

No. 724,267.

PATENTED MAR. 31, 1903.

D. W. DENNY.

THIN PLACE DETECTOR MECHANISM FOR LOOMS.

APPLICATION FILED APR. 26, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

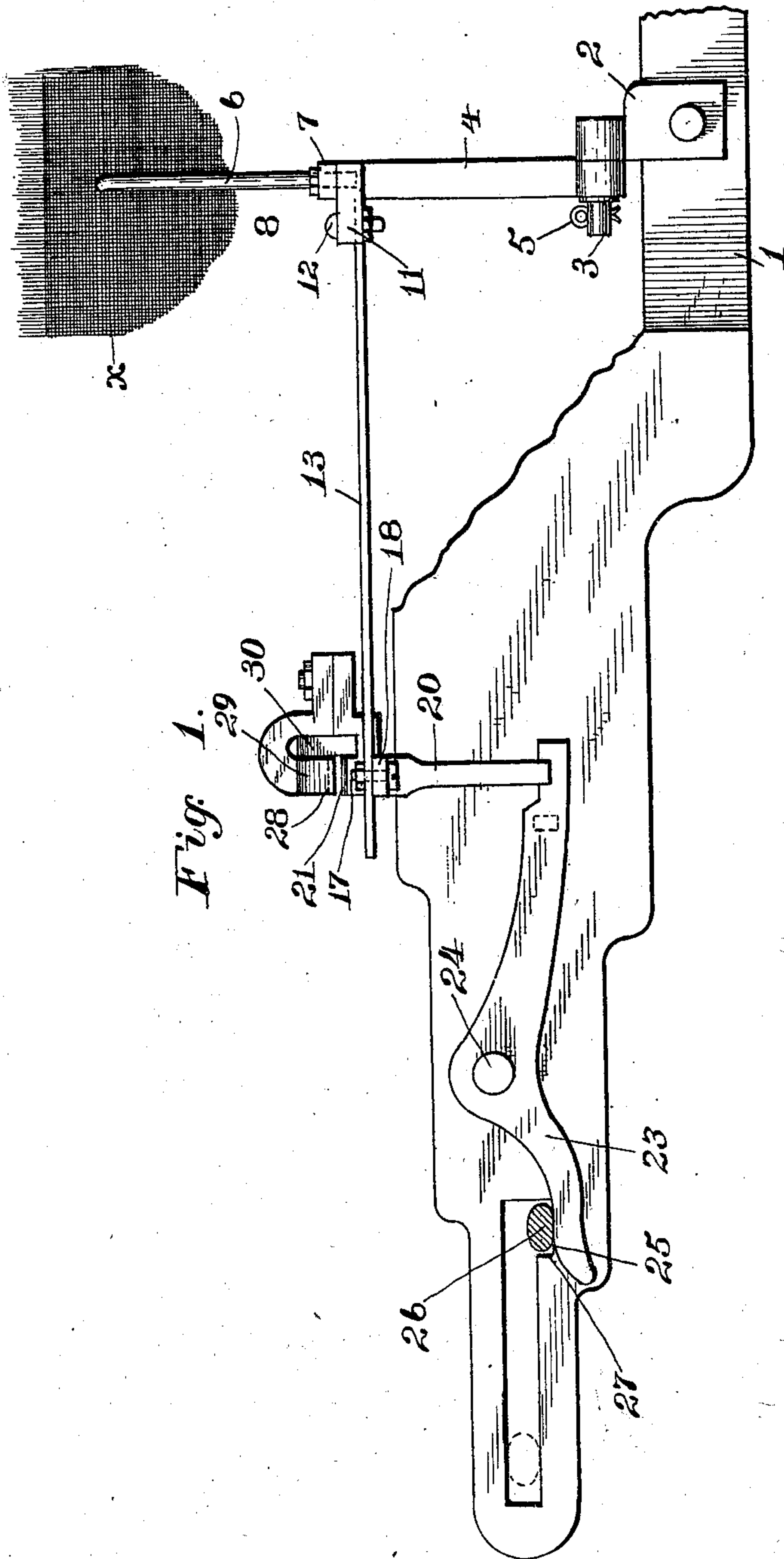
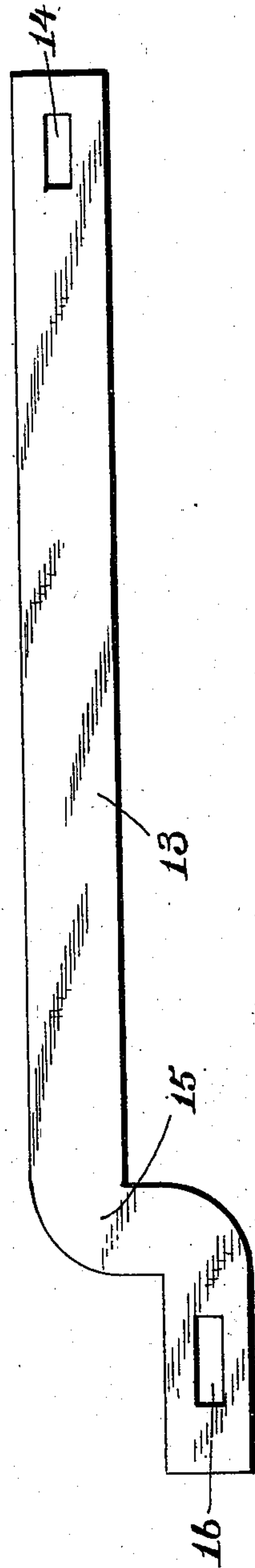


