Nov. 18, 1924.

E. H. RYON

1,515,887

WEFT DETECTING MECHANISM

Filed Dec. 17, 1920

3 Sheets-Sheet 1

Fig. 1.

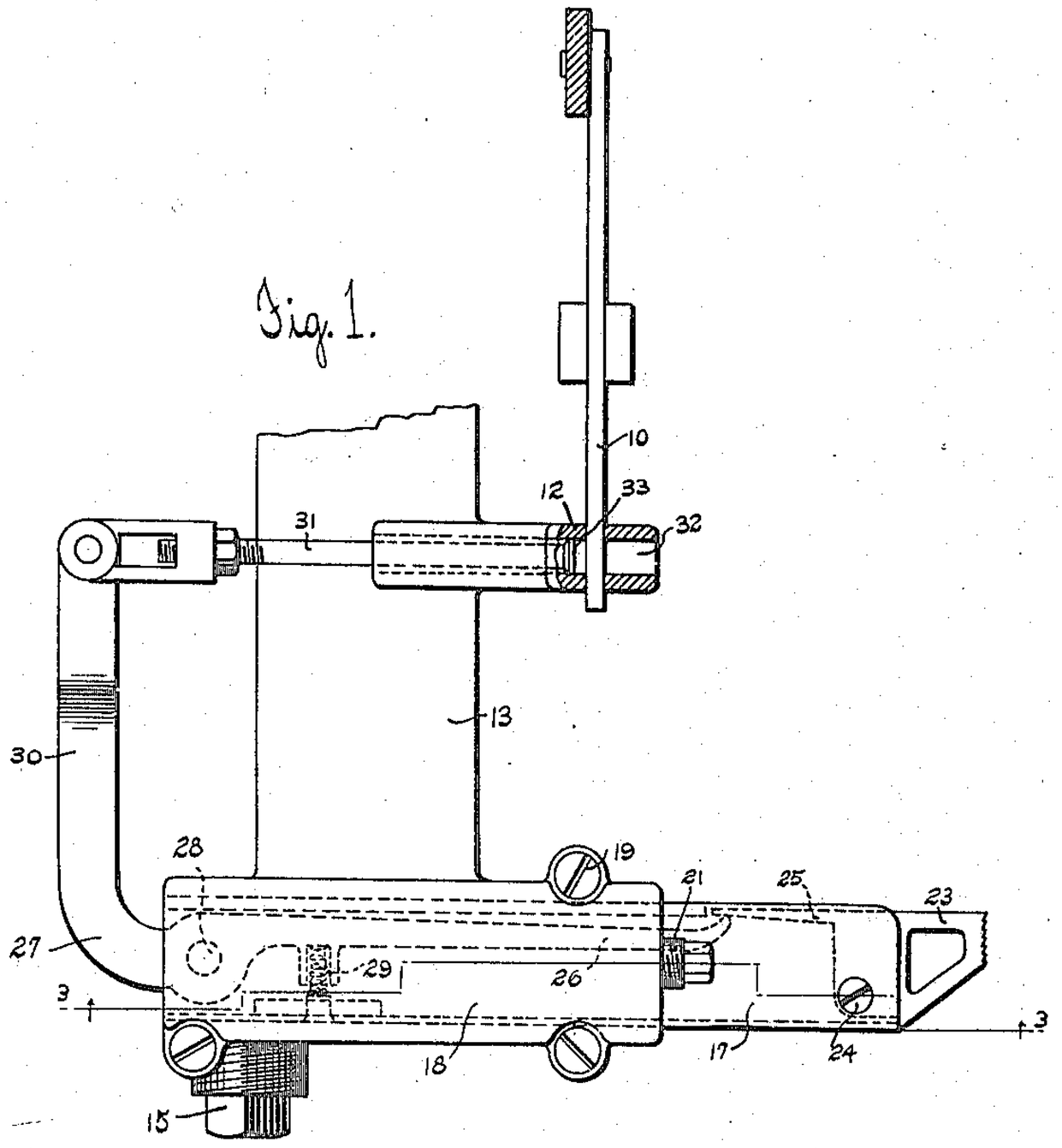

Fig. 2.

