

No. 742,707

PATENTED OCT. 27, 1903.

F. A. MILLS.
SHUTTLE BINDER FOR LOOMS.
APPLICATION FILED APR. 30, 1903.

NO MODEL.

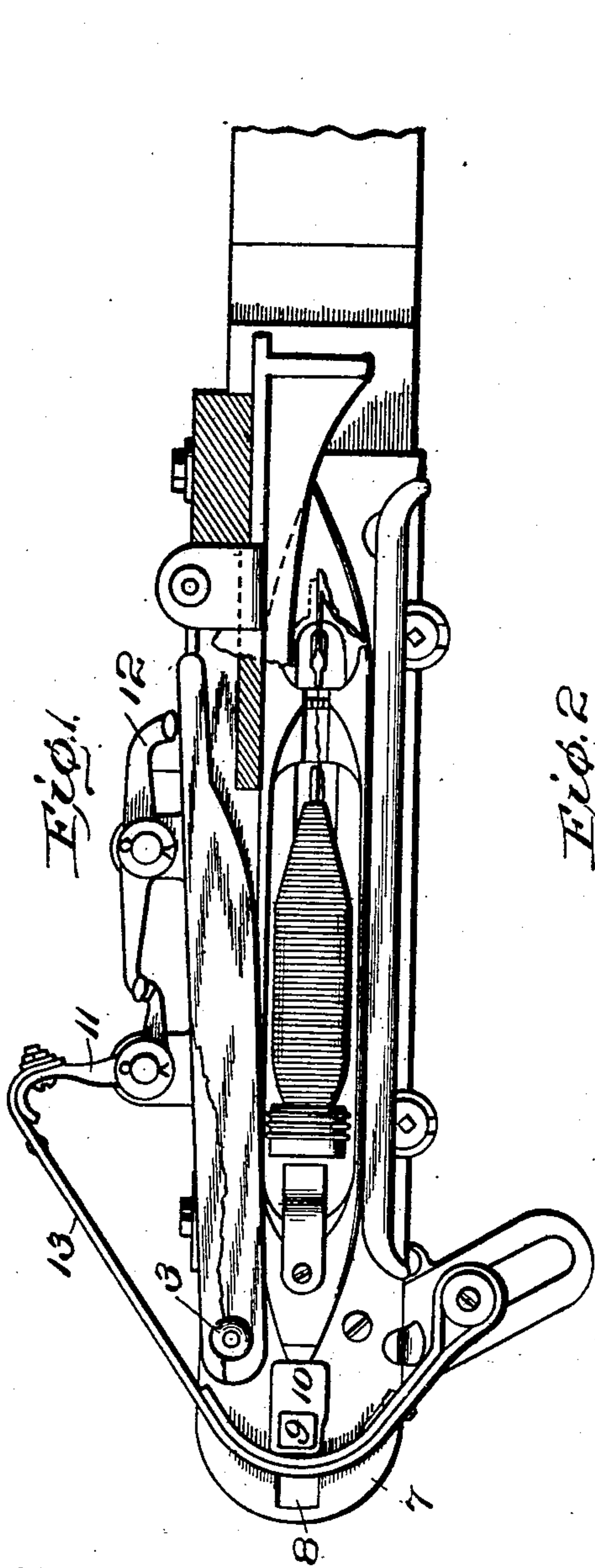


Fig. 1

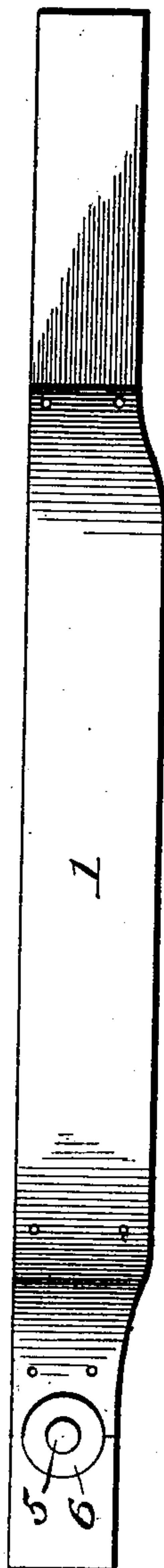


Fig. 2



Fig. 3



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UNITED STATES PATENT OFFICE.

