3 Sheets--Sheet 1.

J. BALDWIN, Jr.

Machines for Weaving Window-Shades.

No. 153,417. Patented July 28, 1874.

Fig. 1.

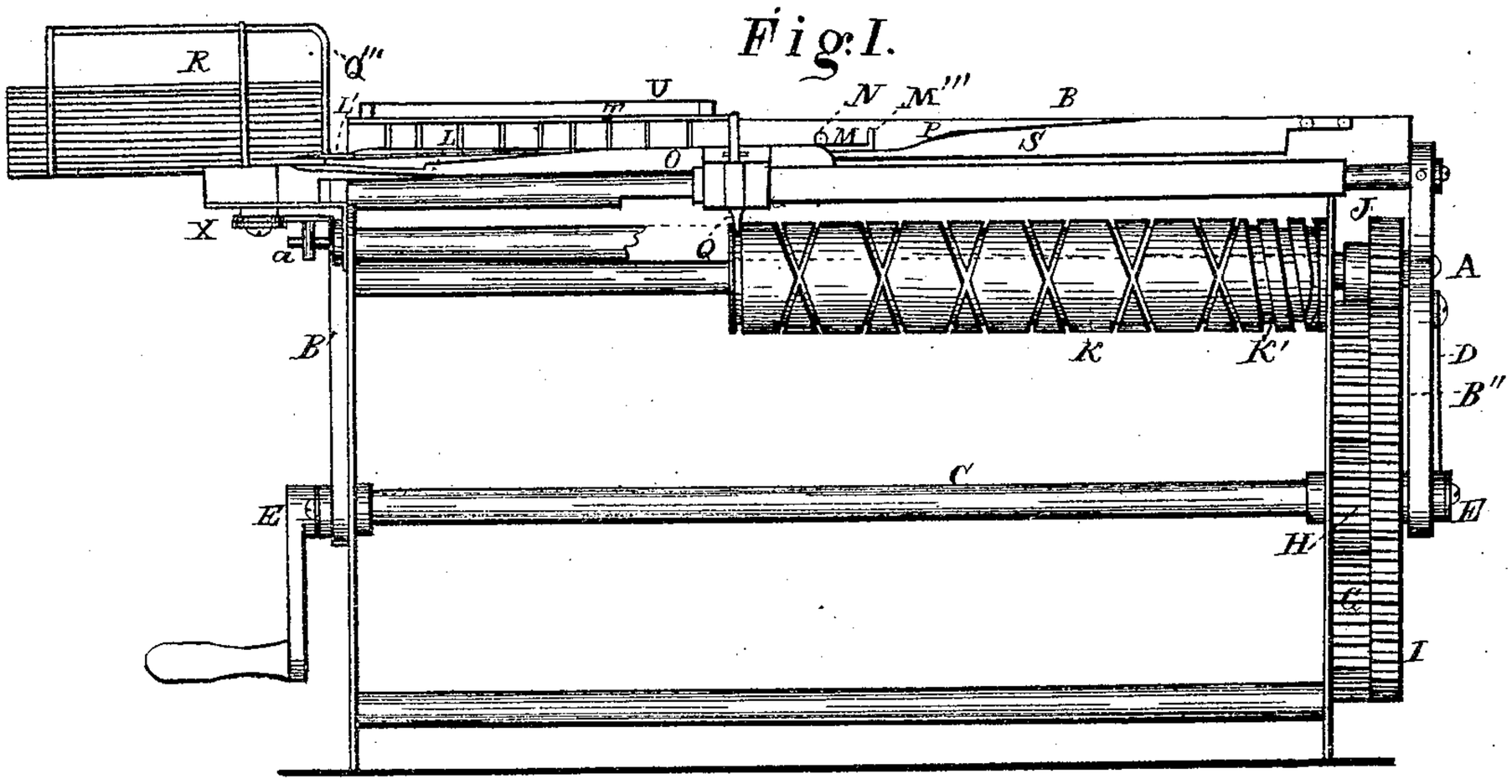


Fig. 2.

