

(No Model.)

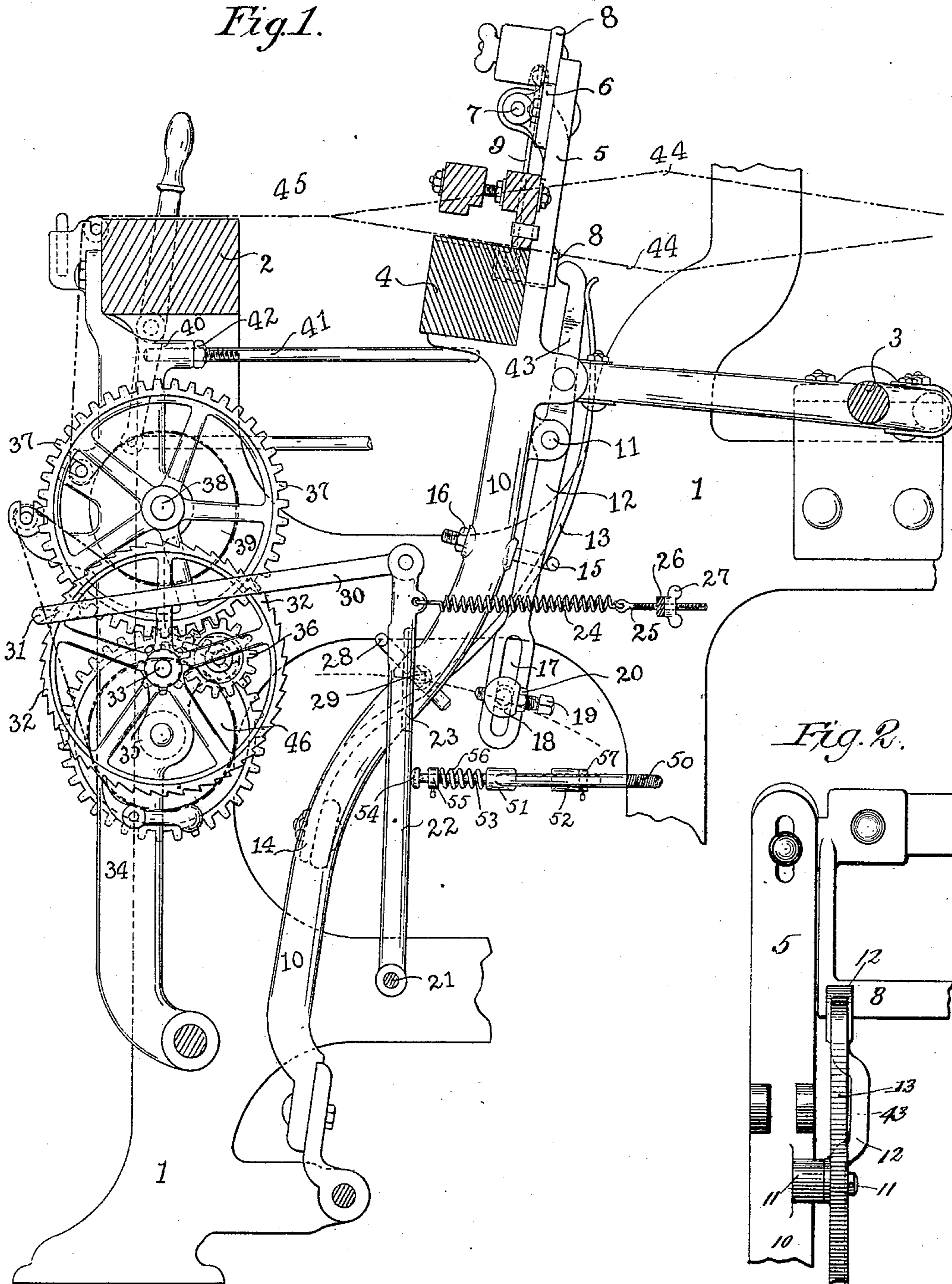
W. J. LUTTON.

TAKE UP MECHANISM FOR LOOMS.

