C. E. TAYLOR.

BINDER FINGER RELEASING MECHANISM.

APPLICATION FILED JUNE 16, 1910.

994,545. Patented June 6, 1911.

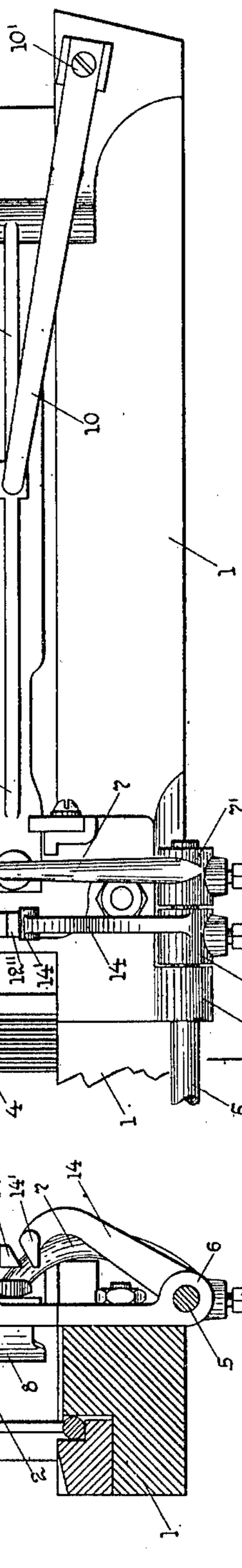

Fig. 1.

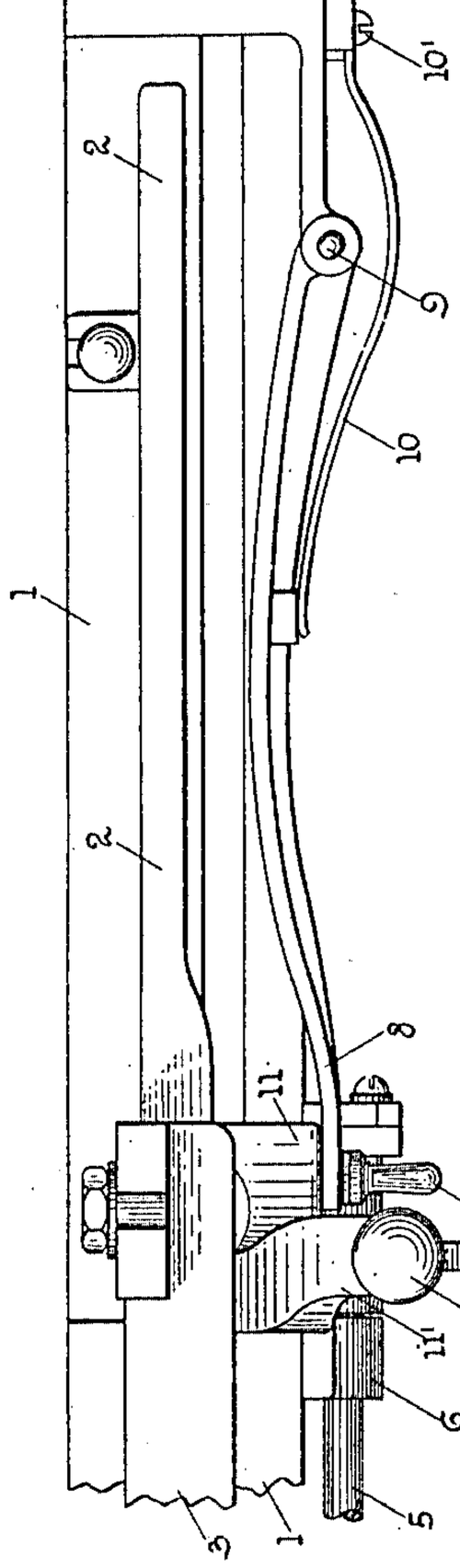

Fig. 3.

