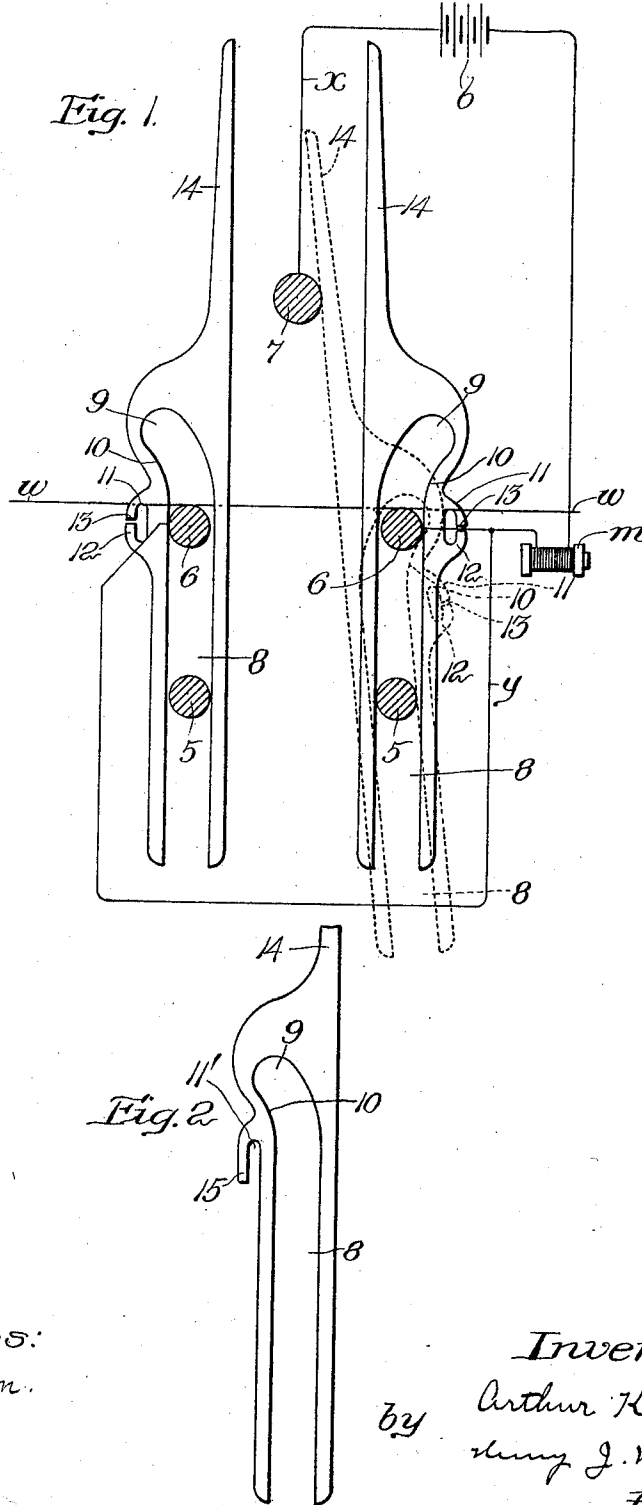


A. KEAN.
 WARP STOP MOTION.
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Witnesses:
 M. M. Harrington.

H. C. Bowser.

Inventor:
 Arthur Kean
 by Henry J. Miller
 Atty.

UNITED STATES PATENT OFFICE.

ARTHUR KEAN, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO AMERICAN TEXTILE APPLIANCES COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

WARP STOP-MOTION.

1,006,386.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ARTHUR KEAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Warp Stop-Motions, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

This invention has reference to improvements in warp stop motions, so called, in which the breaking of a warp thread is designed to permit the movement of means or devices through the instrumentality of which coöperative loom stopping mechanism is or may be brought into action, or, through which instrumentality, attention is called to such breakage.

One object of this invention is to so construct a warp stop motion having a guide, for the detectors or drops, and a detector or drop, having a part adapted at times to move toward said guide, that said guide may be kept clear of lint or fluff by the warp whereby said drop may move toward said guide.

Another object of the invention is to so construct a warp detector or drop of this nature having a guide slot movable on an internally located guide that the warp threads may be supported by the said guide and the drops may be supported on said threads at points intermediate the ends of said guide slot.

Other objects of the invention will appear from the following description.

The invention consists in the peculiar detector or drop.

The invention also consists in the peculiar manner of supporting the warp in combination with detectors or drops adapted to be supported by the warp threads.

The invention also consists in such other novel features of construction and combination of parts as shall hereinafter be more fully described and pointed out in the claims.

In the drawings: Figure 1, represents a view of the essential parts of mechanism for adapting this invention to an electrical warp stop motion, parts of the same being shown in section. Fig. 2, represents a side view of a warp detector or drop, partially broken away, illustrating a modified form thereof.

Similar numerals of reference designate corresponding parts throughout.