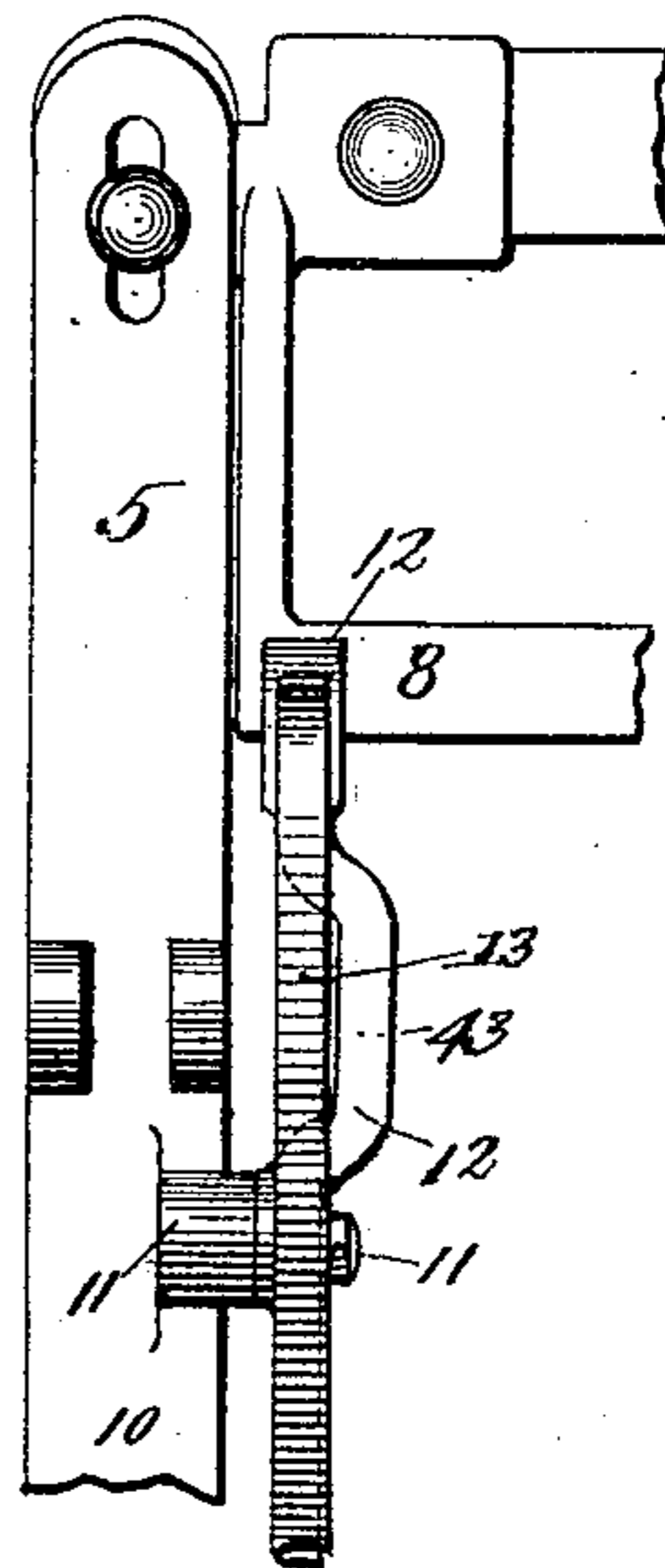
No. 397,086.

Patented Jan. 29, 1889.

*Fig. 1.*



*Fig. 2.*



WITNESSES:  
*Clarence Schofield*  
*Wm. L. Chase*

INVENTOR,  
*William J. Lutton,*  
By *John C. Drury*  
Attorney.

# UNITED STATES PATENT OFFICE.

WILLIAM J. LUTTON, OF PATERSON, NEW JERSEY.

## TAKE-UP MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 397,086, dated January 29, 1889.

Application filed April 30, 1888. Serial No. 272,294. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM J. LUTTON, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Take-Up Mechanism for 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 looms, and more particularly to a take-up mechanism for looms using a spring-reed. The object of my invention is to provide a mechanism by which, even in very delicate weaving, the speed of the take-up roll can be governed by the texture of the goods woven, the variation being regulated by the movement of the spring-reed in beating up, in the manner to be hereinafter fully described.

Referring to the drawings, Figure 1 represents a section of a loom to which my improvements are applied, the section being taken just inside one loom side and looking toward the other; and Fig. 2 represents a detail view, looking from the right in Fig. 1.