Fig. 1.

Fig. 4.



WITNESSES:

Riccy C. Bowen.  
May C. Moore

INVENTOR

David W. Denny

BY

Wm. C. Moore

Attorney

No. 724,267.

PATENTED MAR. 31, 1903.

D. W. DENNY.

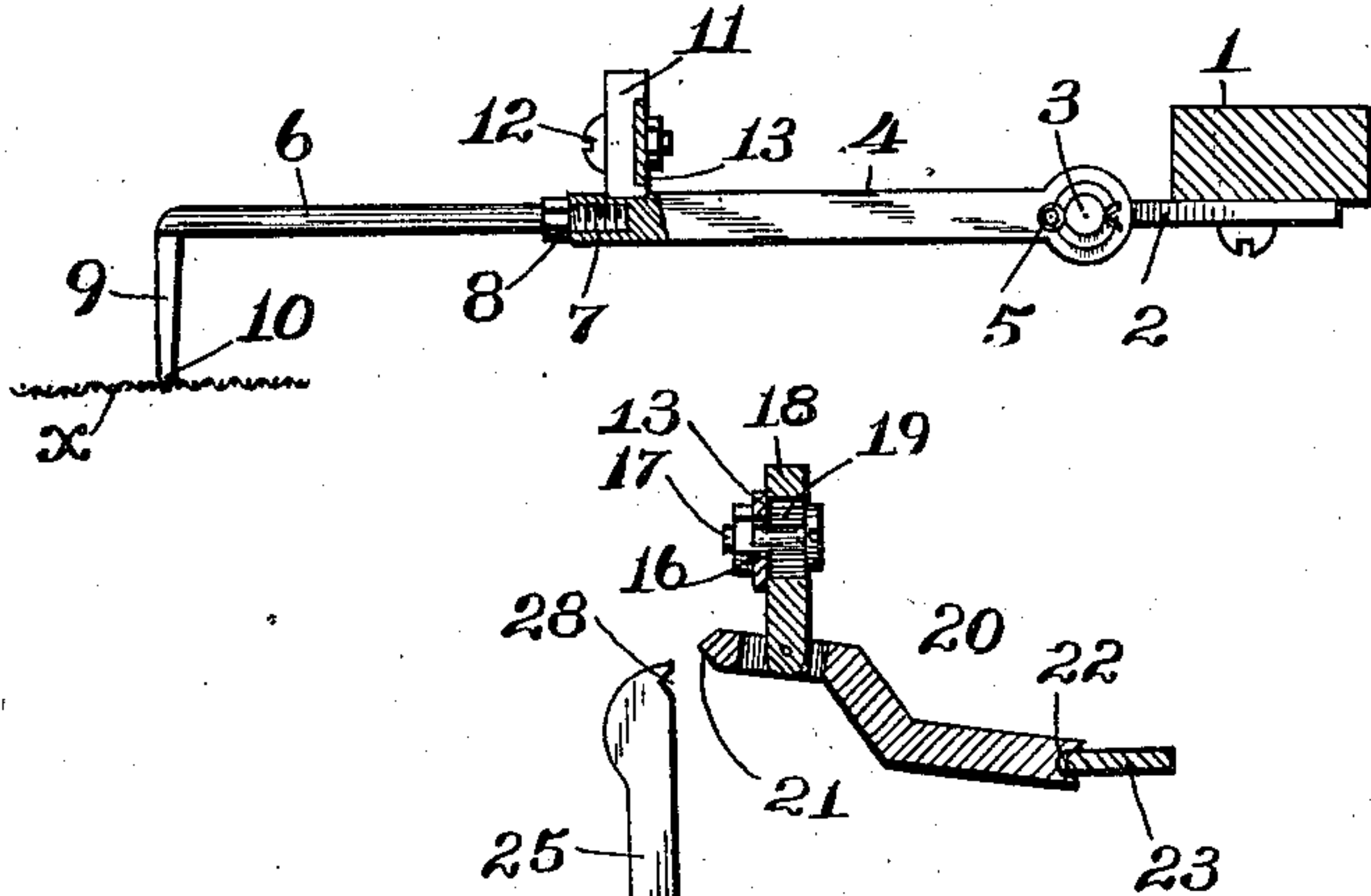
THIN PLACE DETECTOR MECHANISM FOR LOOMS.

