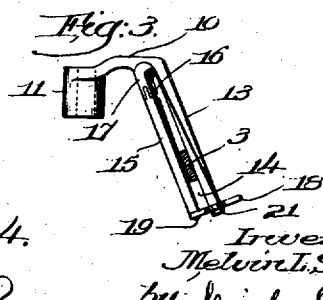
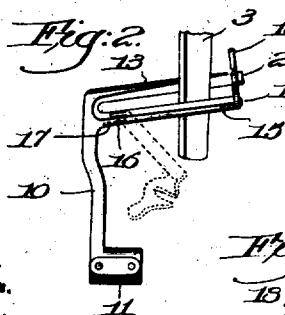
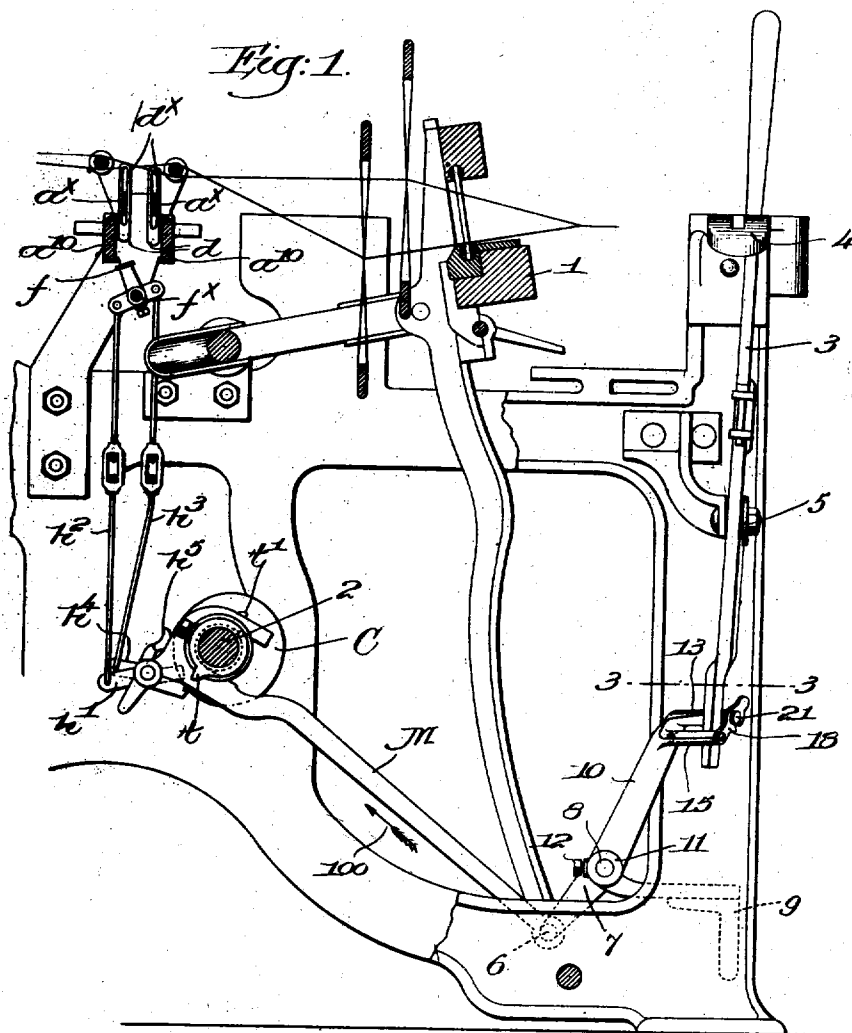


M. L. STONE.
 WARP STOP MOTION FOR LOOMS.
 APPLICATION FILED APR. 29, 1910.

996,297.

Patented June 27, 1911.



Witnesses,
 Edward B. Allen,
 Joseph M. Ward.

Inventor,
 Melvin L. Stone,
 by Lewis Gregory.

UNITED STATES PATENT OFFICE.

MELVIN L. STONE, OF LAWRENCE, MASSACHUSETTS, ASSIGNOR TO DRAPER COMPANY,
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WARP STOP-MOTION FOR LOOMS.

996,297.

Specification of Letters Patent. Patented June 27, 1911.

Application filed April 29, 1910. Serial No. 558,332.

