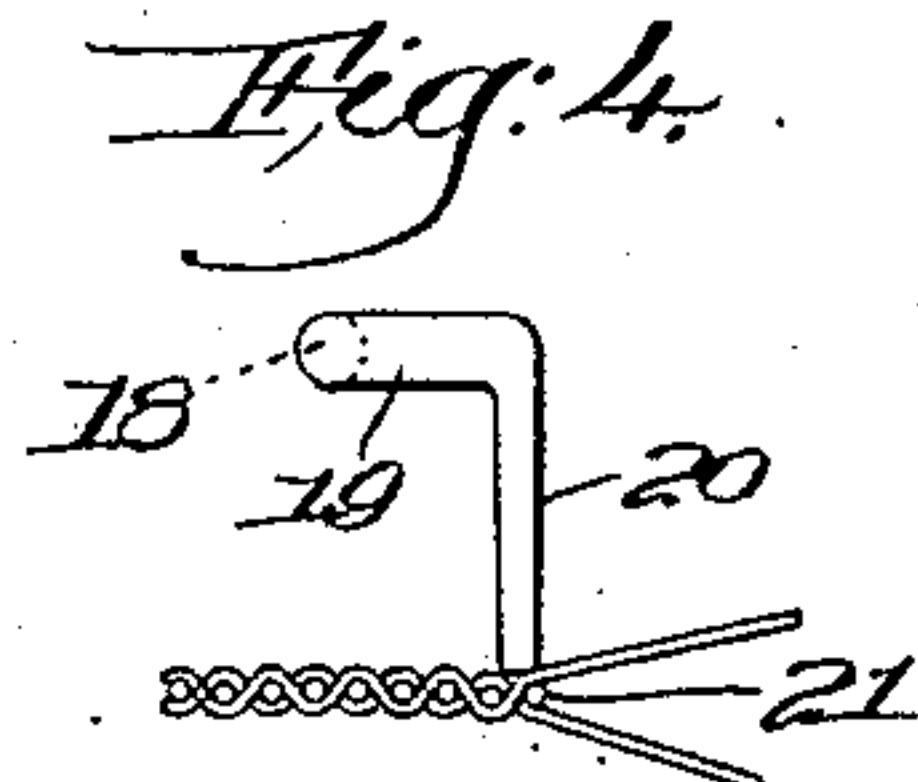
