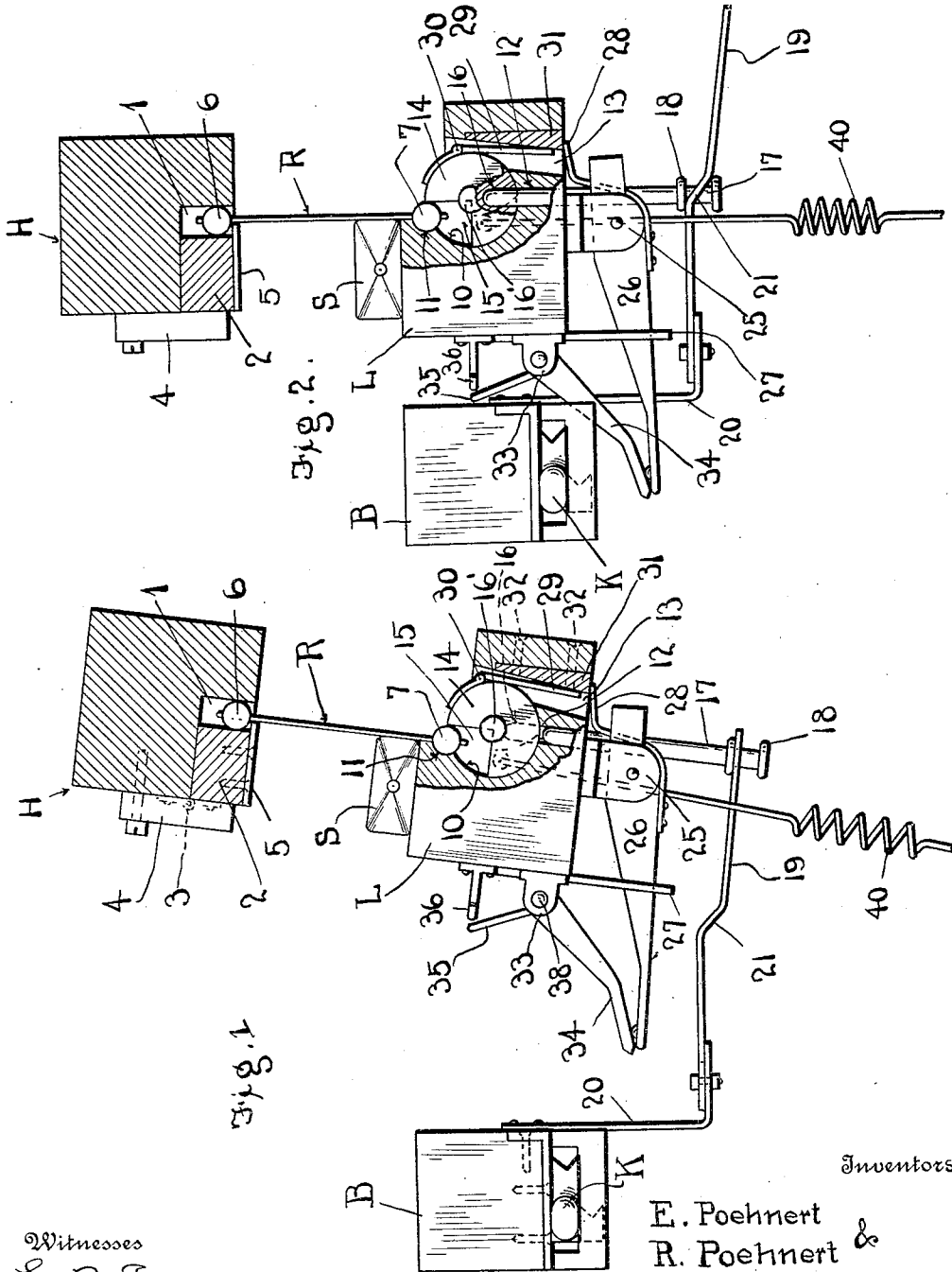


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SAFETY DEVICE FOR LOOMS.
APPLICATION FILED JULY 18, 1912.

Patented Mar. 18, 1913.

3 SHEETS-SHEET 1.

1,056,362.



