

(No Model.)

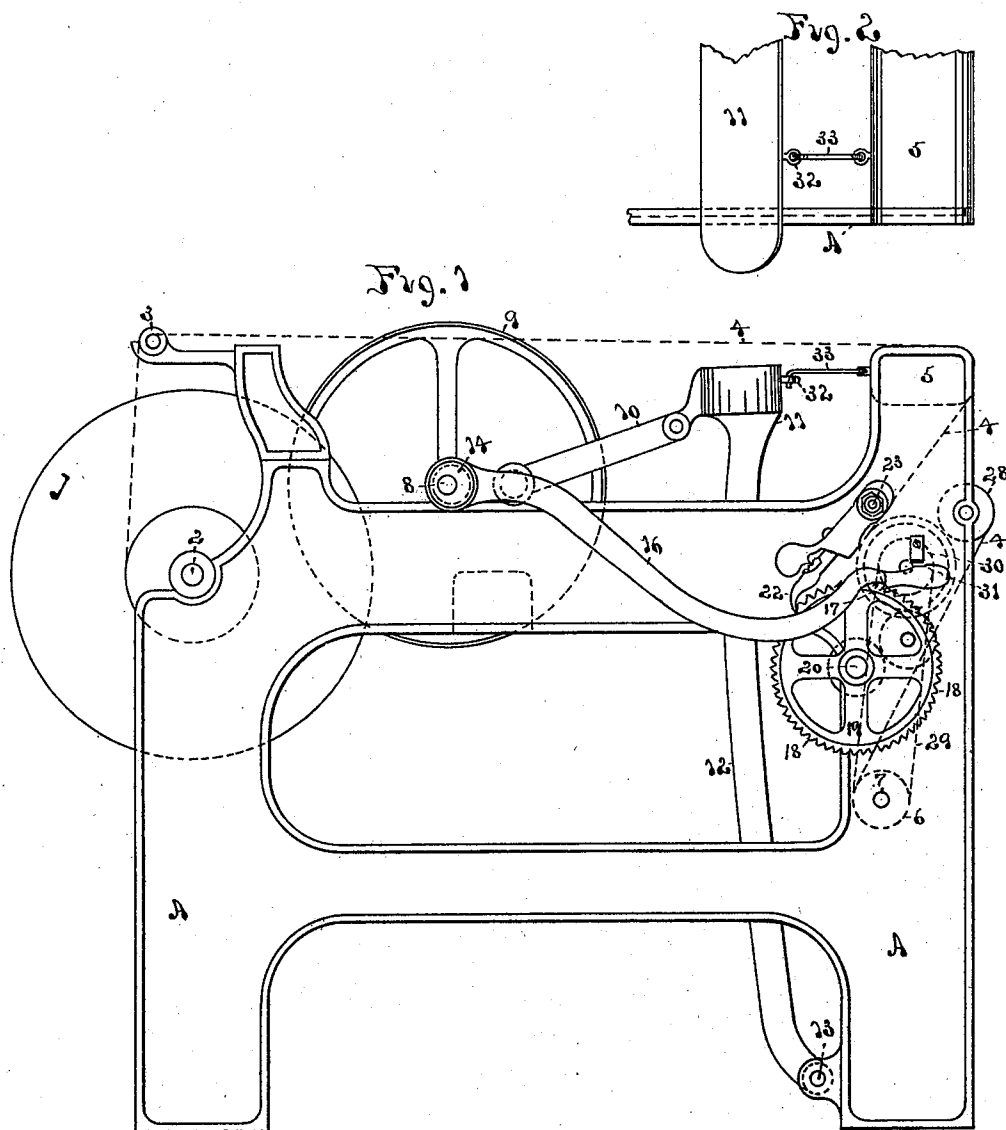
2 Sheets—Sheet 1.

O. A. SAWYER & M. M. LAHUE.

TAKE-UP MECHANISM FOR LOOMS.

No. 506,264.

Patented Oct. 10, 1893.



Witnesses

*Wm. D. Brown*  
*A. P. Ockington*

Inventors:

*Owen A. Sawyer*  
*Moses M. Lahue*  
*By David Hall Rice*  
*Atty.*

(No Model.)

