

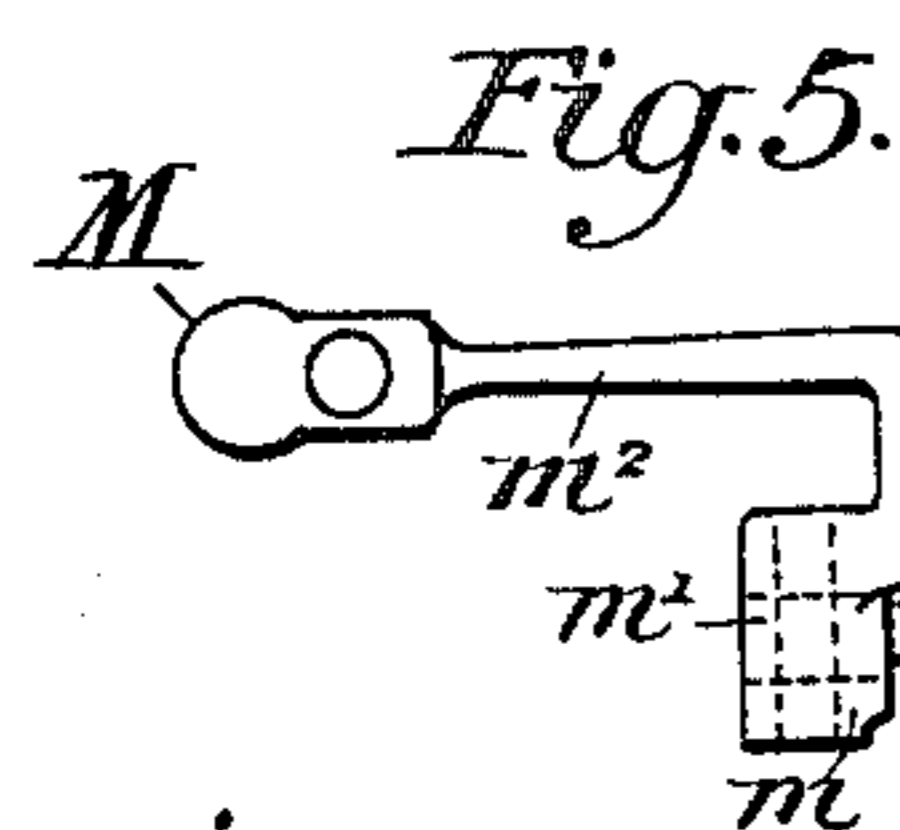
