

D. TINKER & G. BOOTHROYD.

LOOM.

APPLICATION FILED MAY 23, 1912.

1,052,190.

Patented Feb. 4, 1913.

3 SHEETS-SHEET 1.

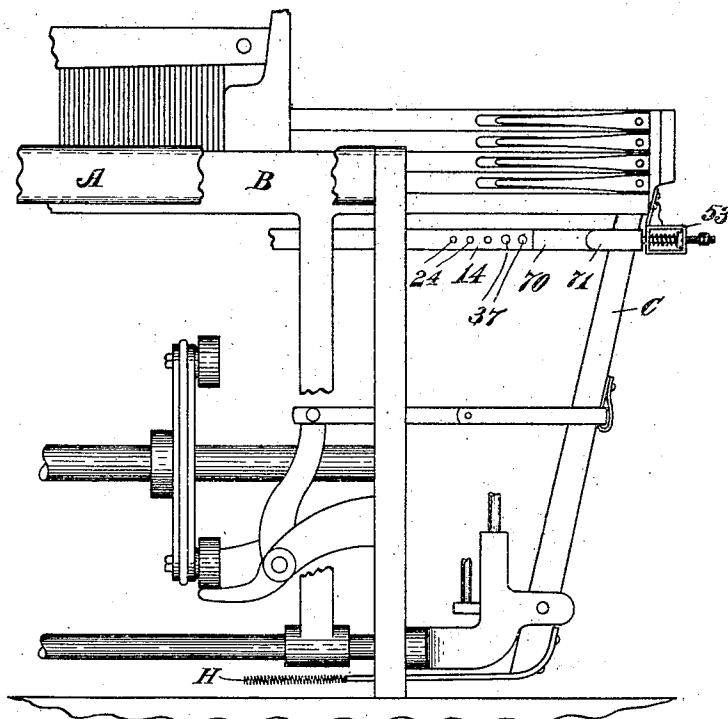


Fig. 1.

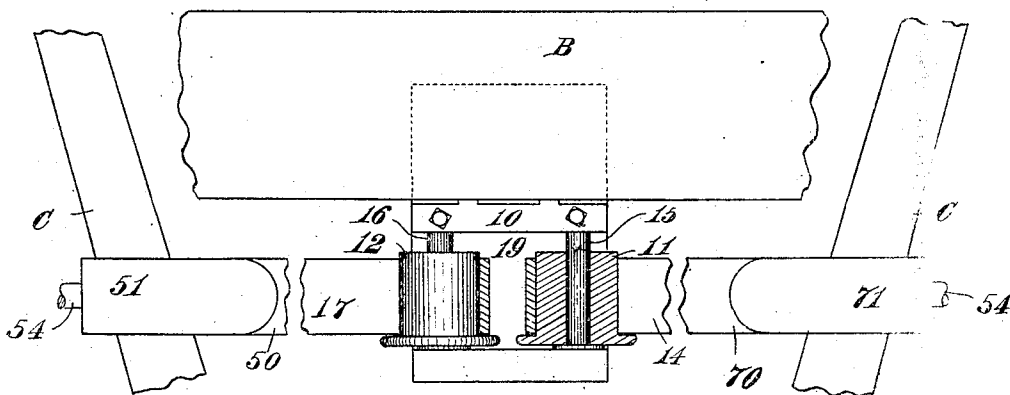


Fig. 2.

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3 SHEETS—SHEET 2.

