

No. 639,158.

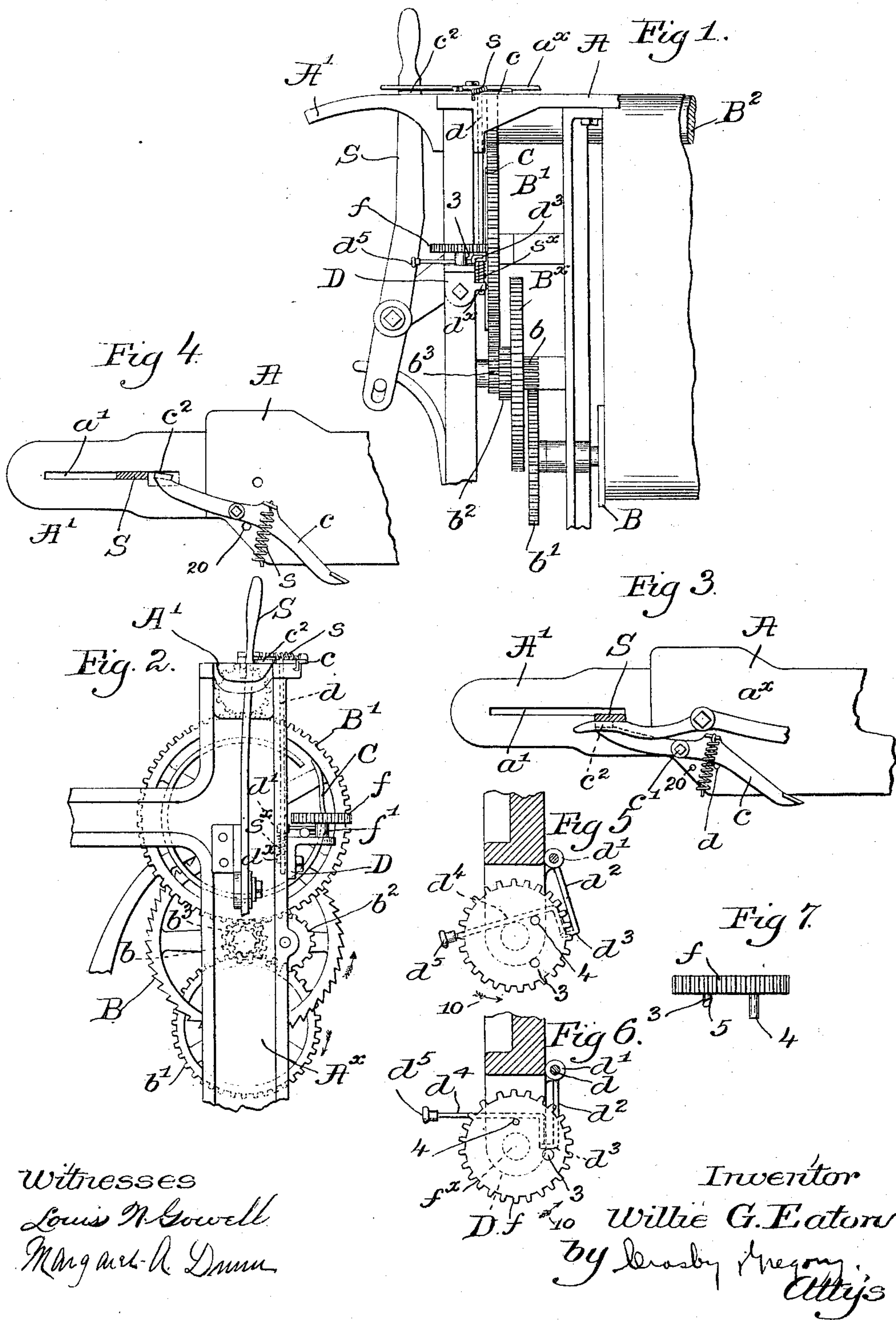
Patented Dec. 12, 1899.

W. G. EATON.

LOOM.

(Application filed June 20, 1898.)

(No Model.)



UNITED STATES PATENT OFFICE.

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LOOM.

SPECIFICATION forming part of Letters Patent No. 639,158, dated December 12, 1899.

Application filed June 20, 1898. Serial No. 683,930. (No model.)

To all whom it may concern:

Be it known that I, WILLIE G. EATON, of Nashua, county of Hillsborough, State of New Hampshire, have invented an Improvement in Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

This invention has for its object the production of means for automatically stopping a loom at a predetermined time in order that the weaver may attend to certain duties at such time.

In weaving blankets or other goods having one or more stripes inserted by hand at certain intervals the loom should be stopped at the proper time without depending upon the weaver, especially as the weaver often has a number of looms to attend to and he may fail to properly note the appearance of the cut-mark in the cloth. With automatic looms, such as those of the "Northrop" type, this applies with special force on account of the large number of looms tended by one weaver.

In the present invention means are also provided to prevent the starting up of the loom after a stoppage unless the weaver is fully cognizant of the cause of the stoppage, and in looms provided with warp-stop-motion mechanism, which acts to stop the loom upon breakage of a warp-thread, it is desirable for the weaver to know at once what caused the stoppage.

This invention is also applicable to automatically stop the loom at the end of each cut of a certain number of yards, so that the weaver can insert a stripe of a different color, which forms a dividing-line, along which the cuts can be severed later.