To all whom it may concern:

Be it known that I, MELVIN L. STONE, a citizen of the United States, and resident of Lawrence, county of Essex, State of Massachusetts, have invented an Improvement in Warp Stop-Motions for Looms, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

The automatic stoppage of a loom through the operation of the warp stop-motion is frequently due to undue slackness of one or more of the warp-threads, and when such is the case it is often found that the slackness would be gradually taken up if the loom could be run a short time, or the weaver would be afforded ample time to find the faulty thread and when necessary correct the fault. These slack-thread stoppages waste the weaver's time and reduce the production of the loom unnecessarily, but as a general thing it is not possible to resume the operation of the loom until after the fault has been located and corrected, as otherwise the stop-motion would act at once to stop the loom each time it was started.

A very efficient structure designed to render the warp stop-motion ineffective to cause loom-stoppage, and governed by and at the will of the weaver, forms the subject-matter of United States Patent No. 863,131 granted August 13, 1907 to Andrews, and the invention is broadly covered by claims therein.

My present invention has for its object the production of very simple means whereby results can be secured similar to those disclosed in said patent but by a construction and arrangement differing materially therefrom, my invention comprising a separable connection between the knock-off member and the shipper, so arranged that by an abnormal positioning of a part of such connection operative movement of the knock-off member will have no effect upon the shipper. Consequently, if loom-stoppage has been effected by or through the warp stop-motion (the connection between the shipper and knock off member being in normal condition) the loom can be started and run without hindrance from the warp stop-motion just as soon as the said connection is put into abnormal condition by the weaver.

Any suitable or convenient form of warp stop-motion can be employed, and I have

herein illustrated a well-known form in connection with my invention.

Figure 1 is a partial transverse section and left-hand side elevation of a sufficient part of a loom provided with a warp stop-motion, with one practical embodiment of my invention applied thereto, the parts being shown in the position assumed when the loom is running under normal conditions; Fig. 2 is a rear elevation of the knock-off member for the shipper, in normal or operative condition, the dotted lines indicating the position of a part of the separable connection between the shipper and the knock-off member when the loom is to be run without interference by the stop-motion; Fig. 3 is a top plan view thereof, showing the shipper in cross-section on the line 3—3, Fig. 1; Fig. 4 is a side elevation of the latch which serves to maintain the relatively movable part of the separable connection in its operative position.

In Fig. 1 the lay 1, cam shaft 2, shipper 3 and its notched holding plate 4, and the pivot 5 for the shipper, are all of well known construction, the shipper when released from its holding notch acting to throw off the power from the loom through any suitable instrumentality forming no part of my invention and not shown herein.

The warp stop-motion herein shown is the so-called "cotton-harness" type and comprises drop-devices or detectors d each suspended from a warp-thread which passes through a longitudinal slot d^x in the detector, the detectors being shown arranged in two banks and receiving through their slots transverse, fixed supports a^x . The slots are long enough to permit longitudinal descent of a detector into operative position when released by failure or undue slackness of its warp-thread. A double feeler f carried by a rock-shaft f^x is normally vibrated back and forth below the lower ends of the detectors, which latter are inclosed between parallel stop-plates a^{10} , and the rock-shaft f^x is oscillated by links h^2, h^3 connected therewith and with arms h', h^4 , respectively, a follower h^5 cooperating with the cam C on the shaft, the latter being provided with tappets t, t' , all as in United States patent to Stimpson, No. 673,824, dated May 7, 1901. As in such patent the arms h' and h^4 are mounted on a hooked link M movable in the direction of arrow 100 when the feeler is arrested by en-

gagement with a released detector in either bank. The lower end of the link M is pivotally connected at 6, Fig. 1, with an arm 7 fixed to a rock-shaft 8 suitably mounted in bearings on the cross-girth 9 of the loom, the end of said rock-shaft projecting beyond the loom-side at the side where the shipper 3 is located.

In the present embodiment of my invention the knock-off member is fixedly attached to the projecting end of the shaft 8, said member being shown as an upturned arm 10 having at its lower end a hub 11 which is fixed on the shaft 8 by set-screws, as 12, the upper end of the arm having an out-turned, lateral branch or extension 13 which is diagonal to the axis of the hub 11, both when viewed in elevation Fig. 2, and in plan, Fig. 3. Said extension 13 is one part of the separable connection with the shipper and forms the front side of a cam slot or guideway 14, its rear side being formed by a second branch or extension 15 pivoted at 16 to a short bifurcated or slotted ear 17 on the arm 10, the branch 15 forming the relatively movable member of the separable connection. A latch 18, shown separately in Fig. 4, is fulcrumed at 19 on the outer end of the branch 15 and it is provided with a curved slot 20 to embrace a headed pin or stud 21 on the outer end of the branch 13. When the latch is in operative position, Figs. 1 and 3, and full lines Fig. 2, it locks together the outer ends of the two extensions or branches 13, 15, so that they are in substantial parallelism, the cam slot 14 thus formed receiving the lower end of the shipper 3, as shown, and the separable connection between the shipper and knock-off member is operative.