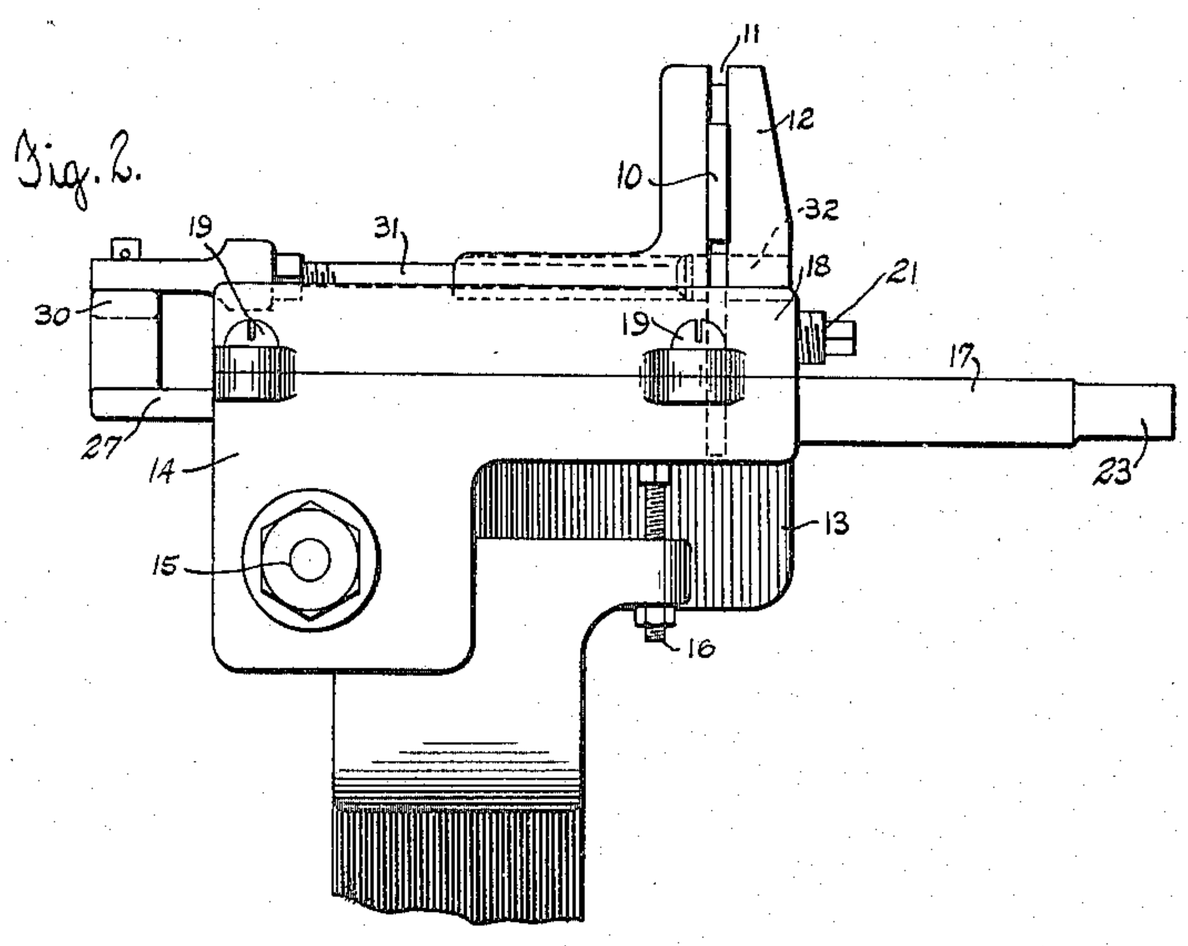

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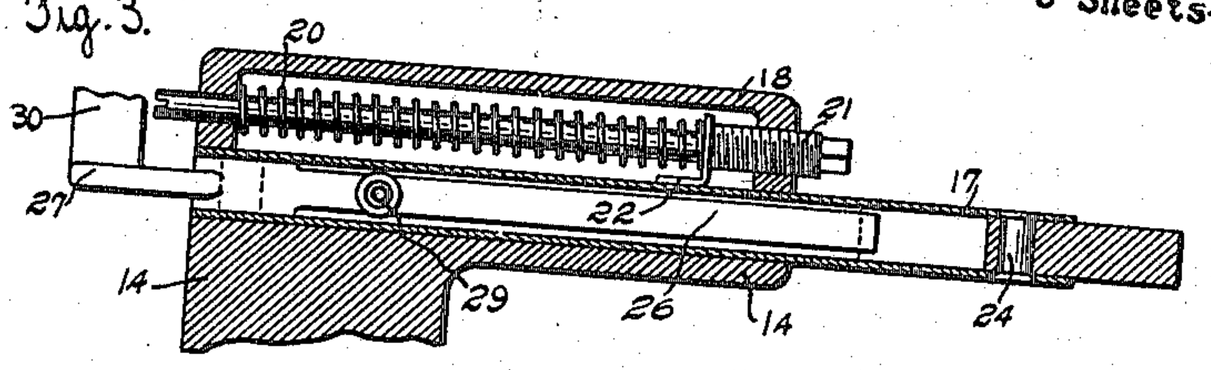
Fig. 3.