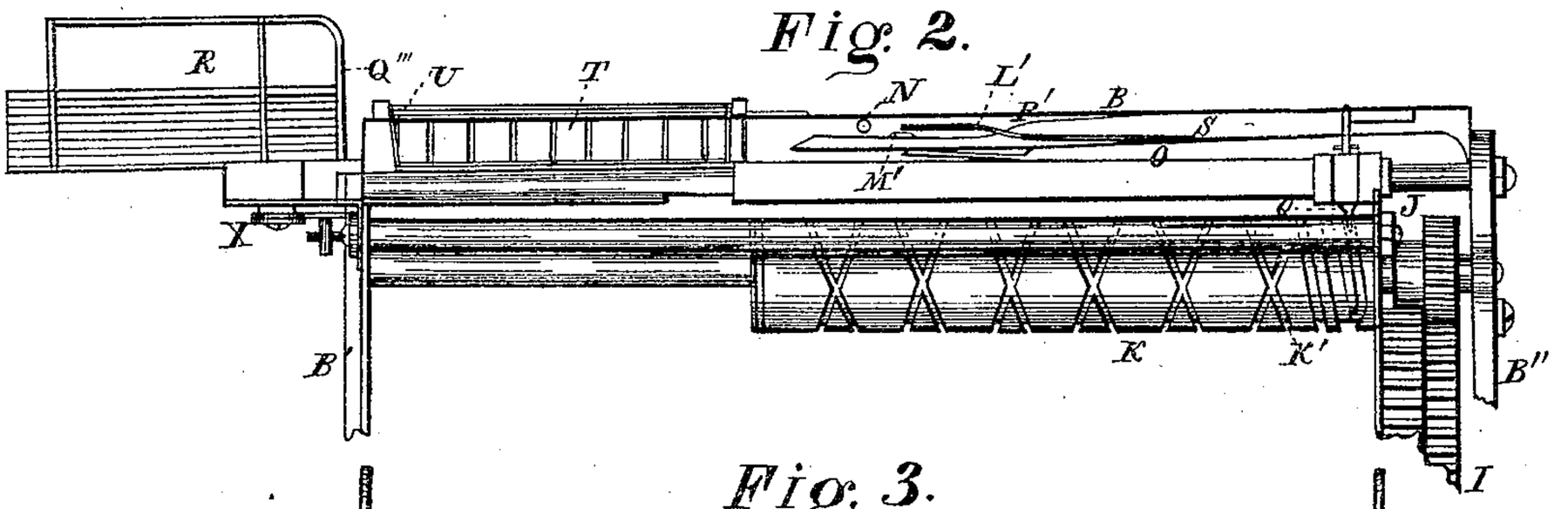
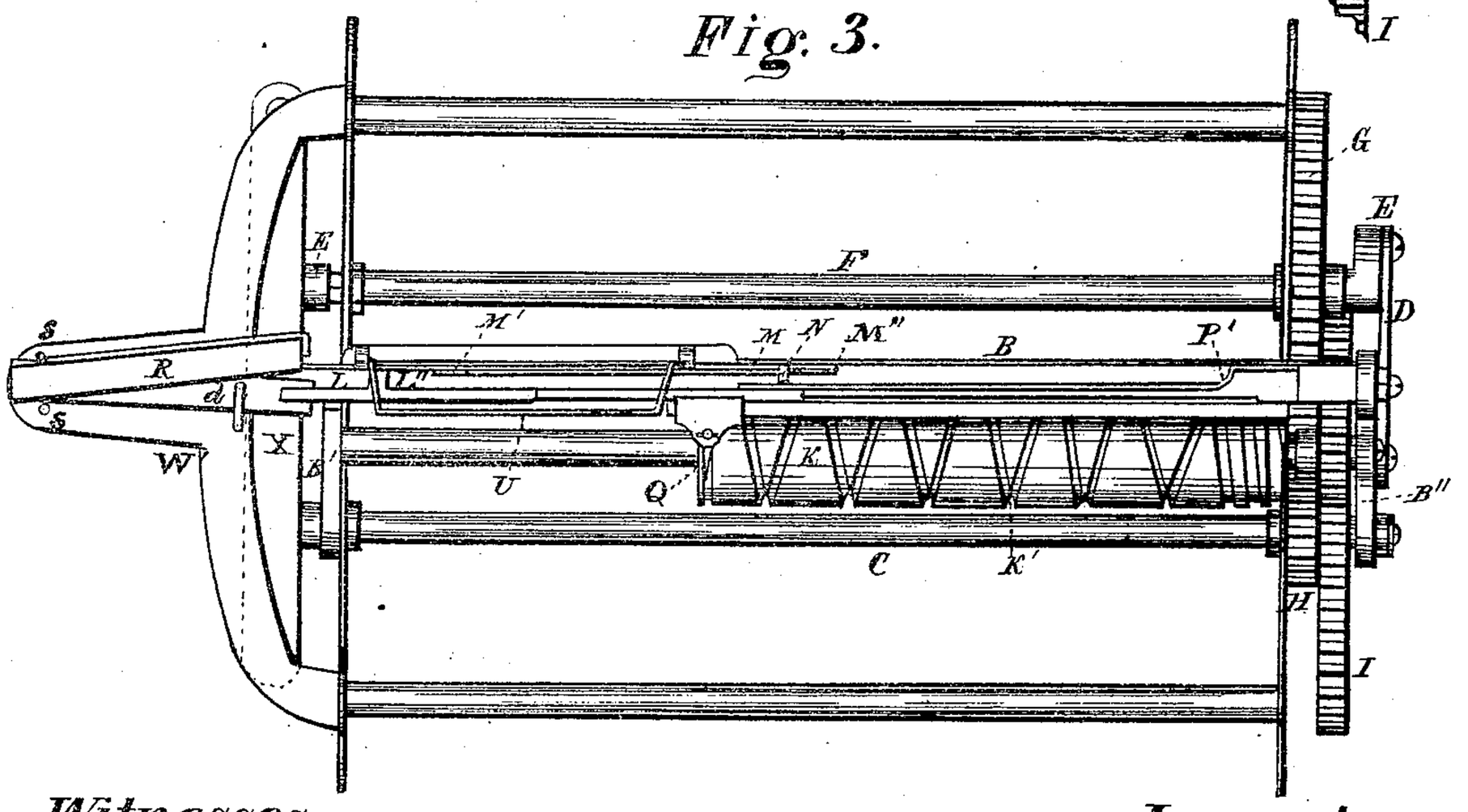


