

S. ESTES.

Loom Take-up Mechanisms.

No. 137,188.

Patented March 25, 1873.

Fig. 1.

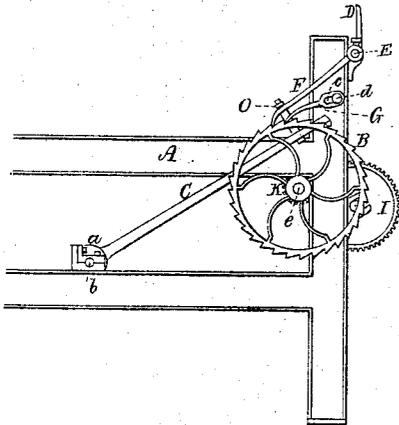
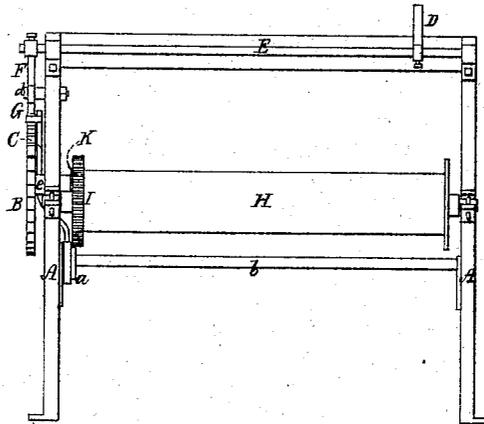


Fig. 2.



Witnesses.

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IMPROVEMENT IN LOOM TAKE-UP MECHANISMS.

Specification forming part of Letters Patent No. 137,188, dated March 25, 1873.

To all whom it may concern:

Be it known that I, SAMUEL ESTES, of Newburyport, of the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Looms for Weaving Cloth; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, of which—

Figure 1 is a side view, and Fig. 2 a rear elevation, of a loom-frame and my improvement or invention, and the parts to which it is applied.

The purpose of the mechanism constituting my improvement is to allow the cloth-roller to revolve backward a short distance, when a stoppage of the loom takes place by reason of breakage of the weft or filling, or the want of weft or filling, in the shuttle, the amount of such back movement of the roller circumferentially being an arc equal to the width of two or three threads of the filling or thereabout. The object of thus causing or allowing the roller to fall back is to avoid the production of what weavers term a "thin place" in the cloth. It is well known that after a stoppage of the loom takes place by reason of breakage of the filling, or from a want of filling, in the shuttle, the latter—that is, the shuttle—will generally be thrown one or more times too much across the race-beam of the lay. The lay beating up in the mean time will actuate the "take-up motion" or mechanism, and the "let-off motion" or mechanism, whereby an extra taking up of the cloth and an extra letting off of warp will be effected, so that when the shuttle again commences to weave, there will be a loose or thin place or filling-void left in the cloth. From the above it will be seen that, by letting the cloth woven fall back a little, equal to the amount taken up during the false movements of the shuttle, we revolve the cloth to its normal position, and thus avoid the improper weaving, as described.

In the drawing, A denotes the loom-frame; B, the ratchet of the take-up mechanism; C, the impelling-pawl of such ratchet; and D, the finger of the "stop-motion" or mechanism, such finger being projected upward from the shaft E, comprising part of such mechanism, as is well known. As the take-up and the stop motions or mechanisms are all well understood by weavers and manufacturers of looms, it will

be unnecessary for me to further describe them, as I have exhibited in the drawing these elementary parts of them to which my apparatus or mechanism to be hereinafter described is directly applied. The retaining-pawl of the ratchet-wheel B is shown at F as extended from the stop-motion shaft E. From the pawl F a hook or pawl-lifter, O, is projected, in manner as shown, and extended underneath the impelling-pawl C, in order that when the pawl F is raised by the shaft E it will simultaneously raise the impelling-pawl C out of action upon the teeth of the ratchet, such impelling-pawl, to effect retraction of the ratchet, being operated, as usual, by an eccentric, *a*, fixed upon a shaft, *b*. Besides the retaining-pawl I employ a slitted stop-pawl, G, formed and arranged as seen in Fig. 1, and having a slot, *c*, to receive the pivot *d*, projected from the loom-frame. On raising the pawls C F out of gear with the ratchet B the stop-pawl G will allow the ratchet to turn back until the front end of the slot *c* may bring up against the pivot *d*. On the shaft *e* of the ratchet is a pinion, K, which engages with a gear, I, on the shaft of the cloth-roller H.

From the above it will be seen that when the stop-motion of the loom is set in action in order to effect stoppage of the loom the retaining-pawl F will be raised out of action upon the teeth of the ratchet, and at the same time will lift the pawl C out of engagement with the said teeth, thereby allowing the necessary falling back of the cloth-roller to take place, which will follow; the stop-pawl G will move backward until the front end of its slot brings up against the pivot, when further falling back of the cloth-roller will be stopped.

In the British patent No. 670, for 1853, granted to Bellford, there is described a mechanism for the purpose for which that hereinbefore explained is intended. Furthermore, in the United States patent No. 109,345, dated November 15, 1870, and granted to George Richardson, there is explained another mechanism for a like purpose. I make no claim to either of such, in each of which a compound retaining-pawl is used, separate from the shaft of the stop-motion. I apply the pawl directly to and extend it from such shaft, and combine with it a hook to lift the draw or impelling pawl; and I also use the separate slotted stop-pawl, arranged

as shown, thereby greatly simplifying the mechanism.

I would also remark that I am aware of the devices described in the British patent No. 2,196, for 1855, granted to Trelfall and Knowles, which differ in construction and arrangement from mine, in consequence of the cloth-roller and the ratchet having one common axis, in which case the ratchet for effecting a like result has to move in a direction opposite from what is the case with the ratchet in my above-described mechanism, in which a draw-pawl is used for an impelling-pawl, as employed in the mechanism of the said British patent.

In my mechanism the slotted stop-pawl G is arranged above the ratchet and between it and the pawl F, and the lifter O extends down from the pawl F to the draw-pawl C, at or about right angles with them, the said pawl C being extended across the ratchet and under the pawls F and G, as shown, my arrangement and construction being simpler and less costly than the mechanism of Trelfall and Knowles, and specially adapted for looms which have the cloth-roller and the ratchet connected by the gears, as shown. By the slotted pawl G being arranged above the ratchet, there is saved the necessity of any spring or addi-

tional weight to keep the pawl in action on the ratchet, thus avoiding the increased wear of the teeth and pawl, which would result from the employment of such weight or spring.

With my arrangement, all the pawls, F, G, and C, can be thrown up at once by a weaver, by simply, with one hand, taking hold of the pawl G and pulling it up against the pawl F, such being a matter of great convenience to a weaver at the cloth-beam when he may desire to free the beam in order to turn it forward, as he will have one hand free to hold and operate the beam, while with the other he can raise the pawls so as to set the ratchet free, to enable him to so turn the beam. This cannot be effected by the mechanism described in the said British patent; therefore,

What I claim is—

The slotted stop-pawl G, lifter O, and draw-pawl C, constructed as set forth, and arranged as described, with the main pawl F and with the ratchet B arranged with the cloth-roller H and connected therewith by gears, all as specified.

SAMUEL ESTES.

Witnesses:

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J. R. SNOW.