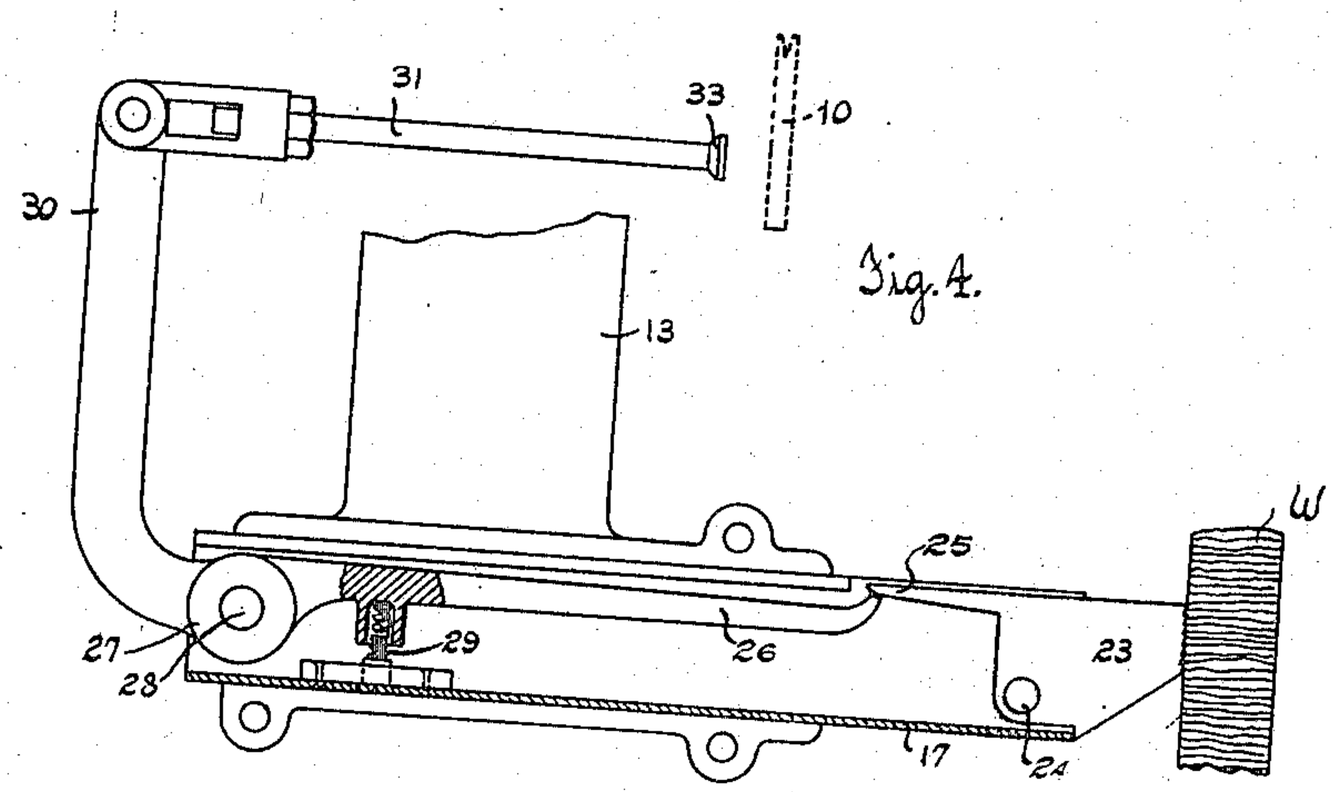


Fig. 4.