Fig. 3.



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3 Sheets--Sheet 2.

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Machines for Weaving Window-Shades.

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Fig: 4.

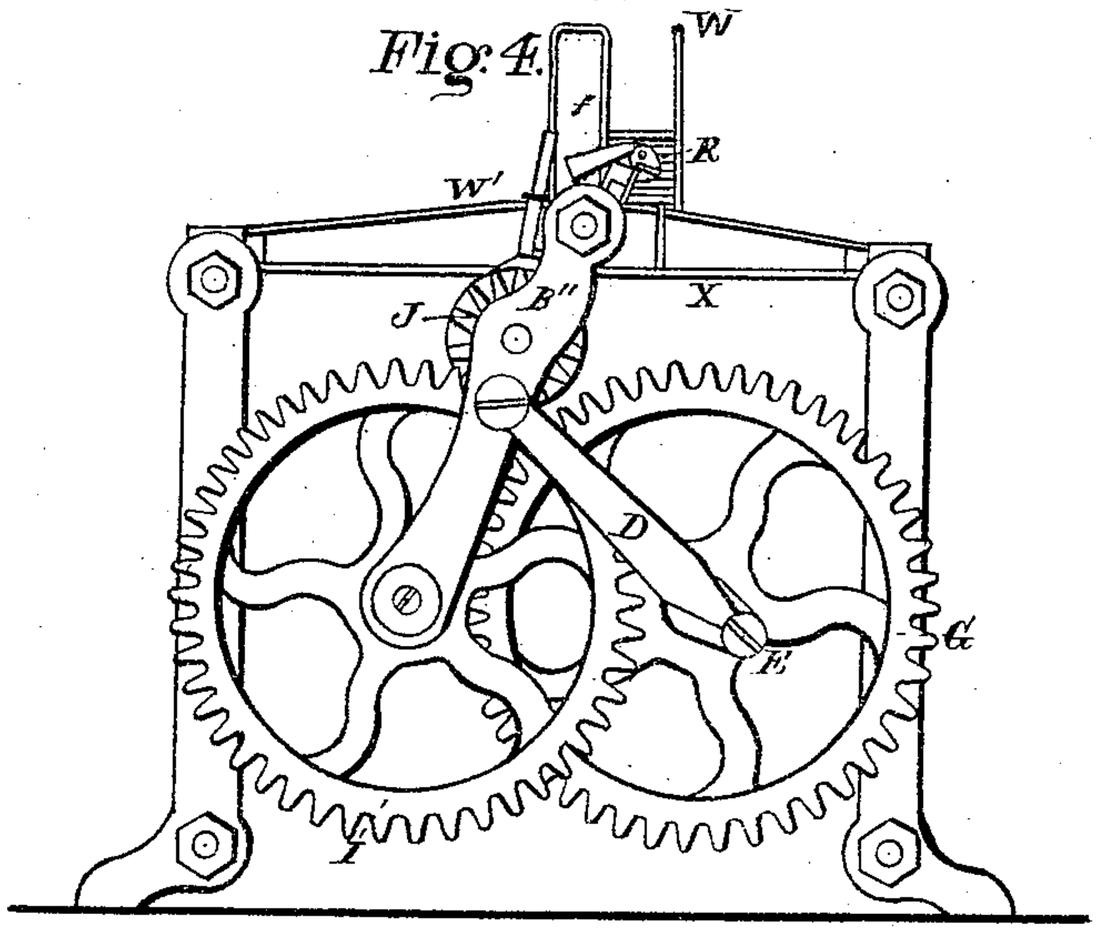


Fig: 5.

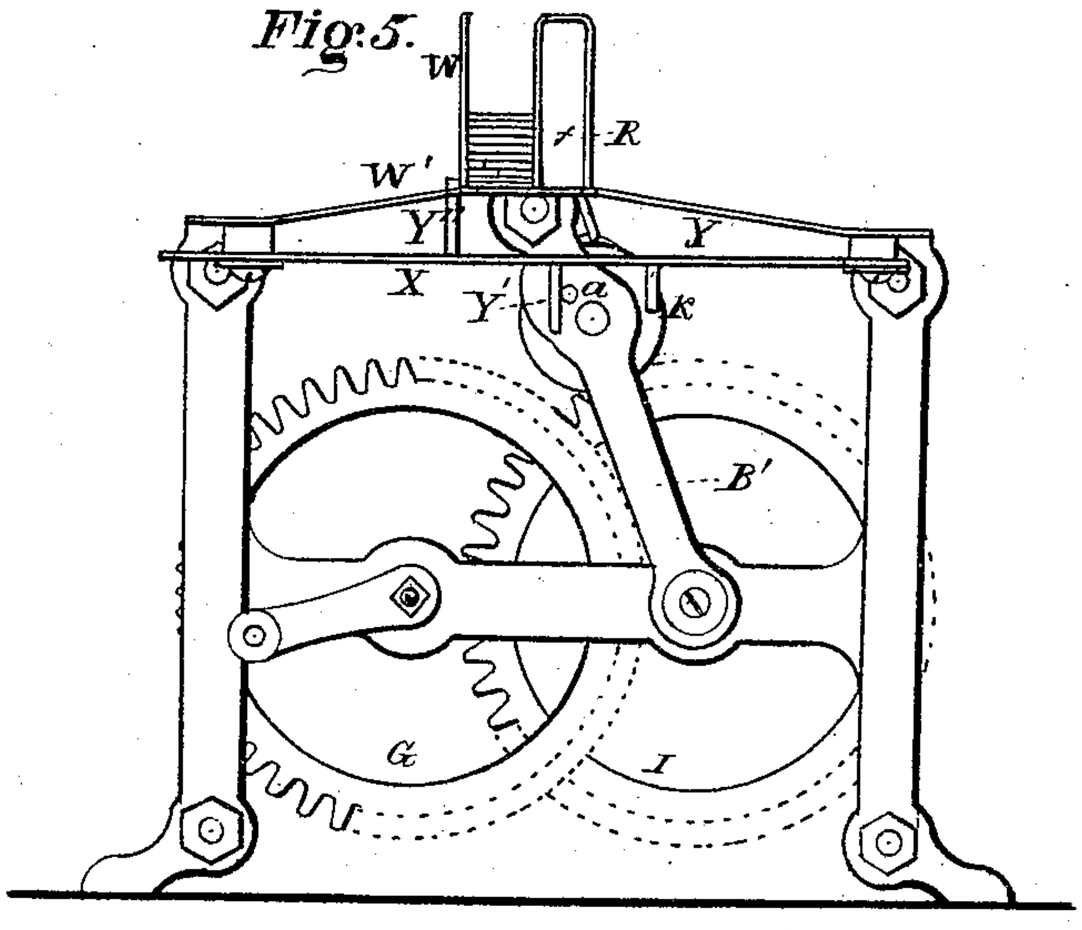


Fig: 6.

