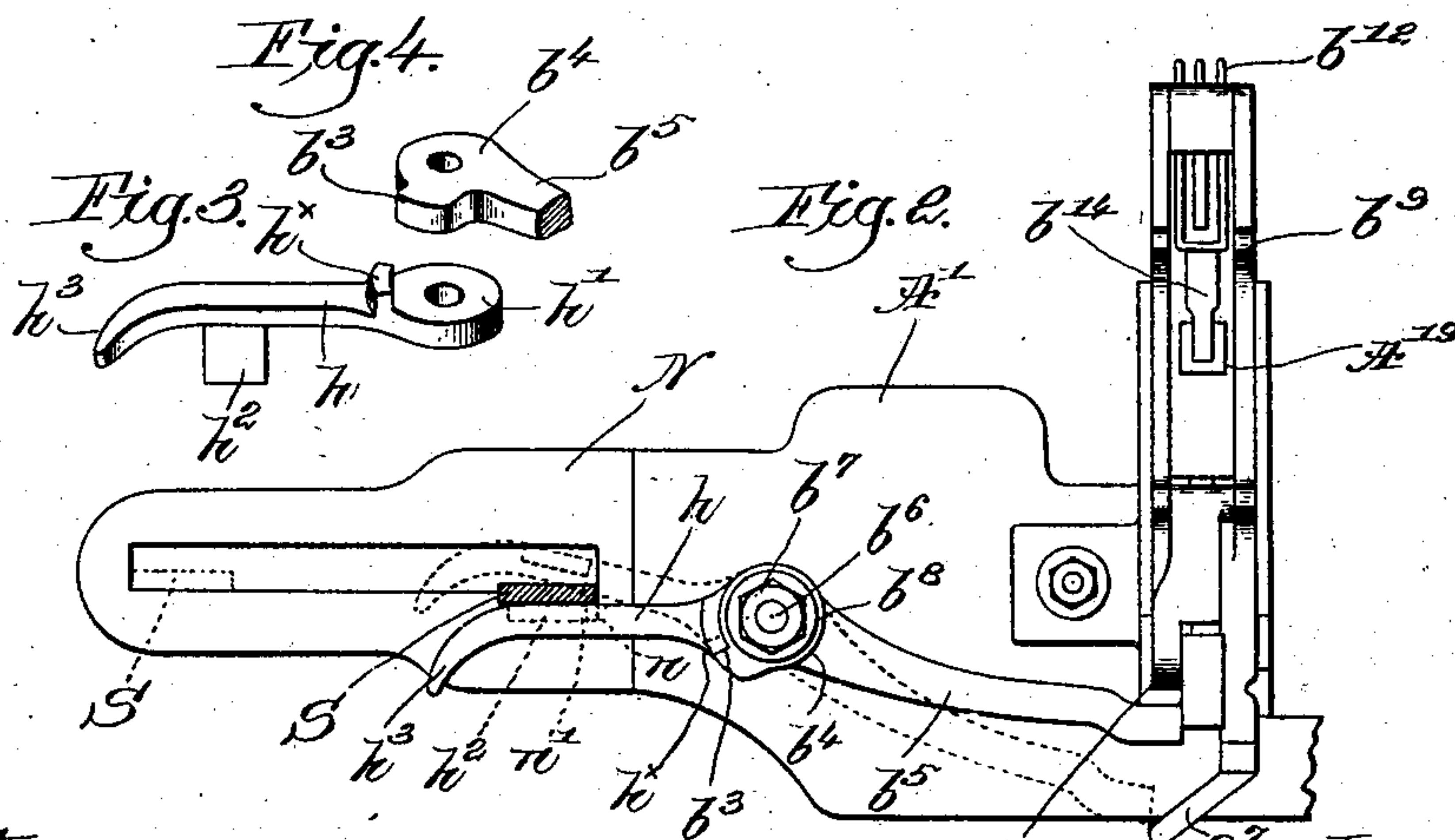