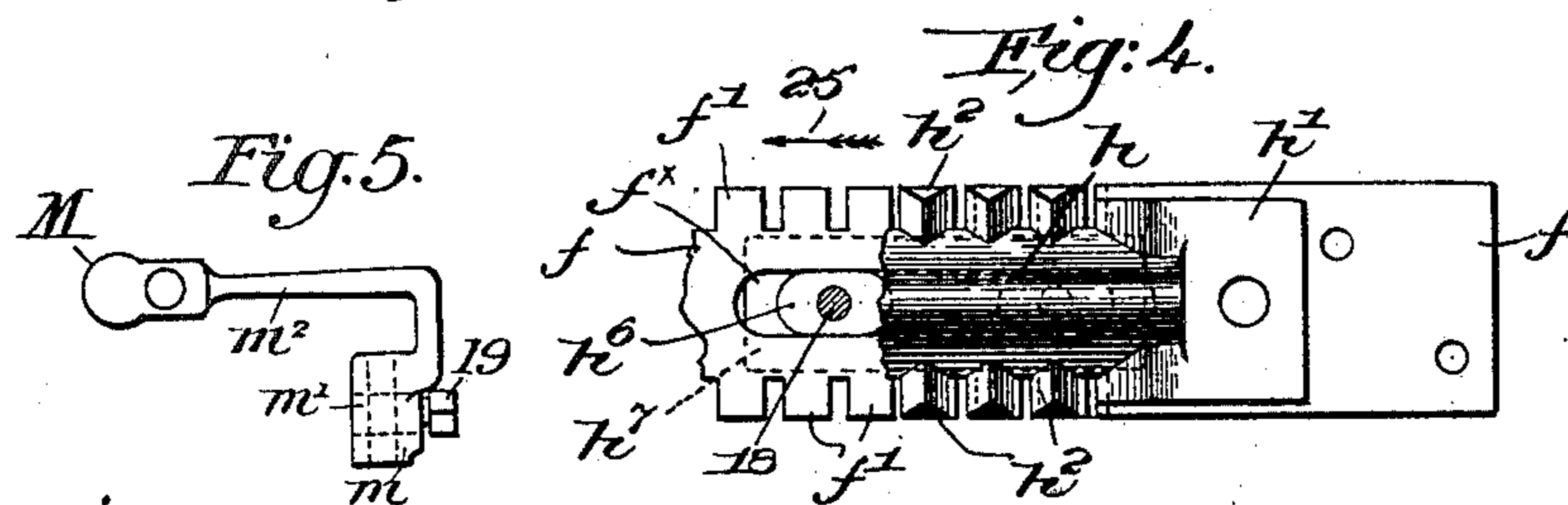
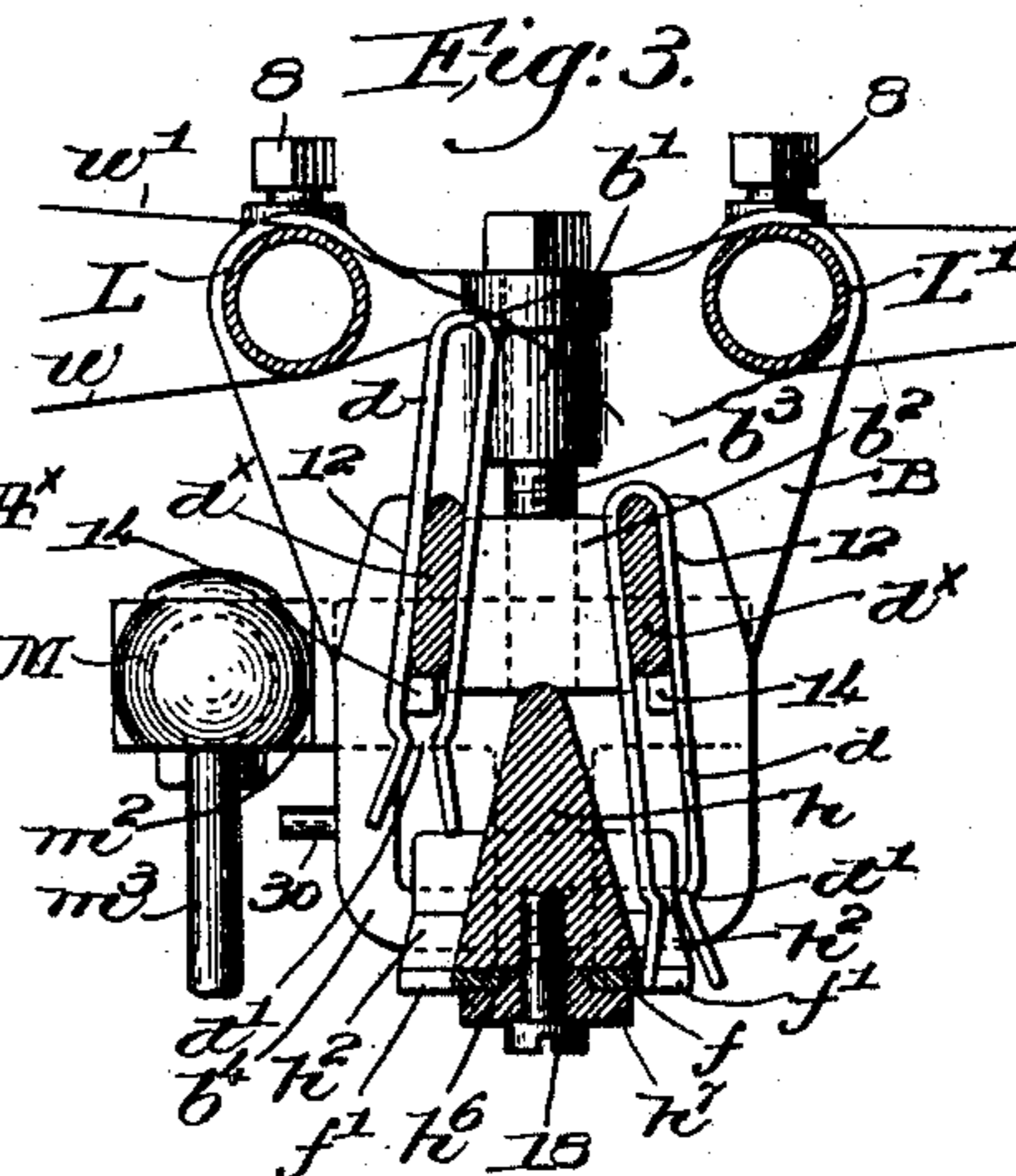
