(No Model.)

G. F. HUTCHINS.

SWIVEL LOOM.

No. 477,180. Patented June 14, 1892.

Fig. 1.

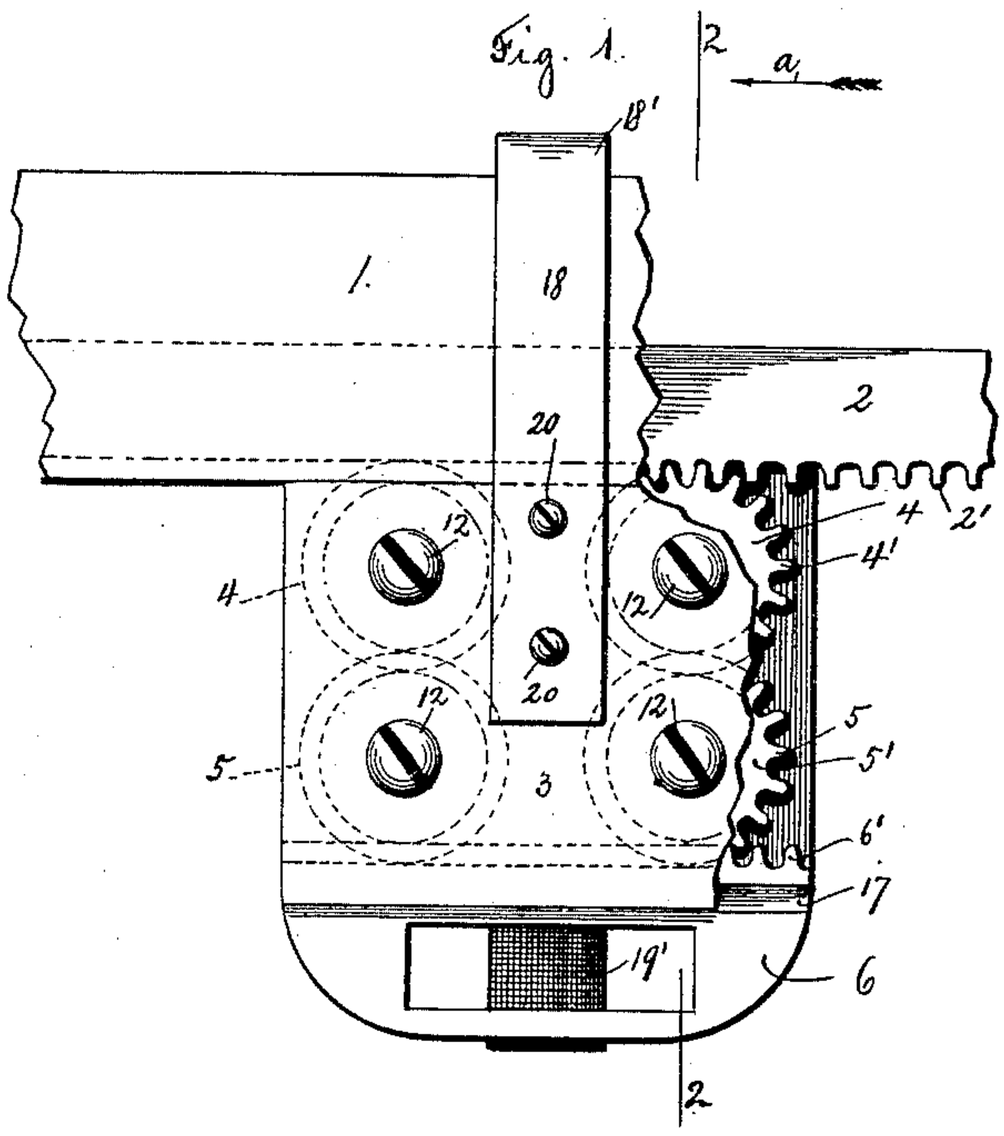
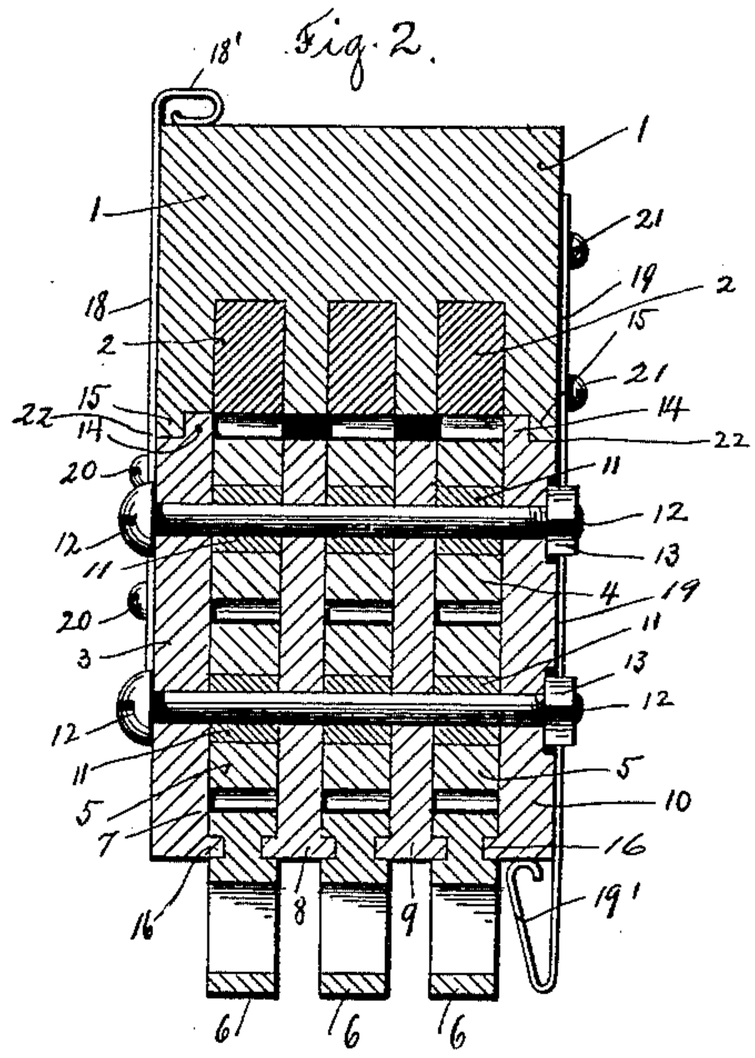


