

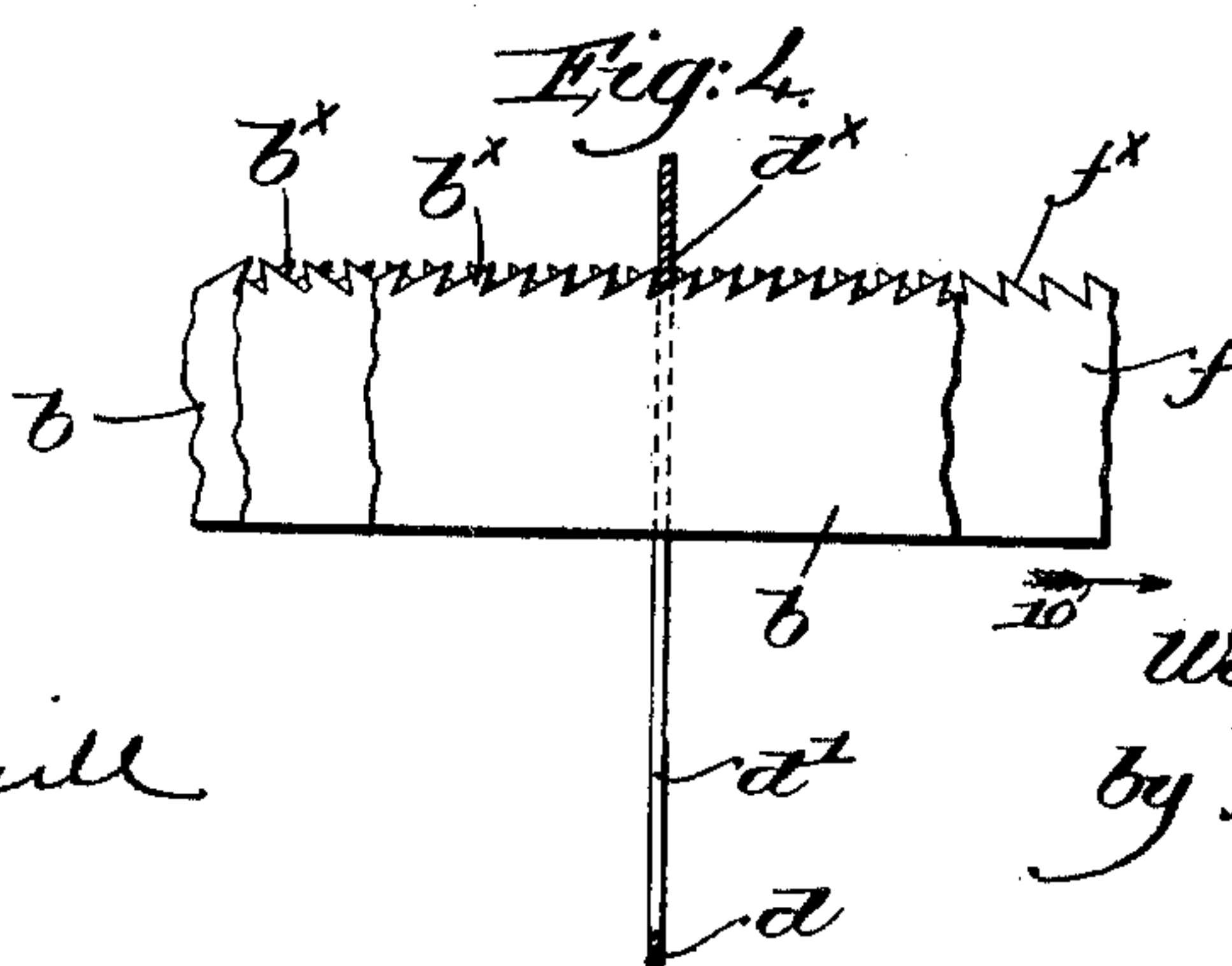