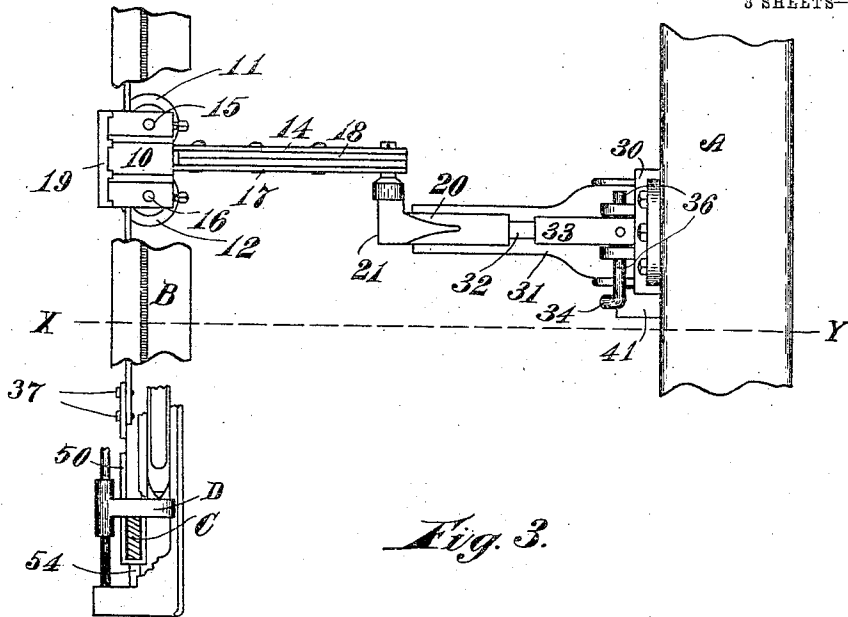


Fig. 3.

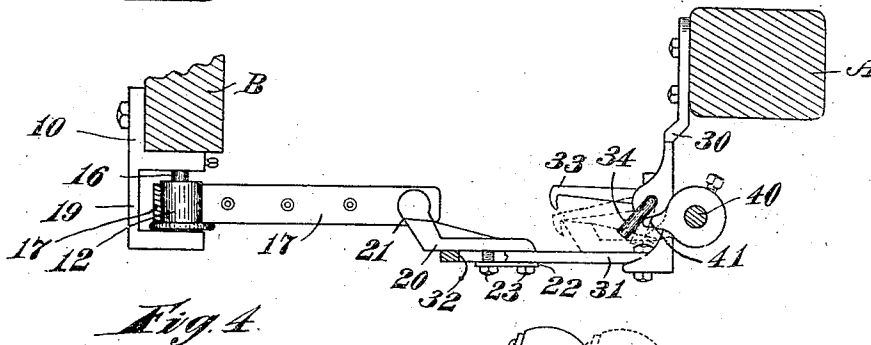


Fig. 4.

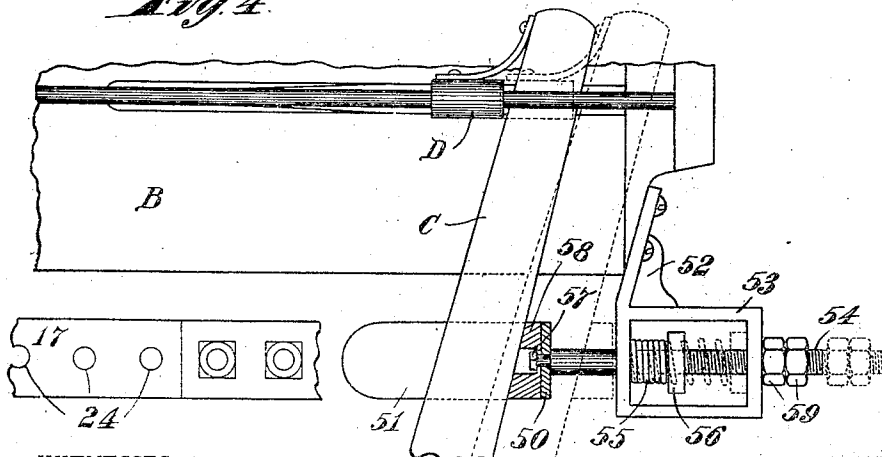


Fig. 5.

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3 SHEETS—SHEET 3.