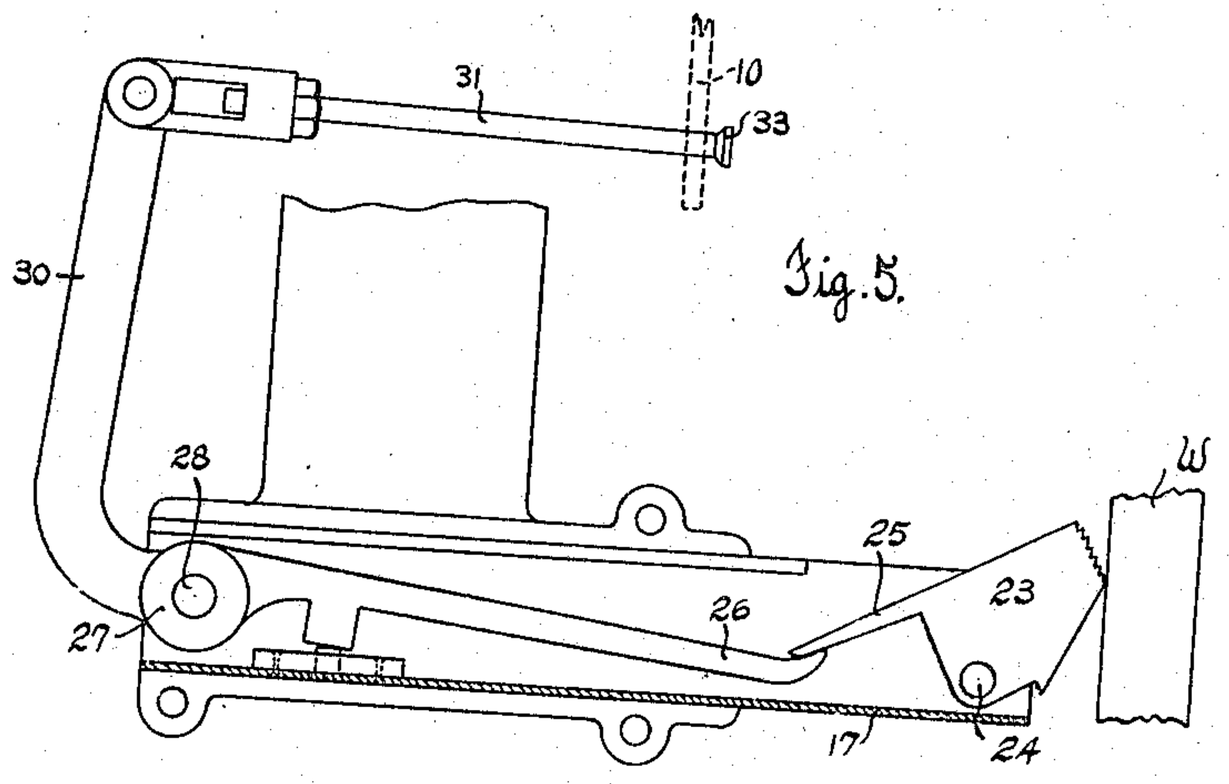


Fig. 5.