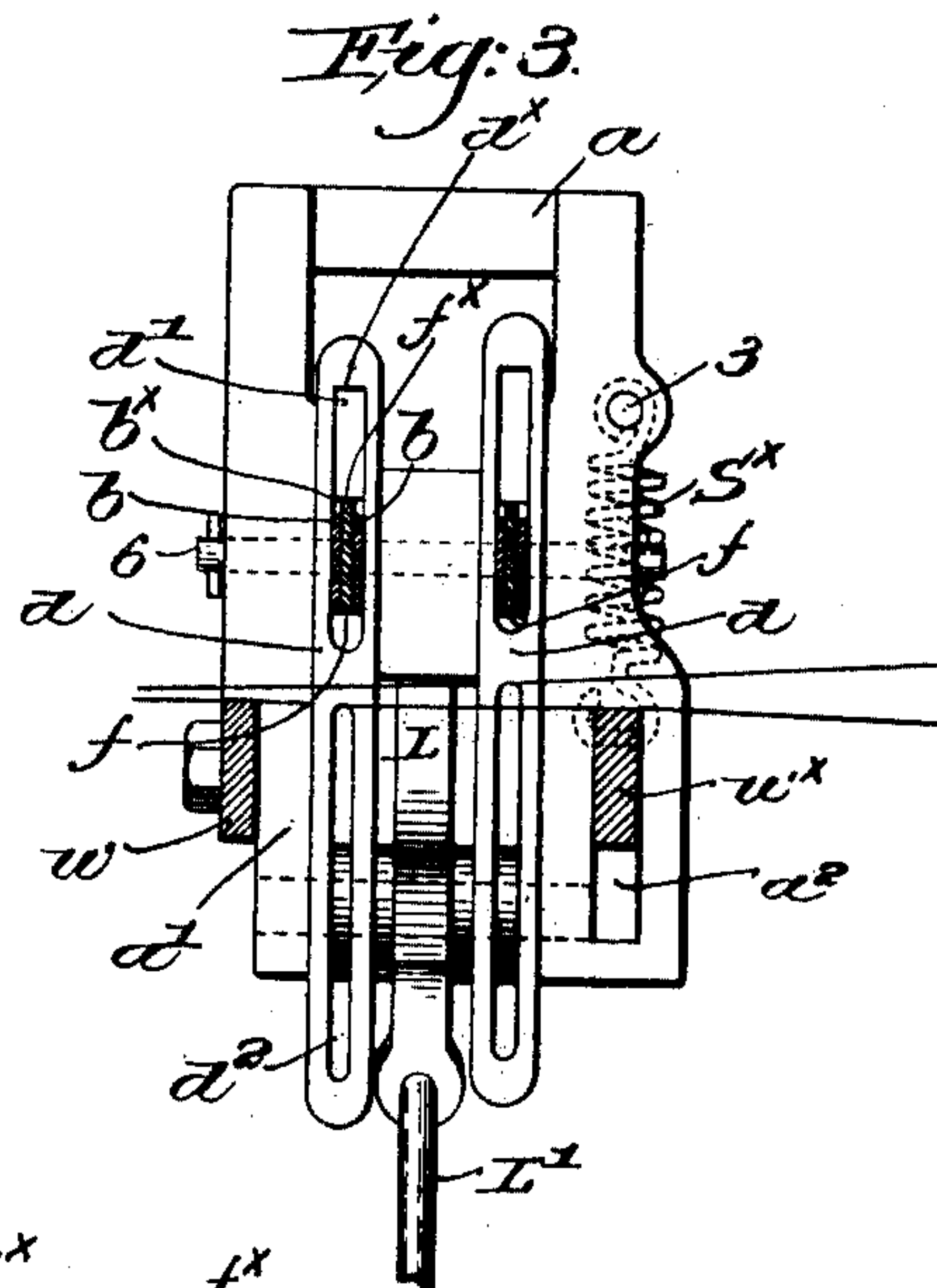