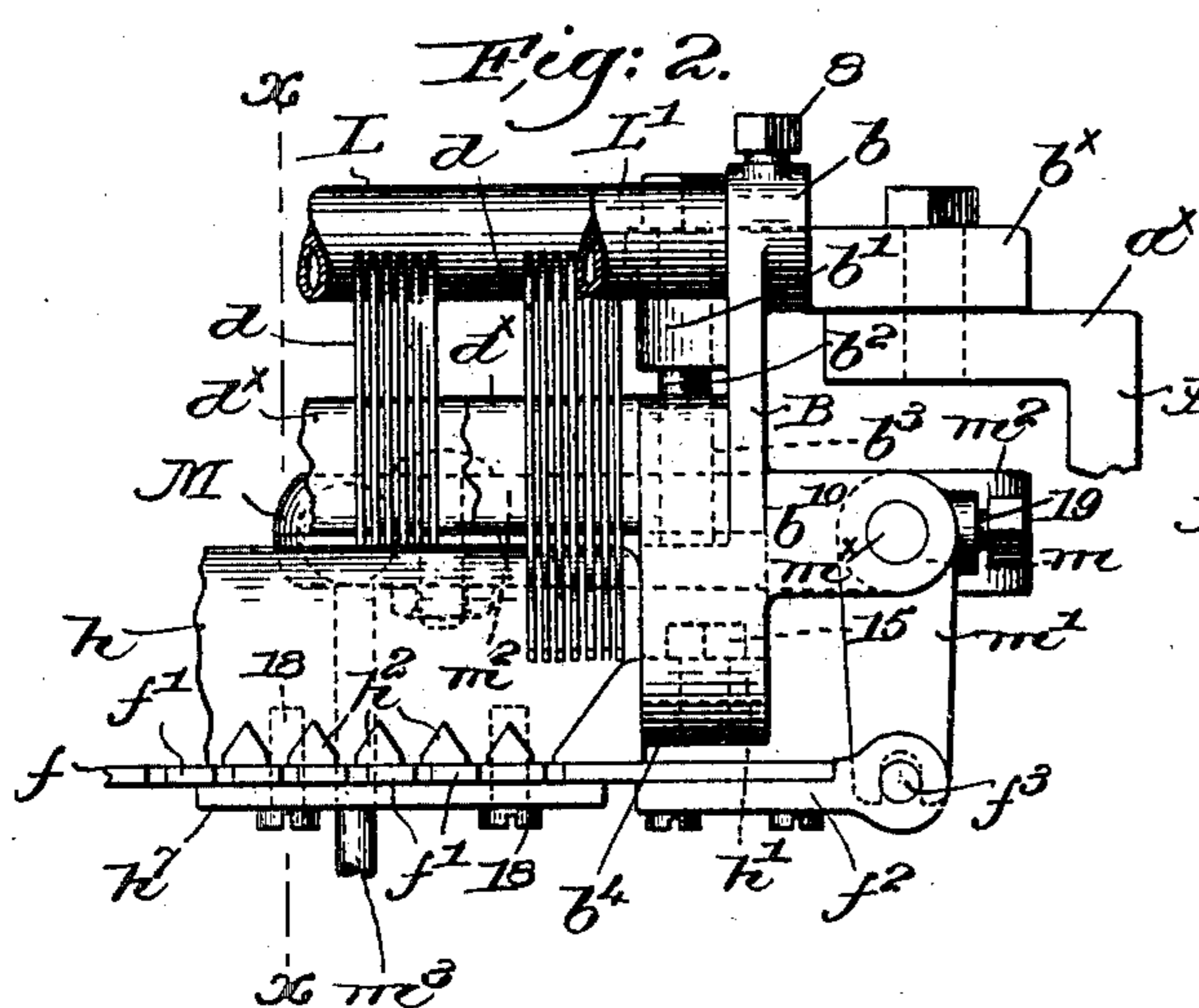
