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Ends Down Indicator

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June 18, 1957

H. M. BROWN
ENDS DOWN INDICATOR
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2,796,040

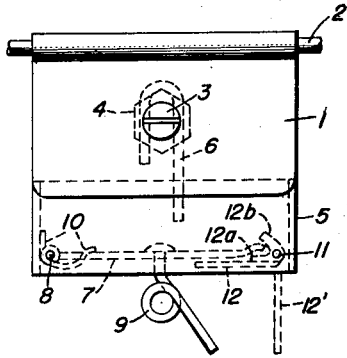


Fig. 1.

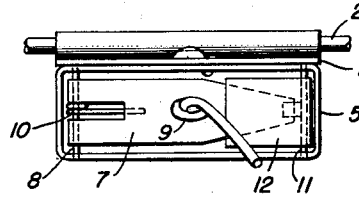


Fig. 2.

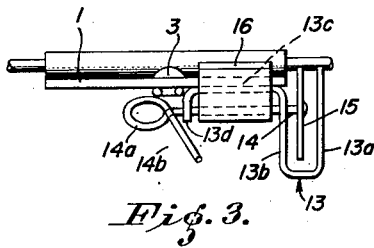


Fig. 3.

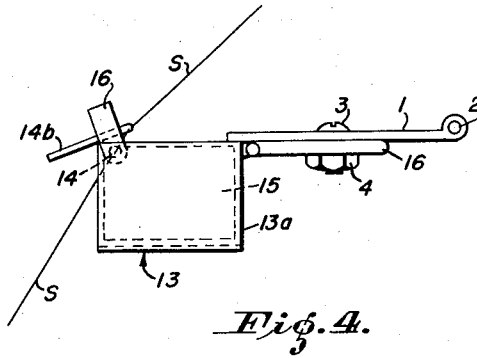


Fig. 4.

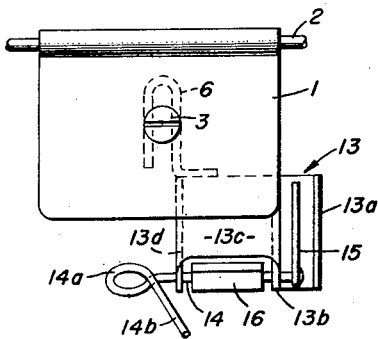


Fig. 5.

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1

2,796,040

ENDS DOWN INDICATOR

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3 Claims. (Cl. 116—114)

This invention relates to an improved ends down indicator and in particular to a simple mechanical indicator which may be readily installed on existing machines without the need for modification of the machine.

When running black or dark colored yarns on spinning frames, it is almost impossible to see the yarns. In some cases the operator must periodically feel all the ends that are up in order to find those that are down.

The primary object of my invention is to provide a simple mechanical indicator that will display a conspicuous signal at the location of a broken strand.

Another object is to provide an indicator of simple and reliable construction which may be readily and inexpensively produced.

Still another object is to provide a reliable indicator which may be attached to existing machines with no modification of the machine.

Two different embodiments of my invention are illustrated in the accompanying drawing in which:

Figure 1 is a top view of one form of indicator;

Figure 2 is a front elevational view of the indicator shown in Figure 1;

Figure 3 is a front elevational view of another form of indicator;

Figure 4 is a side elevational view of the indicator shown in Figure 3; and

Figure 5 is a plan view of the indicator shown in Figure 3.

Referring to the drawing, the usual thread guide support plate provided on a spinning frame is designated by the numeral 1 and is rotatable about a hinge pin 2 running lengthwise of the frame to allow the thread guide to be swung out of the way when doffing a bobbin. A bolt 3 and nut 4 are provided for attaching the usual thread guide to the support plate, the bolt passing through the plate 1 in the middle portion thereof. The indicators of the present invention, which include a thread guide as an integral part thereof, are attached to the support plate 1 by means of bolt 3 and nut 4 in place of the thread guide normally mounted on the support plate.

One form of the indicator is shown in Figures 1 and 2 wherein a rectangular open-ended box-like housing 5 is provided with a U-shaped member 6 extending rearwardly from the upper wall of the housing and perpendicular to the edge thereof. One leg of the U-shaped member is longer than the other and is firmly attached to the upper wall of the housing. The housing 5 is mounted on the plate 1 by positioning the housing beneath the thread guide support with the two legs of the U-shaped member on opposite sides of bolt 3 and clamping the U-shaped member to the thread support plate with nut 4. The slot-like arrangement of the two legs of U-shaped member 6 permits the housing 5 to be adjusted with respect to the support plate 1.

A movable thread guide support arm 7 is mounted within the housing 5 and hinged at one end on a vertical shaft 8, the ends of which are journaled in the upper and lower walls of the housing near one side wall thereof. The

2

thread guide 9 is carried by the pivoted arm 7 with the eye portion through which the thread passes located outside of the housing 5. The movable support arm 7 has a slot formed therein adjacent the hinged end to receive one end of a wire spring 10 bent around pivot pin 8 and tending to swing the other end of arm 7 out of the housing 5.

