

No. 724,563.

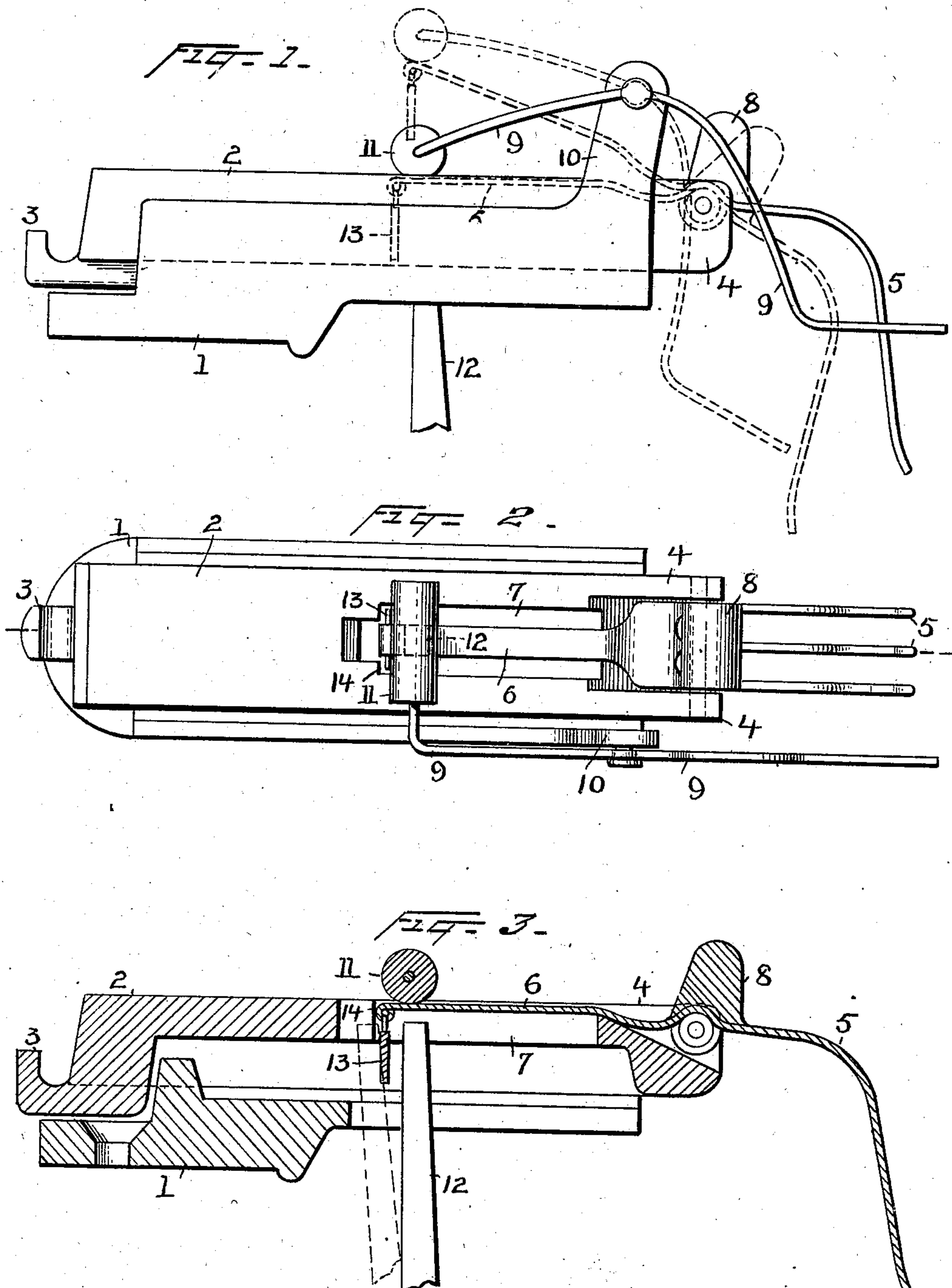
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J. H. FOSTER.

WEFT FORK.

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NO MODEL.



Witnesses
Lewis H. Clark
M. H. Watkins

Inventor
John H. Foster,
By Geo. W. Whittesey
Attorney

UNITED STATES PATENT OFFICE.

JOHN H. FOSTER, OF FALL RIVER, MASSACHUSETTS.

WEFT-FORK.

SPECIFICATION forming part of Letters Patent No. 724,563, dated April 7, 1903.

Application filed March 4, 1902. Serial No. 96,585. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. FOSTER, a citizen of the United States, residing at Fall River, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Weft-Forks; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to weft-forks; and its objects are to relieve the weft-thread of all lateral pressure due to the weight of the fork, to return the fork to its normal position by a positive device independent of the fork itself, and to relieve the pivots of the fork from the strain caused by the actuating-finger of the stop-motion when the weft-thread breaks and the stop-motion is operated.