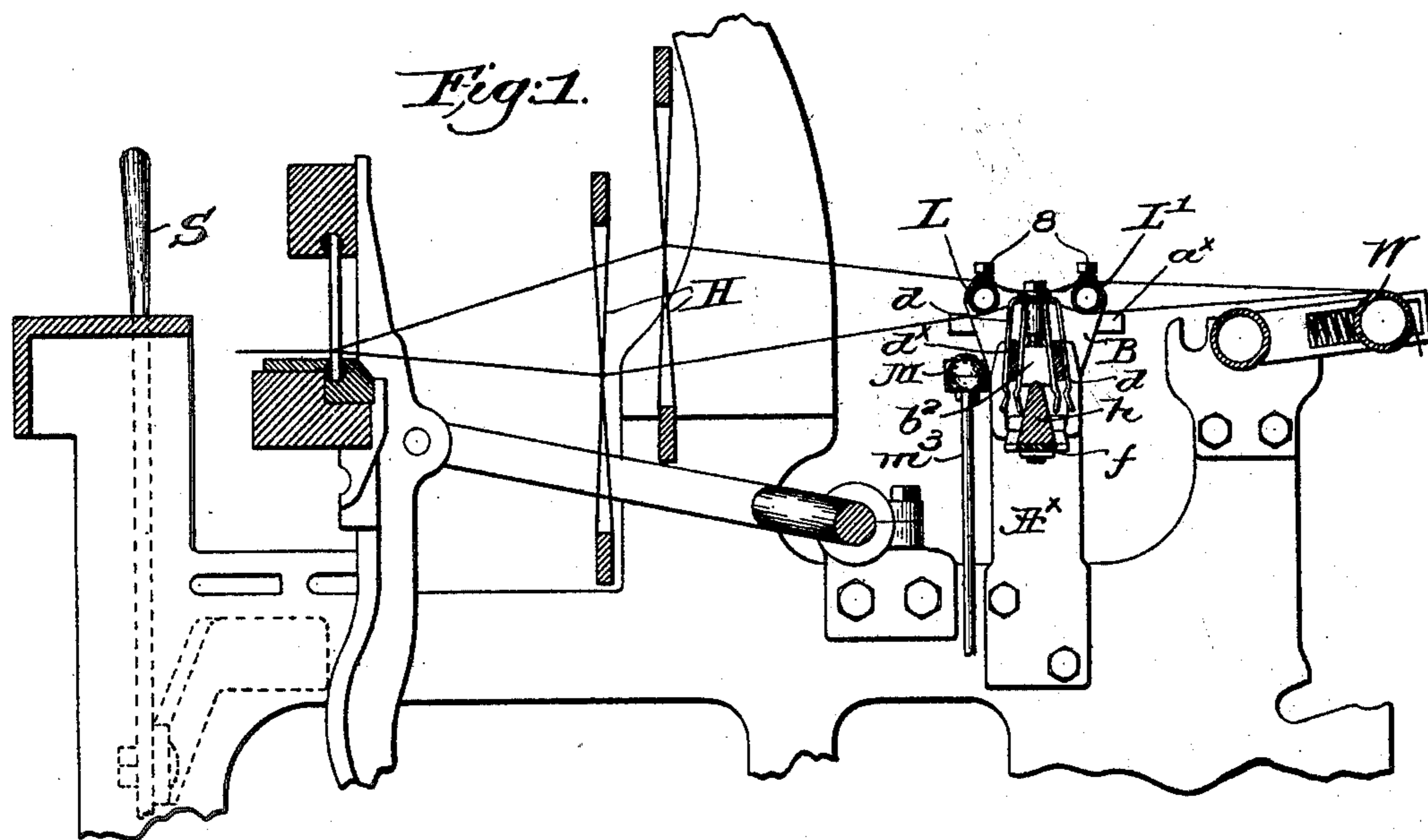
**No. 673,826.**