APPLICATION FILED APR. 26, 1902.

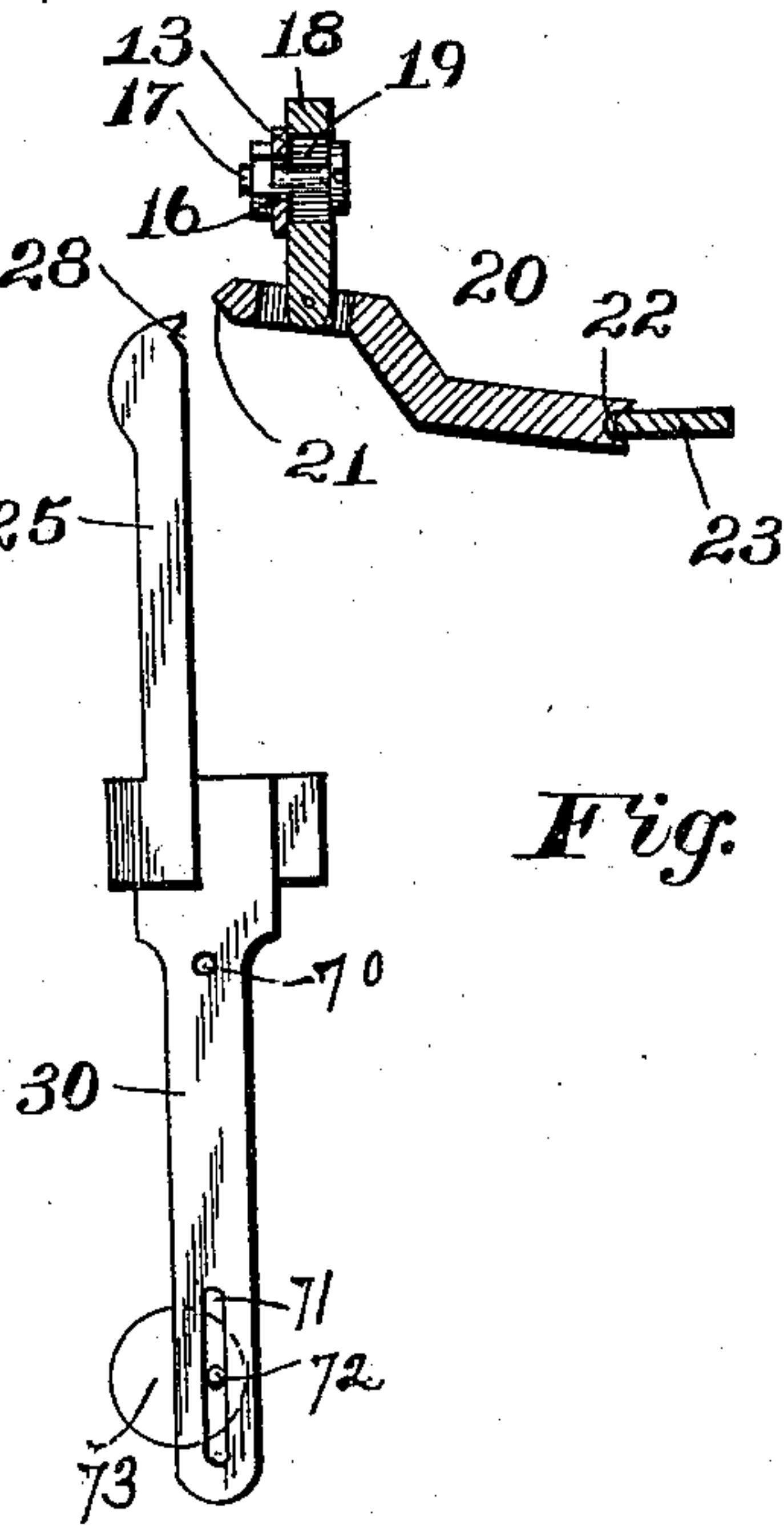
NO MODEL.