Witnesses

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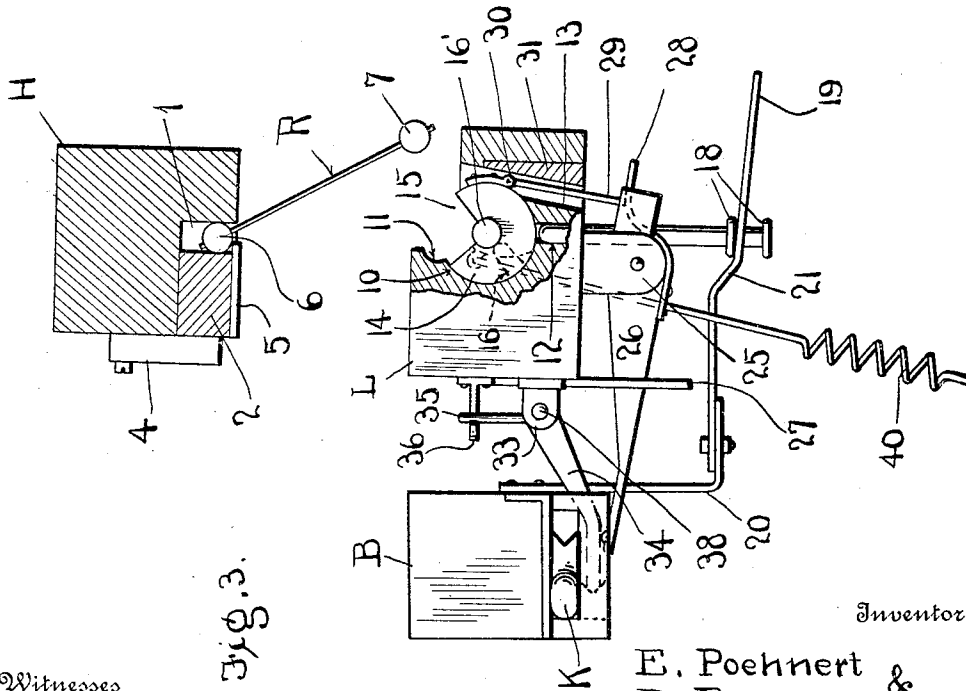
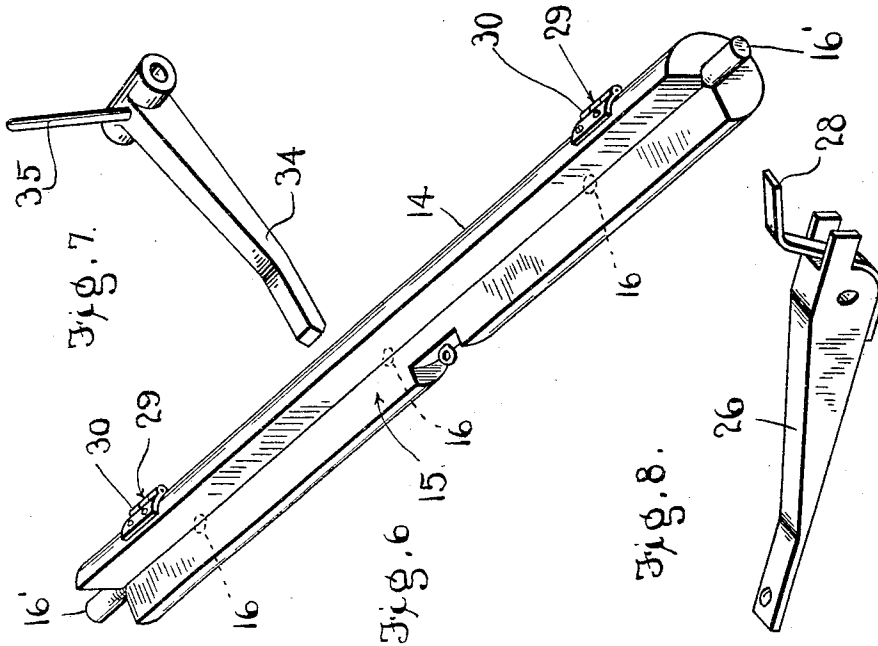