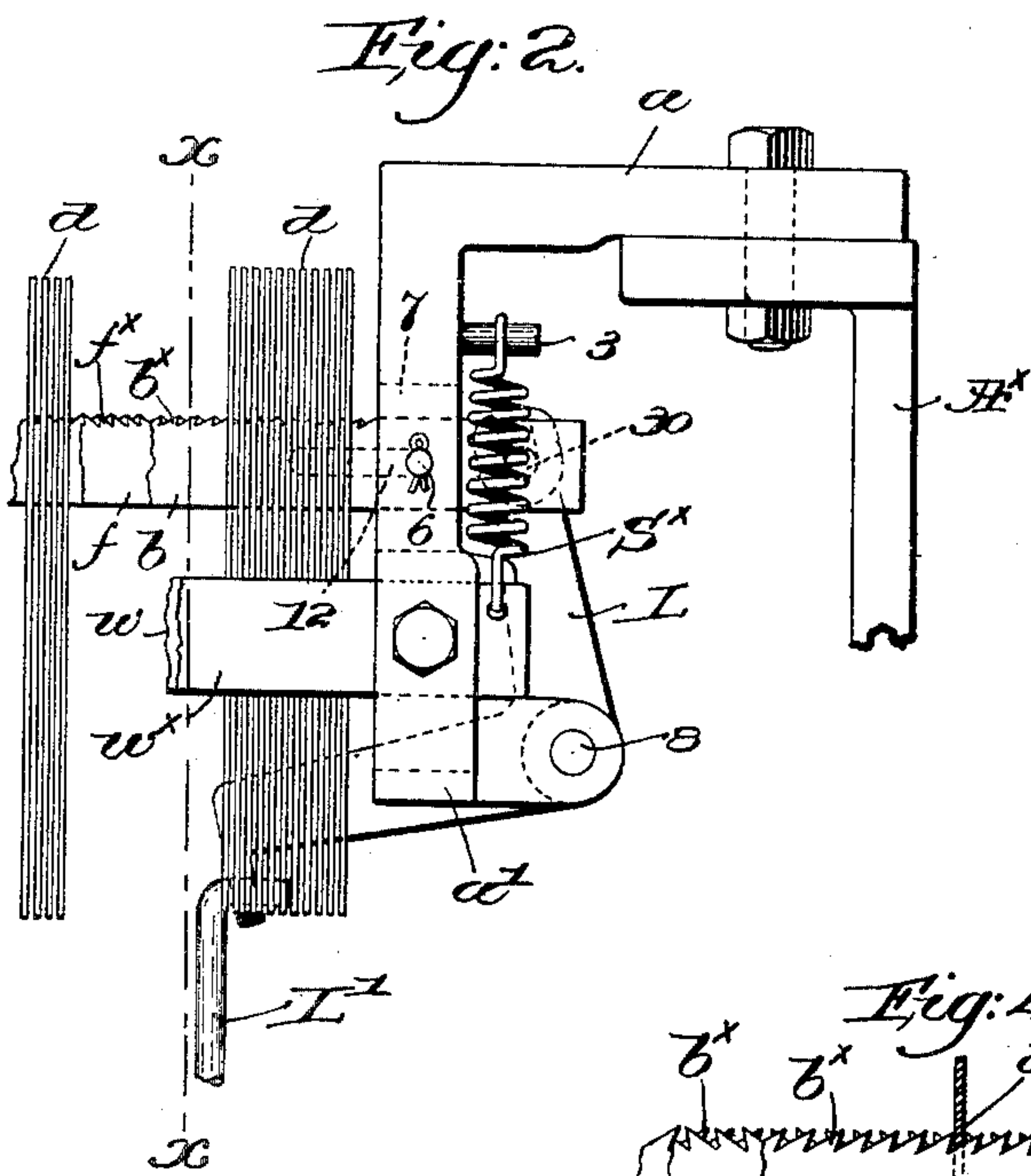