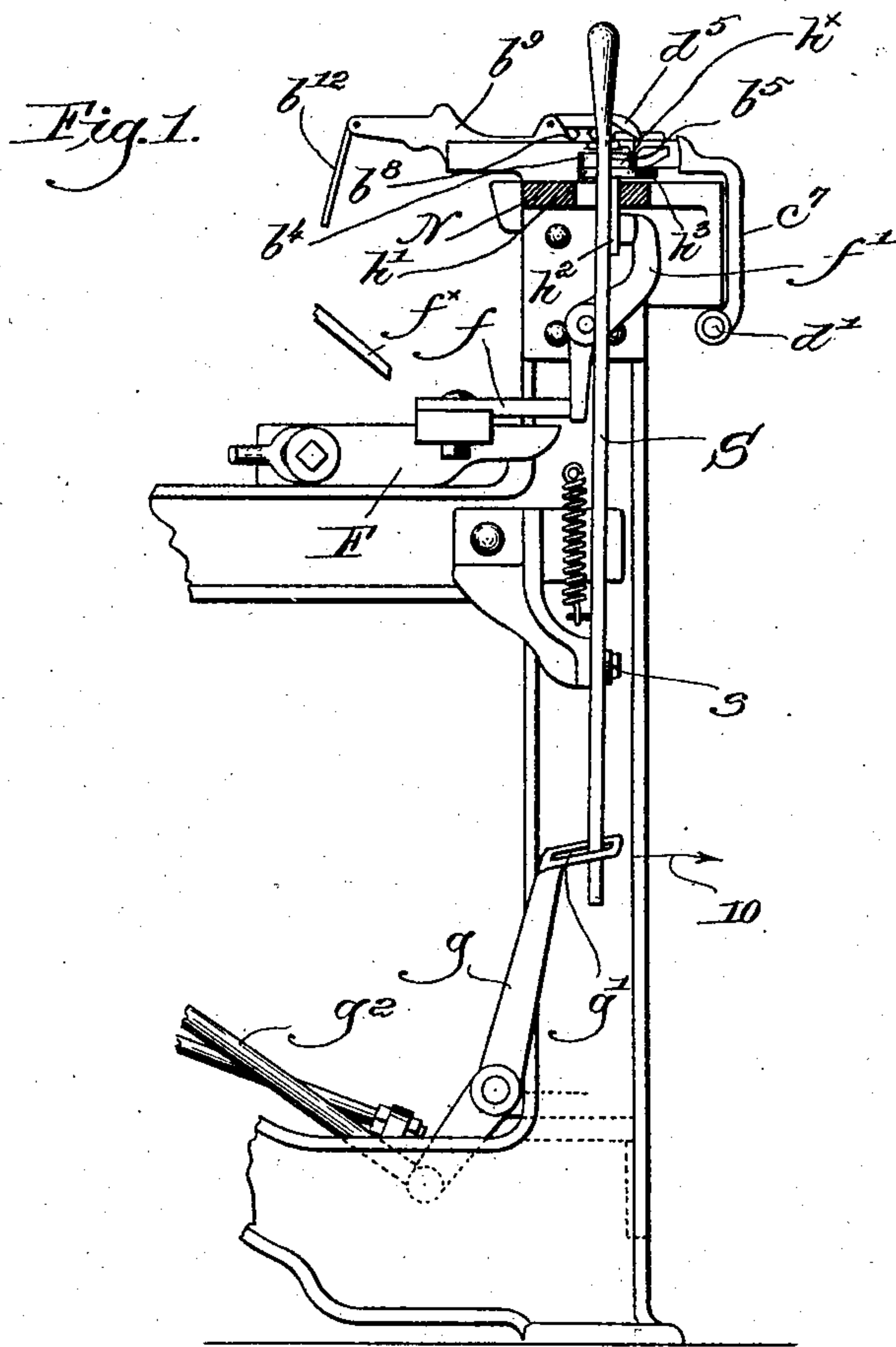