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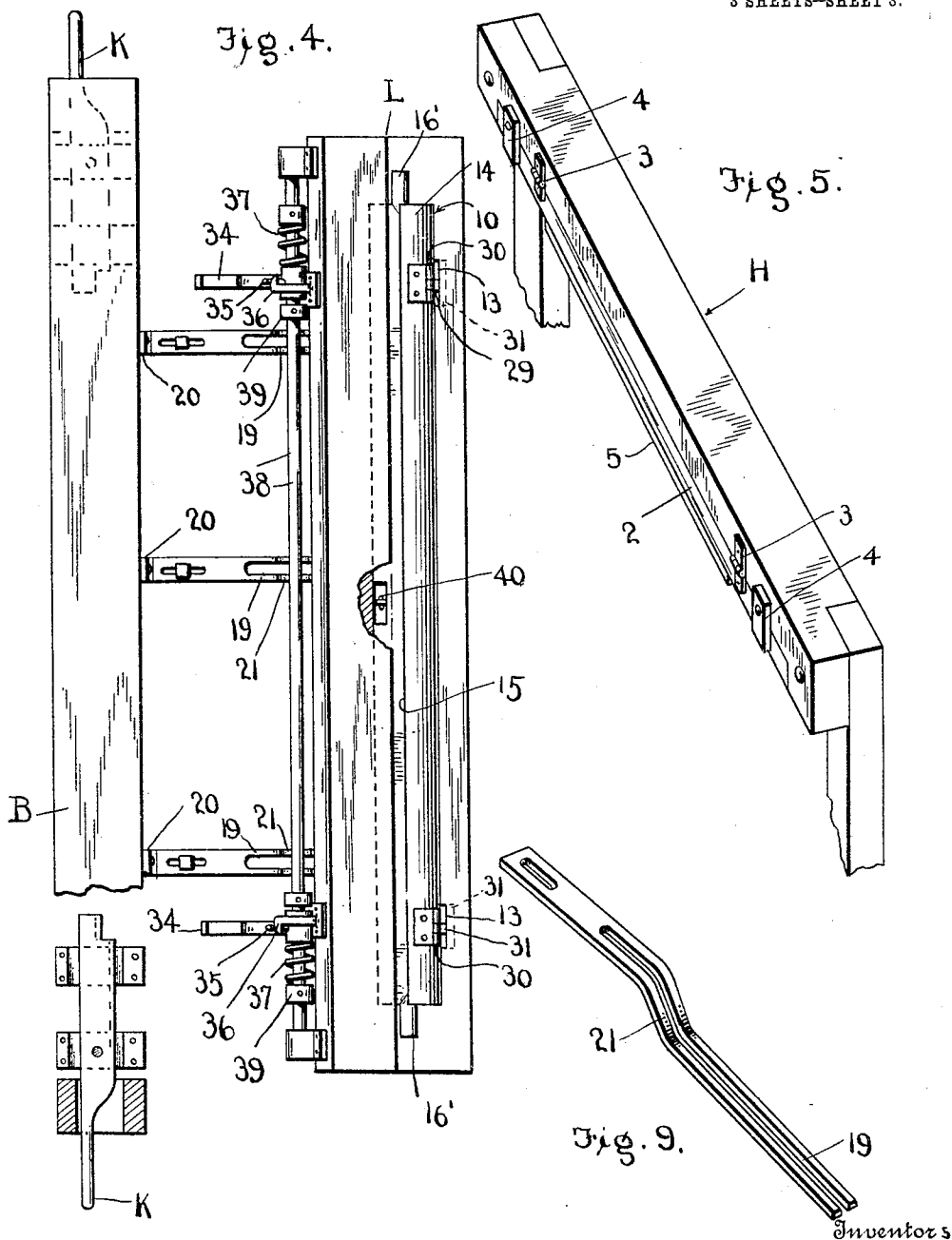
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UNITED STATES PATENT OFFICE.