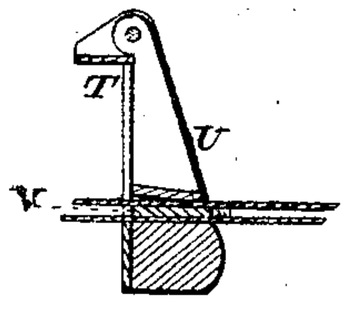
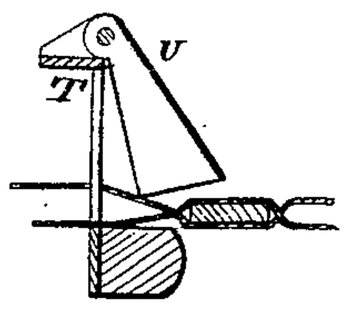


Fig: 7.



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THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

3 Sheets--Sheet 3.

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Machines for Weaving Window-Shades.

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Fig. 8.

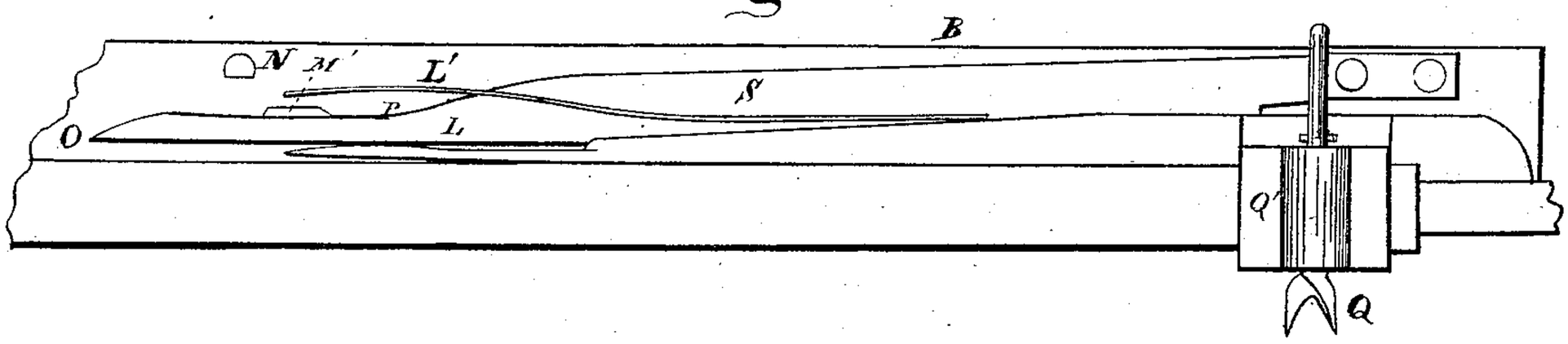


Fig. 9.

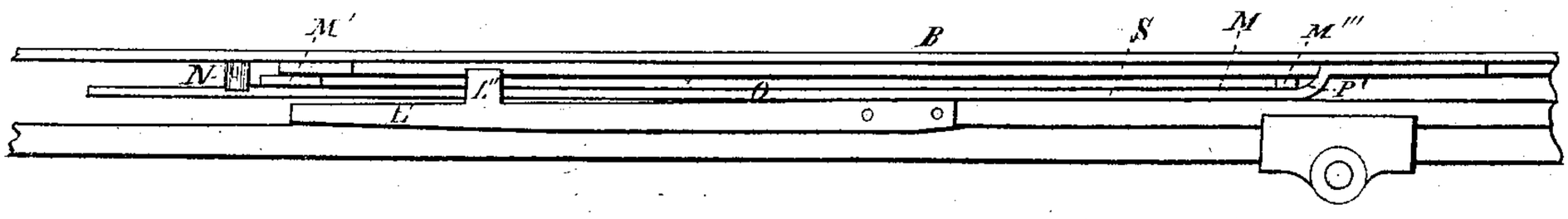


Fig. 10.

Fig. 11.