2 SHEETS—SHEET 2.

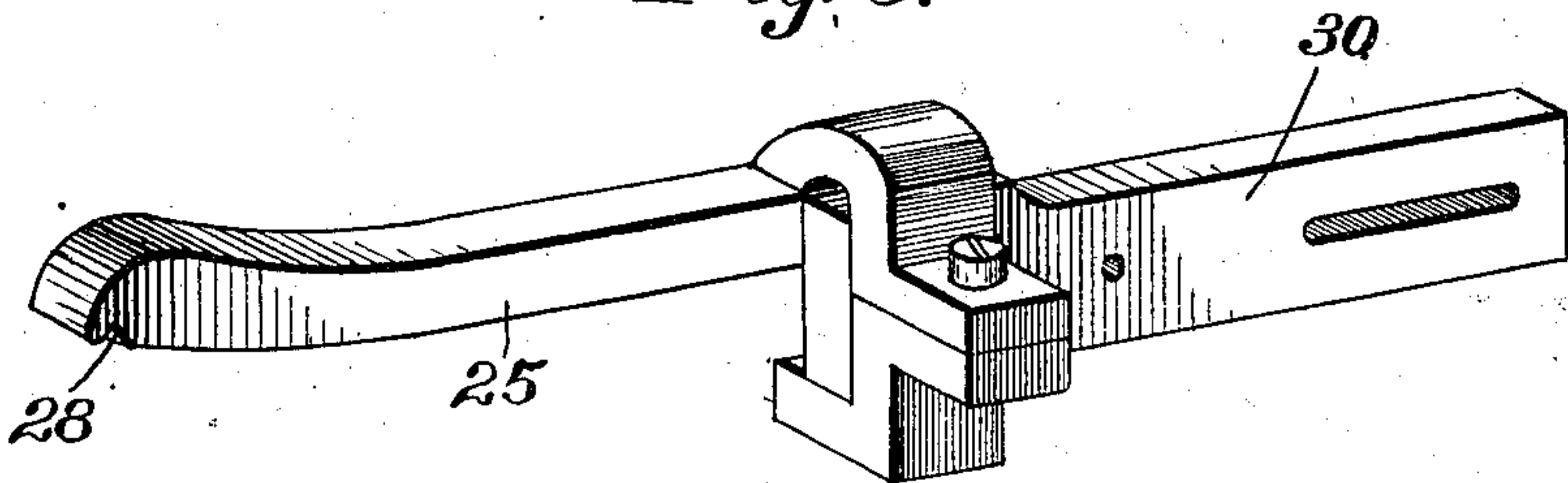
*Fig. 2.*



*Fig. 3.*



*Fig. 5.*



WITNESSES:

*Rex C. Bowen*  
*May E. Moore*

INVENTOR

*David W. Denny*,  
BY *J. M. Moore*, Attorney



# UNITED STATES PATENT OFFICE.

DAVID W. DENNY, OF GRANITEVILLE, SOUTH CAROLINA, ASSIGNOR OF ONE-THIRD TO PETER PARKER, OF VAUCLUSE, SOUTH CAROLINA.

## THIN-PLACE-DETECTOR MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 724,267, dated March 31, 1903.

Application filed April 26, 1902. Serial No. 104,846. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID W. DENNY, a citizen of the United States, residing at Graniteville, in the county of Aiken and State of South Carolina, have invented certain new and useful Improvements in Thin-Place-Detector Mechanism for Looms, of which the following is a specification.

My invention relates to automatically-operated stop mechanisms for looms; and the principal object of the same is to provide reliable means for stopping the loom when a defective portion of the cloth being made passes under a detector or finger connected by intermediate mechanism to the stop-lever.

In looms of that class which change the filling automatically there is a tendency to produce imperfect cloth owing to the breakage of thread, the failure to replace empty bobbins, and owing to the fact that it is difficult for one attendant to thoroughly superintend and keep in proper running order a large number of looms without producing cloth having certain defects which render it unsalable. One of the greatest defects is the thin places or "stripes," which occur by the omission at certain places of the filling-threads. My invention is designed to automatically stop the loom immediately after an imperfection has been produced in the work owing to any cause, whether it be caused by the filling-fork failing to operate properly or whether the take-up gear fails to let off regularly or for any other reasons the loom is not performing its functions properly.

My invention is designed to be attached to looms of the ordinary construction and is designed to accurately locate the defect in the work and to stop the machine before any serious damage occurs.

To attain the desired object, my invention consists in certain novel features of construction and combination of parts, substantially as disclosed herein.

In the accompanying drawings I have illustrated my attachment as applied to a loom of ordinary construction, only that portion of the loom necessary to disclose the construction of my attachment being shown in the drawings.

Figure 1 is a plan view of my attachment

and showing so much of the loom as is necessary to illustrate my invention. Fig. 2 is a vertical section of the detector and its supporting-arm. Fig. 3 is a vertical section substantially through the center of the catch-arm. Fig. 4 is a plan view of a spring which connects the detector to the mechanism which actuates the shipper-lever. Fig. 5 is a perspective view of the cam-follower and a notched arm carried thereby.

Like numerals of reference designate like parts wherever they occur in the drawings.

The numeral 1 designates the breast-beam of the loom. Secured to the breast-beam at a suitable point is a bracket 2, said bracket being provided with a stud 3. An arm 4 is pivoted upon the stud 3 and is held in place by a cotter-pin 5. At the opposite end of the arm 4 the detector 6 is secured in a threaded socket 7, the end of the detector-wire being threaded for adjustment in the socket 7, and a lock-nut 8 is utilized to securely hold the detector in adjusted position. The detector 6 may be in the form of a hook or may comprise a finger 9 bent at an angle to the shank portion 6 and having a rounded terminal end 10. The shape of this finger, however, may be varied to some extent, depending upon the class of work to be done by the loom, and the arm 4 may, likewise, for certain classes of work, be pivoted to the opposite side of the bracket 2, if found desirable. A lug 11 is formed with or secured to the arm 4, and adjustably secured to this lug by a screw-bolt 12 is a flat spring 13, said spring being provided with a slot 14, which permits adjustment at this end. The opposite end of the spring 13 is offset at 15, as shown in Fig. 4, and a slot 16 is formed in the terminal end of said spring to permit adjustment by means of a screw 17, which passes through an arm 18 and through the slot 16. The arm 18 is slotted at 19 to afford an angular adjustment of the spring 13, and at one end this arm 18 is pivoted to an arm 20. This arm is provided at its upper end with a beveled catch 21 and at its lower end is recessed at 22 to engage one end of the shifting plate 23, pivoted at 24 to the loom-frame. The outer end of the shipper is rounded off at 25 to engage the shipper-lever 26 and in one of its movements to shift the lever 26 from