No. 720,117.

PATENTED FEB. 10, 1903.

J. V. & E. CUNNIFF.
STOPPING MECHANISM FOR LOOMS.
APPLICATION FILED DEC. 5, 1902.

NO MODEL.



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UNITED STATES PATENT OFFICE.

JOHN V. CUNNIFF AND EDWARD CUNNIFF, OF NEW BEDFORD, MASSACHUSETTS, ASSIGNORS TO DRAPER COMPANY, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE.

STOPPING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 720,117, dated February 10, 1903.

Application filed December 5, 1902. Serial No. 133,938. (No model.)

To all whom it may concern:

Be it known that we, JOHN V. CUNNIFF and EDWARD CUNNIFF, citizens of the United States, and residents of New Bedford, county of Bristol, State of Massachusetts, have invented an Improvement in Stopping Mechanism for 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 has for its object the production of means for readily indicating to an attendant the cause of the stoppage of a loom, whether it be due to a fault in the warp or filling or due to the operation of the protector mechanism. It is well known that the shipper of a loom is released upon the occurrence of any of these faults to stop the loom, and the more readily the attendant can discover the particular cause of stoppage the more quickly can the fault be remedied and the loom started. A device for making such a stop indication forms the subject-matter of United States Patent No. 623,174, dated April 18, 1899, and will be hereinafter referred to, the construction and arrangement of the stop-indicator in our present invention being simplified and improved, as will more fully appear hereinafter.

Figure 1 is a left-hand side elevation of a portion of a loom with one embodiment of the present invention applied thereto, the notched holding-plate being shown in section. Fig. 2 is an enlarged top or plan view thereof with the shipper in section. Fig. 3 is a perspective detail of the stop-indicator detached, and Fig. 4 is a perspective detail of the fulcrum end of one of the knock-off levers which co-operates with the stop-indicator.

Referring to Figs. 1 and 2, the notched holding-plate N for the shipper S, the frog-holder F, dagger f^x , Fig. 1, frog f , and the coöperating knock-off lever f' , constituting usual protector mechanism and operative when the shuttle is improperly boxed to release the shipper, are and may be of usual construction.

The filling-fork b^{12} , its slide b^9 , moved outward by the hook b^{14} on the weft-hammer A^{19} ,

Fig. 2, upon filling failure, the latch d^5 to engage and move a knock-off lever, to be referred to, upon a second successive outward movement of the slide b^9 , the operating-shaft d' for the filling-supplying mechanism, (not shown,) and the arm c^7 on said shaft may be and are all as in the patent referred to and operate in a similar manner.

A knock-off lever b^5 is fulcrumed at one end on an upright stud b^6 on the breast-beam A' and is retained thereon by a nut b^7 and friction-washer b^8 , Fig. 2, its end being extended into the path of the latch d^5 . The end of the lever adjacent the fulcrum-stud is flattened and enlarged, as at b^4 , Fig. 4, and provided with a radial lug b^3 .

A stop-indicator is herein shown as an arm h , having an enlarged and flattened head h' , Fig. 3, and near its outer end it is provided with a depending, thin, and flat finger h^2 , the indicator being fulcrumed on the stud b^6 , the enlargement b^4 of the knock-off lever b^5 resting upon the head h' , which latter is provided with an upturned shoulder h^x in the path of the lug b^3 . A single stud is thus made available for both the knock-off lever b^5 and the stop-indicator, the friction-washer b^8 preventing undue movement. The holding-notch n , Fig. 2, is increased in width for a portion of its length, as at n' , to receive the depending finger h^2 , and when the shipper is in the notch, as in Figs. 1 and 2, the finger h^2 is interposed between the shipper and the upper end of the protector knock-off lever f' , as clearly shown in Fig. 1. At the same time the shoulder h^x abuts against the lug b^3 of the knock-off lever b^5 , which is then in its normal position, the position of the parts when the loom is running properly being shown in full lines, Fig. 2.