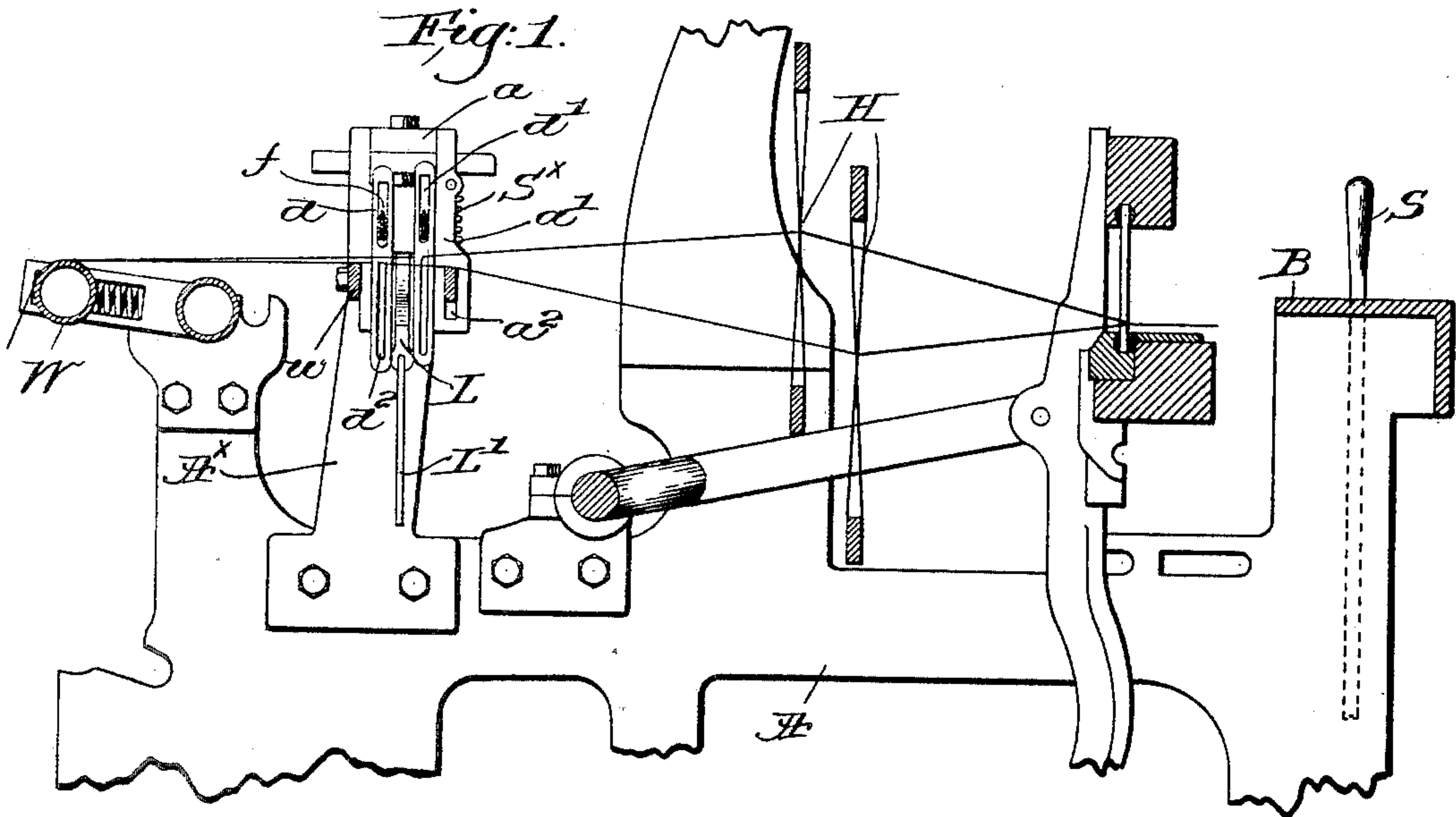
No. 675,682.