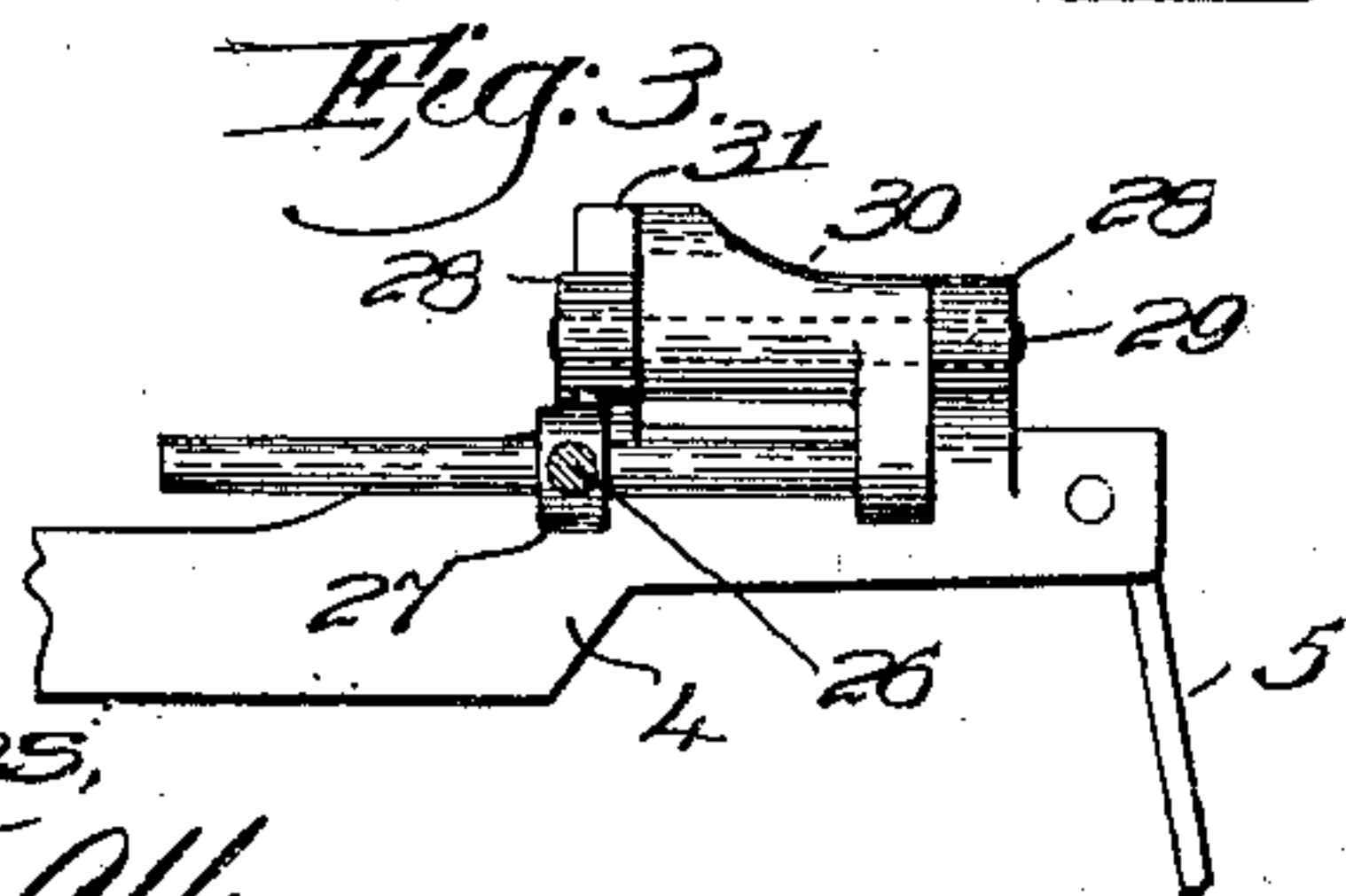
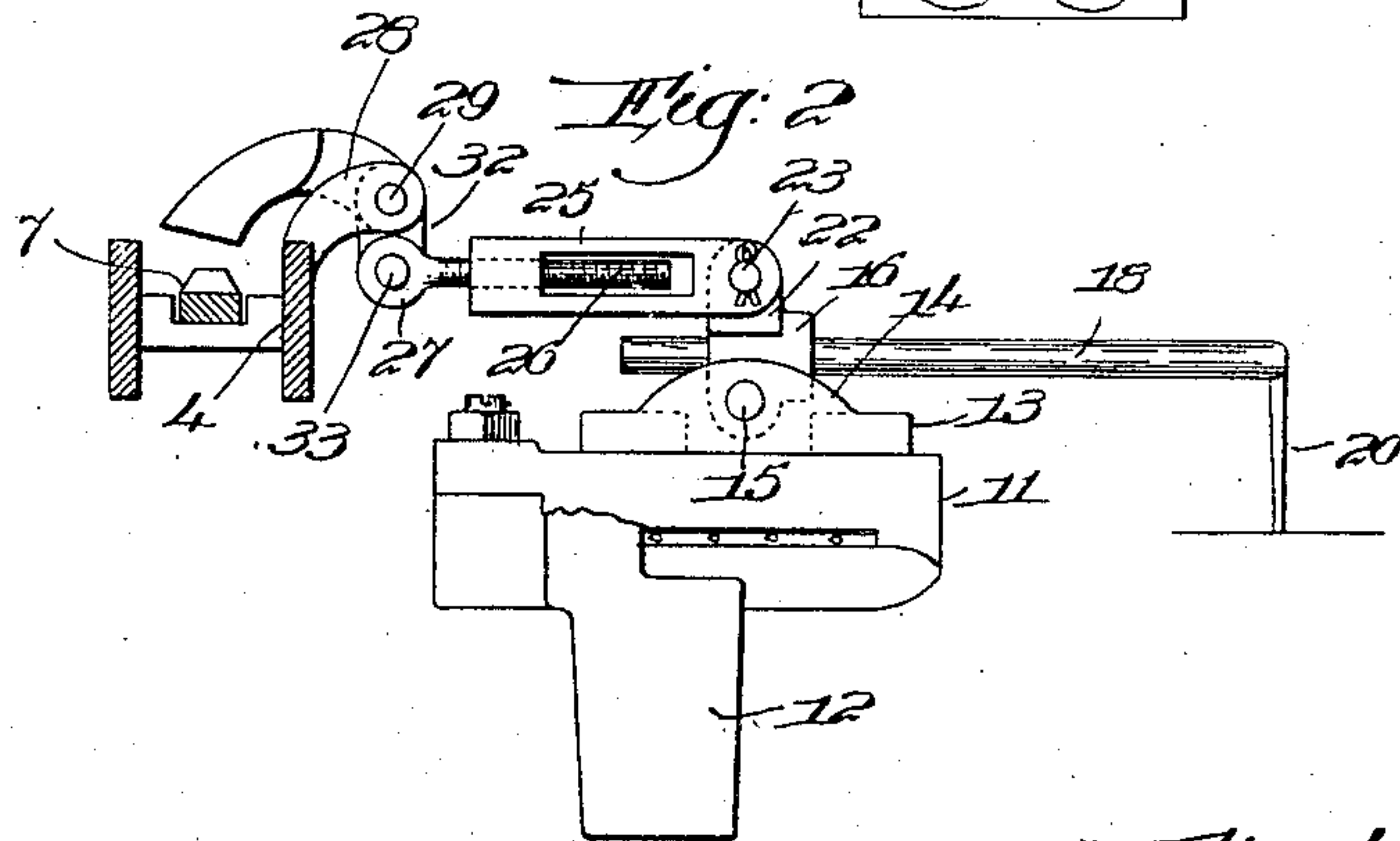
