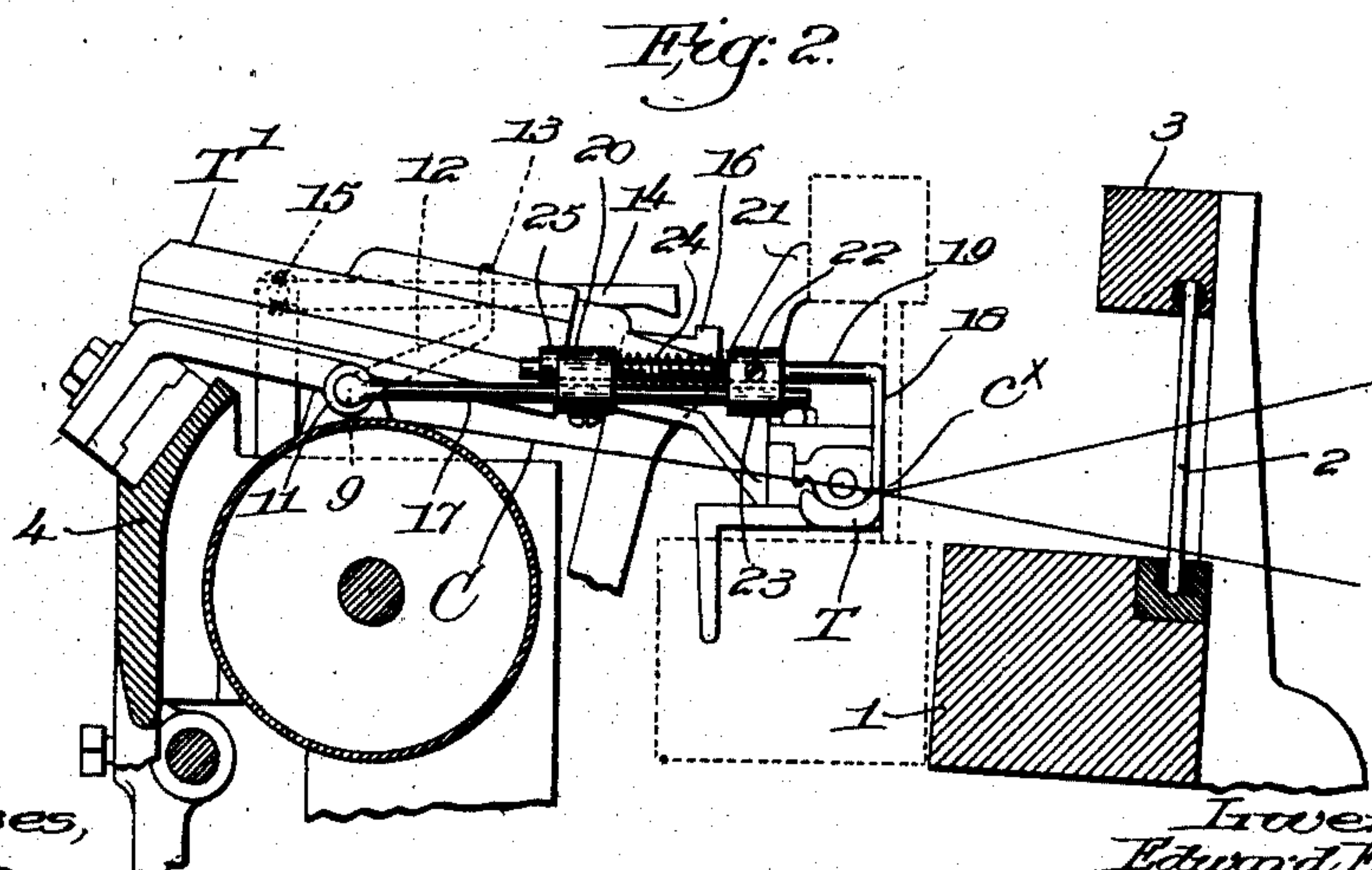
