

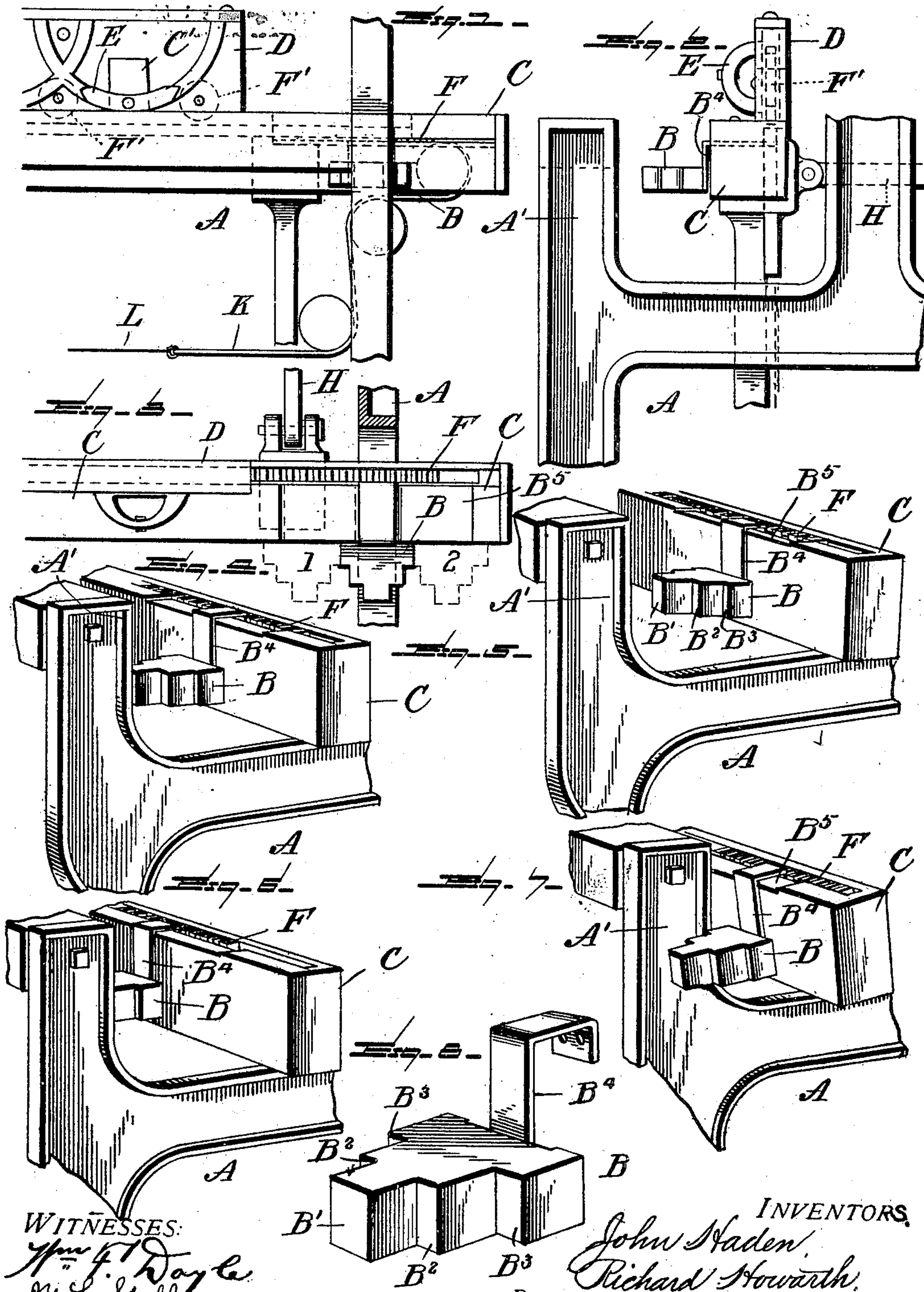
No. 679,370.

