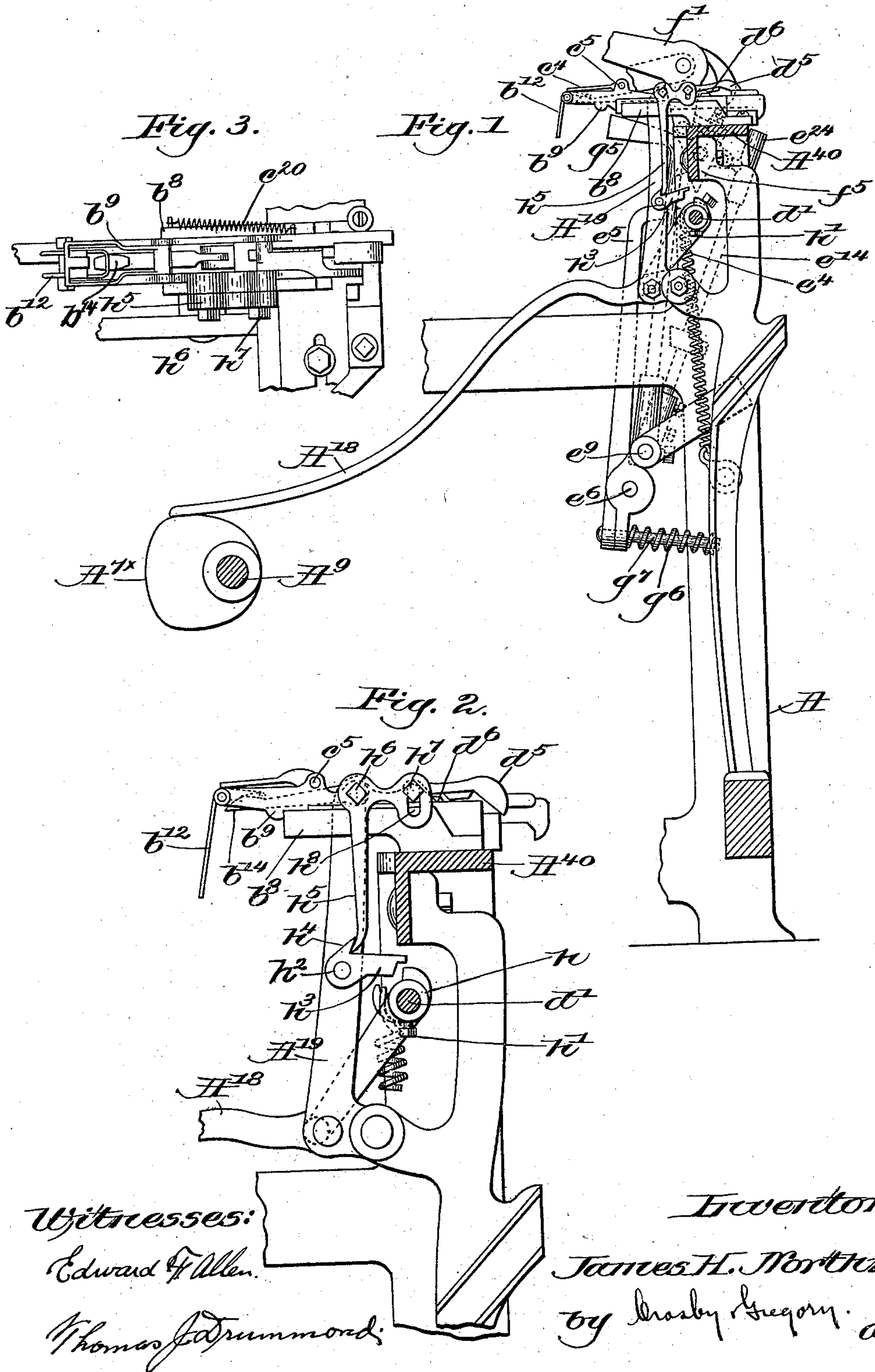


(No Model.)

J. H. NORTHROP.
LOOM.

No. 557,998.

Patented Apr. 7, 1896.



Witnesses:

Edward F. Allen.

Thomas J. Drummond.

Inventor:

James H. Northrop.

by Crosby Gregory. attys.

UNITED STATES PATENT OFFICE.

JAMES H. NORTHROP, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO
GEORGE DRAPER & SONS, OF SAME PLACE.

LOOM.

SPECIFICATION forming part of Letters Patent No. 557,998, dated April 7, 1896.

Application filed January 11, 1896. Serial No. 575,118. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. NORTHROP, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to the class of loom represented in United States Patent No. 529,943, dated November 27, 1894.

That patent describes a rock-shaft located below the breast-beam, said shaft in practice being rocked by or through the pressure of the outer end of the filling-fork slide or a lever connected by a link with an arm of said shaft, and the shaft when turned has several important duties to perform—viz., it must bring the shuttle-position detector into action and advance the pan or device which is to act to guide a spent bobbin into a box placed to receive it, and lift a notched dog connected with a pusher to be struck by a bunter carried by the lay, and it must also overcome the tension of a spring which tends to keep the rod and the parts under its control in normal position.

In practice it has been found that in running a loom of the class referred to at high speed the strain on the weft-fork, which necessarily is or should be delicate in its operations, is so great as to rapidly wear the same.