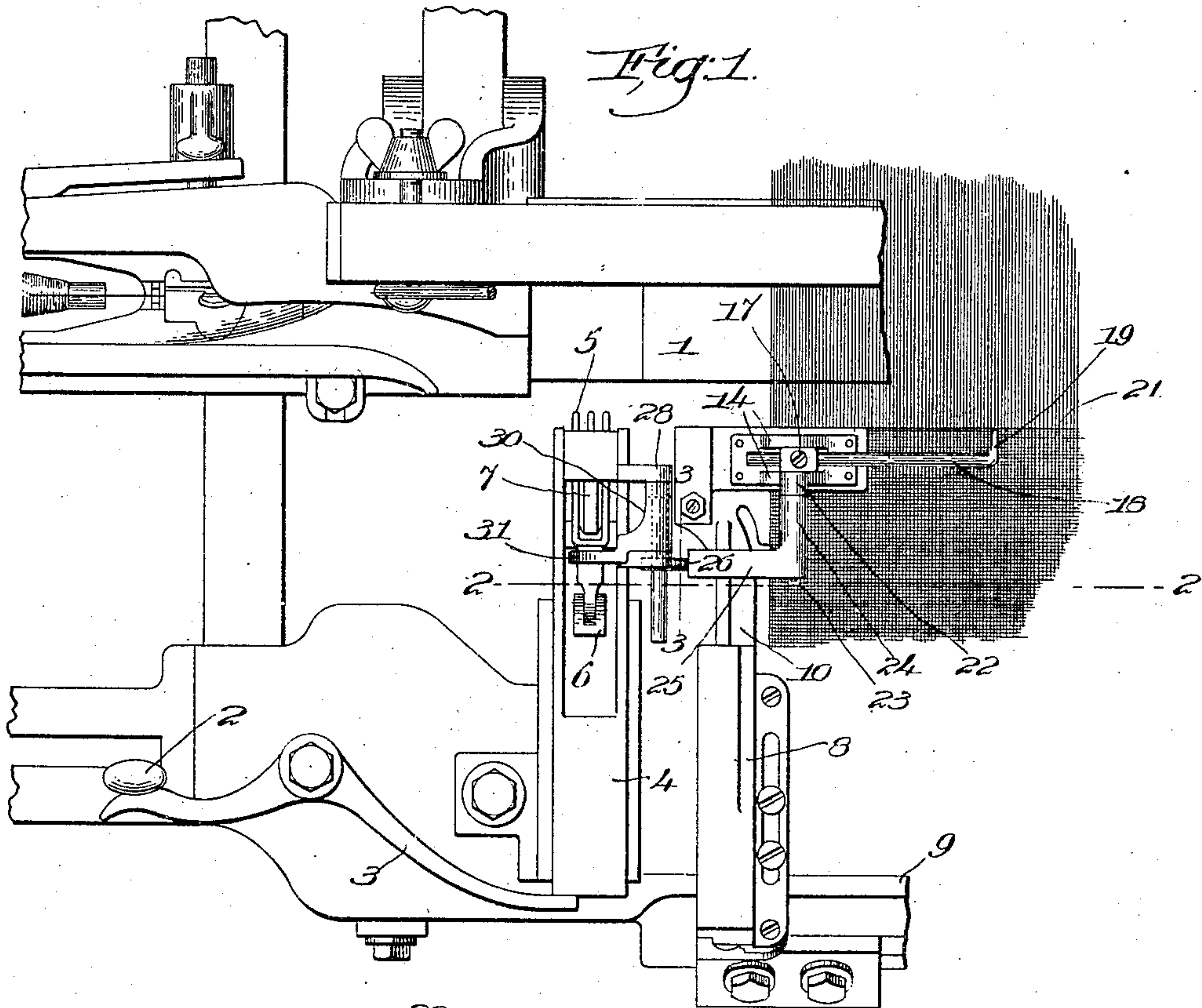