If the protector mechanism is operated, the lever f' is turned to push inward against the finger h^2 , turning the stop-indicator h into dotted-line position, Fig. 2, and releasing the shipper to stop the loom. The knock-off lever b^5 is not moved, however, so that by noting that fact the attendant knows that the fault is in the shuttle. If, however, the filling-fork mechanism has operated, the latch d^5 will move the lever b^5 into dotted-line po-

sition, Fig. 2, and the lug b^3 acts on the shoulder to turn the stop-indicator into dotted-line position and release the shipper. Then both lever b^5 and stop-indicator will be in abnormal position, and the attendant knows thereby that the fault was with the filling.

Referring to Fig. 1, a link g^2 , forming part of a suitable warp-stop-motion instrumentality, serves to at times move a rocker-arm g , having an inclined slot g' in its upper end to receive the lower end of the shipper below its pivot s , all substantially in the patent referred to. Upon occurrence of a warp fault the upper end of the rocker-arm g is swung in the direction of arrow 10, Fig. 1, and the inclined edge of the slot g' will act on the shipper below its fulcrum and move the upper end of the shipper out of its holding-notch to stop the loom. The stop-indicator, however, is not moved from its normal position, so that the attendant knows that neither of the knock-off levers f' or b^5 has released the shipper and that the fault is in the warp. When the lever b^5 moves the stop-indicator, the shoulder h^x and lugs b^3 are close together; but when the lever f' moves the indicator said lug and shoulder are separated, aiding the attendant in determining the fault. The free end of the stop-indicator is curved, as at h^3 , to be moved automatically into the part n' of the holding-notch by the shipper when the latter is moved into running position.

In a loom comprising a plurality of independent instrumentalities arranged to operate individually, as hereinbefore set forth, the position of the stop-indicator denotes clearly to the attendant which instrumentality operated to effect stoppage of the loom, so that the particular fault can be at once located and the trouble remedied without delay.

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

1. In a loom comprising a plurality of independent instrumentalities to operate individually, a shipper, a knock-off lever for each instrumentality, a stop-indicator co-fulcrumed with one of said levers and actuated by operative movement thereof to release the shipper, and a finger on the indicator interposed between the shipper and the other lever, the stopping position of the indicator relative to the former of said levers denoting which instrumentality has operated to release the shipper and stop the loom.

2. In a loom comprising a plurality of independent instrumentalities to operate individually, a shipper, a knock-off lever for each instrumentality, a swinging stop-indicator

having a finger interposed between the shipper and one of said levers and adapted to be engaged adjacent its fulcrum by the other lever, the stopping position of the indicator relative to the latter lever denoting which instrumentality has operated its knock-off lever to effect release of the shipper.

3. In a loom comprising a plurality of independent instrumentalities to operate individually, a shipper, a knock-off lever for each instrumentality, a stop-indicator co-fulcrumed with one of said levers, and having a shoulder adjacent its fulcrum, and a finger on the indicator interposed between the other lever and the shipper, operative movement of the co-fulcrumed lever acting upon the shoulder to swing the indicator and release the shipper, the latter being also released when its finger is engaged and moved by operative movement of the other lever.

4. In a loom, a shipper, its notched holding-plate, means operative upon a warp failure to act directly upon and release the shipper, protector mechanism, mechanism operative upon filling failure, each of said mechanisms including a knock-off lever, a stop-indicator pivoted on the fulcrum of one of said levers and actuated by operative movement thereof, and a finger on the indicator interposed between the shipper and the other lever, operative movement of the latter acting through the finger to release the shipper, the angular position of the stop-indicator relatively to the co-fulcrumed lever denoting whether filling failure or the protector mechanism has operated to effect shipper release.

5. In a loom, a shipper, a knock-off lever actuated by or through filling failure, and having a lug adjacent its fulcrum, a stop-indicator pivotally mounted on the latter and having a shoulder to coöperate with the lug and release the shipper, a second knock-off lever actuated by or through improper boxing of the shuttle, and a finger on the free end of the stop-indicator, interposed between the shipper and said lever, actuation of the latter operating through the finger to release the shipper, the position of the stop-indicator relative to the knock-off lever having the lug denoting which of the levers has operated to release the shipper.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

JOHN V. CUNNIFF.
EDWARD CUNNIFF.

Witnesses:

FRED H. CHASE,
HERBERT N. BROWNELL.