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SAFETY DEVICE FOR LOOMS.

1,056,362.

Specification of Letters Patent.

Patented Mar. 18, 1913.

Application filed July 18, 1912. Serial No. 710,316.

To all whom it may concern:

Be it known that we, EDWARD POEHNERT and RICHARD POEHNERT, citizens of the United States, residing at Rockville, in the county of Tolland and State of Connecticut, have invented certain new and useful Improvements in Safety Devices for Looms; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to weaving, and more especially to loose reed mechanism; and the object of the same is to produce a device for use on looms whereby the warp shall be protected from becoming smashed or broken when the shuttle stops on its way through the shed from any cause.

Further objects are to provide for stopping the loom when the shuttle becomes caught or stops in the shed, to avoid filling cuts by loose reeds, to obviate reed marks in the cloth woven, and to provide means whereby the reeds may be conveniently detached from the hand rail.

These and other objects are carried out by the construction shown in the accompanying drawings, wherein—

Figure 1 is an end elevation partly in section, with the lay open; and Fig. 2 is a similar view with the lay closed; Fig. 3 is a similar view with the lay almost closed, the parts being in position to indicate what occurs when the reed is swung to the rear; Fig. 4 is a plan view (omitting the hand rail) with the parts standing as seen in Fig. 1; and Fig. 5 is a perspective detail of the hand rail intact; Fig. 6 is a perspective detail of the reed shaft; Fig. 7 is a perspective detail of one of the push bars, and Fig. 8 a similar view of one of the levers for raising said push bar; Fig. 9 is a perspective detail of one of the tracks.

In the drawings attached, the letter B designates the breast beam beneath which is pivoted a knock-off lever K connected with the mechanism for shifting the driving belt from the fast to the loose pulley in a manner not necessary to illustrate. H is the hand rail and L the lay immediately below it, the shuttle S moving over the lay in the usual manner, and R is the reed whose upper end is connected with the hand rail by improved means forming part of this invention and

whose lower end is connected with the lay by a mutilated shaft pivoted therein and which is locked in one position or freed so that it may turn to another position by improved mechanism also forming part of this invention. Other details of the loom construction need not be illustrated or described.

The hand rail is provided in its lower corner with a notch 1 which is normally almost closed by a latch consisting of a wooden strip 2 hinged at 3 to the rail H and held in the notch by a button 4 or permitted to turn outward when the button is turned aside; and across the bottom of this strip 2 is secured a metallic strip 5 projecting beyond the latch 2 and a little farther across the notch 1 so as to hold the upper bar 6 of the reed R within said notch. If now the lower bar 7 thereof is disconnected from the lay L, the entire reed R can be removed by turning the button 4 aside and swinging the latch 2 on its hinge 3 so as to release the upper bar 6 of the reed and lift the entire reed out of position.

The lay L is provided with a longitudinal cavity 10 open at the top, and in one wall of the cavity is a longitudinal groove 11, while a series of upright holes 12 pass upward through the lay into the bottom of the cavity and at points in said lay openings are provided for a purpose to appear below. Within said cavity stands the body of a reed shaft 14 which is cylindrical for about three-quarters of the way around and mutilated to the extent that one quarter thereof is cut away as shown at 15, and by preference the extremities of this shaft have trunnions 16 mounted in suitable bearings on the lay. The disposition of parts is such that when the reed R is in active position, its lower bar 7 rests within the groove 11 and stands within the mutilation 15 of the shaft 14, and the latter is turned so that holes 16 formed in its body register with those numbered 12 in the lay and receive the tips of latch bolts 17 which have grooved heads 18 at their lower ends traveling in slotted tracks 19 carried by brackets 20 mounted on the beam B as shown. At a proper point each track has a cam 21 so that, as the head 18 of the bolt passes along the track, it rides up this cam and its tip is projected into the aligned holes 12 and 16 to lock the reed shaft in active position. When it is desired to disengage the reed, the bolts 17 can be man-

nally depressed so as to unlatch the shaft, after which the lower bar 7 of the reed may be pushed to the rear as shown in Fig. 3 and the upper bar 6 disconnected from the hand rail in a manner above described.

