E. H. RYON.

WEFT DETECTOR FOR LOOMS.

APPLICATION FILED JAN. 2, 1918.

1,337,726.

Patented Apr. 20, 1920.

2 SHEETS—SHEET 1.

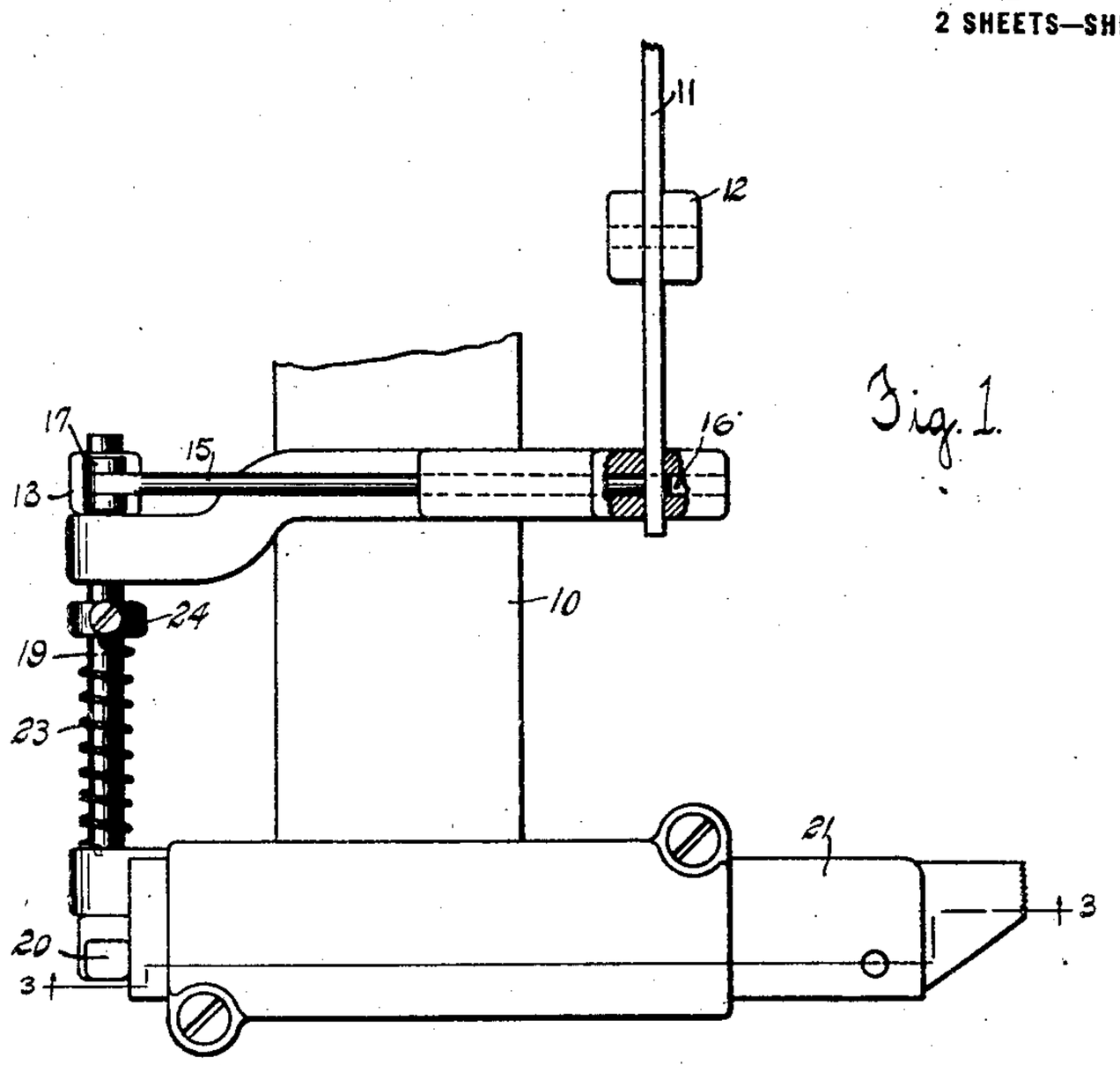


Fig. 1.