This invention has for its object to relieve the weft-fork of these strains, thereby obviating the objectionable wear, and leave the weft-fork free to respond readily and quickly to the pressure of the weft in proper position on the race of the lay.

In this invention I have provided the usual "weft-hammer" arm, or an arm operated in unison with it, with a dog under the control of a finger or projection from the weft-fork slide, the latter when slid back in its usual guiding-stand by the usual hook carried at the upper end of the weft-hammer (the said hook acting when the weft-fork is not tilted by the weft) causing its finger or projection to simply let the dog turn about the pivot supporting it and strike a lug on a collar fixed on said rock-shaft to thus turn it. I shall herein designate the said rock-shaft as the

"starting-shaft," as it has, as will be remembered, the several functions to perform as it is moved. In other words, instead of moving this starting-shaft by the weft-fork slide, I have provided to move it by mechanism entirely disconnected from the slide—as, for instance, by the mechanism used to move the said slide.

Figure 1 of the drawings shows a sectional detail of a sufficient portion of a loom, such as represented in said patent, with my improvements added, to enable the invention to be understood. Fig. 2 shows some of the same parts, but in a different position and enlarged; and Fig. 3 is a top or plan view of a weft-fork and part of the breast-beam.

The loom-frame A, the breast-beam A⁴⁰, the starting-rod d', the weft-fork b¹², its carrying-slide b⁹, sliding in the guide b⁸, the latch d⁵ to cooperate with the knock-off lever b⁵ to stop the loom, the check c⁴, the pusher-carrier f⁷, the feeler g⁵, the stud e⁶, rock-shaft e⁹, the arm e⁵, the rod e¹⁴, the sleeve e²⁴ in which it slides, said sleeve being jointed to the dog f⁵, (shown by dotted lines,) which is at times to be struck by a bunter, (not shown,) carried, in practice, by the lay, the arm e⁴, carried by the starting-shaft d', the lower shaft A⁹, the cam A^{7x} thereon, and the lever A¹⁸, actuated by said cam and carrying the weft-hammer A¹⁹, and having jointed to its upper end the hook b¹⁴, spring g⁶, and rod g⁷, and spring c²⁰ are and may be all as in said patent, wherein like letters are used to designate the same parts.

In the present invention the starting-shaft d' has been provided with a collar h, having a lug, the said collar being secured to it by a set-screw h', and I have pivoted on the weft-hammer A¹⁹, at h², a dog h³ to engage the lug of said collar, the dog having a heel h⁴, which is engaged by the lower end of a finger h⁵, mounted on a stud h⁶, carried by the weft-fork slide b⁹, the said finger being so constructed as to be adjusted about said stud, the adjusting means being a set-screw h⁷, which enters a slot h⁸ in a short arm projecting backwardly from said finger, as shown best in Fig. 2.

The weft-fork slide is held normally in its forward position in its stand b⁸ by a spring c²⁰, (shown best in Fig. 3,) and when in such position the finger h⁵, so long as the tail of the

weft-fork is not caught by the hook b^{14} to move the weft-fork slide back, acts on the heel h^4 of the dog h^3 each time that the weft-hammer is moved in the direction of the arrow thereon in Fig. 2 and lifts the acting end of the dog above the lug of the collar h , as in Fig. 1, so that the starting-shaft is not rocked; but if the weft fails in front of the fork and the latter is not tipped, then the tail of the weft-fork will be caught by the hook b^{14} and the weft-fork slide and finger h^5 are moved toward the breast-beam, as in Fig. 2, thus putting the finger in such position that it no longer acts to keep the end of the dog h^3 above the lug of the collar h , and consequently said dog meets said lug and turns the said starting-shaft, the blow being a direct one from the positively-actuated hammer, and no strain has to be exerted through the weft-fork slide in turning said shaft.

The finger h^5 constitutes what I designate as a "controlling" device to control the dog or device which actuates the starting-shaft.

This invention is not limited to the exact construction shown for the finger or controller, or the shape of the dog controlled by it, or the means for moving it, as the same may be variously modified in shape within the skill of the mechanic without departing from the spirit of my invention.

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

1. In a loom, a starting-shaft, to operate a change of filling, having an attached lug or projection, the weft-fork, its slide, and a controlling device carried by said slide, combined with a dog or device cooperating with said lug

or projection and governed by said controlling device, which dog is normally held in operative position as long as the weft is present in front of the weft-fork, substantially as described.

2. In a loom, a starting-shaft, to operate a change of filling, having an attached lug or projection, the weft-fork, its slide, a controlling device mounted on said slide, and means to engage the weft-fork and move the slide backwardly on the failure of the weft, combined with a dog or device cooperating with said lug or projection and governed by said controlling device, the said dog or device being put into its abnormal position to actuate the starting-shaft only when the weft-fork slide is moved backwardly, substantially as described.

3. In a loom, a starting-shaft, to operate a change of filling, having an attached lug or projection, the weft-fork, its slide, an adjustable controlling device mounted on said slide, and means to engage the weft-fork and move the slide backwardly on the failure of the weft, combined with a dog or device cooperating with said lug or projection and governed by said controlling device, the said dog or device being put into its abnormal position to actuate the starting-shaft only when the weft-fork slide is moved backwardly, substantially as described.

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

JAMES H. NORTHROP.

Witnesses:

GEO. OTIS DRAPER,
C. N. NICHOLS.