It is very common practice to provide a knock-off arm with a closed cam-slot to receive and cooperate with the shipper and such a structure is shown in both of the patents hereinbefore referred to, the cam-slot 14 herein being the equivalent of the closed slot in such patented structures. The closed slot device, however, constitutes a permanent connection between the warp stop-motion and the shipper, and if the loom is stopped by or through such stop-motion it can not be operated again until the fault is located and corrected. In my present invention I form the cam-slot or guideway 14 by a fixed side 13 and a movable side 15, which sides are normally locked together by the latch 18 and thereby maintain a normally operative and closed connection between the shipper and the warp stop-motion. When it is desired to disconnect the shipper and the stop-motion the latch 18 is swung up out of engagement with the stud 21 and immediately the branch or extension 15 swings downward on the pivot 16 into inoperative position, shown by dotted lines Fig.

2. Now, the shipper can be thrown into running position, so that its lower end will be located near the outer end of the front part or branch 13 of the separable connection, but the rear part or branch 15 will hang down, see dotted lines, Fig. 2, leaving the slot or guideway 14 open at the back. Therefore, if the stop-motion again performs its function and causes the link M to move in the direction of arrow 100, Fig. 1, the arm 10 will be swung forward but the separable connection 13, 15 then being open there is nothing to push forward the lower end of the shipper and release its upper end from the holding notch in plate 4. Consequently the latter remains in running position as the arm 10 and branches 13, 15 of the separable connection swing forward, and the loom continues to run. When the separable connection is in its closed or operative condition manifestly the operation of the warp stop-motion will act through the knock-off member and said connection to release the shipper and stop the loom, but if the connection is open, or inoperative, the shipper can be moved to starting position and the loom will continue to run irrespective of any functional operation of the warp-stop-motion. The separable connection is restored to operative condition by swinging its movable part or branch 15 up into position back of the shipper and opposite the branch or part 13 and locking the parts together by the latch 18.

The construction is simple and easily operated, it is efficient, and can be made at a very low cost, and furthermore can be applied to any loom having the usual knock-off member by simply removing the latter from the rock-shaft and substituting the knock-off member and separable connection shown herein.

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

1. In a loom, a shipper, a knock-off arm, relatively fixed and movable branches thereon to normally receive between them and embrace the shipper and form a cam slot or guideway therefor to operatively connect it and said arm, and a latch normally maintaining said branches substantially parallel and in operative relation at opposite sides of the shipper combined with mechanism to actuate the knock-off arm upon the occurrence of a warp fault, manual movement of the latch to release the branches opening the guideway and rendering the branches inoperative to effect shipper release upon actuation of the knock-off arm.

2. In a loom, a shipper, a knock-off member, mechanism to actuate it whenever a warp fault occurs, a normally closed slot-like connection between said member and the shipper and embracing the latter to release

the shipper upon actuation of the knock-off member, and said slot-like connection having a movable side, manually operated means to open the movable side of said connection and thereby prevent coöperation between the shipper and the knock-off member.

3. In a loom a shipper, a knock-off member, mechanism to actuate it whenever a warp fault occurs, a cam-like guideway for the shipper, mounted on the knock-off member and comprising a relatively fixed side part and a pivoted side part, to embrace the shipper between them and form a controlling guideway therefor, and a device to re-

tain said parts in operative relation, manual movement of said device into inoperative position releasing the pivoted side part of the guideway and opening the guideway to free the shipper from control by the said guideway when the knock-off member is actuated.

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

MELVIN L. STONE.

Witnesses:

NORMAN K. FULLER,
F. M. HOWARD.

Corrections in Letters Patent No. 996,297.

It is hereby certified that in Letters Patent No. 996,297, granted June 27, 1911, upon the application of Melvin L. Stone, of Lawrence, Massachusetts, for an improvement in "Warp Stop-Motions for Looms," errors appear in the printed specification requiring correction as follows: Page 3, line 2, the word "and" should be stricken out, and same page, line 3, before the word "manually" the word *and* should be inserted; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 1st day of August, A. D., 1911.

[SEAL.]

E. B. MOORE,

Commissioner of Patents.

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