Fig. 2.

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Fig. 3.

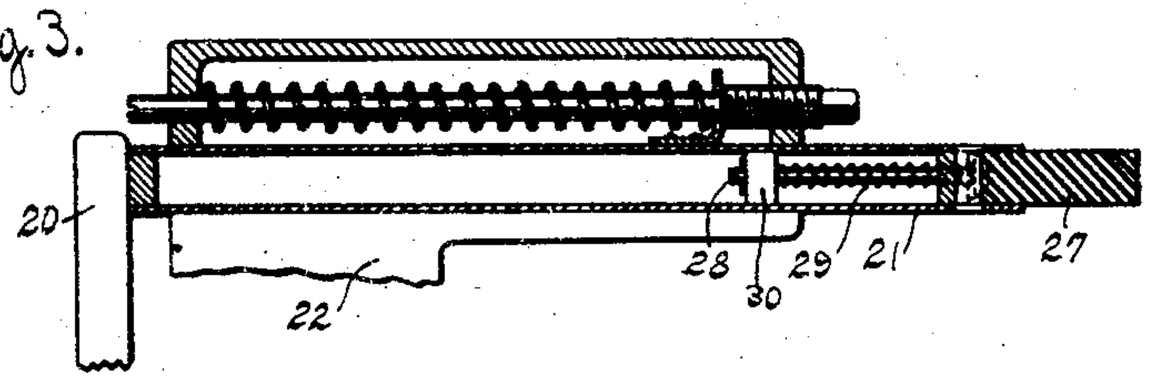


Fig. 4.

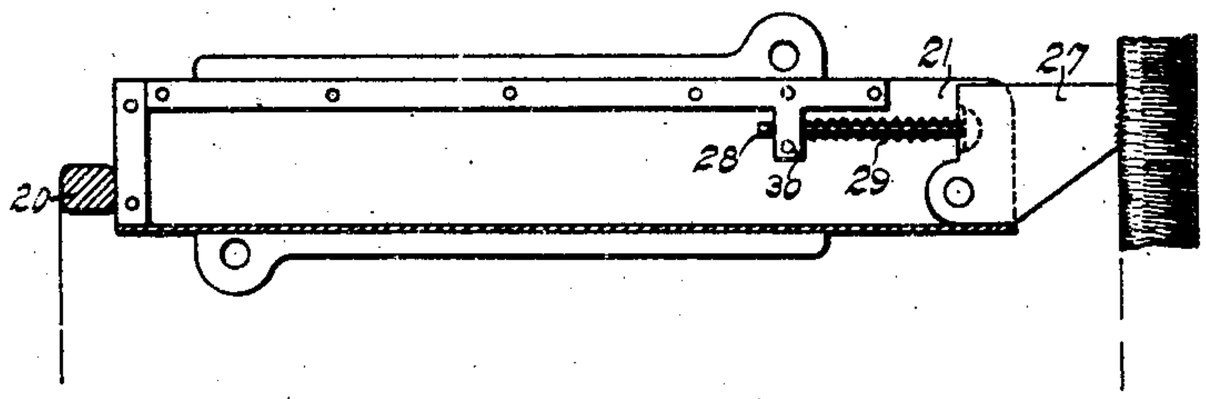


Fig. 5.

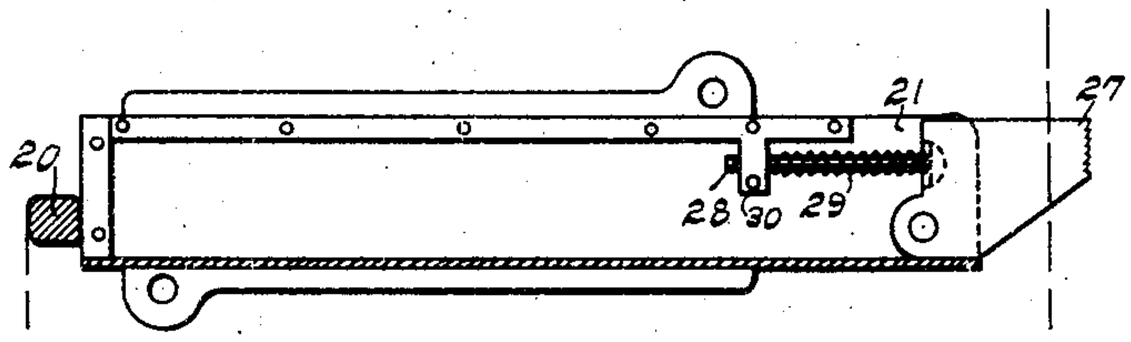


Fig. 6.