**Patented May 7, 1901.**

**E. S. STIMPSON.**  
**WARP STOP MOTION FOR LOOMS.**

(Application filed Jan. 15, 1901.)

(No Model.)



Witnesses,  
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# UNITED STATES PATENT OFFICE.

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## WARP STOP-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 673,826, dated May 7, 1901.

Application filed January 15, 1901. Serial No. 43,311. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD S. STIMPSON, a citizen of the United States, and a resident of Hopedale, 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 relates to that type of warp-stop-motion apparatus wherein the operation of the same is governed by controlling-detectors normally maintained inoperative by the warp-threads; and one of the particular objects of the invention is the production of novel feeling means for coöperating with a released detector.

Various other novel features of the invention will be hereinafter described, and particularly pointed out in the claims.

Figure 1 is a cross-section of a portion of a loom with one embodiment of my invention applied thereto. Fig. 2 is an enlarged rear elevation of a portion of the stop-motion apparatus near the left-hand side of the loom. Fig. 3 is a vertical sectional detail thereof on the line  $x\ x$ , Fig. 2. Fig. 4 is a detail in plan of a portion of the feeling means to be described, and Fig. 5 is a detail view in plan of a part to be referred to.

Referring to Fig. 1, the loom-frame A is provided at each side with a stand  $A^x$  between the harnesses H and the whip-roll W, each stand supporting a depending bracket B, an ear  $b^x$  of the bracket being bolted to the bent-over end  $a^x$  of the stand. (See Fig. 2.) Hollow bosses  $b$  on the brackets receive the ends of the lease-rods, shown as tubes L L', secured in position by suitable set-screws 8. The inner face of each bracket is recessed at its lower portion to present two upwardly-converging shoulders 12, (see Fig. 3,) and above said shoulders and between the bosses  $b$  the bracket is shaped to present a vertical hollow boss  $b'$ , and at the lower end of each shoulder is located a projection or rest 14. Upon the latter rest transverse supporting and guide bars  $d^x$ , which extend across the loom from one to the other bracket, with their outer faces resting against the

shoulders 12, the bars being tightly held in place at each end by a wedge-shaped locking-block  $b^2$ , which is threaded to receive a locking-bolt  $b^3$ , extended through the boss  $b'$ .

