

UNITED STATES PATENT OFFICE.

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WEFT-FORK MECHANISM.

No. 796,761.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM H. REDDING, a citizen of the United States, and a resident of Worcester, in the county of Worcester and State of Massachusetts, have invented an Improvement in Weft-Fork Mechanism, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has for its object to improve and simplify weft-fork mechanism, and I have combined with the shipper-handle and the weft-fork mechanism means controlled by the shipper-handle as it is moved into its inoperative position to place the weft-fork out of the range of movement of the usual fork-hammer.

Figure 1, in plan view, represents a sufficient portion of one side of a loom-frame and breast-beam with my improvements added to enable my invention to be understood. Fig. 2 is a front elevation of the parts shown in Fig. 1. Fig. 3 is a section to the left of the dotted line x , Fig. 1, with part of the usual weft-hammer. Fig. 4 is a section in the line x' , Fig. 3. Fig. 4^a is a like section showing the weft-fork as turned into its inoperative position. Fig. 5 is a plan view of a modified form of my invention. Fig. 6 is a front view thereof. Fig. 7 is a section in the line x^2 , Fig. 5.

The loom side A, breast-beam A^x, its connected plate A', slotted at A² and notched for the reception of the shipper-handle A³, the notch retaining the shipper-handle in its operative position, are and may be all as usual. The top of the loom side and breast-beam sustain a plate B, shown as secured to the breast-beam by set-screws B', said plate having at its inner or left-hand end two upright flanges a a' , constituting guideways for the weft-fork carrier C. The outer end of the weft-fork carrier C is slotted at d , and said slot receives a pin d' , which serves as a guide for the weft-fork carrier, the slot permitting the weft-fork carrier to be moved outwardly under the action of the usual hammer D^x whenever for any reason the weft fails in the shed. The

weft-fork carrier is provided at its end nearest the reed with a pivot 4, on which is mounted a weft-fork D of usual construction, shown as composed of wire and having a depending tail 6, that is engaged by the usual weft-hammer, deriving its motion continuously when the loom is running from usual sources. This weft-hammer strikes the tail 6 of the weft-fork and working therethrough moves the weft-fork carrier C outwardly and across the breast-beam whenever the downturned prongs of the weft-fork are not acted upon and the weft-fork turned by weft laid in the shed.

The knock-off lever C', having an elongated slot 2, (shown in dotted lines, Figs. 1 and 2,) fits loosely a stud a^3 , having a head, said stud constituting the fulcrum for said lever. The lower side of this lever rests on the flat top of a boss a^5 at the outer or right-hand end of the plate B. The lever C' at the outer or right-hand side of its pivot a^3 is provided with an adjustable stop 10, which is struck by a projection 3 of the shipper-handle as the latter is moved from its outward or inoperative position in the slot A² into its operative position, as shown in Fig. 1, preparatory to the shipper-handle entering its usual holding-notch. As the shipper-handle meets this stop it slides the lever longitudinally over the pivot a^3 into the position shown in Figs. 1 and 2. The lever C' at its inner end is provided with a finger 20. (See Figs. 1 and 2.) The inner end of the lever C' stands in the open notch or flange a' and enters a notch in the weft-fork carrier, and as it is moved longitudinally by the shipper-handle the finger 20 acts against a crank part e of a lifting device e' rockingly sustained in said carrier, turning said device and causing a toe e^2 thereof to be turned downwardly from the position Fig. 4^a into the position Figs. 3 and 4, permitting the rear end of the weft-fork D to drop into such position with relation to the usual constantly-moving fork-hammer D^x that said hammer may meet the tail 6 of said fork and move it and the fork-carrier to the left, Fig. 3, whenever said tail occupies its normal or down position, as when the weft-