Patented July 30, 1901.

J. HADEN & R. HOWARTH.
STOPPING DEVICE FOR LOOMS.

(Application filed Dec. 29, 1900.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN HADEN AND RICHARD HOWARTH, OF PATERSON, NEW JERSEY,
ASSIGNORS OF ONE-THIRD TO WALTER BAMFORD, OF SAME PLACE.

STOPPING DEVICE FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 679,370, dated July 30, 1901.

Application filed December 29, 1900. Serial No. 41,460. (No model.)

To all whom it may concern:

Be it known that we, JOHN HADEN and RICHARD HOWARTH, citizens of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Protector Stopping Devices for Looms, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates generally to looms, and particularly to devices for stopping the operation of the loom in emergencies, as when a breakage occurs in any part of the loom mechanism; and it has for its object to provide a simple, durable, and inexpensive device adapted to automatically cause the almost instantaneous stoppage of the loom when a break occurs in the rack, strap, shuttle-plank or pinion, or in the wire rod which connects the strap to the lever for imparting the traverse movement to the rack, or when a break or disarrangement occurs in any other part of the operative mechanism of the loom, and by such stoppage prevents the loss in time, labor, and material now occasioned by reason of the continued operation of the loom after the breakage or disablement of some part thereof occurs; and it consists in a device adapted to be connected to and to move with the rack during the traverse movement of the latter and to also partake of the movement of the batten during the operation of the loom and to engage or come into contact with a fixed part of the loom, as the breast or some other portion of the loom-frame, when a breakage of any part of the mechanism or the disablement of the same from any cause occurs, and by such engagement or contact arrest the batten and prevent the completion of its forward movement, and thereby instantly stop the operation of the loom, as will be hereinafter more fully described and claimed.

15 In the accompanying drawings, forming a part of this specification, Figure 1 is a front view of a portion of a loom, showing our invention in position thereon; Fig. 2, a side view of the same; Fig. 3, a plan view with the breast of the loom removed; Figs. 4, 5, 6, and 7, detail perspective views showing the different positions of the stop device during the operation of the loom, and Fig. 8 a detail perspective view of the stop device.

Similar characters refer to similar parts throughout the several views.

Since the invention relates only to the device for stopping the operation of the loom and does not in any way affect the general construction or arrangement of the parts of the loom and is adapted for application to the ordinary loom without alteration of the latter, only so much of a loom will be illustrated and described as is necessary to give a clear understanding of the application to and operation of our device in connection with a loom.

Referring to the drawings, A represents the loom-frame, of which A' is the breast portion thereof. The batten C, the rack F, the shuttle E, provided with the holes C' for the warp-threads, the reed-frames D, (the reeds not being shown,) the rack-strap K, and the rack-pinions F' (shown in outline only, Fig. 3) are all or may be of the usual or any preferred or suitable form and arranged in the usual manner and form no part of our present invention. The rack-strap K is usually secured to the rack at one end and passes around or in contact with a series of guide-rollers and is connected, by means of a wire rod L, to the usual lever (not shown) in order to impart the traverse motion to the rack.

Our device for arresting or stopping the operation of the loom in the event of the breakage or disarrangement of any of its parts in this instance consists of a block B, the sides of which are cut away or otherwise formed or provided with the steps or shoulders B² B³ and with the projection B'. To the block is attached a carrier B⁴, which extends to and is secured at one end to the rack F, whereby the block is moved back and forth with the rack during the operation of the latter. The block is arranged in front of the batten, and in this instance the carrier B⁴ is shown as extending through a slot or recess B⁵, formed in the batten and of a length sufficient to permit of the reciprocation of the block the full limits of the movement of the rack to which it is attached; but it is obvious that the block-carrier B⁴ may extend over the batten and be attached to the rack without recessing or slotting or in any way altering the batten and that the result will be the same. It is also obvious that the carrier may be attached directly to the rack-strap K in-

stead of the rack without change in the operation of the block or the result obtained. The steps or shoulders B^2 and B^3 and the projection B' of the block are adapted in the event of a breakage or disarrangement of the mechanism of the loom to engage the breast or some other fixed part of the loom, and the object of stepping the block is to provide for its instantaneous engagement with the breast to arrest the forward movement of the batten, and thus stop the loom at any point in the reciprocation of the block at which a breakage may occur in the loom.