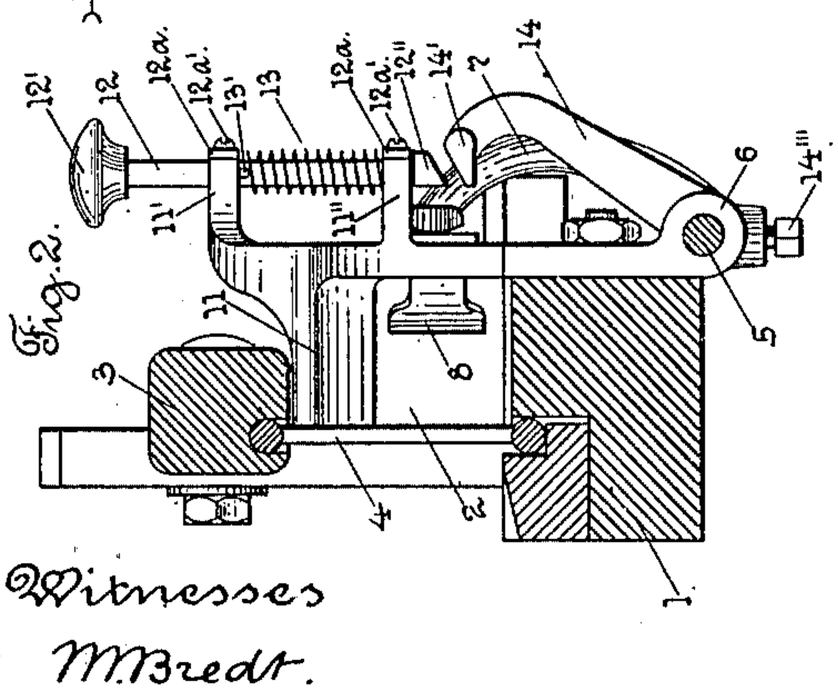

Fig. 2.

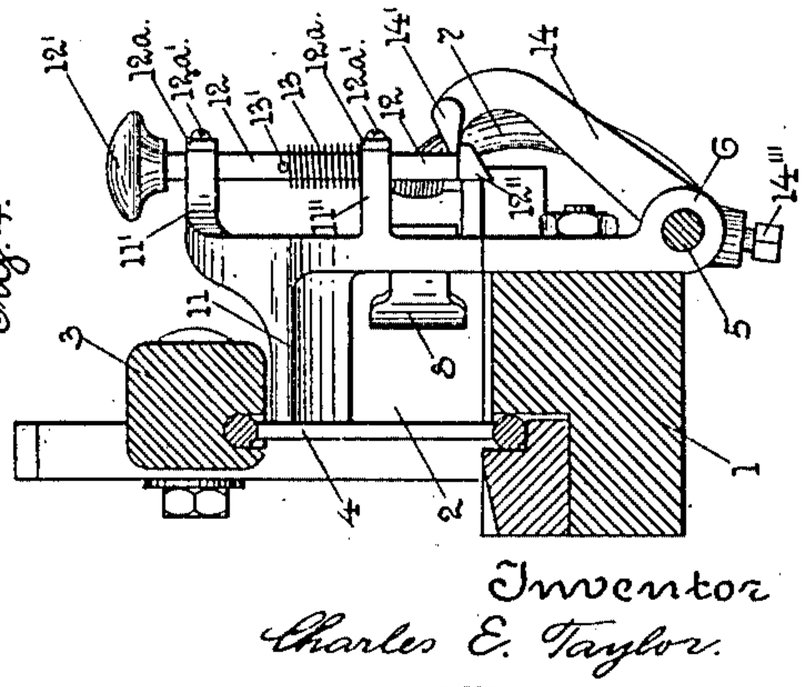

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

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BINDER-FINGER-RELEASING MECHANISM.

994,545. Specification of Letters Patent. Patented June 6, 1911.

Application filed June 16, 1910. Serial No. 567,167.