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3 Sheets-Sheet 3

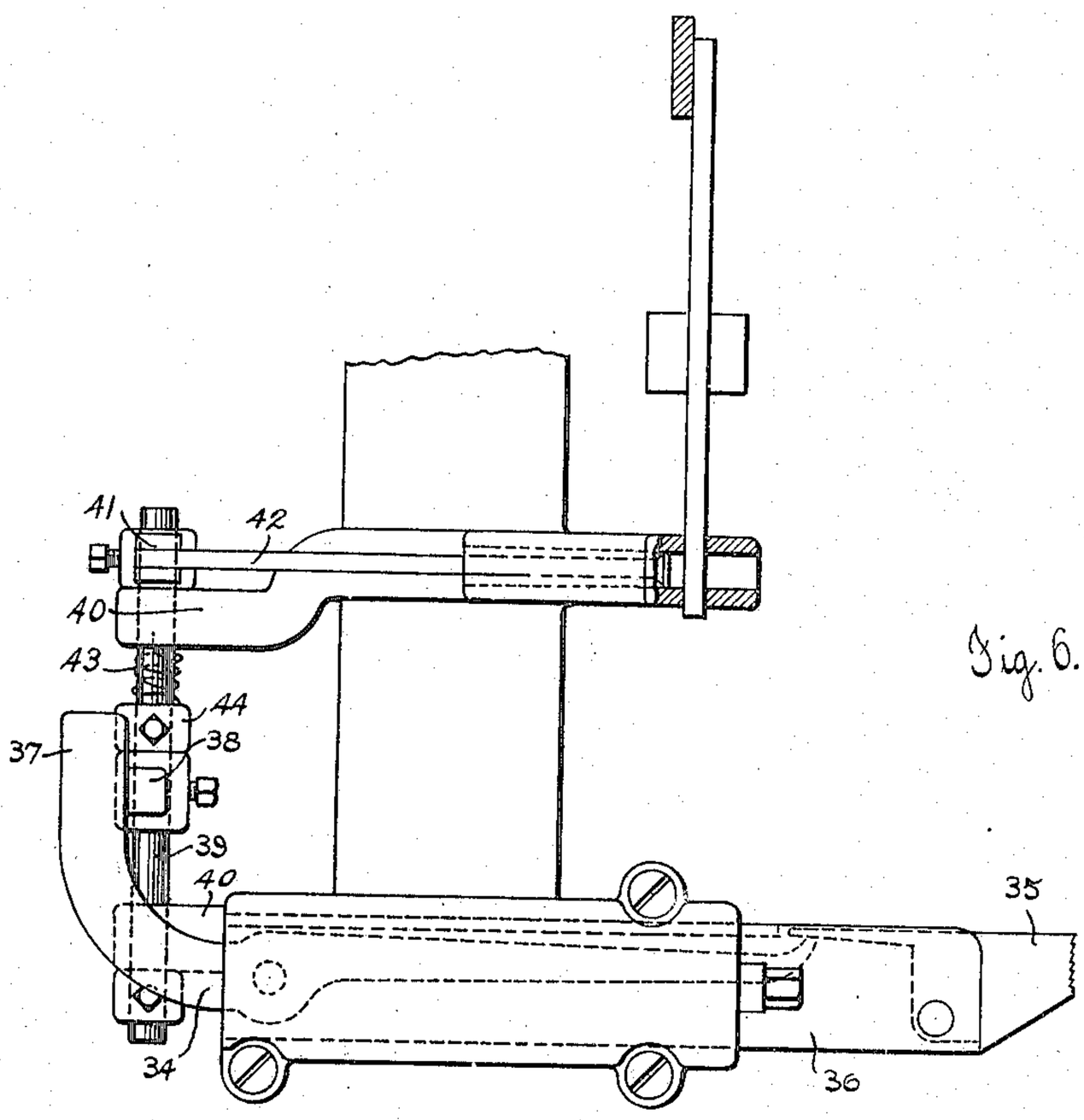

Fig. 6.