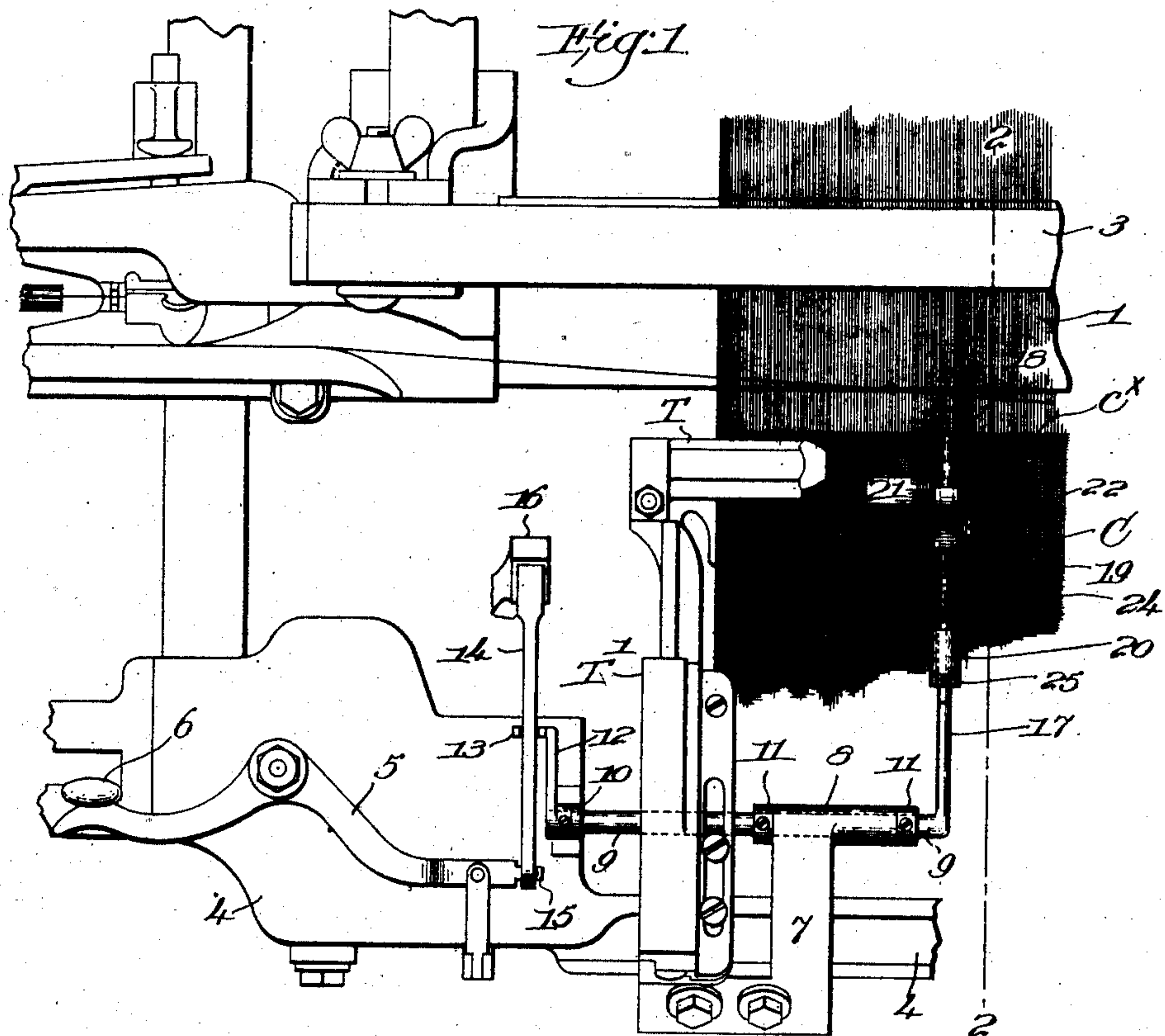