Upon the bars  $d^x$  the detectors  $d$  are hung, said detectors being herein shown of the so-called "hair-pin" type, with their lower ends bent in, as at  $d'$ , to prevent accidental removal, the ends springing apart when the detectors are strung on the bars, on which they are free to slide up and down. The upper ends of the detectors in the two banks or series approach each other between the lease-rods, and upon the warp-threads  $w$  of one division the detectors of the front series of detectors are hung, the detectors of the other series being hung on the warps  $w'$  of the other division, the warps normally maintaining the detectors elevated and in inoperative position, Fig. 1. A released detector descends in an inclined path, as shown in Fig. 3, and its lower end is brought into coöperation with the feeling means, through which the usual stopping means is made operative, the shipper-lever S, Fig. 1, being the only member of such means herein shown. The feeling means comprises a flat plate  $f$ , Figs. 2, 3, and 4, having its sides recessed to present series of square teeth  $f'$ , said plate constituting the movable member or feeler proper, and a fixed member consisting of a bar  $h$ , substantially triangular in cross-section and having at each end a projecting tongue  $h'$  to enter the stirrup-like lower end  $b^4$  of each bracket B, to which it is secured by a bolt 15. The bar at its base on each side is provided with lateral projections or teeth  $h^2$  triangular in cross-section and at their bases substantially equal in width to the width of the feeler-teeth  $f'$ , the faces of the teeth  $h^2$  converging upwardly to their apexes. (See Figs. 2 and 4.) The bar  $h$  extends below and partly between the two banks of detectors across the loom, the teeth  $h^2$  projecting beyond the bar in the path of a released detector, which, as shown in Fig. 3, descends in an inclined path, one of the prongs being guided by the beveled faces of the teeth into the space between the bases of two adjacent teeth.

The feeler  $f$  is longitudinally slotted at  $f^x$

(see Fig. 4) to receive elongated guide projections  $h^6$  on the upper face of a plate  $h^7$ , on which the feeler rests and slides, said plate being secured to the bottom of the bar  $h$  by  
 5 suitable screws 18, a sufficient number of the plates  $h^7$  being employed to properly support or guide the feeler, which latter is provided at one end with a head  $f^2$ , having a transverse pin  $f^3$  therein.

10 Ears  $b^{10}$ , extended from the outer face of one of the brackets B, have mounted between them a casting  $m$   $m'$ , (shown separately in plan in Fig. 5,) the depending portion  $m'$  being notched at its lower end to embrace the  
 15 pin  $f^3$ , (see Fig. 2,) while the head  $m$  is mounted on a rock-shaft  $m^x$ , passed through it and the ears  $b^{10}$  and secured to the head  $m$  by a set-screw 19. The head has secured to or integral with it an arm  $m^2$ , bent around one of  
 20 the ears at right angles to the head, and connected, preferably, by a ball-and-socket joint M with a link  $m^3$ , which is reciprocated by any suitable mechanism (not shown) to rock the head  $m$  and through the arm  $m'$  to recip-  
 25 rocate the feeler  $f$ .

The stroke of the feeler in the direction of the arrow 25, Fig. 4, is positive, but its opposite stroke is effected either by gravity or in any other non-positive manner. When on  
 30 its positive stroke, the feeler is moved far enough to bring the teeth  $f'$  into register with the teeth  $h^2$ , so that should a detector be released one of its prongs will enter the space between two adjacent feeler-teeth, and being  
 35 held from movement by the corresponding stop-teeth  $h^2$  the feeling movement of the feeler—that is, its non-positive stroke—will be arrested, and such arrest is made effective to cause the operation of the stopping means  
 40 in a manner well known to those skilled in the art. As only one prong of the released detector is engaged the latter can be put on the bar  $d^x$  irrespective of its particular position, as the prongs are symmetrical, and in-  
 45 stead of the particular form of detector shown it will be manifest that a straight-pronged detector may be used or a thin flat detector slotted to receive the bar  $d^x$ .

The spaces between the feeler-teeth are not  
 50 uncovered, except at the end of the positive stroke, in order to prevent the entrance of a detector thereinto during the positive movement, so that bending or breakage of the detector is obviated.

55 A stop 30, extended below the arm  $m^2$ , limits its downward movement irrespective of the feeler-actuating mechanism.