A. E. RHOADES.
THIN PLACE DETECTING MEANS FOR LOOMS.
APPLICATION FILED SEPT. 13, 1909.

956,172.

Patented Apr. 26, 1910.



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UNITED STATES PATENT OFFICE.

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THIN-PLACE-DETECTING MEANS FOR LOOMS.

956,172.

Specification of Letters Patent.

Patented Apr. 26, 1910.

Application filed September 13, 1909. Serial No. 517,353.

To all whom it may concern:

Be it known that I, ALONZO E. RHOADES, a citizen of the United States, residing at Hopedale, county of Worcester, and State of Massachusetts, have invented an Improvement in Thin-Place-Detecting Means for Looms, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention has for its object the production of novel means for detecting promptly the occurrence of a thin place or streak in the cloth being woven on a loom, and to effect automatically a change in the operation of the loom, such as stoppage thereof, when such detection is made.

I have so constructed and arranged the apparatus embodying one practical form of my invention that the detector or finger can be positioned or set practically at the fell, or at a distance of only a pick or two therefrom, so that the detection of a thin place is very prompt, minimizing the amount of cloth to be picked out when a thin place occurs. To enable such a close setting of the detector, without any interference with the reed as the lay beats up, I have mounted the detector on the temple head, so that the detector is moved in unison with the fell at the beat up, and detecting movement of the detector is utilized to bring about release of the shipper through forward movement of the usual fork-slide.

The various novel features of my invention will be fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a top plan view of a portion of a loom with thin place detecting means embodying my invention applied thereto. Fig. 2 is an enlarged cross-sectional view on the line 2—2, Fig. 1, looking toward the back of the loom. Fig. 3 is a transverse section on the line 3—3, Fig. 1, looking toward the left, showing the latch mounted on the fork-slide and adapted to cooperate with the weft-hammer upon detection of a thin place. Fig. 4 is a side elevation of the detector, showing it resting upon the cloth adjacent the fell.

In the drawings, 1 is the lay, 2 the usual shipper, released from its holding-notch by movement of the knock-off lever 3 when the usual fork-slide 4 is moved forward; 5 is

the filling fork, 6 the vibrator or weft-hammer, having a hook 7 to cooperate with the fork-tail when absence of filling is detected by the fork, and 8 is a temple stand fixed on the breast-beam 9 and having a reciprocating shank 10, longitudinally slidable in the stand and provided with a suitable temple 11 furnished with a depending heel 12, Fig. 2, to be struck by the lay as it beats up and thereby move the temple forward. All of said parts are and may be of well known or usual construction and operate in a manner familiar to those skilled in the art.

Upon the upper part or pod of the temple 11 I attach a casting 13 having parallel, upright ears 14 which carry a pivot 15, on which is fulcrumed a block 16, the pivot being parallel to the direction of movement of the fork-slide 4. An elongated arm 18 is adjustably held in the upper part of the block by set-screw 17, Fig. 1, and extends inward parallel to the fell of the cloth, the free end of said arm being turned rearward at 19 and then downward at 20 to form the detector proper, such detector thus being brought to bear upon the cloth immediately adjacent the fell 21, as shown clearly in Fig. 4.

A boss 22 on the block 16, overhanging the front one of the ears 14, has extended frontward therefrom a stud 23 on which is mounted loosely a sleeve 24 provided with a slotted arm 25 extended laterally toward the fork-slide, as shown in Figs. 1 and 2. Said arm has a threaded hole to receive the threaded shank of a link 26 having an apertured head 27, rotation of the link serving to move its head toward or away from the stud 23.