To all whom it may concern:

Be it known that I, CHARLES E. TAYLOR, a citizen of the United States, residing at Methuen, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Binder-Finger-Releasing Mechanism, of which the following is a specification.

My invention relates to protector mechanism for looms, and particularly to a releasing mechanism for the binder finger on the protector rod of a loom.

The object of my invention is to provide a releasing mechanism of simple construction, and adapted to be combined with a shuttle box of ordinary construction, and with the ordinary binder protector mechanism.

My releasing mechanism for the binder finger on the protector rod, consists preferably of a vertically moving plunger, which is located at the front of the stationary shuttle box, at the inner end thereof, and is held in its raised inoperative position by a helically coiled expansion spring. The lower end of the plunger, when it is moved downwardly against the action of the spring, engages with an arm, which has its hub fast on the protector rod, and the engagement of said plunger with said arm, on the downward movement of said plunger, causes the binder finger on the protector rod to be moved away from the binder. The arm on the protector rod and the binder finger, are locked in their outward position, thus preventing the loom from being stopped in case there is no shuttle in the shuttle box, and the loom may be operated by the weaver for the purpose of picking out, or for any other purpose. When the loom is regularly started, the shuttle, which enters the shuttle box, will move the binder to its outward position, and cause it to engage the binder finger and move it out farther, and with it the arm on the protector rod, to release the lower end of the plunger from the upper end of said arm, and allow the plunger to move upwardly, through the expansion of the spring, to its inoperative position.

I have shown in the drawing a stationary shuttle box at the right hand end of the lay, and some parts of the protector mechanism of a loom, and my improvements in releasing mechanism combined therewith.

Referring to the drawing:—Figure 1 is a front view of the right hand end of the lay of a loom, and a stationary shuttle box thereon, and my improvements applied thereto. Fig. 2 is a section, on line 2, 2, Fig. 1, looking in the direction or arrow *a*, same figure. Fig. 3 is a plan view of the parts shown in Fig. 1, looking in the direction of arrow *b*, same figure, and, Fig. 4 corresponds to Fig. 2, but shows the opposite position of some of the parts.

In the accompanying drawing, 1 is the right hand end of the lay of a loom, carrying a stationary shuttle box or cell 2, 3 is the hand rail, 4 the reed, 5 is the protector rod mounted in bearings 6 at each end of the lay, and having thereon the usual torsion spring, not shown for turning said rod.

7 is the binder or protector finger, which has its hub 7′ secured on the end of the protector rod 5, by a set screw 7″, and its upper end adapted to bear against the inner free end of the shuttle binder 8, which is pivotally mounted at its outer end on a stud 9.

A binder spring 10 is secured at its outer end by a screw 10′ at the front outer end of the lay, and bears at its free end against the binder 8.

All of the above mentioned parts may be of the usual and well known construction.

I will now describe my improvements.

The mouth piece 11 of the stationary shuttle box or cell 2, has in this instance the two forwardly extending lugs or projections 11′ and 11″ thereon, which form guides or bearings for the movable plunger 12, which in this instance is of square shape in cross section, but may be round, or of any other desired shape in cross section, and extends in a vertical plane. The plunger 12 has in this instance at its upper end a knob 12′, which is to be engaged by the hand of the operator or weaver, to move downwardly said plunger. A helically coiled expansion spring 13 encircles the plunger 12, and bears at its lower end against the lower lug 11″, and at its upper end against the pin 13′ in the plunger 12, and acts to yieldingly move upwardly said plunger, as shown in Figs. 1 and 2.

