the screws and the dogs, and as the transverse bars are removed the surface of the bed is left practically free and the form may be removed without liability to pi the form.

It will be seen that the grooves in which the dogs move are close to the bearers, and they are thus specially located and are of such width so that should the largest-size form be used there will be no danger of the type or furniture falling into the groove, as the chase is of sufficient width to completely cover the grooves. The bearers thus provide vertical confining-walls along the outer margins of the grooves, and these limit or determine the lateral adjustment and position of the largest-sized chase, and, as before stated, prevent the type from being at any time above the groove

where they would be liable to fall down into the same. The screw-bars are journaled in plates fixed to the edges of the bed.

The principle of our invention may be carried out by other mechanism than that shown in Figs. 1, 2, and 3, and we have shown in Figs. 4 and 5 such mechanism. In this form the block has lateral wings above the groove, which bear upon the surface of the bed along the edges of the groove. It also has lateral wings 10 within the groove, and these incline downward and terminate on each side in teeth which engage a notched bar or rack 11. This bar, like the screw-bar of the first form, is movable within the groove to secure the final pressure of the clamp-blocks on the chase, but instead of rotating it slides to secure this action, and this movement is imparted to it by a screw 12, working in the edge of the bed and operated by a suitable wrench or cross-bar. It will be noticed that the functions of the screw-bar and of the rack-bar are similar in that they give the final pressure and act as the holding means when the clamp-block is in place. The block in this instance, like the first, is movable independently of its operating and holding bar, and may thus be quickly adjusted to bear upon the chase whether the form be large or small. The block has an extension 13, and the toothed wings are carried by said extension, the end 14 being normally slightly above the bar. By tilting the block the extension acts as a pivotal point and the teeth are withdrawn from the rack and the block may be slid quickly along into place, and then when released it falls into the position shown, with its teeth engaging the bar and its upper wings bearing on the surface of the bed. The rack-bar is then moved by the screw and the complete clamping effect secured.

The block in a measure is self-locking, as under pressure the teeth act as pivots and the upper wings are jammed hard against and grip the surface of the bed.

We claim as our invention—

1. In combination, the bed having parallel grooves, the dogs, with operating and holding means in the grooves, and the vertical confining-walls extending along the outer margins of each of said grooves, said walls constituting the bearers of the bed, substantially as described.

2. In combination, the bed having the bearers and the parallel grooves opening through the surface of the bed, the transverse bar extending between the bearers over the surface of the bed and resting upon the same and to press upon the form, and means in the grooves projecting therefrom above the bed-surface at each end of the bar for forcing it against the form, substantially as described.

3. In combination, the bed having the groove, the clamp-block in said groove, the means for engaging and operating the block in the groove, said block being movable longitudinally of the groove independent of its operating means, substantially as described.

4. In combination, the bed having the groove, the bar extending longitudinally thereof, and the block engaging said bar and projecting from the groove, said block being movable independently of the bar, substantially as described.

5. In combination, the grooved bed, the rack-bar in said groove and movable longitudinally, a block having a tooth to engage said bar and adapted to be disengaged therefrom, and operating means for the rack-bar, substantially as described.

6. In combination, the grooved bed, the rack-bar in the groove, the block having an extension, with teeth forward of the rear end thereof, whereby the block may be tilted and the teeth disengaged from the bar, and the lateral wings above the groove to bear upon the surface of the bed, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JACOB E. HORNING.
EDWARD D. CLAPP.

Witnesses:
J. H. BUTCHER,
E. J. WILVER.