As usually constructed a weft-fork consists of a plurality of tines projecting from a pivoted hook whose weight tends to keep the tines projected backward, so that they are struck by the weft-thread at every forward stroke of the lay and tilted downward, lifting the hook out of the path of a constantly-reciprocating finger. If the thread breaks, the fork is not tilted and the finger catches the hook and pulls forward the fork and its sliding carriage, thereby operating the stop-motion, which is connected with said carriage, and thus stopping the loom. The hook is necessarily of some weight in order to keep it normally down in the path of the finger and return it promptly when the weft-thread is removed from contact with the tines of the fork. This causes a certain strain on the thread every time it strikes the fork and lifts the hook, tending to break the thread, especially in fine goods. My invention provides a counterbalance-weight which puts the fork into a condition of equilibrium, so that the slightest touch will tilt it, and thus the weft-thread is entirely relieved from all strain. The counterbalance is so arranged that the instant the fork tilts it becomes overbalanced and falls away from the weft-thread. This

necessitates some means for positively returning the fork to its normal position, which I provide for preferably in the shape of a weighted lever, one end of which rests on the tail of the fork, while the other end projects into the path of the lay, so that at every forward stroke of the lay the lever is actuated and the weight is lifted off the fork, leaving the latter free to be tilted by the thread and its counterbalance, as above set forth. In order to insure the quick and easy working of the fork, it must turn readily on its pivots. To relieve them of all strain and enable them to be nicely adjusted, I omit the hook from the tail of the fork and substitute a movable plate, which when the fork is in its normal position is interposed in the path of the finger, and if not moved out of the way, as is the case when the weft-thread breaks, is struck by the finger and forced against one or more abutments or shoulders on the sliding carriage, to which the movement of the finger is thus communicated.

In the accompanying drawings, Figure 1 is a side elevation of a weft-fork and its cooperating parts embodying my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a longitudinal section of the same.

The stationary bed-plate 1 is secured to the frame of the loom and forms a guide for the sliding carriage 2, which has at its front end a hook 3 for connection with the stop-motion which is operated by a forward movement of the carriage—that is, to the left in the figures of the drawings. At its back end the carriage has two ears 4, between which is suitably pivoted the weft-fork, having tines 5, curved backward and downward, and a tail 6, lying along the upper part of a longitudinal slot 7 in the carriage. On top of the fork, above the pivotal axis thereof, is a counterbalance-weight 8, preferably of the form shown and rising above the fork to such a height that when the tines of the fork are tilted downward, as shown in dotted lines in Fig. 1, the center of gravity of the counterbalance will be carried back of the pivotal axis and cause the tines to drop positively and quickly. Adjacent to the fork is a lever 9, fulcrumed, preferably, on an arm 10, rising from the bed-plate 1. The front end

of the lever rests on top of the tail 6 of the fork. Suitable means are provided whereby the lever is lifted off the tail of the fork at each forward stroke of the lay and also means
 5 whereby said lever positively depresses said tail and restores the fork to its normal position on the return stroke of the lay. A simple mode of effecting this is shown in the drawings. The rear end of the lever has a
 10 weight 11, which tends to keep it and the tail of the fork normally down, as shown in full lines in Fig. 1. The back end of the lever extends to a point where it will be struck by the lay and tipped down to the dotted-line position, thus lifting the weight and leaving the
 15 fork free to be tilted by the weft-thread. On the return stroke of the lay the lever is allowed to resume its normal position, carrying the fork with it. The actuating-finger 12
 20 of the stop-motion vibrates regularly in the slot 7, the bed-plate being similarly slotted to permit it to pass through. On the tail 6 a swinging plate 13 is hinged on a transverse axis. When the tail is down, the plate hangs
 25 just behind abutments or shoulders 14 on the carriage 2 and in front of the finger 12. If the weft-thread breaks, the plate is not lifted out of the path of the finger, which strikes it and forces it against the shoulders 14 and
 30 slides forward the carriage, thereby operating the stop-motion. This device relieves the pivots of the fork from all strain, since the

finger acts directly on the carriage through the interposed plate 13.

Having described my invention, what I 35 claim is—

1. A weft-fork provided with means for positively tilting it away from the weft-thread after said thread has set it in motion.

2. A weft-fork provided with a weight over 40 its pivotal axis so arranged that its center of gravity will be carried back of said axis when the fork is slightly tilted.

3. The combination with a weft-fork, of means for positively tilting it away from the 45 weft-thread after said thread has set it in motion, and means for positively returning it to its normal position.

4. The combination with a weft-fork, of a carriage provided with one or more abut- 50 ments, a vibrating finger and a plate adapted to be interposed between said finger and abutments at each return of the fork to a normal position.

5. The combination with a weft-fork, of a 55 plate hinged thereto, and a carriage provided with an abutment behind which said plate hangs when the fork is in its normal position.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN H. FOSTER.

Witnesses:

ALFRED H. HOOD,
 ARBA N. LINCOLN.