Hinged about a second vertical shaft 11, which also is journaled between the upper and lower walls of housing 5 near the opposite side wall from the side wall near shaft 8, is a flag 12 which has two abutments 12a and 12b formed thereon. These abutments are engaged by the swinging end of the movable arm 7 so that when the movable arm is swung out of the housing 5 by spring 10 the abutment 12a is engaged and the flag 12 is likewise caused to swing out of the housing. In a like manner, when the movable arm 7 is swung inwardly the abutment 12b is engaged and the flag 12 is swung into the housing 5.

When the indicator is mounted on the support plate 1 and a strand (not shown) coming from a point above pin 2 is threaded through the thread guide 9 and proceeds downwardly from guide 9, the tension in the strand opposes the spring 10 and holds movable support 7 within housing 5. Flag member 12 is also held in a retracted position in the housing. In the event a strand breaks, the support 7 is swung out by spring 10 and the movement of the support causes flag member 12 to be swung out of housing 5 to the position indicated in dotted lines at 12' in Figure 1. When in this position, the flag member is easily visible from either end of the spinning frame and the operator may discover the presence of broken strands very easily. It is desirable to have the flag 12 of a color providing a marked contrast with the color of housing 5.

The form illustrated in Figures 3, 4 and 5 includes a housing 13 having legs 13a and 13b formed in a generally U-shaped housing. One leg 13b of the housing is extended at right angles to the housing to form a horizontal portion 13c. The end portion of the extension is bent at right angles to horizontal portion 13c to form a downwardly extending portion 13d. A shaft 14 is rotatably mounted in suitable holes formed in downwardly extending portion 13d and leg 13b of the U-shaped housing 13. A flag 15 is attached to the end of shaft 14 which extends into the housing 13 and the opposite end of the shaft is formed into a thread guide 14a. Flag 15 is made of a color having marked contrast with the color of housing 13. The angular relationship between flag 15 and the end portion 14b of the thread guide is such that the weight of the end portion 14b tends to rotate the flag 15 to a position which exposes a portion of the flag outside of housing 13. In order to expose a larger portion of the flag 15, a weight 16 is attached to the shaft 14. The angular position of this weight is such that its center of gravity is approximately directly over the axis of shaft 14 when flag 15 is completely within housing 13. In this position the weight has little or no tendency to rotate flag 15 out of the housing. Once the flag is rotated slightly by the end portion 14b, however, the weight 16 increases the turning tendency and rotates the flag to a point where it is fully exposed to view. As with the indicator illustrated in Figures 1 and 2, a U-shaped member 6 is provided for adjustably mounting the housing 13 on the thread guide support 1.

When the indicator has been mounted on the thread guide support 1 and a strand S threaded through the thread guide 14a, the tension in the strand acting on the upper side of the guide overcomes the slight tendency produced by end portion 14b to rotate the flag member 15 out of the housing 13. If the strand breaks, the end portion 14b starts the rotation of the flag member 15 out of the housing 13 and the weight 16 continues the rotation until the flag member is fully exposed. In this position the flag member 15 is easily visible from either end of the spinning frame

and effectively signals the location of the broken strand.

In both forms of my indicator disclosed herein, the flag 15 is mounted so that when it moves into the indicating position the plane of the flag is at right angles to the length of the machine.

While I have described my invention in connection with a spinning frame, I do not wish to be limited to this illustrated application. As will be apparent to those skilled in the art, my invention is capable of many other modifications and applications without departing from the scope of the appended claims.

I claim:

1. An ends down indicator for signalling the presence of a broken strand comprising a housing, a flag member of a color contrasting with that of said housing mounted within said housing and movable to a position which exposes at least a portion of said flag member, a strand guide member movable from an operative position to an inoperative position upon the release of tension in said strand; and means responsive to movement of said guide member to said inoperative position to move said flag member to said exposed position.

2. An ends down indicator for signalling the presence of a broken strand comprising a housing, a shaft extending into said housing, a flag member of a color contrasting with that of said housing mounted on said shaft within said housing and rotatable with said shaft to a position exposing at least a portion of said flag member outside of

said housing, a strand guide member, means connecting said shaft and said guide member in such angular relation that tension in said strand tends to rotate said flag into said housing, and counterbalancing means acting on said shaft and tending to rotate said flag out of said housing upon release of tension in said strand.

3. An ends down indicator for signalling the presence of a broken strand comprising a housing, a movable thread guide support member mounted to pivot about a vertical axis in said housing, a thread guide mounted on said support and extending out of said housing in a position so that tension on a strand passing through said guide holds said support in said housing, means tending to swing said support out of said housing, a flag member of a color contrasting with that of said housing mounted to pivot about a second vertical axis in said housing, and being movable from a position within said housing to a position where a major portion of the flag is outside of the housing, means operated by said support in swinging out of said housing to swing said flag out of said housing, and means operated by said support in swinging into said housing for moving said flag into said housing.

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