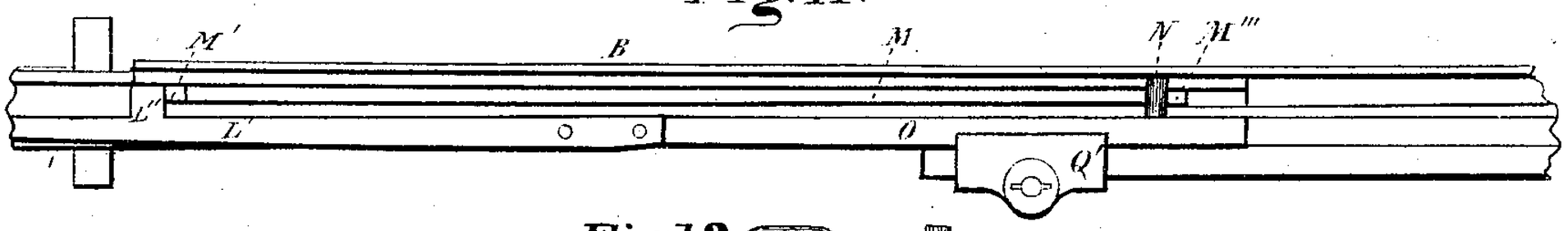
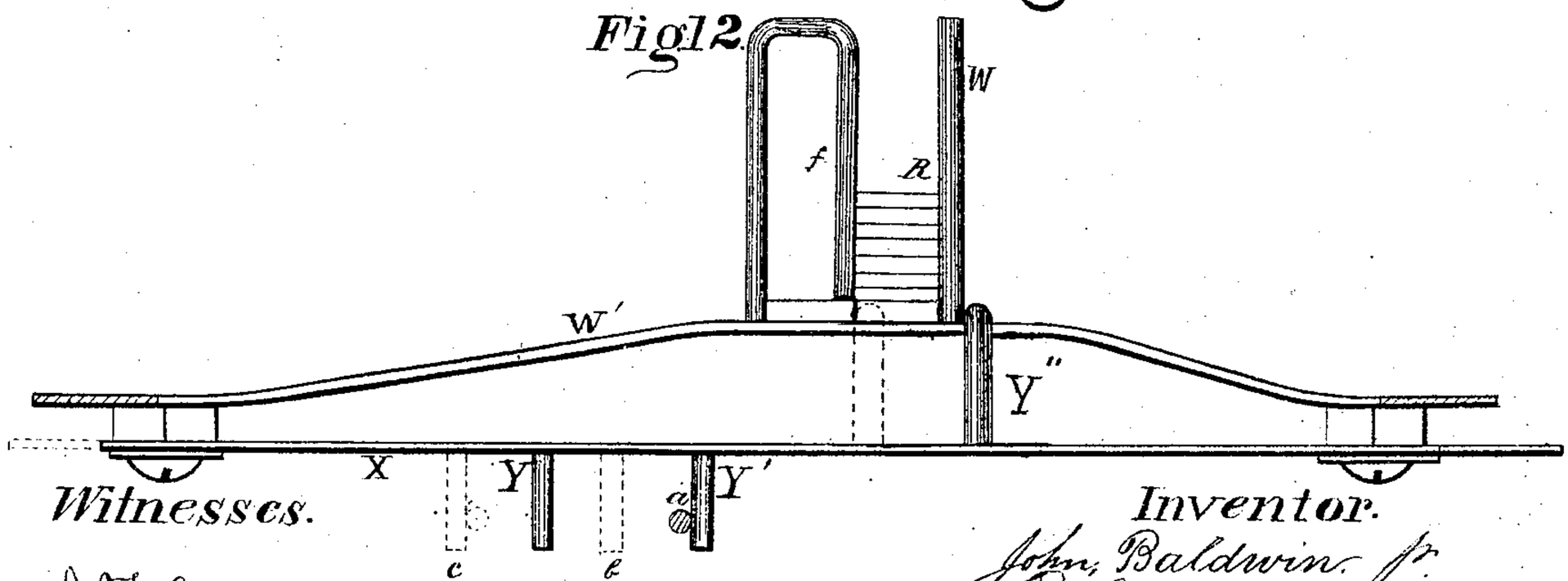


Fig. 12.



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UNITED STATES PATENT OFFICE.

JOHN BALDWIN, JR., OF BEREA, OHIO.

IMPROVEMENT IN MACHINES FOR WEAVING WINDOW-SHADES.

Specification forming part of Letters Patent No. **153,417**, dated July 28, 1874; application filed May 23, 1874.

To all whom it may concern:

Be it known that I, JOHN BALDWIN, Jr., of Berea, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Loom for Making Slat Window-Shades of slats of wood or palm-leaf, straw, reeds, grass, or other like material, the filling consisting of sections or pieces, each length equal to the width of the fabric, and forming the woof. The harness for operating the warp may be worked by any of the well-known mechanisms suitable for the purpose, and the warp-beam may have combined with it any suitable device for securing a uniform strain on the warp, and the take-up motion may be effected by any ordinary means.