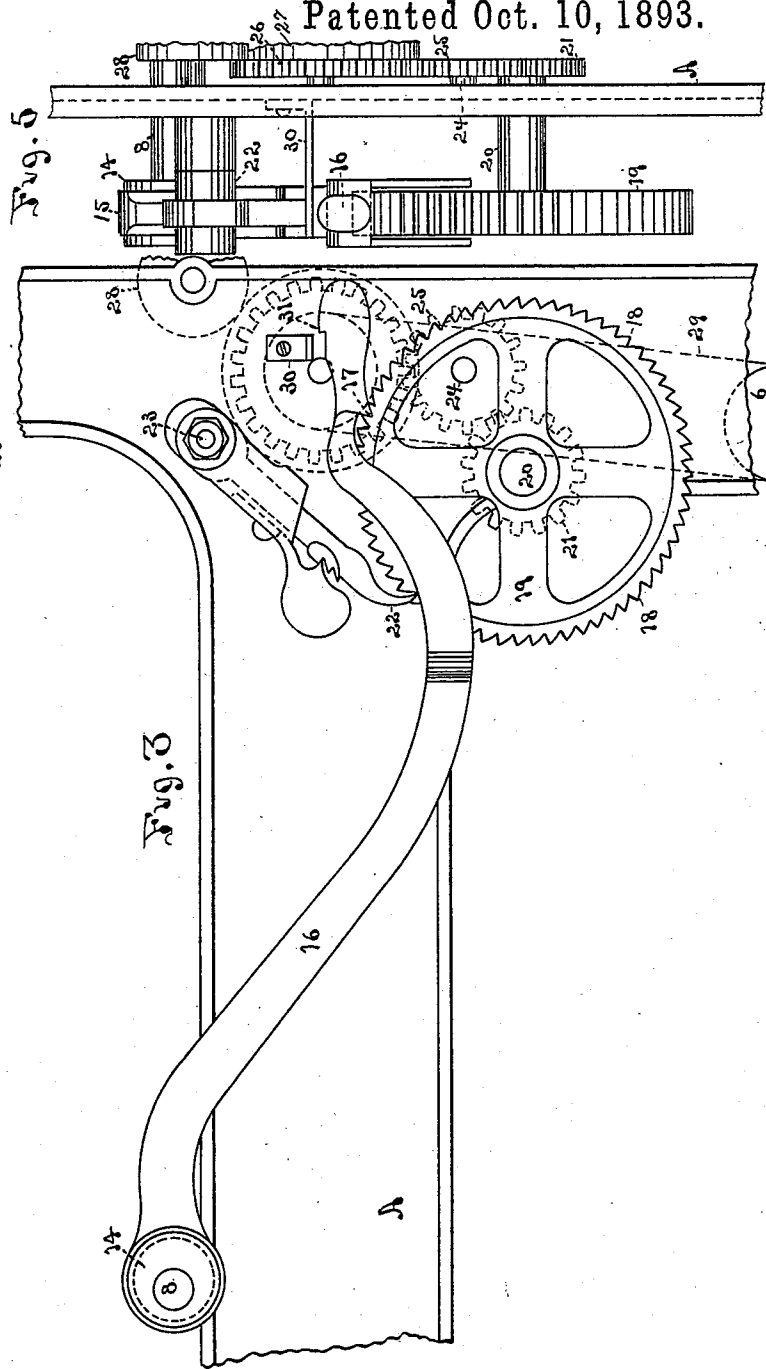
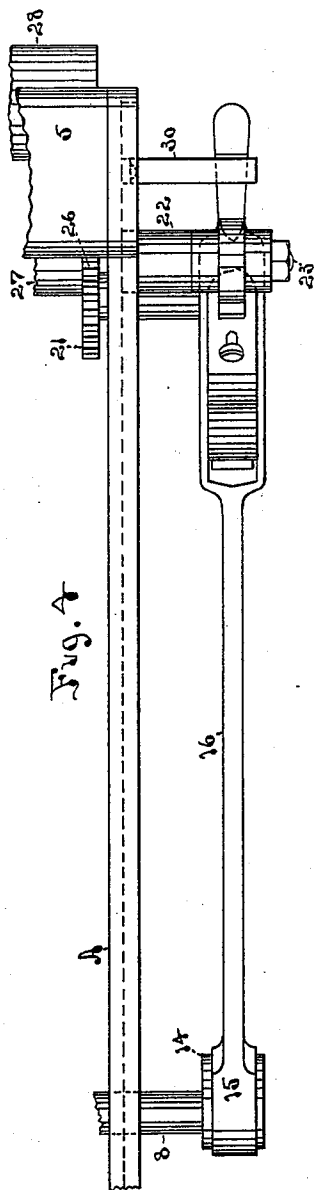
2 Sheets—Sheet 2.