Referring now to Figs. 2 and 3, the fork-slide is provided at its inner side with parallel ears 28, between which is pivoted at 29 the hub 30 of a latch 31 which is movable into and out of the path of the weft-hammer hook 7, a depending lug 32 on the hub having rigidly attached to it a rod 33 extended forward parallel to the fork-slide and having a free sliding fit in the head 27 of the link 26. The rod 33 is parallel to the latch fulcrum 29, the stud 23, and the fulcrum 15 for the detector arm 18, and viewing Fig. 2 it will be seen that when the detector 20 is resting on the cloth the latch 31 will be held raised above the path of the vibrating hook 7, and as the temple moves back and

forth the link head 27 slides along the rod 33. If, however, a thin place occurs in the cloth the detector 20 descends through the warp and thereby the block 16 is rocked to the right on its fulcrum 15, and the arm 25 acts through the link 26 and lug 32 to swing the latch 31 down into operative position to be engaged by the hook 7 on the forward stroke of the weft-hammer 6. This engagement of latch and hook moves the slide 4 outward, rocking the knock-off lever 3 and releasing the shipepr 2, to effect loom stoppage in the usual way. When the slide is moved outward the rod 33 slides through the head of the link, so that no disarrangement of parts can occur. As the detector arm 18 is quite long relative to the distance between the fulcrum 15 and the stud 23, and the leverage of the lug 32 is very short, the descent of the detector through the cloth is ample to effect the operative positioning of the latch 31. Inasmuch as the temple moves forward on each forward beat of the lay the detector, mounted on the temple, will be moved in unison therewith, and thus the detector is prevented from being interfered with by the reed at the time the filling is beaten in. No strain is brought upon the temple or upon the parts carried thereby when the fork-slide is moved forward, for at such time the rod 33 slides freely through the head of the link 26, as will be apparent. The adjustment of the link in the arm 25 provides for lateral adjustment of the temple stand, for the latter is moved toward or away from the path of the fork-slide in order to properly set the temple with relation to the cloth, and when such temple adjustment is made the link is adjusted correspondingly.

The detector can be adjusted laterally by means of the set-screw 17, and it can also be set with its tip toward or away from the fell of the cloth by turning the arm 18 in one or the other direction in the block 16 and then tightening the set-screw.

Changes in details of construction and arrangement may be made by those skilled in the art without departing from the spirit and scope of my invention, as set forth in the claims annexed hereto.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a loom, in combination, a thin-place detector to normally rest upon the cloth adjacent the fell, a reciprocating temple upon which the detector is pivotally mounted, said detector thereby moving substantially in unison with the fell of the cloth when the filling is beaten in, a filling fork, a fork-slide, means actuated by movement thereof to effect a change in the operation of the loom, a vibrator normally acting to move the slide by coöperation with the filling-

fork, a latch carried by the slide and adapted, upon direct coöperation with the vibrator and independently of the filling-fork, to effect movement of the slide, and means governed by the detector to operatively position the latch when a thin place in the cloth is detected.

2. In a loom, in combination, a thin-place detector to normally rest upon the cloth adjacent the fell, a reciprocating temple upon which the detector is pivotally mounted, said detector thereby moving substantially in unison with the fell of the cloth when the filling is beaten in, means to adjust said detector laterally with relation to the temple and also toward and from the fell of the cloth, and means, including a fork-slide and a shipper, to effect release of the shipper automatically upon the detection by said detector of a thin place in the cloth.

3. In a loom, in combination, a thin-place detector to normally rest upon the cloth adjacent the fell, means to effect forward movement of the detector with the fell at the beat-up of the filling, a shipper, releasing means therefor, including a slide and an actuating member therefor, a latch carried by the slide and adapted to at times coöperate with said member, and sliding connections between the latch and detector governed by the detector to effect operative positioning of the latch when detection of a thin place in the cloth occurs.

4. In a loom, in combination, a thin-place detector to normally rest upon the cloth adjacent the fell, a reciprocating temple, a rocking support thereon with which the detector is adjustably connected, a slide, an actuating member therefor, a latch pivoted on the slide and adapted when operatively positioned, to effect coöperation between the slide and its actuating member, and adjustable, sliding connections between said latch and the detector and controlled by the latter, to operatively position the latch upon the occurrence of a thin place in the cloth.

5. In thin-place detecting means for looms, a detector to normally rest upon the cloth adjacent the fell of the cloth, a fork-slide, a vibrating weft-hammer to actuate it, a latch pivotally mounted on the slide and adapted to at times engage the weft-hammer and effect direct coöperation between it and said slide, to cause a change in the operation of the loom, and sliding controlling connections between the detector and the latch, to retain the latter in inoperative position until the occurrence of a thin place in the cloth.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ALONZO E. RHOADES.

Witnesses:

FRANK H. FRENCH,
E. D. OSGOOD.