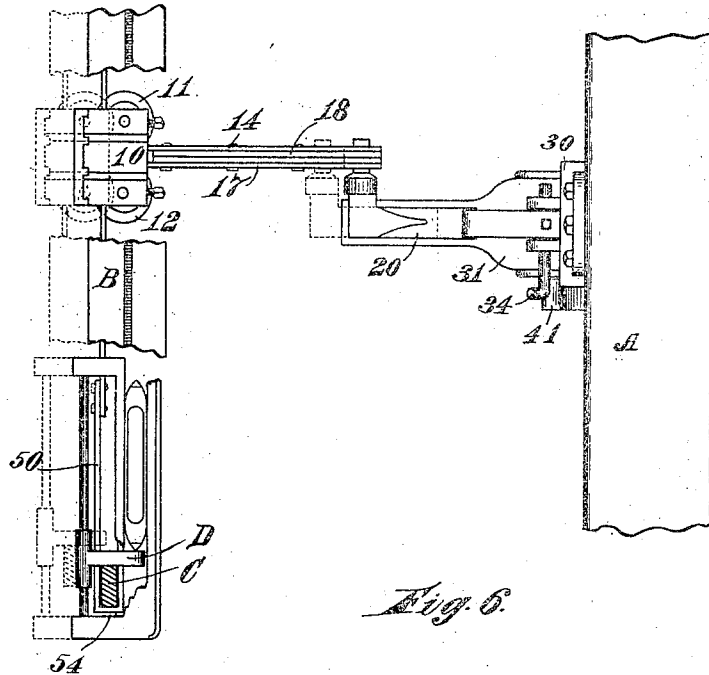


Fig. 6.

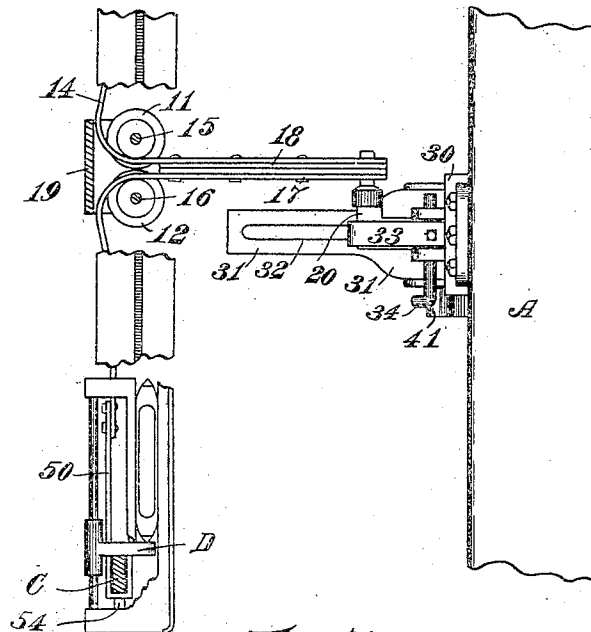


Fig. 7.

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UNITED STATES PATENT OFFICE.

DAVID TINKER, OF LAWRENCE, AND GEORGE BOOTHROYD, OF METHUEN, MASSACHUSETTS, ASSIGNORS OF ONE-THIRD TO GEORGE W. SMITH AND SAMUEL E. SMITH, BOTH OF LAWRENCE, MASSACHUSETTS.

LOOM.

1,052,190.

Specification of Letters Patent.

Patented Feb. 4, 1913.

Application filed May 23, 1912. Serial No. 699,246.

To all whom it may concern:

Be it known that we, DAVID TINKER and GEORGE BOOTHROYD, both citizens of the United States, DAVID TINKER residing at Lawrence and GEORGE BOOTHROYD residing at Methuen, both in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Looms, of which the following is a specification.

Our invention relates to looms and one purpose is to prevent the lay beam, by its own momentum or otherwise, from moving enough to allow the take up action to make a pick, after the shuttle has banged off or failed to enter its box, or when the loom is stopped by reason of a break in the filling or otherwise. It is also so arranged that the action of its various parts will serve as a check for the picker, and the picker stick when struck by the shuttle.

In the drawings, Figure 1 is an elevation from the front of portions of a loom showing part of the breast beam, the lay beam, one of the picker sticks and the picker stick operating device. Fig. 2 is an enlarged elevation looking from the inside toward the back showing the lay beam, the picker sticks and the strap rollers of my device with their connections. Fig. 3 is a plan view showing from the top the connections between the breast beam, the breast beam bracket, the slide, the rollers attached to the lay beam and the connection with one picker stick. This view shows the lay beam at its extreme backward point that is at its greatest distance from the breast beam. Fig. 4 is a sectional elevation on the line X—Y of Fig. 2. Fig. 5 is an elevation looking from the back, of one of the picker sticks, the buffer box and spring and the connections by means of the metal strap with the leather strap, part of the metal strap being shown broken away and part in section. This view shows the spring compressed in full lines and released in dotted lines. Fig. 6 is a plan view of the same parts shown in Fig. 3 but showing their positions when the lay beam has advanced toward the breast beam approximately one fourth of the distance. The dotted lines show the extreme back position. Fig. 7 is a plan view showing the same parts as in Figs. 3 and 6 but with the lay beam and its attachments in the extreme forward

position that is at the nearest point to the breast beam which it ever reaches.