Fig. 2.



Witnesses
Chas. F. Schmeckpeper
John J. Powers.

Inventor
George F. Hutchins,
By his Attorney
John C. Dewey

UNITED STATES PATENT OFFICE.

GEORGE F. HUTCHINS, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO THE KNOWLES LOOM WORKS, OF SAME PLACE.

SWIVEL-LOOM.

SPECIFICATION forming part of Letters Patent No. 477,180, dated June 14, 1892.

Application filed April 25, 1892. Serial No. 430,560. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. HUTCHINS, 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 Swivel-Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to swivel-looms, and more particularly to the swivel-shuttle beam, or that portion of the swivel-shuttle loom in which are supported the swivel-shuttles and their operating mechanism; and the object of my invention is to improve upon the construction of the swivel-shuttle beam and to provide independent swivel-shuttle-carrying blocks in which are supported the swivel-shuttles and pinions for operating the same, which blocks are adapted to be detached from the swivel-shuttle beam proper for the purpose of getting at the swivel-shuttles to change the bobbins or for any other purpose and to be attached thereto.

A further object of my invention is to improve upon the construction of the swivel-shuttle-carrying block as now ordinarily made.

My invention consists in certain novel features of construction of the swivel-shuttle-carrying block and the manner of attaching the same to the swivel-shuttle beam proper, as will be hereinafter fully described.