In the action of a loom of this character it sometimes occurs that the shuttle becomes stuck in the shed, at the center or anywhere where there is cloth, and if the machine be provided with our invention the head of the latch bolts 17 will not have traveled up the cams 21 at this time and therefore the reed shaft is not locked against rotation. The shuttle is therefore pressed backward against the reed, and the lower bar 7 thereof turns the reed shaft from the position shown in Fig. 1 to that shown in Fig. 3, so that the entire reed swings outward and no smashing of the shuttle and other parts occurs at this time. After the shuttle has passed across the lay, however, the head 18 of the latch bolt 17 rides up the cam 21 and the lower bar 7 of the reed is locked in place because the reed shaft 14 cannot thereafter rotate during this impulse of the loom. But if the shuttle has become stuck it is due to faulty construction of the machine or the cloth being made, under either of which conditions it is desirable to stop the machine at once and correct the error; and we therefore provide the following mechanism for actuating the knock-off lever K when the reed shaft is turned as has just been described: Pivoted in an ear 25 depending from the lay is a lever 26 whose inner end lies normally on a hook or support 27, while its outer end has a finger 28 which stands under a push rod 29 which is hinged as at 30 to the shaft 14 and moves through a guide 31 removably held as by screws 32 within the opening 13 above described. It follows that when the reed shaft turns as set forth, the hinge point 30 travels downward and the push rod 29 is projected through the guide 31 so that its lower extremity bears downward on the finger at the outer end of the lever 26 and the inner end thereof is raised off the supporting hook 27. A cross rod or shaft 38 is mounted in ears 33 on the lay, and loosely mounted on said shaft are push bars 34 whose tips when raised are adapted to engage the knock-offs K, but when not raised the bars rest on the tips of the levers 26; and with this construction, when the reed is swung to the rear and the reed shaft 14 turned, the downwardly projecting push bars 29 will rock the levers 26 and the tips of the latter will raise the tips of the push bars 34 so as to actuate the knock-offs and stop the machine. We preferably also employ means for keeping the push bars 34 elevated at this time, consisting of pins 35 rising from them and adapted to engage hooks 36 carried by the lay L, and whose bills are beveled so that the pins

will pass the bevels and drop into the hooks as the push bars rise. A spring 37 coiled on the shaft 38 between a collar 39 thereon and the inner end of each push bar 34, presses the latter toward the ear 33 and its pin 35 toward the hook 36, but the pins and hooks can be disengaged at any time and the push bars 34 permitted to drop. With this construction, the raising of either push bar by the rearward deflection of the reed actuates one or both of the knock-offs K and stops the machine, but if by any accident the machine should make even another impulse, the tip of the push bar 34 would still actuate the knock-off, and would continue to do so even though the machine were moved by hand by the workman as he repaired the mistake. It is necessary for the workman to positively disengage the pins and hooks before the push bars can be dropped, and this detail of construction therefore affords a safeguard against renewed or continuous accident. After the mistake or damage has been corrected, the push bars are dropped, the reed swung back to the position shown in Figs. 1 and 2, the reed shaft 14 turned by hand or by mechanical means such as the spring 40 so as to engage the lower reed bar 7, the driving belt shifted to the fast pulley, and work resumed.

The parts are obviously of any desired material and detailed construction, and changes therein may be made so long as the gist of the invention is retained.

What is claimed as new is:—

1. In a loom, the combination with the hand rail, the lay, and the reed whose upper bar is loosely held in said hand rail with its lower bar above the lay; of a reed shaft revolvably mounted on the lay and mutilated for the reception of the lower bar of the reed, means for locking the reed shaft in position to hold said lower bar when the lay approaches the breast beam, a knock-off mechanism, a push-bar pivoted to the lay and adapted to engage said knock-off mechanism when the bar is raised, a lever for raising its tip, and means on the reed shaft for actuating said lever.

2. In a loom, the combination with the hand rail, the lay having a longitudinal cavity in its upper side, and the reed whose upper bar is loosely held in said hand rail and whose lower bar is adapted to pass across the upper side of said cavity; of a reed shaft revolvably mounted in the cavity and mutilated for the reception of the lower bar of the reed, the lay and the reed shaft being provided with holes adapted to register when the latter is in position to retain the reed, a latch bolt movably mounted in the lay, mechanism for projecting it into the hole in the shaft when the lay approaches the breast beam, a knock-off mechanism, a

push-bar pivoted to the lay and adapted to engage said knock-off mechanism when the bar is raised, a lever for raising its tip, a push rod connected with the reed shaft, and a guide carried by the lay and through which said push rod is projected against said lever when the reed shaft is turned.

3. In a loom, the combination with the hand rail, the lay having a longitudinal cavity in its upper side, and the reed whose upper bar is loosely held in said hand rail and whose lower bar is adapted to pass across the upper side of said cavity; of a reed shaft revolubly mounted in the cavity and mutilated for the reception of the lower bar of the reed, the lay and the reed shaft being provided with holes adapted to register when the latter is in position to retain the reed, a latch bolt movably mounted in the lay and having a grooved head, a track with which said head engages, the track having a cam for projecting the bolt into the hole in the shaft when the lay approaches the breast beam and withdrawing it when the lay recedes, a knock-off mechanism, and connections between it and said mutilated shaft whereby the rotation of the latter when unlocked actuates said mechanism, for the purpose set forth.