Figure 1 is a front view of the machine. Fig. 2 is a sectional view of the upper part detached. Fig. 3 is a top view. Fig. 4 is a view of end A, Fig. 1. Fig. 5 is a view of the opposite end. Figs. 6, 7, 8, 9, 10, 11, and 12 are enlarged detached sections, and will be referred to hereafter.

Like letters of reference refer to like parts in the several views.

The nature of this invention will be more fully understood on reference to the following description of the construction and operation of the machine.

The lay B, Figs. 1, 2, and 3, is connected to two arms, B′ B″, which arms are pivoted or hinged upon the ends of the shaft C, as seen in Figs. 1 and 3. The link D at one end is jointed to the arm B″, and at the other to the crank E, as seen in Figs. 3 and 4. This crank is upon the shaft F, to which the driving-gear G is secured. This gear meshes into the pinion H upon the shaft C, on which shaft is also the gear I working into the pinion J, Figs. 1 and 4. By this system of gearing and connections rotation is given to the spiral-grooved cylinder K, and a vibratory motion to the lay B. This grooved cylinder causes an irregular reciprocating motion to the shuttle or nipper as the spiral grooves K′ are varying, being at greater pitch, or more acute at the back than at the opposite end, as will be seen in the drawings. This causes the shuttle to move most rapidly when in the open shed, and move slowly after it is withdrawn therefrom, and while the lay is completing its forward stroke and beginning its return. By means of the spiral grooves in the cylinder K the nipper L, Figs. 1, 8, and 10, is conveyed forward and backward along the race of the lay B, carrying with it the slide M, as seen in Figs. 1, 3, and 10. The nipper, on being carried forward from the position shown in Fig. 2 to that in Figs. 1, 3, and 10, opens and clasps the lowest piece of the pile R, which is fed to the nipper as hereinafter described. The nipper is opened to clasp the piece by the action of the slider M, with its end M′ enlarged and tapering at M″ from the said end forming an inclined plane, and at the other end is a pin, M‴, which is brought in contact with a wrist or stop, N, on the side of the race, which arrests the slide as it is carried forward by the shuttle O, Figs. 1, 2, 9, and 11. The spring L′ of the nipper is secured to the shuttle, and the lower part of the nipper is formed by the projecting end of the shuttle. This end and the spring above form the nipper L for grasping the piece and carrying it in between the warp. On the inside of the spring is a projection or lip, L″, under which is placed the end of the slide M, which remains at rest as soon as the pin M‴ is brought in contact with the wrist N. While the nipper moves forward the lip L″, Figs. 3 and 11, slides up the plane M″, near the end of the slide, and opens the spring so as to grasp the slat presented. As soon as the said nipper receives the slat the spring L′ closes upon it. This closing of the spring is caused by the forward motion of the nipper and shuttle, continued until the lip L″ is allowed to slide down or drop off the enlarged end M′ of the slider M below and in front of it, thus closing the spring on the piece or section of filling under said spring. The shuttle is then in the position shown in Figure 1. Then the receding of the shuttle carries the piece in between the warp, and at the proper time the piece is freed from the clasp of the spring by the lip L″ sliding up the inclined plane P on the end of the finger-bar S, Fig. 8, which raises the spring and leaves the piece in the proper place between the warp. The finger-bar is adjustable for goods of different widths. As soon as the piece is freed from the nipper the position of the shuttle is that indicated in Figs. 2 and 8. The shuttle still retiring, brings the pin against the stop P′, in Figs. 3 and 9, and in position to be carried forward to raise the nipper-spring to grasp the slat in the manner described. As the lay now retires, the shed

being open, the shuttle advances, and just before the shuttle enters the open shed the spring slides off the plane P down on the neck at the base of the inclined plane M″ of the slider, thus closing the spring on the end of the shuttle, which then enters the shed, presenting thereto a shuttle-shaped point, which cannot catch upon or break the warp. When the lay has nearly completed its backward stroke, and the nipper or shuttle is about through the shed, the spring L′ of the nipper is raised or opened, as above described, to receive the piece or section of the file R for the filling. The shuttle then recedes to the end of the race, drawing the filling to its proper place, and leaves it in the warp. The reciprocating motion of the shuttle is obtained by the action of the spiral-grooved cylinder K, in the grooves of which runs a finger or follower, Q, on the cross-head Q′ connected to the shuttle.