Referring to the drawings, Figure 1 is a front view, partially broken away, of a detached portion of the swivel-shuttle beam of my improved construction; and Fig. 2 is a cross-section on line 2 2, Fig. 1, looking in the direction of arrow *a*, same figure.

It will be understood that my improvements in the construction of the swivel-shuttle beam of a swivel-shuttle loom are adapted to be used on swivel-shuttle looms in which more than one set of swivel-shuttles are used, the swivel-shuttles being arranged in rows one back of the other and extending in a vertical plane. I have shown in the drawings three rows of swivel-shuttles.

In the accompanying drawings, 1 is a portion of the swivel-shuttle beam, which, it will be understood, is supported above the lay of the loom and adapted to be raised or lowered at the proper time to allow the swivel shuttles to operate and weave in the spots in the fabric in connection with the ordinary fly-shuttle mechanism.

2 are the swivel-shuttle racks, supported in grooves in the under side of the upper part of the swivel-shuttle beam in the ordinary way and adapted to have a reciprocating motion therein by means of any of the well-known mechanisms employed in swivel-looms.

3 is the swivel-shuttle-carrying block, made separate from that portion of the swivel-shuttle beam in which are supported the swivel-shuttle racks 2. In the block 3 are supported in this instance two sets of pinions 4 and 5, arranged one above the other. The upper set of pinions 4 is operated by the rack 2, and the lower set of pinions 5 is operated by the upper set of pinions 4 and in turn operates the swivel-shuttles 6.

I will now describe the construction of the block 3, which supports the pinions and swivel-shuttles, as the same forms one of the features of my invention.

The block 3 is made of four separate pieces or divisions 7, 8, 9, and 10, (see Fig. 2,) the width of which corresponds to the length of the swivel-shuttle. (See Fig. 1.) The four divisions 7, 8, 9, and 10 are separated from each other and held apart to form vertical spaces for the reception of the pinions and swivel-shuttles by small tubes or bushings 11, interposed between them, and the bushings 11 are held in place by screws or bolts 12, which extend through holes in the division 7, 8, 9, and 10 and hold the bushings 11 in place, as clearly shown in Fig. 2. The heads of the screws 12 bear on the outer surface of the front division 7, and the screw-threads on their other ends receive nuts 13, which bear on the outer surface of the back piece 10. The bushings 11 are held stationary between the divisions 7, 8, 9, and 10 and form distance-

pieces between the divisions of the block and serve as journals or bearings for the pinions 4 and 5, which turn freely and are loose on said bushings 11. The thickness of the pinions 4 and 5 is a little less than the length of the bushings 11 between the divisions 7, 8, 9, and 10, so as to allow the pinions to revolve freely in the spaces between said divisions. In the block 3 the outer divisions 7 and 10 are made a little longer than the intermediate divisions 8 and 9 and are notched at their upper ends on their outer surface at 14 to receive a corresponding tongue or projection 15 on the lower outer edges of the shuttle-beam 1. (See Fig. 2.)

The lower ends of the divisions 7, 8, 9, and 10 of the block 3 are provided with tongues or flanges 16, which extend into grooves 17 in the swivel-shuttles 6 in the ordinary way.

It will be understood that the teeth 2′ of the racks 2 mesh with the teeth 4′ of the pinions 4, and that the teeth 4′ of the pinions 4 also mesh with the teeth 5′ of the pinions 5, which in turn mesh with the teeth 6′ on the swivel-shuttle 6.

By means of the notches 14 in the upper outer edges of the block 3 and the corresponding tongues 15 on the lower outer edges of the swivel-shuttle beam 1 the block 3 is fitted to the swivel-shuttle beam and is of the same thickness as the swivel-shuttle beam. (See Fig. 2.)