fork is not tipped by a weft laid in the shed. When said lever C' is moved by the shipper-handle occupying the position Figs. 1 and 2, said lever compresses a rather strong flat spring e^4 , (see Fig. 3,) moving such spring into such position that it is rendered inoperative as a controlling device for moving the weft-fork-lifting means e' to put and hold the weft-fork out of the range of the hammer D^x and into its inoperative position. During the movement of the weft-fork carrier through the hammer D^x the notch in said carrier in engagement with the inner end of the lever C' turns said lever about the stud a^3 and causes the outer end of said lever in contact with the shipper-handle in its notch communicating with slot A^2 to be moved out of said notch, when immediately the shipper-handle, through its usual operating-spring common to all looms, is moved outwardly in the slot. Now assuming that the weft-hammer engages the tail of the weft-fork and moves the weft-fork carrier, Fig. 3, in the direction of the arrow it will be seen that said carrier in engagement with the inner end of the lever C' will turn the same about its stud a^3 and effect the release of the shipper-handle from its notch, when, as usual, the shipper-handle will be moved into the outer end of the slot A^2 and at the same time the spring e^4 will move the lever C' outwardly in the direction of the arrow thereon, Fig. 1, the slot 2 in said lever permitting such movement, and at the same time said spring acting on the bent portion e of the weft-fork lifter e' will turn said lifter into the position Fig. 4^a, thus causing the portion e^2 thereof to meet and tip up the rear end of the weft-fork into the line position, Fig. 4^a, placing the tail 6 in such position that the usual hammer in its movement while turning the loom backward or forward by hand will pass and not catch said tail 6, so long as the shipper-handle stands in its inoperative position.

Referring to the modification Figs. 5 to 7, the knock-off lever E, besides turning in a horizontal plane about the stud a^4 , constituting a fulcrum, also tips somewhat thereover between its ends. This fulcrum, as shown, consists of the convex portion 8, (shown chiefly by dotted lines, Fig. 6,) entering a concavity in a boss 10 at the outer or right-hand end of the plate B, the lever E having extended loosely through said portion 8 the pivot a^4 , shown as a set-screw, there being sufficient room between the hole through the lever and the body of said screw to enable said lever not only to be turned horizontally about said pivot, but also to tip somewhat fore and aft thereon, as has been stated. The shipper-handle A^3 is provided with a pin 12, extended therefrom over the outer end of the lever E, and the inner end of said lever, as described of lever C', Fig.

1, is passed through a space in the inner or right-hand flange a' , rising from the plate B, and enters a notch in the weft-fork carrier C. During the movement of the shipper-handle from its operative position, Figs. 5 and 6, outwardly in the slot A^2 into its inoperative position the pin 12 rides over the extended outer or right-hand end of the knock-off lever and depresses the same, lifting the inner or left-hand end of the lever E, causing it in engagement with the weft-fork carrier to lift the same into its dotted-line position, Fig. 7, which immediately lifts the weft-fork D, so that thereafter the loom may be started and the hammer D^x be moved without actuating the weft-fork mechanism, this frequently being desirable, as when running a loom backward to remove filling, &c., or when turning a loom backward to find the proper shed. Fig. 6 shows by dotted lines the position of the pin 12 when the shipper-handle occupies its inoperative position, and this position indicates that the under side of the outer end of the lever E will at such time contact substantially with the upper side of the extension A' .

I believe that I am the first to put a weft-fork in such position that its tail will be out of the path of movement of the usual actuating-hammer when the shipper-handle occupies its inoperative position, it having been released by the knock-off lever, and I desire to claim this feature broadly however the weft-fork is held out of the path of movement of said hammer.

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

1. A weft-fork, an actuating-hammer, a carrier to sustain the weft-fork, a shipper-handle, and means to lift the weft-fork out of the path of movement of said hammer when the shipper-handle occupies its inoperative position.

2. The combination of a weft-fork and a shipper-handle, of means operative when the shipper-handle is in its inoperative position to put the weft-fork into its inoperative position.

3. A weft-fork, a weft-actuating hammer to actuate the same, a knock-off lever and a shipper-handle moved through the weft-fork to release the shipper-handle that it may move from its operative into its inoperative position, and means under the control of said knock-off lever to place the weft-fork out of range of its actuating-hammer.

4. In a loom, a weft-hammer, a weft-fork carrier having a weft-fork, a lever connected with said weft-fork carrier, a shipper-lever, and means to hold the same in its operative position, the operation of the weft-fork and its carrier by the hammer when the weft is

absent causing the fork-carrier to move said lever to release the shipper-handle, the weft-fork being put into its inoperative position out of the range of said hammer after said shipper-handle is released.

5. The combination of the weft-fork mechanism comprising a weft-fork, and a slide, a shipper-handle, and means intermediate the shipper-handle and weft-fork mechanism to

render the latter inoperative when the shipper-handle is in its inoperative position.

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

WILLIAM H. REDDING.

Witnesses:

MATTIE L. VAN HOUTEN,
CHARLES F. ALDRICH.