Patented June 4, 1901.

W. I. STIMPSON.  
WARP STOP MOTION FOR LOOMS.

(Application filed Jan. 24, 1901.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

WALLACE I. STIMPSON, OF MILFORD, MASSACHUSETTS, ASSIGNOR TO DRAPER COMPANY, OF PORTLAND, MAINE, AND HOPEDALE, MASSACHUSETTS.

## WARP STOP-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 675,682, dated June 4, 1901.

Application filed January 24, 1901. Serial No. 44,562. (No model.)

*To all whom it may concern:*

Be it known that I, WALLACE I. STIMPSON, a citizen of the United States, residing at Milford, in the county of Worcester and State of Massachusetts, have invented an Improvement in Warp Stop-Motions for Looms, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention has for its object the production of a novel warp-stop-motion apparatus particularly adapted for use in connection with looms for weaving, one of the principal objects of the invention being to provide a novel form of feeler mechanism to cooperate with a released detector.

Other novel features will be hereinafter described, and particularly pointed out in the claims.

Figure 1 is a cross-sectional view of a loom to be understood with one embodiment of my invention applied thereto. Fig. 2 is an enlarged front elevation of a portion of the stop-motion mechanism shown in Fig. 1. Fig. 3 is a sectional detail thereof on the line  $x x$ , Fig. 2; and Fig. 4 is an enlarged view, in side elevation, of the feeler and back-stop and showing in section a released detector.

Referring to Fig. 1, the harnesses  $H$  for the formation of the shed, whip-roll  $W$ , breast-beam  $B$ , and shipper-handle  $S$  may be and are all of usual or well-known construction, the shipper-handle being the only element of the stopping means herein illustrated.

Each loom side  $A$  has erected upon it an upright stand  $A^x$ , to the upper end of which is secured a bracket  $a$ , having a depending portion  $a'$ , the depending portions serving to support such warp-stop-motion mechanism as immediately cooperates with the warp-threads.

A warp-rest  $w$ , shown as a bar, is rigidly secured to the two depending portions of the two brackets in any suitable manner and extends across the loom below the warp-threads, as clearly shown in Figs. 1, 2, and 3, while toward the front portion of the brackets a vertically-movable warp-rest  $w^x$  is shown as mounted in upright slot  $a^2$  in the depending bracket portions  $a'$ , the projecting ends of

the warp-rest  $w^x$  being attached to suitable springs  $S^x$ , the upper ends of the springs being fixedly held, as by pins 3, on the brackets.

I have herein shown two series of controlling-detectors  $d$ , arranged in parallelism and between the warp-rests referred to, each detector being shown as having two longitudinal slots therein,  $d'$   $d^2$ , respectively, the warp-threads being passed through the lower slots of the detectors and normally maintaining the latter in the position shown in the drawings.

By using a plurality of banks or series of detectors, as herein shown, each series cooperating with the warps which are to form one of the planes of the shed, I am enabled to dispense with independent leasing devices.

The warps in the lower plane of the shed are supported by the warp-rests  $w$   $w^x$ , the latter yielding when the lower warps are subjected to increased tension as the shed is opened.

The feeler mechanism is in my present invention located above the warp-threads, so that it is readily accessible and its operation can be observed at all times by the attendant, and as the feeler mechanism is the same for each bank of detectors I will describe one of such mechanisms in detail.

Two thin flat plates  $b$  are set on edge and slightly separated from each other and extend from one to the other side of the loom in parallelism, being supported in the bracket portions  $a'$  in any suitable manner—as, for instance, by pin 6—the upper edges of the plates being toothed, as at  $b^x$ , the teeth being undercut, as best shown in Fig. 4, and these stop-plates, or “back-stops,” as they may be termed, extend through the upper slots  $d'$  of the detectors, the upper ends or heads  $d^x$  of the latter being normally maintained by the warp-threads considerably above the upper toothed edges  $b^x$  of the plates  $b$ . A feeler is mounted between the plates  $b$ , the said feeler being shown as a thin flat plate  $f$ , having its upper edge toothed, as at  $f^x$ , the teeth being undercut, (see Fig. 4,) but in the opposite direction to the back-stop teeth  $b^x$ , both sets of teeth, however, having the same vertical height. One end of the feeler is extended through a slot 7 in the bracket extension  $a'$



and is pivotally connected with one arm of a bell-crank lever L, pivoted on the bracket at 8, (see Fig. 2,) said bell-crank lever by means of a depending link or arm L' being rocked  
 5 by any suitable mechanism (not herein illustrated) to normally rock the feeler *f* in the direction of the arrow 10, Fig. 4, the opposite stroke of the feeler, which may be termed its "feeling" stroke, being effected by gravity in  
 10 the present instance. The feeler is longitudinally slotted, as at 12, Fig. 2, to receive the pin 6.