A is the breast beam and B is the lay beam while C, C represent the picker sticks.

Attached to the back side of the lay beam B and depending therefrom is a bracket 10 which carries attached to its bottom by means of pivots 15 and 16, the whirls or rollers 11 and 12 which preferably have flanges or heads at their bottoms. Around each roller 11 and 12, passes a strap 17 or 14 which is preferably of leather. These straps pass around back of the rollers 11 or 12 and forward toward breast beam A and they are joined together and to a stiff strip or strips of wood, metal or other suitable material by bolts, rivets or glue to form the slide arm 18 of a length to be determined in a manner hereinafter described. Pivoted at the inner or front end of the combined straps 14 and 17 and slide arm 18, is a slide 20 which has a shoulder 21 and rests upon the slotted arm 31 of a bracket 30 fixed to breast beam A. In slotted arm 31 is a slot 32 through which pass bolts 23 which extend downward from slide 20 the parts being held in slidable contact by means of a plate 22 through which bolts 23 pass. A suitable pivot 36 pivoted on breast beam bracket 30 carries a hook 33 adapted when it falls by gravity as shown by the dotted lines in Fig. 4 and by the dotted lines in Fig. 6 to engage shoulder 21. Carried also by the pivot 36 which carries hook 33 is an arm 34 which is normally held up by a nose 41 so fixed to shipper shaft or rod 40 that unless the stop motion is operated automatically or otherwise to stop the loom, it holds up arm 34 and hook 33 thus keeping hook 33 out of engagement with slide 20 and shoulder 21. The other end of each strap 14 and 17 is adjustably connected with a metal strap as 50 or 70 in Fig. 2 which is bent at 51 and 71 to pass around one of the picker sticks C as shown.

To each end of the lay beam B is attached a buffer bracket as 52 in which is a buffer box as 53 through which passes an adjustable rod as 54 which also passes through one of the metal straps as 50 and is attached thereto by a nut 57. Rod 54 preferably extends also slidably through the outside of buffer box 53 and is threaded to receive check nuts 59 by which its action and the ac-

tion of the buffer spring may be limited and adjusted. Preferably in the bend between 50 and 51, I place a pad 58 of leather or other suitable material in which is countersunk the end of rod 54 and nut 57. A compression spring 55 serves as a buffer spring and engages a collar 56 on bolt 54 as well as the inside of buffer box 53 and thus permits the bolt 54, metal strap 50 and leather strap 17 to give toward the center of the lay beam to a limited degree.

It will be seen that while hook 33 is kept out of engagement with slide 20 and the parts are properly adjusted, as lay beam B recedes from the breast beam A, it takes up the slack if any, in the straps 14 and 17 and then carries back slide arm 18 and slide 20 until bolt 23 of slide 20 reaches the end of slot 32 in arm 31. When this occurs, the continued backward action of the lay beam compresses the buffer springs 55 and by the action of metal straps 50 and 70 pulls toward each other the picker sticks C and C' to some extent. This distance may be determined by check nuts 59. As the lay beam again advances toward the breast beam, the tension on the springs 55 is released and the picker sticks are allowed to recede by the action of their springs H in a well known manner. It is at this point, when the lay beam is beginning to advance that the shuttle after traversing the lay beam strikes the picker D which it forces back against the picker stick C and as the picker stick is moving backward in the same direction with the shuttle but at a somewhat less speed, the shuttle is stopped gradually thereby saving wear and tear on the parts and also tending to remove any kinks in the filling. It also prevents the shuttle from cutting the filling, prevents ragged selvage and insures better cloth. As the lay beam continues to advance, the plate 19 on the back of lay beam bracket 10 coming in contact with the slack of straps 14 and 17 or with slide arm 18 pushes it together with slide 20 toward the breast beam A until it arrives at the position shown in Fig. 7. Now if the shuttle has banged off or if for any other reason the stop motion is operated, shaft 40 is rotated so as to drop nose 41 and thereby hook 33 which then engages shoulder 21 holding it and slide 20 fast. The result is that if the lay beam starts to rebound or move away from the breast beam, the straps 17 and 14 being held by hook 33 and slide 20 and being attached to the buffer box 53 on the lay beam, hold the lay beam from withdrawing except to the slight degree permitted by the slack if any of straps 14 and 17 and by compression springs 55 which also serve to take up any shock. The slide arm 18 should be of such length that soon after the springs 55 have expanded to their normal position, the end

of slide arm 18 or the adjoining portions of straps 14 and 17 will be struck by plate 19 so that there will be very little slack on the leather straps 14 and 17. As the metal straps 50 and 70 are preferably adjustably connected with the leather straps 14 and 17 by means of bolts 37, 37' or otherwise, this slack can be taken up entirely or made as much within limits as desired according to the make of the loom.