FRANCIS ARTHUR MILLS, OF LAWRENCE, MASSACHUSETTS, ASSIGNOR OF
ONE-HALF TO GROSVENOR B. EMMONS, OF METHUEN, MASSACHUSETTS.

SHUTTLE-BINDER FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 742,707, dated October 27, 1903.

Application filed April 30, 1903. Serial No. 155,004. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS ARTHUR MILLS, a citizen of the United States, residing at Lawrence, in the county of Essex and State of Massachusetts, (whose post-office address is No. 251 South Broadway, Lawrence, Massachusetts,) have invented certain new and useful Improvements in Shuttle-Binders for Looms, of which the following is a specification.

In an application for a patent for improvement in shuttle-locks for looms filed by me February 10, 1903, Serial No. 142,707, I have described and shown a lever device in cooperation with the shuttle-binder, the impact-stap, and the picker and picker-stick to actuate the binder to lock the shuttle by the pressure thereon of the lever device whereby to render effective the lock of the shuttle at a determined point in the shuttle-box. It has been found that the locking pressure on the binder has caused it to split at the bore for the pivot on which the binder is mounted, because the point on the shuttle at which the pressure is made is the fulcrum of the binder, so that the pressure of the lever device suddenly delivered by an impact blow upon the free end of the binder has caused the binder to split at its pivoted end, and for this reason the locking device while effective in its function has been found impossible for use with the binder without provision for preventing its splitting. This provision I have made, and it consists in reinforcing the bore of the binder at its pivoted end in a manner to make it durable and to resist any pressure delivered upon the binder by the lever device to lock the binder upon the shuttle.

The accompanying drawings illustrate in Figure 1 this improved binder and its relation to the locking lever device and to the shuttle. Fig. 2 shows the binder and the manner of reinforcing the bore at its pivoted end. Fig. 3 shows a longitudinal section of the same. Fig. 4 shows a binder split by the pressure of the locking device.

The binder 1 is of the usual form and provided with the bore 2 to receive the pivot 3 and has the swell 4, at which the lock is made against the side of the shuttle in the shuttle-box. At right angles to the bore a strong rivet 5 is driven through the binder close to

the side of the bore and is clenched at each end upon a head-plate 6, which are countersunk in the sides of the binder, so that at the shuttle side the head-plate will make no wear upon the shuttle. In this way the rivet is made double-headed, each head-plate lapping or extending over the sides of the bore, so that while the rivet forms a strong brace at the side of and at right angles to the bore the sides of the bore are bound and braced by the rivet head-plates, which overlap the sides of the bore. The race-lay 7 is provided with the usual slot 8 for the picker-stick 9, the picker 10 for which receives the impact of the shuttle. The shuttle-binder forms one side of the shuttle-box, and on this side of the shuttle-box is fulcrumed upon the lay a compound lever device, which, as shown, is composed of a pair of levers having meeting arms, so that the pressure of one lever is communicated at the other, which delivers it upon the free end of the binder and the latter upon the shuttle. One of these levers, 11, is mounted near the pivot of the binder, and the other, 12, is mounted near the free end of the binder, so that one of its arms bears upon this end of the binder, while an arm of the other lever is connected to the strap 13, which passes around in rear of the picker-stick and is connected to the lay, the other arm of this lever having a bearing upon the meeting end of the other lever. In this relation of these lever members when the strap is under the impact of the picker-stick it will cause its connected lever 11 to press upon the binder-connected lever 12, and thereby cause the binder to press upon the shuttle with a compound leverage pressure, and in this way the shuttle is gradually stopped and always held at the determined point in the shuttle-box. It is this pressure upon the binder which causes it to split at its pivoted end.

I claim—

1. In a loom, a shuttle-binder, having the shuttle-locking swell, its mounting-pivot, a rivet at right angles to and at the side of the bore and a countersunk head-plate clenched on each end of the rivet and flanking or lapping the opposite sides of the bore of pivot.
2. In a loom and in combination, a shuttle-box, a picker and a picker-stick, and impact-

strap for the picker, lever members connected to one end of the strap and to the free end of the binder, a binder having the shuttle-locking swell, and its mounting-pivot and means
5 for preventing the splitting of the binder at its bore under the force of the impact which consists of a rivet and a countersunk head-plate clenched on each end of the pivot and

lapping or flanking the opposite sides of the bore.

In testimony whereof I affix my signature
in presence of two witnesses.

FRANCIS ARTHUR MILLS.

Witnesses:

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