I prefer to attach the block 3 to that portion of the swivel-shuttle beam which carries the swivel-shuttle racks 2 by the spring hooks or catches 18 and 19, one of which, as 18, is secured at its lower end to the central portion of the block 3, at its front side, by screws 20 or otherwise and is provided with a bent end or hook 18′ at its upper end, which is adapted to extend over and engage the upper front edge of the swivel-shuttle beam. The second spring 19 is secured at its upper end to the back side of the swivel-shuttle beam 1 by screws 21 or otherwise and is provided with a bent end or hook 19′ at its lower end, which is adapted to extend over and engage the lower inner edge of the block 3, as clearly shown in Fig. 2.

It will be seen that by bending outwardly the hooked end of either of the springs 18 and 19 the block 3 may be detached from the swivel-shuttle rail 1 along the line of division 22 and removed for the purpose of getting at the swivel-shuttles 6 or for any other purpose.

The advantages of my improved construction of the independent carrying-blocks or supports for the swivel-shuttles and their operating-pinions and the manner of combining the same with the swivel-shuttle beam will be readily appreciated by those skilled in the art.

The swivel-shuttle block can be quickly and readily made and is easily put together, as will be seen by referring to the drawings, for it is only necessary to insert the bushings 11 into the hubs of the pinions 4 and 5 and then place the pinions with the bushings between the divisions 7, 8, 9, and 10, which have previously had holes bored therein for the reception of the holding bolts or screws 12, and then pass the holding-screws 12 through the bushings 11 and bind all the parts together by the nuts 13. By making the swivel-shuttle block entirely separate from the swivel-shuttle beam proper and attaching the same thereto by means of the spring hooks or catches 18 and 19 the swivel-shuttle block can be quickly and readily detached from the swivel-shuttle beam to obtain access to any one of the swivel-shuttles in the block without changing the position of the swivel-shuttle beam proper and without moving any of the other swivel-shuttles except those contained in the block which is removed.

It will be understood that the details of construction of the swivel-shuttle beam and the swivel-shuttle block may be varied somewhat from what is shown and described, if desired. For instance, only one set of pinions may be used in the shuttle-block.

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

1. In a swivel-shuttle loom, the combination, with the block or support for the swivel-shuttles made separate from the swivel-shuttle beam and adapted to be detached therefrom and attached thereto, of means for attaching said block to the swivel-shuttle beam, consisting of spring hooks or catches, substantially as set forth.

2. In a swivel-shuttle loom, the combination, with the upper part of a swivel-shuttle beam in which are supported the swivel-shuttle racks, of the block or support in which are supported the swivel-shuttles and their operating-pinions, said block made separate from the upper part of the swivel-shuttle beam and attached thereto in the manner substantially as set forth and consisting of two or more separate pieces forming divisions in the block, with bushings which form distance-pieces between the divisions of the block interposed between them, upon which bushings are supported and turn the pinions, and bolts or screws passing through said divisions and bushings to bind the parts of the block together, substantially as set forth.

3. A swivel-shuttle block or support for supporting two or more swivel-shuttles and their operating-pinions, consisting of two or more separate pieces forming the divisions in the block, with spaces between them for the pinions and the swivel-shuttles, and bushings inserted in said spaces in the hubs of the pinions to form distance-pieces between the divisions of the block and to act as journals or bearings for the pinions, and bolts or screws passing through said divisions and bushings to bind the parts of the block together, and means for attaching the block to the rack portion of the swivel-shuttle beam, substantially as set forth.

4. The combination, with the swivel-shuttle beam, of the independent swivel-shuttle-carrying block consisting of two or more separate pieces forming divisions in the block, with bushings interposed between said divisions, which serve to hold said divisions apart and form distance-pieces between the same and act as journals or bearings for the pinions, and bolts or screws passing through said divisions and bushings to bind the parts of the block together, substantially as set forth.

GEORGE F. HUTCHINS.

Witnesses:
JOHN C. DEWEY,
JOHN J. POWERS.