It is manifest that by sufficiently screwing up the check nuts 59, the buffer spring 55 may be so much compressed as to be out of action. In this case, if a break occurs and the hook 33 drops into engagement with slide 20, it will hold the lay beam from receding except to take up the slack if any in the straps and will prevent the taking of any more picks. With such an adjustment however, there is substantially no buffer action for the picker stick when struck by the shuttle. On the other hand, when the check nuts are unscrewed so as to give the spring a longer action, if the spring and bolt 54 are long enough, as the lay beam recedes, the metal straps 50 and 70 will follow up the picker sticks and will recede with them as the lay beam advances whereby a longer buffer action will be obtained. With such an adjustment however, when a break occurs if the buffer springs are long and are adjusted to a position to give them a play substantially as long as the movement of the lay beam before the picking action operates, it is evident that they will not prevent such picking action although they will serve as buffers for the shuttle and picker sticks.

What we claim as our invention and desire to cover by Letters Patent, is:

1. In a loom having a shipper shaft, picker sticks, a breast beam and a lay beam, the combination of a bracket attached to the breast beam and having a horizontal arm in which is a slot, a pivot in said bracket carrying a hook and an arm, and a nose in engagement with the arm and carried by the shipper shaft, with a bracket attached to the lay beam, two rollers carried thereby, leather straps which pass around such rollers and are joined together by a slide arm, a slide carried by the slide arm slidable on the slotted arm of the breast beam bracket and having a shoulder in operative relation with the hook, brackets carried by the lay beam and having buffer boxes, buffer rods slidable in said boxes, buffer springs in operative relation with said buffer rods and boxes, metal straps which pass around the picker sticks and are attached to the ends of the leather straps and to the end of the buffer rods, as described.

2. In a loom having picker sticks, a breast beam and a lay beam, the combination of a bracket on the breast beam having an arm

in which is a slot, with a bracket on the lay beam, rollers carried thereby, leather straps which pass around said rollers and are joined by a slide arm, a slide carried by the slide arm and slidable in the slot in the breast beam bracket arm, buffers provided with suitable buffer springs carried by the lay beam, and metal straps which pass behind the picker sticks and connected with the buffer springs, said metal straps being connected with the leather straps at such points that after the slide reaches the end of the slot in the bracket arm of the breast beam bracket the buffer spring will begin to be compressed.

3. In a loom having picker sticks, a breast beam and a lay beam, the combination of a bracket on the breast beam having an arm in which is a slot, with a bracket on the lay beam, rollers carried thereby, leather straps which pass around said rollers and are joined by a slide arm, a slide carried by the slide arm and slidable in the slot in the breast beam bracket arm, brackets carried by the lay beam and having buffer boxes, buffer rods which pass through said boxes, check nuts adjustable on said buffer rods, buffer springs in operative relation with said buffer rods and boxes, metal straps attached to the

buffer rods and which pass around the picker sticks and are adjustably attached to the ends of the leather straps as described.

4. In a loom having picker sticks, a breast beam and a lay beam, the combination of a bracket on the breast beam having an arm in which is a slot, with a bracket on the lay beam, rollers carried thereby, leather straps which pass around said rollers and are joined by a slide arm, a slide carried by the slide arm and slidable in the slot in the breast beam bracket arm, brackets carried by the lay beam and having buffer boxes, buffer rods which pass through said boxes, check nuts adjustable on said buffer rods, buffer springs in operative relation with said buffer rods and boxes, metal straps attached to the buffer rods and which pass around the picker sticks and are adjustably attached to the ends of the leather straps, and means for locking the slide to the breast beam when the loom is stopped.

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

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GEORGE BOOTHROYD.

Witnesses:

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