Our invention can be applied to any ribbon-loom using a rack and pinions by connecting the block directly to the rack.

The operation of stopping a loom by means of our device is as follows: The device being attached to the rack moves with the latter in its traverse movements, as indicated at 1 and 2 by the dotted lines outlining the block, Fig. 3, and also partakes of the forward-and-backward movement of the batten during the operation of the loom, and should the movement of the rack be arrested at any point within the limits of its travel by reason of the breakage of any part of its operating mechanism the stop device being attached to the rack of course ceases its traverse movement, and the batten being given its forward movement by reason of its connection with the loom-shaft through the arm H continues said forward movement until it is arrested by the stop device coming into contact with the loom-frame, and as said stop device is connected through the batten and the arm H with the loom-shaft further revolution of the latter is instantly prevented. The distance the batten can move forward is of course dependent on the distance the end of the stop device or the steps or shoulders thereof is from the frame, and such distance need only be such as will insure the stop device clearing the frame during the operation of the loom, and in practice it is found that the setting or adjusting of the end of the stop at a distance of about one-half an inch from the frame provides ample space for the clearance of the frame. Thus the batten can only move forward after a breakage the distance the end of the stop device or that one of its shoulders or steps in line with the frame is from the batten at the time the breakage occurs to the mechanism before the stop device will engage the frame and instantly arrest the forward motion of the batten.

The loom-shaft is usually driven by a belt from an overhead shaft to a pulley on the loom-shaft, and practical experience with our device in actual operation has shown that immediately upon the said device engaging the frame of the loom the loom-shaft ceases to operate and the belt continuing to move is thrown off the loom-shaft pulley. If, however, the belt should fail to leave the loom-shaft pulley when the loom-shaft ceases to

revolve, it can only slip thereon without imparting motion to said shaft, as the same is firmly held against revolution by reason of the contact of the stop device with the frame of the loom, preventing the forward movement of the batten, and as a consequence the forward throw of the arm H, which thus acts as a brake for the loom-shaft. The stop device is carried during the movement of the rack back and forth in front of the loom-frame and alternately passes at each side of the same during the forward movement of the batten.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an emergency stop device for looms, the combination with the batten, the rack, and means for operating the batten and rack, of a stop device, connected to the rack and participating in the motion of the batten, and adapted to engage a fixed part of the loom-frame upon breakage of any part of the operative mechanism of the loom to thereby arrest the movement of the batten.

2. In an emergency stop device for looms, the combination with a batten, a rack, means for imparting a traverse movement to said rack and for oscillating said batten, and a fixed part on the loom-frame, of a stop device, and means for securing said device to said rack, whereby said stop device moves simultaneously with said rack and batten during the operation of the loom and engages said fixed part of the loom upon the breakage of any part of the operative mechanism of the loom to thereby arrest the movement of the batten.

3. In an emergency stop device for looms, the combination with a fixed part of the loom-frame, a batten, a rack, and means for imparting operative movement to said batten and rack, of a stop device connected to said rack and arranged to engage the fixed part of the loom-frame and to arrest the forward movement of the batten upon the stoppage of the rack.

4. An emergency stop-block for looms having a shuttle-actuating rack, said block having steps or shoulders at each side and a carrier secured thereto for attachment to the rack.

5. In an emergency stop device for looms, the combination with the loom-frame, the batten and the rack, of a block having steps or shoulders, and a carrier for connecting said block to the rack, whereby the breakage of the mechanism of the loom will cause the block to engage said frame.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN HADEN.

RICHARD HOWARTH.

Witnesses:

JOHN F. KERR,

T. J. CHANDLER.