No. 864,352.

PATENTED AUG. 27, 1907.

E. F. ALLEN.
THIN PLACE DETECTOR FOR LOOMS.

APPLICATION FILED JUNE 17, 1907.



Witnesses,
Thomas J. Drummond.
Joseph M. Ward.

Inventor:
Edward F. Allen,
by Wesley Gregory,
attys

UNITED STATES PATENT OFFICE.

EDWARD F. ALLEN, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO DRAPER COMPANY, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE.

THIN-PLACE DETECTOR FOR LOOMS.

No. 864,352.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed June 17, 1907. Serial No. 379,342.

To all whom it may concern:

Be it known that I, EDWARD F. ALLEN, a citizen of the United States, and a resident of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Thin-Place Detectors for Looms, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention has for its object the production of novel and improved means for detecting the occurrence of a thin place or streak in the cloth being woven on a loom and upon such detection to effect automatically a change in the operation of the loom.

In thin-place detecting mechanism the detector or member which normally rests upon the cloth is set as near as possible to the fell, but at best a number of picks, eight or more, must intervene between the detector and the fell in order that the detector shall not interfere with the reed on the beat up.

To those familiar with weaving it is well known that when the filling is beaten in the fell of the cloth is moved forward a considerable distance, and if the detector is so set as to be engaged by the reed at such time breakage of parts will result. While it is desirable to set the detector just as close as possible to the fell, in order that the detection of a thin place in the cloth shall be prompt, it is impossible with the existing thin-place detecting instrumentalities to set the detector very near the fell, for the reasons stated.

In my present invention I have devised means whereby the detector is moved in unison with the fell at the beat up, thereby obviating any liability of engagement with the reed, and in consequence the detector can be set practically at the fell, or only a pick or two away from it. A very prompt and rapid response to the detection of a thin place is thereby secured, and the amount of cloth let back or to be picked out when a thin place occurs is reduced to a minimum.

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 sufficient portion of a loom, with one practical embodiment of my present invention applied thereto; Fig. 2 is a transverse section thereof on the line 2—2, Fig. 1, looking toward the left, the lay being shown in forward position by dotted lines.

The lay 1, reed 2, hand-rail 3, breast-beam 4 provided with a knock-off lever 5 for the shipper 6, the temple T, and its stand T', may be and are all of well known or usual construction.

Herein I have illustrated one practical apparatus embodying my invention, in order to explain the same, but without thereby restricting myself merely to such

mechanism or details thereof, as it will be manifest hereinafter that various changes or modifications may be made by those skilled in the art without departing from the spirit and scope of my invention.

Referring to the drawing an L-shaped bracket 7 is secured by bolts to the breast-beam adjacent the temple stand, said bracket having a transverse bearing 8 on its rearward extension, in which bearing is mounted a horizontal rock-shaft 9, extended beneath the temple stand and at its outer end supported in a bearing 10, see Fig. 1.

Collars 11 on the rock-shaft prevent longitudinal movement thereof in its bearings, the outer end of the shaft being herein shown as provided with a crank-arm 12 terminating in an upturned fork 13, which loosely receives a dog or pawl 14 pivotally connected at 15 with the shipper-releasing lever 5.

Under normal conditions the dog 14 is held in the position shown in Fig. 2, but should a thin place in the cloth be detected by means to be described the rock-shaft 9 will be turned to lower the arm 12 and the dog 14 will descend into position to be engaged by a vibrator 16, and thereby the operation of the loom will be changed. In this particular arrangement illustrated such change will be a stoppage of the loom by or through release of the shipper, as forward movement of vibrator 16 will act through the dog 14 to operatively swing the releasing or knock-off lever 5. The inner end of the rock-shaft 9 is provided with an elongated arm 17 extended rearwardly above the cloth C, and this arm forms a support for the thin-place detector.