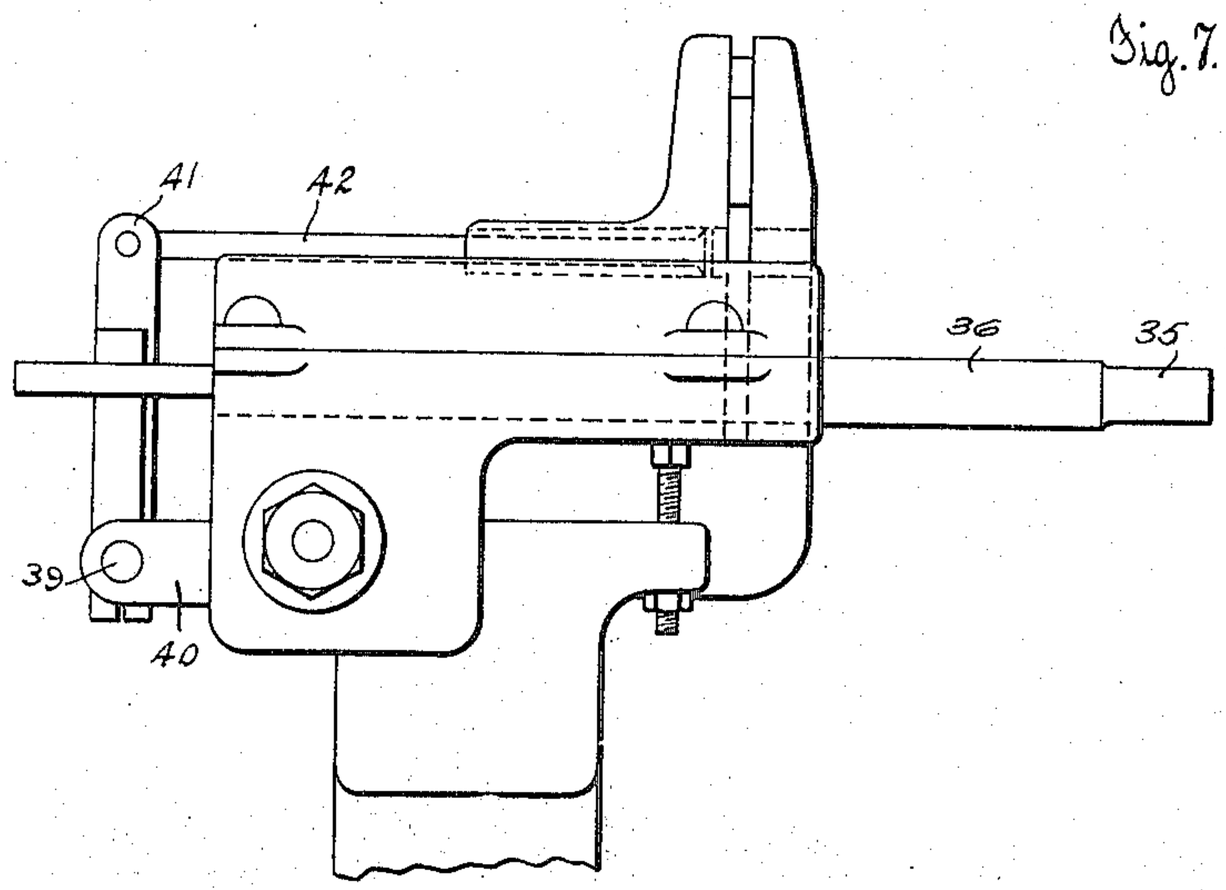

Fig. 7.

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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-DETECTING MECHANISM.

Application filed December 17, 1920. Serial No. 431,378.

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-Detecting Mechanism, of which the following is a specification.

This invention relates to weft detecting mechanism of the general type shown in my prior Patent #1,337,726, issued April 20, 1920.

It is the object of my present invention to improve and simplify the construction therein shown and to also modify the method of operation.

With this general object in view, one feature of my invention relates to the provision of a direct connection between the weft detecting member and the sliding rod which controls the actuator.

Another feature relates to the provision of a controlling member normally in inoperative position and moved to operative position upon the indication of weft exhaustion. I have also provided a special construction by which the engagement of the controlling member with the actuator is prolonged and made more certain.

My invention further relates to arrangements and combinations of parts hereinafter described and more particularly pointed out in the appended claims.

A preferred form of my invention and a modification thereof are shown in the drawings in which—

Fig. 1 is a plan view of one form of my improved mechanism;

Fig. 2 is a side elevation thereof;

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

Figs. 4 and 5 are diagrammatic plan views illustrating the operation of the mechanism; and

Figs. 6 and 7 are a plan view and side elevation, respectively, of a modification.

Referring to Figs. 1 to 5, I have shown an actuator 10 movable in a slot 11 in a vertical projection 12 formed on a fixed casting 13.

A stand 14 is pivoted at 15 to the casting 13 and may be adjusted thereon by means of a stop screw 16. The stand 14 is provided with a guideway for a rectangular hollow slide 17 which is retained in the guideway by a cap 18 secured in place by screws 19. A spring 20 is enclosed in the cap 18 and is positioned therein by a rod 21 threaded in one end of the cap and having a shoulder thereon normally yieldingly engaged by a bracket 22 on the slide 17. The extreme rearward position of the slide 17 may be adjusted by turning the rod 21 in the cap 18.

A detecting member 23 is pivoted at 24 to the rear end of the slide 17 and is provided with a toothed edge adapted to engage the weft on the active weft carrier. The member 23 is also provided with a forwardly extending projection 25 which is engaged by the rearwardly extending arm 26 of a lever or bell-crank 27 pivoted at 28 near the front end of the slide 17. A spring 29 normally holds the lever and detecting member yieldingly in the positions shown in Fig. 4.

The laterally extending arm 30 of the lever 27 is pivotally connected to one end of a rod 31 slidable in a recess 32 formed in the projection 12 of the casting 13. The recess 32 intersects the slot 11 previously described. The rod 31 is threaded in its connector and may be adjusted lengthwise so that it normally occupies the position shown in Fig. 1, out of the path of the actuator 10.

When the detecting member 23 is engaged by a weft carrier W having a sufficient supply of weft thereon, the teeth on the detecting member are caught by the weft threads and swinging movement of the member is prevented. The slide 17 is then moved a short distance forward, as indicated in Fig. 4, withdrawing the rod 31 still further from the path of the actuator 10.