It will be observed that the pitch of the grooves or threads in the cylinder are finer at the rear end of the cylinder than at the opposite end. The object of this is to cause the shuttle to travel slower in the rear end of the race than in the front, to give time for the reed to force the slat home, the harness to spring, the takeup to operate, and the reed to retire until the shed is sufficiently opened to admit of the re-entry of the shuttle. The lip L″ upon the side of the spring is then brought in contact with the inclined plane, at the end of the finger-bar S, which raises the spring. The slider at this point is at rest, stopped by the pin M‴ resting against the shoulder P′, Fig. 9, and as the shuttle further recedes the lip L″ slides up the incline plane P of the finger-bar S, opening the nipper or spring still more, so as to permit the spring to move back upon the plane or wedge end of the slider in its forward movement. The finger-bar S is so placed and secured to the lay as to allow the central line of the shuttle to pass under it to and fro, which leaves the nipper on one side and the slider on the other, as seen in Figs. 9 and 11. The slider M rests upon the shuttle between the finger-bar S and the reed, and moves with and acts in concert with the shuttle. Directly above the lay or reed T, Figs. 2 and 3, is hinged a pressure-bar, U, the lower surface of which is beveled so as to be parallel to the beveled tread of the lay. By the beveled tread of the lay is meant the obtuse angle that the reed forms with the tread of the lay. When so constructed the bar will press down closely upon the filling-piece or section V, as seen in Fig. 6, and prevent its being crushed as the reed brings it in place and in contact with the preceding filling-section in the warp. In the backward stroke of the lay the pressure-bar is moved out from the position shown in Fig 6 to that seen in Fig. 7, being acted upon by the warp-threads as the shed opens and the lay retires, the pressure-bar resting upon the upper shed of the warp as seen in Fig. 7, at which time the nipper passes through the open shed to seize and draw the filling from the pile. At the forward stroke of the lay, the action of the harness closing upon the filling allows the pressure-bar to move or drop down from the position as seen in Fig. 7 and press the filling-section down closely to the lay, to prevent the crushing of the filling as it is driven home by the reed. The inner ends of the filling are piled up as seen at R, Figs. 1, 2, 4, and 5, one upon another in layers, between the uprights W and *f*, supported upon the frame or stand W′, and the outer ends between the pins S S, Fig. 3. Below the stand is a reciprocating slide, X, supported at the ends in ways or guides, from which depend two pins, Y Y′, and another, Y″, projects above, Figs. 5 and 12. This feeding mechanism is for throwing forward one piece of filling at a time to the proper position to be seized by the nipper, and is operated by the arm B′ of the lay by means of the pin *a* acting upon the pins Y Y′, as seen in Figs. 5 and 12. At the extreme backward stroke of the lay B, the slide X is in the position seen in Fig. 5. During the forward stroke of the lay the pin *a* is brought in contact with the pin Y′, moving the slide the distance from Y to *c*, Fig. 12, causing the pin Y″ to come in contact with the bottom slat of the pile R, pushing one end of the under slat from the pile to the position *d*, Figs. 3 and 12. The rack-guard *f*, Fig. 12, allows but one slat to pass at a time from under the pile, the space *c* between the depending end of the guard *f* and table, as seen in Fig. 12, being equal to the thickness of one slat. The sides of the slats composing the pile rest against the guard *f*, and the front ends against the stop Q‴. The pin Y″ moves out the front end of the slat, when it is seized by the nipper, as seen in Fig. 3, and it is drawn into the open warp, and as soon as the piece is drawn out the pile drops down and the slide returns to its former position at *c* as the beam recedes.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The pivoted or hinged pressure-bar U, in combination with the reed and lay B, operating substantially in the manner as and for the purpose specified.

2. The shuttle and nipper-spring L′, in combination with the slider M, finger-bar S, and stops N and P, substantially as described, and for the purpose specified.

3. The arm B′ and pin *a*, in combination with the slide X and pins Y Y′ Y″, as arranged to operate the undermost slat, in the manner substantially as described.

4. The rack-guard *f*, having an opening or passage between the depending end thereof and the table, in combination with the pin Y″ and slide X, substantially as and for the purpose set forth.

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Witnesses:

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