I have herein shown the detector as a downturned finger or extension 18 Fig. 2, at the rear end of a rod or shank 19 slidably mounted in a bearing 20 fast on the support 17, so that the detector is movable forward or backward, but any up or down movement of the detector will cause the shaft 9 to turn in its bearings. A bunter 21 is adjustably secured by a set-screw 22 to the detector shank 19, the base of the bunter depending below the shank at 23 and having an aperture to loosely receive the arm 17, so that the shank can slide longitudinally with relation to the supporting arm 17. A spring 24 interposed between the bearing 20 and the base of the bunter acts to move the detector 18 and its shank 19 rearward, such movement being limited by an adjustable collar 25 on the shank in front of bearing 20.

The detector 18 is adapted to rest upon the cloth C and to hold the rock-shaft 9 in such position that the arm 12 thereof will retain the dog or pawl 14 inoperative, the detector being set or adjusted to rest upon the cloth closely adjacent the fell cX, say within one or two picks. This adjustment is effected or determined by the setting of the collar 25, as will be obvi-

ous, the spring 24 forcing the detector rearward as far as the collar will allow. Inasmuch as such setting of the detector would bring it into engagement with the reed on the beat up, thereby causing damage to the parts, I have devised means to automatically move the detector in unison with the fell at such time. Herein such unison movement is effected by engagement of the bunter 21 with a convenient part of the lay, such as the hand-rail 3, the bunter being so adjusted on the detector shank 19 that the bunter will be engaged just before the reed can hit the detector, on the beat up. Consequently as the lay continues its forward stroke beating in the filling and thereby moving the fell forward, the bunter will move the detector forward in unison, so that the relative position of the detector and the fell of the cloth is not altered. The spring 24 is compressed on the forward movement and expands as the lay goes back, to thereby return the detector to its rearward position. While the filling at the fell sustains the detector the parts will operate to retain the dog 14 inoperative, but upon the occurrence of a thin place in the cloth the detector 18 will no longer be sustained and will drop between the warp-threads, causing the rock-shaft 9 to turn and effecting operative positioning of the dog 14 to cooperate with the vibrator 16.

By means of my invention the detector may be set right at the fell, instead of several picks away from or ahead of it, and by such close setting a more prompt and rapid detection of a thin place in the cloth will result.

The particular change in the operation of the loom herein indicated, to wit, loom stoppage, is merely illustrative, as other changes in the normal operation of the loom may be arranged for upon the operation of the thin-place detecting mechanism.

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

1. In thin-place detecting mechanism for looms, in combination, a lay, a detector to normally rest upon the cloth adjacent the fell, a support on which the detector is movably mounted, and means to effect movement of the detector relatively to its support and in unison with the fell when the lay beats up. 40

2. In thin-place detecting mechanism for looms, in combination, a lay, a detector to normally rest upon the cloth adjacent the fell, and means to effect forward movement of the detector in unison with the fell by or through the lay when the latter beats up. 45

3. In thin-place detecting mechanism for looms, in combination, a lay, provided with a reed, a detector to normally rest upon the cloth adjacent the fell, and a bunter connected with the detector and engaged by a part of the lay on the beat up, to move the detector forward out of the way of the reed. 50

4. In thin-place detecting mechanism for looms, in combination, a lay provided with a reed, a detector to normally rest upon the cloth adjacent the fell, means to move the detector forward out of the way of the reed when the lay beats up, and a spring to return the detector to operative position as the lay moves back. 55

5. In thin-place detecting mechanism for looms, in combination, a detector to normally rest upon the cloth adjacent the fell, and means to effect forward movement of said detector in unison with the fell at the beat-up of the filling. 60

6. In a loom, in combination, a thin-place detector to normally rest upon the cloth adjacent the fell, a support upon which the detector is movable, means controlled by the detector to effect a change in the operation of the loom upon the occurrence of a thin place in the cloth, and means to effect automatically movement of the detector in unison with the fell of the cloth when the filling is beaten in. 70

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses. 75

EDWARD F. ALLEN.

Witnesses:

W. C. LUNSFORD,
FRED. S. GREENLEAF.