When, however, the weft is substantially exhausted, as indicated in Fig. 5, the member 23 turns freely on its pivot 24, swinging the lever 27, and advancing the rod 31 to the position shown in Fig. 5, thus rendering the actuator 10 effective to indicate substantial weft exhaustion.

In order that the rod 31 may not be withdrawn before such indication by the actuator is complete, I have provided an enlarged head 33 on the rod which is engaged by the actuator and prevents the return of the rod to its normal position until the actuator is moved out of engagement therewith.

It will be understood that a reserve sup-

ply or preliminary bunch of weft is commonly provided near the base of the weft carrier, so that the barrel of the weft carrier will be uncovered in line with the member 23, before the weft is entirely exhausted. My improved mechanism is noticeable for the few parts involved and for the absence of close adjustments.

In Figs. 6 and 7 I have shown a modified construction in which a lever 34 is engaged at its rear end by a forwardly projecting portion of a detecting member 35, the parts 34 and 35 both being pivotally secured to a slide 36. The forward end 37 of the lever 34 is bent around as shown in Fig. 6 and is engaged by an arm 38 secured to a short shaft 39 mounted in fixed bearings 40. A second arm 41 is secured to the end of the shaft 39 and is pivotally connected to a sliding rod 42 corresponding in position and function to the rod 31 already described and shown in Figs. 1 to 5. A coil spring 43 surrounds the shaft 39 and is secured at one end to one of the bearings 40 and at the opposite end to a collar 44 adjustable on the shaft 39. The spring 43 presses the arm 38 against the front end portion 37 of the lever 34 and thus holds the rear end of the lever 34 yieldingly against the projection of the detecting member 35.

This form of my invention is particularly desirable in cases where it may be necessary to adjust the detecting mechanism laterally in accordance with the boxed position of the shuttle and weft carrier. The engagement of the parts 37 and 38 is also such as to permit free forward movement of the slide 36 if the member 35 is engaged by the side of a misplaced shuttle.

Having thus described two forms of my invention, it will be evident that other changes and modifications can be made therein by those skilled in the art within the spirit and scope of my invention 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. Weft detecting mechanism comprising an actuator, a slide, a detecting member movably mounted on said slide, a bell-crank pivoted on said slide and having a rearwardly projecting portion directly engaged by said member, a spring effective to press said bell crank yieldingly against said member thereby holding said member in normal position, and a controlling member connected at one end to said bell-crank and movable thereby into position to render said actuator operative upon indication of substantial weft exhaustion.

2. Weft detecting mechanism comprising an actuator, a slide, a detecting member movably mounted on said slide, a bell-crank pivoted on said slide and having a rearwardly projecting portion directly engaged by said member, a spring effective to press said bell-crank yieldingly against said member thereby holding said member in normal position, and a rod connected at one end to said bell-crank and movable thereby into position for engagement by said actuator upon indication of substantial weft exhaustion, the free end of said rod being enlarged to prolong the period of engagement with said actuator.

3. Weft detecting mechanism comprising an actuator, a slide, a detecting member mounted on a pivot fixed at the rear end of said slide and having a portion forming a forwardly extending projection, a lever pivoted in the front end of said slide, a spring to press said lever yieldingly against said projection, and transfer indicating mechanism controlled by said lever, said spring acting in all positions of said slide to yieldingly hold said indicating mechanism in inoperative position with respect to said actuator.

4. Weft detecting mechanism comprising an actuator, a slide, a detecting member movably mounted at one end of said slide, a lever pivoted at the opposite end of said slide, a spring to press said lever in direct yielding engagement against said member, and controlling means for said actuator movable to operative position by said lever, said spring acting in all positions of said slide to yieldingly hold said controlling means in inoperative position with respect to said actuator.

5. Weft detecting mechanism comprising an actuator, a detecting member, a movable support for said member, said member having a portion forming a forwardly extending projection, a lever mounted on said support, a spring holding one end of said lever in direct yielding engagement with said projecting portion of said detecting member, a controlling device for said actuator, and connections between the second end of said lever and said controlling device whereby said device may be moved to operative position, said spring acting in all positions of said support to yieldingly hold said controlling device in inoperative position with respect to said actuator.

In testimony whereof I have hereunto affixed my signature,

EPPA H. RYON.