My invention is not restricted to the precise construction and arrangement shown and  
 60 described, as the same may be modified without departing from the spirit and scope of the invention.

The feeler and the fixed toothed bar constitute species of fixed and movable grids to  
 65 cooperate with a released detector.

By the term "register" herein used with reference to the grids I mean the alinement

of the teeth of the two grids to leave the open spaces for the reception of the end of a re-  
 70 leased detector.

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

1. In a warp stop-motion, a fixed bar having a series of laterally-extended teeth substantially triangular in cross-section, a normally reciprocating feeler beneath it, having a series of flat teeth equal in width to the bases of the fixed teeth, a series of detectors normally maintained inoperative by the warp-  
 75 threads, means to guide the lower end of a released detector between two adjacent teeth of each series when the latter register, to arrest the movement of the feeler, and stopping means operated by or through such arrest of  
 80 the feeler.

2. In a warp stop-motion, a fixed bar having a series of laterally-extended teeth, the opposite faces of which are beveled, a normally reciprocating feeler beneath it, having  
 90 a corresponding series of equally-spaced flat teeth, detectors normally maintained inoperative by the warp-threads, an inclined supporting-bar to guide the lower end of a released detector between two adjacent fixed  
 95 teeth, such detector also passing between two adjacent feeler-teeth when the two series of teeth register, to arrest the movement of the feeler, and stopping means rendered operative by or through arrest of the feeler.

3. In a warp stop-motion, two fixedly-mounted lease-rods, two series of controlling-detectors in engagement with the divisions of the warp between the lease-rods, oppositely-in-  
 100 clined guides for said series of detectors, a normally reciprocating feeler having oppositely-extended series of teeth, a fixed series of teeth above each series of feeler-teeth, and stopping means operated by arrest of the  
 105 feeler, a released detector passing between two of the adjacent fixed teeth and the two registering teeth of the feeler and arresting the movement of the feeler.

4. In a warp stop-motion, two opposed fixed brackets each having two shoulders, a locking device, detector-supports, the end of each being inserted between a shoulder and the  
 115 locking device, and means to move the latter to clamp the support between the shoulder and the locking device.

5. In a warp stop-motion, two opposed fixed brackets each having two oppositely-inclined shoulders, a vertically-movable locking-wedge between them, a detector-support inserted between each shoulder, and the wedge, and  
 120 means to move the wedge to clamp the support between it and the shoulder.

6. In a warp stop-motion, two opposed fixed brackets each having two oppositely-inclined shoulders, a vertically-movable locking-wedge  
 125 between them, a rest at the lower end of each shoulder, a detector-support inserted between each shoulder and the wedge and sustained by the rest, and means to move the wedge

to clamp the supports between it and the shoulders.

5 7. In a warp stop-motion, two oppositely-located fixed brackets, each having a stirrup-like lower end and on its inner face two opposed shoulders, a toothed bar extended from one to the other bracket and secured at its ends in the stirrup portions, two detector-supports extended between the brackets, and  
10 a locking device on each bracket to clamp the supports against the shoulders.

15 8. In a warp stop-motion, two banks of detectors controlled as to their position by the warp-threads, means to direct a released detector in an inclined path, a fixed series of upturned, bevel-faced teeth located below each bank of detectors, and a reciprocating series of teeth below each fixed series, a released detector descending between two ad-

jacent fixed teeth and between two of the 20 teeth of the movable series when both series of teeth register.

9. In a warp stop-motion, a transverse fixed bar having downwardly-divergent sides and provided at each side of its base with a se- 25 ries of upturned, bevel-faced teeth, a longitudinally-reciprocating feeler having two series of flat teeth, movable below the two series of fixed teeth, and means to movably connect the feeler with the bottom of the fixed 30 bar.

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

EDWARD S. STIMPSON.

Witnesses:

GEORGE OTIS DRAPER,  
ERNEST W. WOOD.