In the accompanying drawings, 1 is a portion of the loom-side; 2, the breast-beam; 3, the crank-shaft, and 4 the lay. Bolted to the horns 5 of the lay are stands 6, one on each end, to which is pivoted, at 7, the swinging frame 8, in which the reed 9 is carried.

On the back side of the lay-sword 10, at 11, is pivoted a lever, 12, the upper end of which bears against the lower part of the swinging reed-frame 8, being kept in contact with said frame by the flat spring 13, the upper end of which engages the upper end of the lever 12 and the lower end of which is bolted to the lay-sword 10 at 14. As usually constructed the flat spring 13 bears directly on the swinging reed-frame 8 without the intervention of the lever 12, and this is the case in my construction on the opposite end of the lay. An adjustable hook-bolt, 15, passes through the lay-sword 10 and confines the spring 13, said bolt 15 being held in position to give the required tension on said spring 13 by means of the nut 16. The lower end of lever 12 has a

slot, 17, therein, in which is confined, by means of a flat shank and nut, the stud 18, through which is threaded the set-screw 19, held in any desired position by the check-nut 20.

On a stud, 21, fast in the loom-side, is pivoted the lower end of a lever, 22, which is provided with a flange, 23, opposite the slot 17 in lever 12, against which flange the end of set-screw 19 may strike when the lay-sword 10 and the lever 22 are swung into proper position. A spiral spring, 24, acts upon the upper end of the lever 22, one end of said spring being secured thereto and the other end connected to an eyebolt, 25, which passes through an ear, 26, cast on the loom-side, and is held by a thumb-nut, 27, by means of which the tension of the spring 24 may be regulated. An adjustable hook, 28, passes through the lay-sword 10 and is fastened by a set-screw, 29. Said hook 28 is adapted to engage the lever 22 on the opposite side from the set-screw 19.

Fast to the loom-side is a stand, 50, carrying two hubs, 51 and 52, through which slides a rod, 53, provided with a head, 54, on its forward end. The stand 50 is so made that the center of rod 53 comes in line with the center of lever 22. Confined by set-screw on the rod 53 is a collar, 55, between which and hub 51 is a coil-spring, 56, on the rod 53. On the rear end of rod 53 is a collar, 57, confined by a set-screw. By means of the two collars 55 and 57 the tension of the spring 56, and also the distance which the head 54 projects from the stand 50, may be adjusted.

To the upper end of the lever 22 is pivoted an arm, 30, carrying a pawl, 31, on its outer free end, which engages the teeth of the ratchet-wheel 32, mounted on a stud, 33, fast in the take-up-roll stand 34.

On the hub of the ratchet-wheel 32 is secured a pinion, 35, which engages an intermediate pinion, 36, also mounted on a stud fast in the take-up-roll stand 34. The pinion 36 meshes with the gear 37, fast on the end of the shaft 38, on which is fastened the take-up roll 39. The take-up roll 39 is of the proper length to receive the width of the goods desired to be woven, and the shaft 38, upon which said roll 39 is mounted, projects from each end thereof, and is supported in two stands, 34, secured to the loom-side, the gear-

ing for operating the take-up roll being placed outside the stands 34.

Upon the upper ends of stands 34 are hubs 40, into which are screwed rods 41, which project out under the lay 4 and are fastened in any desired position by a check-nut, 42. The length of the rods 41 is such, and they are so placed, that when the lay beats up the projecting points engage the springs 13 and push them out of contact with lever 12 and reed-frame 8 a distance determined by the adjustment of rod 41 in its supporting-hub 40 on stand 34. The lever 12 has a bend or curve in it at a point, 43, to allow the rod 41 to pass by it and engage the spring 13.

The dotted lines 44 represent the lines of warp with the shed open, and 45 represents the cloth passing over the breast-beam 2 around the take-up roll 39, and to the cloth-winding roll 46, which is driven in the usual manner by gearing from the take-up roll, the gears being placed on the opposite end of the take-up-roll shafts from the train of gearing 35, 36, and 37.