O. A. SAWYER & M. M. LAHUE.

TAKE-UP MECHANISM FOR LOOMS.

No. 506,264.

Patented Oct. 10, 1893.



Witnesses

Wm. E. Brown

A. P. Ockington.

Inventors.

Oren A. Sawyer

Moses M. Lahue

By David Hall Rice  
Atty

# UNITED STATES PATENT OFFICE.

ORREN A. SAWYER AND MOSES M. LAHUE, OF LOWELL, MASSACHUSETTS.

## TAKE-UP MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 506,264, dated October 10, 1893.

Application filed December 4, 1890. Serial No. 373,546. (No model.)

*To all whom it may concern:*

Be it known that we, ORREN A. SAWYER and MOSES M. LAHUE, of Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Take-Up Mechanisms for Looms, of which the following is a specification.

Our improvement relates to take-up mechanisms for looms, and consists in certain new and useful constructions and combinations of the several parts thereof substantially as hereinafter described and claimed.

In the drawings: Figure 1 is an end elevation of a portion of a loom showing our invention applied thereto. Fig. 2 is a top plan view of a portion of Fig. 1, showing the mode of regulating the place of stopping the loom. Fig. 3 is an enlarged view of a portion of Fig. 1, showing the construction of the mechanism more distinctly. Fig. 4 is a top plan view of a portion of the loom shown in Fig. 3. Fig. 5 is an end elevation of the part shown in Fig. 4.

A is the frame of the loom which supports the running parts.

1 is the warp beam, revolving on the shaft, 2, supported in the frame in the usual manner. A roller, 3, is located in the frame above the warp beam, over which the dotted line 4 shows the course of the warp leading from the warp beam to the breast beam, 5, of the loom. Between the roller 3 and the breast beam 5, the warp is woven into cloth and the continuation of the dotted line, 4, shows the cloth leading around the sand roll and cloth roll to the cloth beam, 6, around which it is rolled by the revolution of the latter on its axis 7.

The main shaft, 8, of the loom is driven by the pulley, 9, and operates the link, 10, by a crank upon it, which is attached to the lay, 11, and the latter is supported upon the sword, 12, pivoted in the usual manner at 13. The heddles and the reed and other parts of the loom connected to the lay are omitted for the sake of clearness, as they form no part of the present invention. On the nearer end of the shaft 8 is attached the cam, 14, which is surrounded by the strap, 15, connected to the end of the pawl bar, 16, so that the latter is reciprocated back and forth by the revolution of the main shaft. The handle

end of the pawl bar carries the pawl, 17, which works into the ratchet teeth, 18, of the wheel 19. The latter is supported upon the shaft, 20, which is journaled in the side of the loom frame and has on its inner end the gear wheel, 21. A stop pawl, 22, is pivoted to the side of the loom frame on the stud, 23, and serves to hold the gear wheel, 19, in place while the pawl 17 is moving forward over it to take up another notch. The pawl-bar, 16, is formed in the shape of an open loop passing on each side of the gear wheel, 19, where it is carried by the same before reaching the pawl 17 and this serves to guide it in its direct reciprocal motion to and fro. A stud, 24, in the frame supports the pinion, 25, which meshes into the pinion, 26, on the end of the sand roll, 27, and the latter rolls against the surface of the cloth roll, 28, revolving the latter with it by friction.