4. In a loom, the combination with the hand rail, the lay having a longitudinal cavity in its upper side, and the reed whose upper bar is loosely held in said hand rail and whose lower bar is adapted to pass across the upper side of said cavity; of a reed shaft revolubly mounted in the cavity and mutilated for the reception of the lower bar of the reed, the lay and the reed shaft being provided with holes adapted to register when the latter is in position to retain the reed, a latch bolt movably mounted in the hole in the lay, mechanism for projecting it into the hole in the shaft when the lay approaches the breast beam, a knock-off mechanism, a push-bar pivoted to the lay and adapted to engage said knock-off mechanism when the bar is raised, a lever for raising its tip, and means on the reed shaft for actuating said lever.

5. In a loom, the combination with the hand rail, the lay having a longitudinal cavity in its upper side, and the reed whose upper bar is loosely held in said hand rail and whose lower bar is adapted to pass across the upper side of said cavity; of a reed shaft revolubly mounted in the cavity and mutilated for the reception of the lower bar of the reed, the lay and the reed shaft being provided with holes adapted to register when the latter is in position to retain the reed, a latch bolt movably mounted in the lay, mechanism for projecting it into the hole in the shaft when the lay approaches the breast beam, a knock-off mechanism, a push-bar pivoted to the lay and

adapted to engage said knock-off mechanism when the bar is raised, a lever for raising its tip, a hinge on the reed shaft, a push rod connected with said hinge, and a guide carried by the lay and through which said push rod is projected when the reed shaft is turned, its lower end engaging the rear end of said lever.

6. In a loom, the combination with the lay having a longitudinal cavity in its upper side, and the reed whose lower bar is adapted to pass across the upper side of said cavity; of a reed shaft revolubly mounted in the cavity and mutilated for the reception of the lower bar of the reed and provided with a hole, a latch bolt movably mounted in the lay, mechanism for projecting it into the hole in the shaft when the lay approaches the breast beam, a knock-off mechanism, a push-bar pivoted to the lay and adapted to engage said mechanism when the bar is raised, a lever for raising its tip, and means on the reed shaft for actuating said lever.

7. In a loom, the combination with the lay having a longitudinal cavity, and the reed whose lower bar is adapted to pass across said cavity; of a reed shaft revolubly mounted in the cavity and mutilated for the reception of the lower bar of the reed, a latch bolt movably mounted in a hole in the lay, mechanism for projecting it into engagement with the shaft when the lay approaches the breast beam, a knock-off mechanism, a push-bar pivoted to the lay and adapted when raised to engage said knock-off mechanism, a lever for raising its tip, a push rod actuated by the turning of the reed shaft, and a guide through which said push rod is projected when the reed shaft is turned, its lower end engaging the rear end of said lever.

8. In a loom, the combination with the lay and hand rail, the reed loosely connected with the latter, and a reed shaft journaled on the lay and having means for engaging the lower bar of the reed; of a latch for locking said bar against rotation, a knock-off mechanism, a push-bar pivoted to the lay and adapted to engage said knock-off mechanism when its tip is raised, a lever for raising said tip, and a push-rod actuated by the turning of the reed shaft and whose movement in turn swings said lever.

9. In a loom, the combination with the lay and hand rail, the reed loosely connected with the latter, and a reed shaft journaled on the lay and having means for engaging the lower bar of the reed; of a latch for locking said bar against rotation, a knock-off mechanism, a push-bar pivoted to the lay and adapted to engage said knock-off mechanism when its tip is raised, a lever for raising said tip, a latch for locking said reed shaft against rotation, means

for unlocking the latch as the lay moves
away from the breast beam, a spring for
holding the shaft in this position under
normal conditions, and a push-rod actuated
5 by the turning of the reed shaft and whose
movement in turn swings said lever.

In testimony whereof we have hereunto

set our hands in presence of two subscri-
ing witnesses.

EDWARD POEHNERT.
RICHARD POEHNERT.

Witnesses:

C. J. BUSH,
S. P. SUMNER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents.
Washington, D. C."