the notch 27 in order that said lever may assume the position shown in dotted lines in Fig. 1 to throw the loom out of operation. The beveled end 21 of the arm 20 normally occupies a position free from contact or engagement with a notch 28, formed near the end of a catch 29, formed on or secured to the cam-follower 30; but when a defect in the fabric is located by the detector-finger 10 the notch 28 engages the beveled end 21 of the arm 20 and shifts the shipper-lever to a position to stop the loom, as will be presently described. This cam-lever is pivotally mounted, as at 70, and is provided with elongated slots 71, in which works a pin 72 on a cam 73, as seen clearly in Fig. 3, and by means of which it is operated.

The operation of the machine may be described as follows: When the loom is running smoothly and the fabric  $x$  is of equal thickness and without flaws, the finger 10 of the detector is held up by the cloth. When a flaw or thin place is reached by the finger, the latter drops through between the warp-threads, owing to the fact that its weight and the weight of the arm 4 (pivoted on the pin 3) is sufficient for this purpose. When the finger 10 falls, it carries with it the spring 13, which shifts the arm 20 to a position to be engaged at its upper end by the notch 28 in the catch 29, carried by the cam-follower. This catch 29 moves to and fro with the cam-follower, and in the forward stroke the arm 20 is moved against the stress of the spring 13 to actuate the shipper 23 to throw the shipper-lever 26 out of the notch 27 to stop the loom. The reverse movement of the cam-follower permits the spring 13 to resume its normal position, and after the defect in the operation of the loom has been remedied and the lever 26 is again shifted to the operative position the loom will again run smoothly until another defect has been located by the detector.

From the foregoing it will be obvious that my invention may be applied to looms of ordinary construction, that my attachment is comparatively simple in construction, very sensitive to defects in the fabric being made, and that the loom will be immediately stopped when the detector has located a flaw.

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

1. In an automatic stop mechanism for

looms, a detector pivotally supported upon the loom and provided with a finger adapted to contact with the surface of the fabric being made, an arm, a shipper-lever, a spring connected to the detector and carrying at one end said arm connections between the arm and shipper-lever adapted to shift the shipper-lever when the detector moves upon its pivotal point, substantially as described.

2. In an automatic stop mechanism for looms, a pivoted detector, a spring connected to the detector, a shifting plate, an arm attached to the spring, said arm engaging the shifting plate, a shipper-lever and a catch for moving the arm and shifting the shifting plate when a flaw has been located by the detector, substantially as described.

3. An automatic stop mechanism for looms, comprising a pivoted arm, a detector adjustably secured to said arm and provided with a finger or feeler adapted to rest upon the surface of the fabric being made, a spring adjustably attached to the pivoted arm, an arm attached to said spring, said arm having a beveled end, a shifting plate, a cam-follower, a catch carried by the cam-follower and provided with a notch designed to engage the beveled end of the arm, the opposite end of said arm engaging the shifting plate, a shipper-lever engaged by the shifting plate, and means whereby the movement of the finger of the detector throws the beveled end of the arm into the path of the catch to move the shipper-lever when a defect is located in the fabric, substantially as described.

4. An automatic stop mechanism for looms, comprising a pivoted detector having a finger designed to rest upon the fabric being made, a shifting plate, a shipper-lever, a spring adjustably attached to the detector, an arm adjustably secured at the opposite end of said spring, an arm provided with a beveled end and pivotally connected with said arm, a cam-follower carrying a catch for engagement with the beveled end when a flaw has been located by the detector and adapted to shift the shipper-lever to a position to stop the loom.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID W. DENNY.

Witnesses:

WM. A. PARKER,  
M. M. LECROY.