Figure 1 is a front elevation of a sufficient portion of a loom to be understood, with one embodiment of my invention applied thereto. Fig. 2 is a left-hand-side elevation of the mechanism shown in Fig. 1. Fig. 3 is a top or plan view of the end of the breast-beam and the holding-plate for the shipper-handle with a portion of the stopping mechanism. Fig. 4 is a like view showing the abnormal position of the knock-off arm or lever forming a part of my invention. Figs. 5 and 6

are enlarged plan views of the controlling means for the stopping mechanism; and Fig. 7 is a side elevation of the controlling-gear shown in Figs. 5 and 6, to be described.

Referring to Figs. 1 and 2, the breast-beam A, holding-plate A', notched at a' for the shipper-handle S, and the take-up mechanism may be and are of any usual or well-known construction, the knock-off arm a^x (shown in Fig. 3) being connected in well-known manner with the usual stopping means for the loom, weft or warp controlled, or both.

The take-up mechanism herein shown includes the ratchet-wheel B^x, the shaft of which is connected by a pinion b with the gear b' of the cloth-winding roll B and by the intermediate gears b² b³ with the large gear B', which drives the breast-roll B².

I have herein shown as a part of my present invention a knock-off lever c, pivoted at c' on the breast-beam and having one end, as c², adapted to be at times moved against the shipper-handle S by a suitable spring s.

When the loom is running, the knock-off lever is normally held in inoperative position, as in Fig. 3, by a detent d, formed by the upper end of a slide-rod, which is supported by the breast-beam and by a bearing d^x for its lower end. (Shown as an ear on a bracket D, attached to the loom side A^x.)

A spring s^x, surrounding the detent-rod d between the bearing d^x and a collar d' on the rod, acts normally to elevate the latter and maintain its upper end in the path of the lever c, preventing operation thereof.

The collar d' has fast upon it a laterally-extended arm d², bent back upon itself at d³ and then down and outward at d⁴ at right angles to the part d² and provided with a knob or handle d⁵. This bent arm is extended beneath the lower face of a controlling-gear f, mounted to rotate on a stud f^x on the bracket D, and the teeth of this gear are engaged by a cam C, (herein shown as attached to the adjacent side of the large gear B',) and herein said cam is arranged to rotate the controlling-gear f step by step one tooth at a time for every revolution of the large gear B'. Depending from said controlling-gear I have arranged two pins or studs 3 and 4, the former having a beveled

end 5, Fig. 7, and moving in such a circular path as will cause it to engage the bend d^3 of the arm d^2 when the latter is in the position shown in Fig. 6, the controlling-gear f rotating in the direction of the arrow 10. The other stud or pin 4 is nearer the center of the gear f and serves to engage the extension d^4 of the arm d^2 in the rotation of said gear, as shown in Fig. 5, further rotation of the controlling-gear causing the stud 4 to swing the arm into the position shown in Fig. 6, with the bend d^3 in the path of the stud 3.

In Fig. 6 the parts are in position ready to operate to stop the loom. Supposing that the take-up mechanism has wound up a certain length of cloth and a stripe is to be inserted by hand, the next advance of the controlling-gear f will cause the beveled end of the stud 3 to ride up onto the bend d^3 , depressing the arm d^2 and detent d against the spring s^x and withdrawing the detent from in front of the knock-off lever c . The latter when thus released will be swung by its spring s to move the shipper-handle S from its holding-notch, the tip or finger c^2 of the said lever moving into position behind the shipper-handle, so that the latter cannot be returned to running position until the tip is withdrawn. A fixed stop 20 limits the spring-actuated movement of the knock-off lever. The bent arm d^2 thus serves as a trip to withdraw the detent d from the knock-off lever when acted upon by the stud 3, and the spring s^x may act to partially rotate the rod d to move the trip into position shown in Fig. 5, or it may be moved by hand when the loom is to be started. After the weaver has inserted the stripe he swings the knock-off lever c into normal position, withdrawing the tip from behind the shipper-handle S , so that the latter can be moved into running position to start the loom.

Should the cut-marks not come absolutely even, it may be necessary for the weaver to liberate the knock-off lever and run the loom a few picks till the proper time for the stripe comes. In such case the knock-off will serve

as an alarm to prepare the weaver for the coming cut-mark.

When the knock-lever is moved into normal position, it passes off the top of the detent d , and the spring s^x immediately lifts the latter to retain the said lever in position. Now the controlling-gear f resumes its step-by-step rotation and the short stud 3 moves around without engaging the outturned part d^4 of the trip, and the latter will remain at rest until the longer stud 4 again moves into position to engage the part d^4 of the trip and move the bend d^3 of the latter into the path of the stud 3, when the operation hereinbefore described is repeated.

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

1. In a loom, a shipper-handle, a releasing device therefor, the tip of which is movable into position behind the shipper-handle after releasing it, a detent to normally maintain said device inoperative, and means to withdraw the detent from engagement with the releasing device at predetermined intervals, to stop the loom, the tip of the releasing device while in operative position extending into the path of and preventing return of the shipper-handle to running position.

2. In a loom, a shipper-handle, a knock-off lever therefor, a sliding and rotatable detent to normally maintain said lever inoperative, and a trip on the detent, combined with a controller to swing the trip into operative position partially rotating the detent, and to thereafter depress the trip and withdraw the detent from operative position, and means to move said controller step by step.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIE G. EATON.

Witnesses:

C. D. PARKER,
W. S. RICHMOND.