The cloth beam, 6, is revolved by the belt, 29, (shown in dotted lines in Fig. 1) connecting a pulley on its farther end with one on the farther end of the sand roll. All these parts are of the usual construction and the reciprocation of the pawl bar, 16, longitudinally serves to take up and draw forward one of the notches, 18, at each revolution of the main shaft, 8, in the usual manner, thus taking up and winding the cloth upon the cloth beam, 6, as it is woven by the loom.

It is the habit of some weavers while the loom is running, to turn the ratchet wheel 19 by hand at intervals, so as to make the take-up mechanism take up the cloth faster than the normal speed of it, thus making the loom turn out more cloth per day, although the cloth where so taken up faster is turned out without the proper number of picks per inch and is of inferior quality. The weaver is thus benefitted at the expense of the manufacturer, as he is usually paid by the piece, or amount woven. Our improvements are intended to prevent this being done, and are based upon the fact that this abnormal moving of ratchet wheel, 19, can only be effected (without immediately showing its results in the cloth by casual observation), when the loom is in motion. If done when the loom is in motion the action of the lay distributes the less number of picks so evenly over a given space, of say one inch in length of the cloth, as to render

it difficult of detection without counting all the picks in the cloth, which is practically impossible. When the ratchet wheel, 19, is abnormally turned while the loom is standing still, however, the space where the pick is wanting in the cloth is immediately visible, as the less number of picks are not evenly distributed over the given space.

To prevent the ratchet wheel 19 from being abnormally moved while the loom is running, it is only necessary to prevent the pawl 17 from being lifted clear of the teeth, 18, of the wheel 19, since the pawl must be lifted over each notch to allow the wheel to be so turned by hand. We, therefore, attach to the loom frame the stop, 30, so located above the free end of the pawl bar, 16, that any attempt to lift the pawl bar while the loom is running will bring it against the stop before the pawl has been lifted out of the notches 18. As the pawl bar must lift itself over each notch 18 to take up the next one, however, provision must be made for this, but the extreme lifting of the pawl bar occurs at the farthest point of its reach to take up the next notch 18 of wheel, 19. We, therefore, provide a shoulder, 31, on the side of the pawl bar, which passes under the stop, this projection being so graduated as to allow the pawl bar to lift over the notch 18 at this extreme point of its normal motion in the running of the loom, but if the pawl bar be attempted to be lifted at any other point of its reciprocation, the shoulder 31 comes against the lower side of the stop, 30, and prevents it.

While it is theoretically possible for the operator of the loom to turn the ratchet wheel 19 an extra tooth at the precise instant when the position of the shoulder, 31, allows the pawl bar to be lifted over the teeth, yet, as the loom runs from sixty to one hundred and twenty picks per minute and the main shaft 8 makes that number of revolutions, the en-

tire reciprocation of the pawl bar 16 to and fro occupies between one-half a second and a second of time, and the fraction of this at which the wheel 19 can be turned the extra tooth is too slight to render it practicable to do so without carrying the square side of the shoulder 31 against the stop, 30, and breaking it, thus exposing the attempt.

When the loom is stopped it is often necessary for the operator to slack off the cloth take-up mechanism, by turning the wheel 19 by hand. This requires, with our present invention, that the loom should be stopped when the pawl bar, 16, is at the farthest position in taking up, shown in Figs. 1 and 3, at which position the pawl bar may be freely lifted, because the shoulder 31 will pass by the stop 30. While the operator can stop the loom at this point, we have found it more convenient to attach an eye, 32, to the lay and a pivoted hook, 33, to the breast beam, arranged of the proper length to hook into the eye 32 and bring the lay, the driving shaft 8 and the reciprocating pawl bar, 16, to the proper position to enable the pawl to be lifted out of the teeth, 18, as before described.

What we claim as new and of our invention is—

The combination, in a loom take-up mechanism, of the reciprocating pawl bar, 16, provided with the pawl, 17, and the shoulder, 31, the ratchet wheel 19, provided with ratchet teeth, 18, and the stop, 30, located in position to arrest the raising of the pawl bar 16, except during the farther part of its movement in taking up, substantially as described.

ORREN A. SAWYER.  
MOSES M. LAHUE.

Witnesses:

GEORGE W. POORE,  
JOHN W. PEARL.