Warp stop motions comprising guides located below the warp and drop devices normally supported by unbroken warp threads and having parts which extend over said guides are, under some conditions, rendered less accurate in operation by accumulation of lint and fluff between some element of the guiding means and such drop device whereby the complete movement of the drop device, under abnormal conditions, is sometimes prevented.

In warp stop motions of the class specifically referred to herein, in which the drop device has or may have a compound movement with respect to its guiding means the objection referred to above is not so apparent as in mechanisms in which the drop devices have a simple vertical sliding or swinging movement but, in view of the varied conditions under which these mechanisms are operated it is desirable that the accumulation of lint and fluff be avoided.

As shown in the drawings 5—5 and 6—6 represent guide rods arranged in pairs and designed to be supported in any ordinary manner known in this art. The rods 6—6 are herein represented as terminals of the electrical circuit $x-y$ which includes a source of electrical energy b and the coils of the magnet m , of any suitable loom stopping actuating means; said circuit also including the terminal 7 located above and parallel to the said terminals 6—6. The warp threads w are supported on and move longitudinally over the guides or terminals 6—6, said warp threads being placed close together in the usual manner, and act to wipe across said guides and to carry forward any slight accumulations of lint or fluff. This wiping action of the warp threads w is rendered more effective by the weight of detectors or drop devices one of which is supported, in its normal position, by each of said warp threads. In the specific form shown herein each of said detectors or drop devices is formed of thin sheet metal and has a straight slot 8 open at its lower end and, preferably, slightly wider than the diameter of the terminals 6—6, the upper portion of said slot extends laterally to form the curved clearance 9 having the rear edge 10 back of and slightly below which is located the thread eye 11 partially closed by the curved arm 12 to form the thread passage 13; the inner edge portion of

the detector is extended upward to form the contact arm, or sentinel, 14. When the slots 8 of said detectors or drops are slidably engaged with the guide rods 5 and 6 and the thread eyes 11 are engaged with the warps *w* the detectors will be overbalanced and the tendency of said detectors is to swing inward on the axis indicated by the point of engagement of the detectors with the warp threads. This tendency to swing inward, toward the terminal 7, is however limited by the edges of slot 8 of which the rear or outer edge bears against the guide 6, at a point approximately in line with the thread eye 11, and below the shoulder 10, while the inner or forward edge bears against guide 5.

It is to be understood that the forward movement of the warp *w* carries said warp through the respective thread eyes 11—11 and over the guides 6—6 and it is to be noticed that said thread eyes are located laterally of said guides at a distance sufficiently to permit the falling of lint and fluff between the first of said thread eyes through which the warp passes and the related guide. If now one of the warp threads should break, or become unduly loose, the detector normally supported thereby will move downward by gravity and tend constantly to tip inward toward terminal 7 but such inward movement will be prevented by the guide 7 acting against the straight edge of the slot 8; when however the detector moves down sufficiently to permit the shoulder 10 to ride against said guide 6 the curve of said shoulder and the clearance 9 will permit the lateral swinging of the upper part of said detector until the arm 14 contacts with the terminal 7. In such lateral swinging movement any lint or fluff which has not been carried or wiped from the guide 6 will generally be dislodged and the riding action of the shoulder 10 will effect a wiping contact with said guide terminal.

In Fig. 2 is disclosed a form of detector similar in all respects to those shown in Fig. 1 with the exception that the downwardly extending arm 15 which forms part of the thread eye guard is longer than that shown

in Fig. 1 and the arm 12 is omitted thus facilitating the engagement of the detector with the warp. If the electric circuit *x-y* is disconnected from the terminals 6—6 the device described becomes a mechanical detector of which the counter balance arm 14 is the sentinel or indicator. It is therefore obvious that the detector or drop device may be utilized in combination with any suitable mechanical loom stopping mechanism.

It is evident that the shape of the clearance 9 may be changed materially from that herein shown without affecting this invention.

Having thus described my invention I claim as new and desire to secure by Letters Patent.

1. A sheet metal gravity drop having within its area a longitudinal guide slot and thread engaging means located at one side of said guide slot and at a point intermediate the length of said slot.

2. The combination with a warp support, of a gravity drop formed of sheet metal and having a slot engaged with said warp support and thread engaging means located at a point intermediate the ends of said slot whereby the drop may be supported by a warp thread with a portion of its slot above said warp support which portion under the movement of said drop may engage said warp support.

3. The combination with a warp support forming a guide, of a gravity drop slidable on said guide and having thread engaging means adapted to engage a warp thread at a point laterally distant from said guide.

4. A sheet metal gravity drop having within its area two longitudinally extending noncommunicating slots, of which one is a guide slot and the other is a thread slot, the latter having its upper end located at a point intermediate the length of said guide slot, and between said guide slot and the edge of said drop.

ARTHUR KEAN.

Witnesses:

CHARLES B. CUMMINGS,
HENRY J. MILLER.