So long as the detectors are maintained in normal position by the warp-threads the longitudinal vibratory or reciprocatory movement of the feeler will not be interrupted; but when a detector is released by breakage or failure of its warp-thread it descends until its head *d*<sup>x</sup> rests between two of the teeth of  
 20 the two sets of back-stop teeth *b*<sup>x</sup>, and upon the next feeling movement of the feeler opposite to the arrow 10, Fig. 5, the feeler-teeth *f*<sup>x</sup> will engage the detector and press it against the teeth *b*<sup>x</sup>, the continued movement of the feeler  
 25 being thereby arrested. By referring to Fig. 4 it will be seen that only the points of both the back-stop and feeler-teeth engage the detector, and they engage the latter at points in the same substantially horizontally plane intersecting the detector and on opposite faces  
 30 of the detector, the latter being shown as thin and flat and preferably made of sheet metal.

When the feeler is arrested, as has been described, the stopping means is operated by  
 35 suitable intervening connections, not herein shown, which may be of well-known construction, the shipper-lever S being released from its holding-notch to effect the stoppage automatically of the loom.

40 In the structure herein shown, wherein a plurality of banks of detectors are illustrated, the several feelers are connected to a suitable bell-crank lever L in any suitable manner, as by a cross-pin 30. (See dotted lines, Fig. 2.)  
 45

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

1. In a warp stop-motion, controlling-detectors normally maintained inoperative by  
 50 the warp-threads, stopping means actuated by or through a released detector, and means to cooperate with the latter, including a member having two parallel series of upturned,  
 55 undercut teeth, a member having a single series of oppositely-inclined, undercut teeth located between the two series, and devices to normally effect relative longitudinal reciprocatory movement of said members, a released  
 60 detector being engaged by the points of the directly-opposed fixed and movable teeth to arrest the relative movement of said toothed members.

2. In a warp stop-motion, controlling-detectors normally maintained inoperative by  
 65 the warp-threads, a stop comprising a double row of undercut teeth, a normally vibrating

feeler having its upper edge provided with a series of undercut teeth oppositely inclined to the stop-teeth and located between the two  
 70 rows of the latter, a released detector being oppositely engaged by the points of the stop and feeler teeth respectively whereby arrest of the feeler is effected, and stopping means operative by or through such arrest of the  
 75 feeler.

3. In a warp stop-motion, a series of thin and flat, longitudinally-slotted controlling-detectors normally maintained inoperative by  
 80 the warp-threads, two parallel stop-plates extended through the slots of the detectors and having their upper edges provided with undercut teeth, an interposed longitudinally-reciprocating feeler having its upper edge provided with oppositely-inclined undercut teeth,  
 85 a released detector being engaged by the points of the stop and feeler teeth opposite each other to arrest the feeler, and stopping means controlled by or through arrest of the  
 90 feeler.

4. In a loom, a series of warp-stop-motion-controlling detectors normally maintained inoperative by the warp-threads, a fixed warp-rest back of the detectors, a yieldingly-supported warp-rest in front of the detectors and  
 95 adapted to support the warps in the lower plane of the shed, and a normally vibrating feeler to cooperate with a released detector.

5. In a warp stop-motion, a series of thin and flat controlling-detectors having each two  
 100 elongated slots therein, said detectors being normally maintained inoperative by warp-threads extended through the lower slots, a normally longitudinally reciprocating feeler extended through the upper slots of the detectors and having a series of undercut teeth  
 105 on its upper edge, and a double series of back-stop teeth also undercut and oppositely inclined to the feeler-teeth, a released detector being oppositely engaged by the points of the  
 110 feeler and back-stop teeth to arrest the feeler.

6. In a loom, shed-forming mechanism and a whip-roll, a fixed warp-rest and a vertically-movable, yieldingly-supported warp-rest,  
 115 both located between the said mechanism and the whip-roll, two series of warp-stop-motion-controlling detectors arranged between the warp-rests, and normally maintained inoperative by the warp-threads, the detectors also serving to lease the threads, a feeler for each  
 120 series of detectors normally vibratable above the warp-threads and adapted to cooperate with a released detector of its series, and a back-stop to hold such detector against the pressure of the feeler, the warp-rests supporting the threads in the lower plane of the  
 125 shed.

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

WALLACE I. STIMPSON.

Witnesses:

GEORGE OTIS DRAPER,  
 ERNEST W. WOOD.