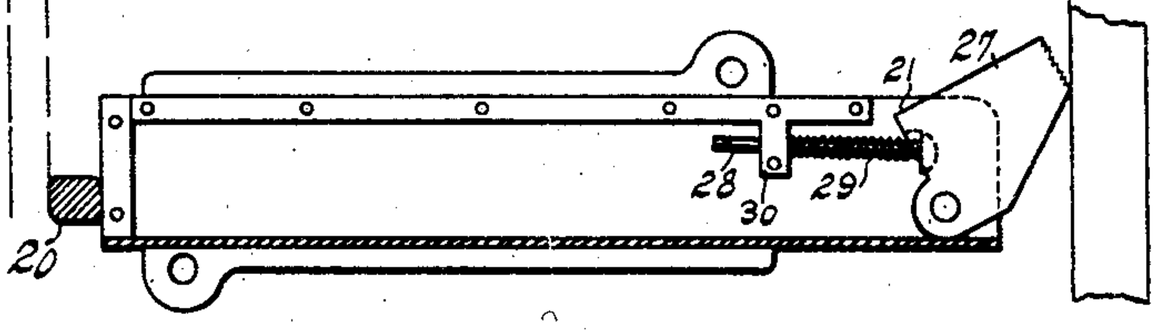
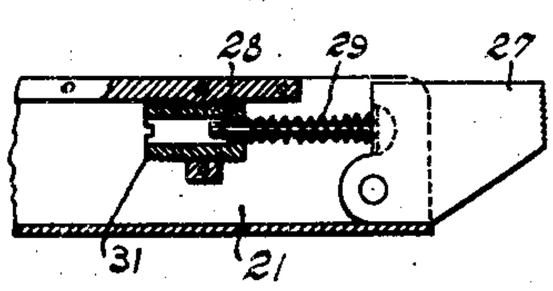


Fig. 7.



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UNITED STATES PATENT OFFICE.

EPPA H. RYON, OF WALTHAM, MASSACHUSETTS, ASSIGNOR TO CROMPTON & KNOWLES LOOM WORKS, OF WORCESTER, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

WEFT-DETECTOR FOR LOOMS.

1,337,726. Specification of Letters Patent. Patented Apr. 20, 1920.

Application filed January 2, 1918. Serial No. 209,818.

To all whom it may concern:

Be it known that I, EPPA H. RYON, a citizen of the United States, residing at Waltham, in the county of Middlesex and State of Massachusetts, have invented a new and useful Weft-Detector for Looms, of which the following is a specification.

This invention relates particularly to that type of weft detecting mechanism by means of which substantial exhaustion of weft on the active weft carrier is ascertained. More specifically my invention relates to a class of such detectors in which a detecting member is pivotally supported and is so formed that it will swing upon its pivot only upon engagement with a substantially exhausted weft carrier. It is the general object of my invention to improve and simplify the construction of such devices, to the end that their operation may be made reliable and satisfactory.

With this general object in view, my invention relates to certain combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of my invention is shown in the drawings, in which—

Figure 1 is a plan view of my improved detecting mechanism;

Fig. 2 is a side elevation thereof;

Fig. 3 is a vertical sectional view taken along the line 3—3 in Fig. 1;

Fig. 4 is a partial horizontal plan view taken along the line 4—4 in Fig. 2;

Figs. 5 and 6 are views similar to Fig. 4, but showing the parts in different positions, and

Fig. 7 is a detail sectional view of a slight modification.

I have shown my invention embodied in a weft detecting mechanism of the general type shown in my prior Patent No. 972,722 granted to me October 11, 1910.