In this instance the lugs or projections 11′ and 11″ have open end slots at their outer ends, of square shape, to receive the square-shaped plunger, which is retained in said slots by small plates 12^a, secured to the lugs 11′ and 11″ by screws $12^{a\prime}$. The lower end of the plunger 12 has in this instance the enlarged end 12″, having its lower edge in-

clined, as shown, which on the downward movement of the plunger 12 will engage the inclined upper end 14′ on the arm 14, which has its hub 14″ secured on the protector rod 5 by a set screw 14‴, to move outwardly the arm 14, to rock the protector rod 5, and also to move outwardly the binder finger 7, having its hub 7′ fast on the rod 5, until the enlarged end 12″ on the plunger 12 passes by the inclined end 14′ on the arm 14, as shown in Fig. 4, and acts to lock said arm 14, and the binder finger 7 in their outward position. The loom is now free to be operated by the weaver, without being stopped by reason of there being no shuttle in the shuttle box, as the binder finger 7 is held in its outward position away from the binder 8.

When a shuttle is inserted into the shuttle box, or thrown into the shuttle box from the opposite side of the loom, the engagement of the shuttle with the binder 8, will move the binder finger 7 outwardly, and with it the arm 14 fast on the protector rod 5, and cause the end 14′ thereon to be automatically disengaged from the enlarged end 12″ on the plunger 12, leaving the expansion spring 13 free to act to raise the plunger 12 and return it to its normal position, shown in Fig. 2, and the binder finger 7 and arm 14, fast on the protector rod 5, are free to move inwardly, through the action of the torsion spring, not shown, on said rod, to the position shown in Fig. 2.

The advantages of my improvements will be readily appreciated by those skilled in the art; they are of very simple construction, and can be readily combined with and applied to an ordinary loom, and by means of my improvements the weaver may, when desired, by depressing the plunger 12, hold the protector finger 7 in its outward position away from the binder, and lock it in this position, and thus prevent the loom being stopped by reason of there being no shuttle in the box. When it is desired to start the loom regularly, the putting of a shuttle into the shuttle box, or the entrance of a shuttle into the box, will automatically release the plunger 12 and unlock the binder finger 7 and allow it to return to its normal position, and the loom will operate in the usual way.

It will be understood that the details of construction of my improvements may be varied if desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a loom, the combination with a protector rod, and binder finger, of a device, to be moved by the operator, said device located on and movable with the lay, and a connection intermediate said device and the protector rod, to cause the binder finger on the protector rod to be moved away from the binder, and held in its outward position to prevent the loom from being stopped in case there is no shuttle in the shuttle box.

2. In a protector mechanism for a loom, the combination with the protector rod, and binder finger, of a movable plunger or pin, located at the front of the stationary shuttle box, said plunger or pin adapted to be moved to cause the binder finger on the protector rod to be moved away from the binder and held in its outward position, to prevent the loom from being stopped in case there is no shutttle in the shuttle box.

3. In a protector mechanism for a loom, the combination with the protector rod, and binder finger, of a movable plunger or pin, located at the front of the stationary shuttle box, said plunger or pin adapted to be moved to cause the binder finger on the protector rod to be moved away from the binder and held and locked in its outward position, to prevent the loom from being stopped in case there is no shuttle in the shuttle box.

4. In a protector mechanism for a loom, the combination with the protector rod, and binder finger, of a movable plunger or pin, located at the front of the stationary shuttle box, said plunger or pin adapted to be moved, to cause the binder finger on the protector rod to be moved away from the binder and held in its outward position, to prevent the loom from being stopped in case there is no shuttle in the shuttle box, and on the entrance of a shuttle into the shuttle box, the outward movement of the binder and the binder finger will automatically release said plunger or pin, and allow it to return to its normal position through the action of a spring.

5. In a protector mechanism for a loom, the combination with the protector rod and binder finger, of a movable plunger or pin, located at the front of the stationary shuttle box, said plunger or pin adapted to be moved, to cause the binder finger on the protector rod to be moved away from the binder and held and locked in its outward position, to prevent the loom from being stopped in case there is no shuttle in the shuttle box, and on the entrance of a shuttle into the box, the outward movement of the binder and the binder finger will automatically release said plunger or pin, and allow it to return to its normal position through the action of the spring.

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