From the above description, in connection with the drawings, the operation of my improved take-up mechanism will be readily understood by those skilled in the art, and is as follows:

The several parts being in the position shown in the drawings, the shuttle is thrown, laying a shot of filling in the shed, and the lay beats up. When the lay gets nearly up, and before the filling begins to meet appreciable resistance in going into the cloth, the projecting ends of the rods 41 engage the springs 13 and relieve the reed-frame 8 and the lever 12 of their pressure.

The adjustable hook 28, which determines the position in which the lever 22 is left by the lay, and the set-screw 19 are so placed that about the time the rods 41 engage the springs 13 the point of the set-screw 19 engages the flange 23 on lever 22, bringing the tension of the spiral spring 24 to bear on the reed-frame 8 through lever 12. The spring 24 is adjusted by thumb-nut 27 to the desired tension, regulating the amount which the reed-frame springs back in beating the filling into the cloth to the desired texture. The more the reed springs back the farther the point of set-screw 19 throws the lever 22 forward, and the more teeth are taken by pawl 31 on the ratchet-wheel 32. When the lay goes back, the lever 22 is pushed or drawn by hook 28 over to the same point every time, turning the take-up roll 39, through the train of gearing 35, 36, and 37, an amount proportioned to the spring of the reed. The throw of the pawl 31 may be further regulated by the position of the set-screw 19 in the slot 17 in the lever 12, the moving of it down increasing the throw of the pawl for the same movement of the reed.

It will be observed that the pressure of springs 13 is taken off the reed by the rods

41 just as the pressure of spring 24 is applied. The reason for this is, that a pressure of the reed-frame which is sufficient to hold the reed up rigid for the passage of the shuttle while the lay is passing the back center is not delicate enough on some goods to weigh the resistance of the filling going into the cloth.

A trifling tremor of the reed while the shuttle is passing is sufficient to cause it to miss going squarely into the box.

The purpose of the spring-rod 53 is to serve as a stop for the lever 22 to prevent its being drawn by spring 24, or otherwise, beyond the point to which it is carried by hook 28, the rod 53 being adjusted so that its head 54 engages lever 22 just as hook 28 ceases to push lever 22 back. The spring 56 is of sufficient strength to prevent moving of lever 22 by spring 24 independent of the action of the hook 28. The parts are usually so adjusted that spring 56 does not act, it merely preventing breakage in case of imperfect adjustment.

Usually the tension of the goods being woven over the take-up rolls is sufficient to hold lever 22 at the point to which it is pushed by hook 28, and the spring-rod 53 might be dispensed with, except in very light work.

It will be understood that the details of construction of the several parts of my improved take-up mechanism may be varied somewhat from what is shown and described, if desired, without departing from the principle of my invention.

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

1. In a spring-reed loom, the combination, with the lay, the reed, and the spring 13, of a lever actuated by said spring, pivoted on the lay-sword, and the lay-sword, rod 41, adjustable hook 28 and means for adjusting said hook, lever 22, spring 24, and a pawl for operating the ratchet-wheel 32, and said ratchet-wheel, for the purpose stated, all combined and operated substantially as shown and described.

2. In a spring-reed loom, the combination, with a ratchet-wheel for operating the gearing that revolves the take-up roll, and a pawl for operating said ratchet-wheel pivoted on a lever, and said lever, and a spring, 24, connected therewith, of the lay, the lay-sword, the reed-springs 13, rods 41, hook 28, and a lever pivoted on the lay-sword and provided with a set-screw adjustable in a slot in the end of said lever, for the purpose stated, substantially as shown and described.

3. In a spring-reed loom, the combination, with the lay, the reed, and the springs 13, of a lever pivoted on the lay-sword, and the lay-sword, rods 41, hook 28, set-screw 19, lever 22, pivoted to the loom-side and attached to a spring, 24, and said spring, and a pawl adapted to operate the ratchet-wheel 32, and said

ratchet-wheel to drive the take-up gearing of the loom, substantially as shown and described.

4. In a spring-reed loom, the combination,  
5 with the lay, the reed, and the springs 13, of a lever pivoted on the lay-sword, rods 41, hook 28, stop for said lever, and a pawl adapted to

operate the ratchet-wheel 32, and said ratchet-wheel to drive the take-up gearing of the loom, substantially as shown and described. 10  
WILLIAM J. LUTTON.

Witnesses:

W. H. BALDRED,

W. H. WILLIAMS.