This mechanism includes a stand or frame 10 having associated therewith an actuator 11 mounted upon a floating pivot 12 and having one end movable in a slot 13 (Fig. 3) formed in a bracket 14 fixed to the frame 10. A plunger 15 is slidable transversely of the slot 13 through a hole 16 in the bracket, said plunger being pivoted at 17 to an arm 18 mounted on a short rock shaft 19. The shaft 19 is carried in bearings secured to the frame 10, and at its opposite end is provided with a second arm 20, positioned for engagement by a slide 21 mounted for longitudinal movement in a stand 22. A spring 23 is interposed between a collar 24 and one of the bearings of the shaft 19 and causes the arm 20 to yieldingly engage the left hand or front end of the slide 21.

The stand 22 is secured to the frame 10 by a bolt 25 and may be vertically adjusted thereon by an adjusting screw 26. The slide 21 is formed as a hollow shell, one end of which directly engages the arm 20. Near the rear or right hand end of the slide 21 is pivotally connected a detecting member 27, preferably of hard rubber or fiber and provided with shallow teeth on its outer face.

A plunger 28 surrounded by a light coiled spring 29 is slidable in a bearing 30 in the slide 21, and engages the detector 27 as shown in Fig. 4, in which the detector 27 is in its normal position.

In Fig. 7 I have shown a slight modification in which the plunger 28 is slidable in a sleeve 31. The sleeve is threaded into the frame of the slide 21 and is slotted at one end so that it may be adjusted to vary the tension of the spring 29.

The method of operation of my improved detector is extremely simple. The normal position of the slide 21 and detector 27 is shown in Fig. 5. This corresponds to the position of the plunger 15 shown in Figs. 1 and 2. Whenever the detector 27 is engaged by a weft carrier having a supply of weft thereon, the teeth on the end of the detector prevent the detector from sliding along the weft carrier, and the slide 21 is therefore pushed forward to the position shown in Fig. 4, in which position the plunger 15 is withdrawn from the path of the actuator.

When, however, the supply of weft on the weft carrier is substantially exhausted, the weft will no longer prevent the sliding of the detector along the weft carrier, and the parts will assume the position shown in Fig. 6, the detector swinging about its pivot and the slide 21 remaining unmoved. The plunger 15 is thus left in the path of the actuator 11 which is thereby rendered operative to indicate a transfer.

It will be seen that this construction provides an extremely simple detector, as the slide 21 has only a single movable element mounted thereon, and furthermore, the slide itself directly engages the arm 20, so that

there are no connections between the parts subject to wear and consequent inaccuracy in operation. The detector 27 is also free to swing farther to the left as viewed in Fig. 6, so that the slide 21 will directly engage a misplaced shuttle. This arrangement prevents a misplaced shuttle from placing excessive strain upon the detector spring 29.

It will be evident that changes and modifications may be made in my invention by those skilled in the art, without departing from the spirit and scope thereof as set forth in the claims, and I do not wish to be otherwise limited to the details herein disclosed, but what I claim is:—

1. A weft detecting mechanism comprising a stand, a slide movably mounted thereon, an actuator, a member controlling said actuator and normally positioned to render said actuator operative, connections between said member and said slide, a single detector movably mounted direct on said slide, and a spring yieldingly holding said detector in position to engage a weft carrier, said detector and slide being movable in a straight line as a unit and in fixed relative position by engagement of said detector by a sufficient supply of weft on an active weft carrier, and said detector being movable relatively to said slide by engagement of said detector by a substantially exhausted weft carrier.

2. A weft detecting mechanism having, in combination, an actuator, controlling devices including an arm, a slide directly engaging and moving said arm, a single detector directly pivoted to said slide, a plunger engaging said detector, a spring for said plunger, and means to adjust the tension of said spring, comprising a sleeve threaded in said slide and forming both a bearing for said plunger and an adjustable support for said spring.

3. A weft detecting mechanism comprising a stand, a slide mounted thereon, said slide being positioned to directly engage a misplaced shuttle, a single detector pivoted between the upper and lower plates of said slide, an actuator, and connections through which said slide is effective to render said actuator inoperative when said slide is moved forward from normal position.

In testimony whereof I have hereunto affixed my signature.

EPPA H. RYON.