

UNITED STATES PATENT OFFICE.

BENJAMIN F. McGUINNESS, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO CROMPTON & KNOWLES LOOM WORKS, A CORPORATION OF MASSACHUSETTS.

LOOM.

966,466.

Specification of Letters Patent.

Patented Aug. 9, 1910.

Application filed April 7, 1909, Serial No. 488,503.

To all whom it may concern:

Be it known that I, BENJAMIN F. McGUINNESS, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Looms, of which the following is a specification.

My invention relates to looms, and particularly to a shuttle positioning mechanism to position a shuttle after it has entered a shuttle box.

The object of my invention is to provide a shuttle positioning mechanism of simple construction and operation, and which may be combined with any ordinary loom having a single stationary shuttle box, or shifting or change shuttle boxes, at one end.

My invention consists in certain novel features of construction of my improvements as will be hereinafter fully described.

In my improvements in shuttle positioning mechanism, I provide a swinging shuttle positioning arm, which has a pivotal motion in a vertical plane, and is yieldingly moved into operative position, so that in case the shuttle positioning arm engages the upper side of a shuttle which has only partially entered the shuttle box, the operating mechanism of said arm will not be damaged or broken. And I also provide mechanism for moving the shuttle positioning arm out of operative position, so that it will be out of the path of the shuttle when the shuttle is picked.

I have only shown in the drawing a detached portion of a loom with my shuttle positioning mechanism applied thereto, sufficient to enable those skilled in the art to understand the construction and operation of the same.

Referring to the drawing:—Figure 1 is a central cross section of detached parts of a loom, with my improvements applied thereto, taken at a point indicated by line 1, Fig. 2, looking in the direction of arrow *a*, same figure. Fig. 2 is a front sectional view, on line 2, 2, Fig. 1, looking in the direction of arrow *b*, same figure, and, Fig. 3 shows some of the parts shown in Fig. 2, in a different position.

In the accompanying drawing, 1 is the loom side or end frame, 2 is the breast-beam, 3 is the lay, 4 the lay-sword, pivotally mounted at its lower end on a stud 5. 6 is

the reed carried on the lay, 7 the hand-rail, 8 a shuttle box, 9 a shuttle. 10 is a crank connector to the crank shaft 11, and 12 is the bottom shaft, driven from the crank shaft 11 through gears, not shown, in the usual way. All of the above mentioned parts may be of the usual and well known construction.

I will now describe my improvements.

At the rear of a single shuttle box is in this instance secured a stand 8', which has in this instance, at its upper end, a hub or bearing 8'' for a rocking pin or shaft 13, which is loosely mounted in said bearing. On the front end of the rocking pin 13 is in this instance secured an arm 14, termed the shuttle positioning arm, which has in this instance an offset engaging end 14', which is adapted to engage the inner end of the shuttle, see Fig. 2. The inner end of the rocking pin or shaft 13 has secured thereon the hub 15' of an arm 15; the end of the arm 15 carries a pin 16, on which is loosely mounted the hub 17' on the upper end of a connector or rod 17. The lower end of the connector or rod 17 carries a pin or stud 18, which in this instance is adjustably secured by a nut 19, in an elongated opening 20' in a lever 20. The lever 20 has its hub 20'' pivotally mounted on a stud 21, see Fig. 2, which is secured to the loom side. The lever 20 has in this instance a projection or lug 20''' thereon, which extends above and is adapted to be engaged by an arm 22' extending out from the hub 22'' of a lever 22. The lever 22 has its hub 22'' loosely mounted, in this instance on the stud 21 secured to the loom side.

A downwardly extending projection 22''' on the hub 22'', has adjustably connected therewith one end of a helically coiled contraction spring 23. The other end of said spring 23 is connected with a hooked extension 20^a on the lever 20. The spring 23 acts to yieldingly hold the extension 22'' on the lever 22, in engagement with the lug or projection 20''' on the lever 20, and forms in this instance a give-way mechanism for the lever 20, in case said lever is prevented from moving by the positioning arm 14 engaging the top of a shuttle which only partially enters the shuttle box. The lever 22 has in this instance a roll 24 on its end, which is adapted to be engaged by the periphery of a cam 25 in this instance fast on the bottom

shaft 12. A helically coiled contraction spring 26 is attached at one end to the lever 22, and its other end to a pin 27 on the loom side 1, and acts to hold the roll 24 on the lever 22 in engagement with the cam 25.

Through the rotation of the shaft 12 and cam 25 thereon, and through the lever 22 and lever 20, an up and down motion is communicated to the connector 17, and through arm 15 and shaft 13, a movement is communicated to the arm 14, to yieldingly move said arm downwardly into the position shown in Fig. 2, to engage the end of the shuttle 9, after it has entered the shuttle box, to move said shuttle outwardly into its proper position, and into engagement with the picker, not shown, so that the loom will not bang off. At the backward movement of the lay, the arm 14 is moved upwardly, through intermediate connections to the cam 25, so that the shuttle is free to be thrown or picked from the shuttle box, as shown in Fig. 3.

The advantages of my improvements will be readily appreciated by those skilled in the art. They are of very simple construction and may be applied to any ordinary loom with one, or more shuttle boxes, at one, or both ends of the loom.

The operation of my shuttle positioning mechanism is entirely independent of the operation of any other parts of the loom, and the positioning arm of said mechanism is so operated, that every time a shuttle enters a shuttle box, the positioning device is yieldingly moved to engage and position the shuttle, and the positioning device is then moved out of the way of the shuttle, to allow of its free movement out of the shuttle box. In case the shuttle 9, only partially enters the shuttle box, then the positioning arm 14

in its downward movement will engage the top of the shuttle and be held by the shuttle, and the continued revolution of the operating cam 25 will in this instance cause the extension 22' on the arm 22 to move downwardly against the action of the helically coiled contraction spring 23, leaving the lever 20 and intermediate connections to the positioning arm 14 stationary.

It will be understood that the details of construction of my improvements may be varied if desired. For instance the roll 24, instead of traveling on the periphery of the cam 25, may travel in a cam groove in one side of said cam, the give-way mechanism, intermediate the levers 20 and 22, allowing of the positioning arm 14 engaging the top of the shuttle, and preventing it from moving, without interfering with the operation of the cam 25 on the roll 24 on the lever 22.

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

In a loom, a shuttle positioning device, located on the lay at one end thereof, at the inner end of a shuttle box, and comprising an arm having a swivel or pivoted movement in a vertical plane, and means for moving said arm to engage the inner end of the shuttle, to position the same, said means comprising a rotary driven cam, a cam lever made in two parts, a spring for yieldingly holding said parts in position, and intermediate connections from said cam lever to said arm.

B. F. McGUINNESS.

Witnesses:

JOHN C. DEWEY,
MINNA HAAS.