

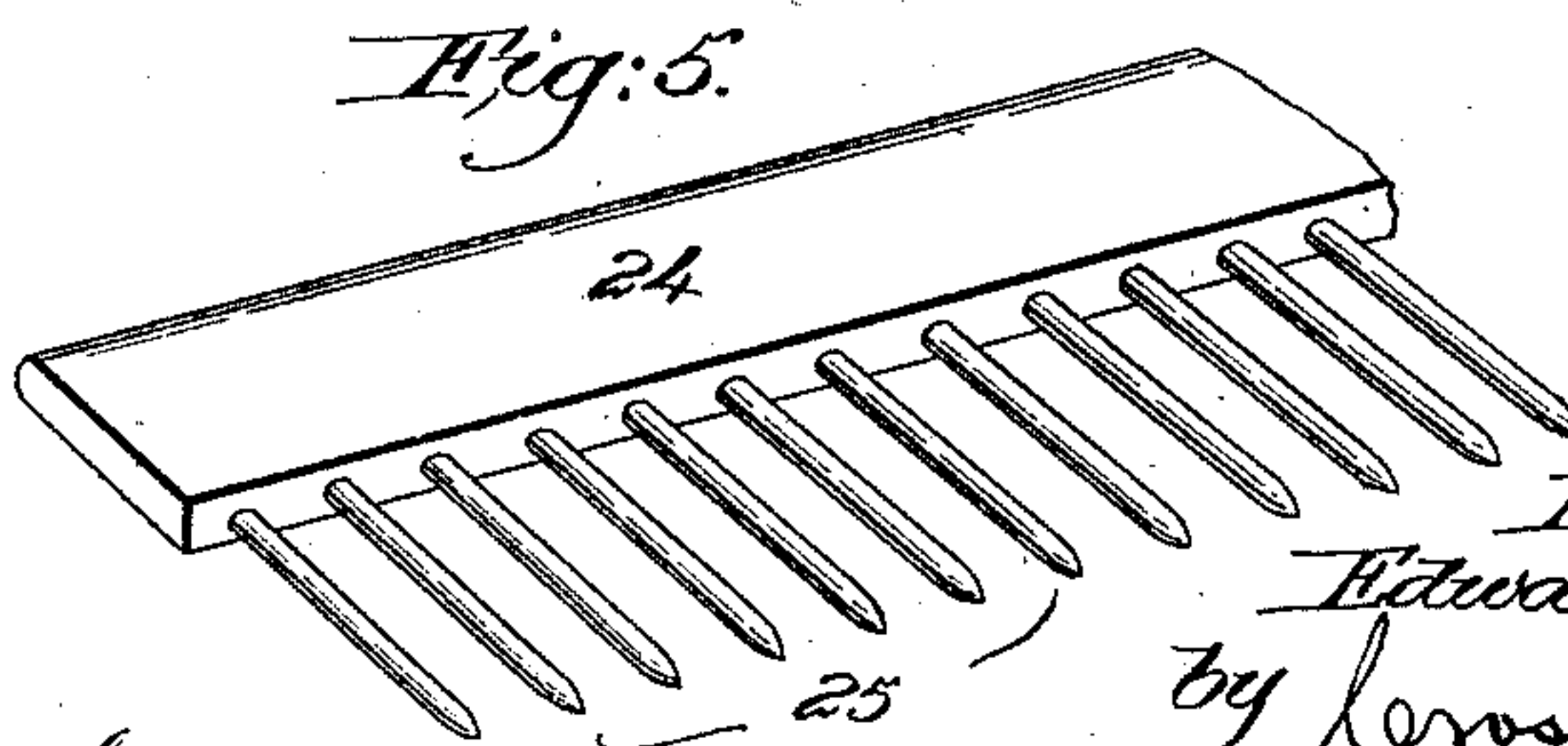
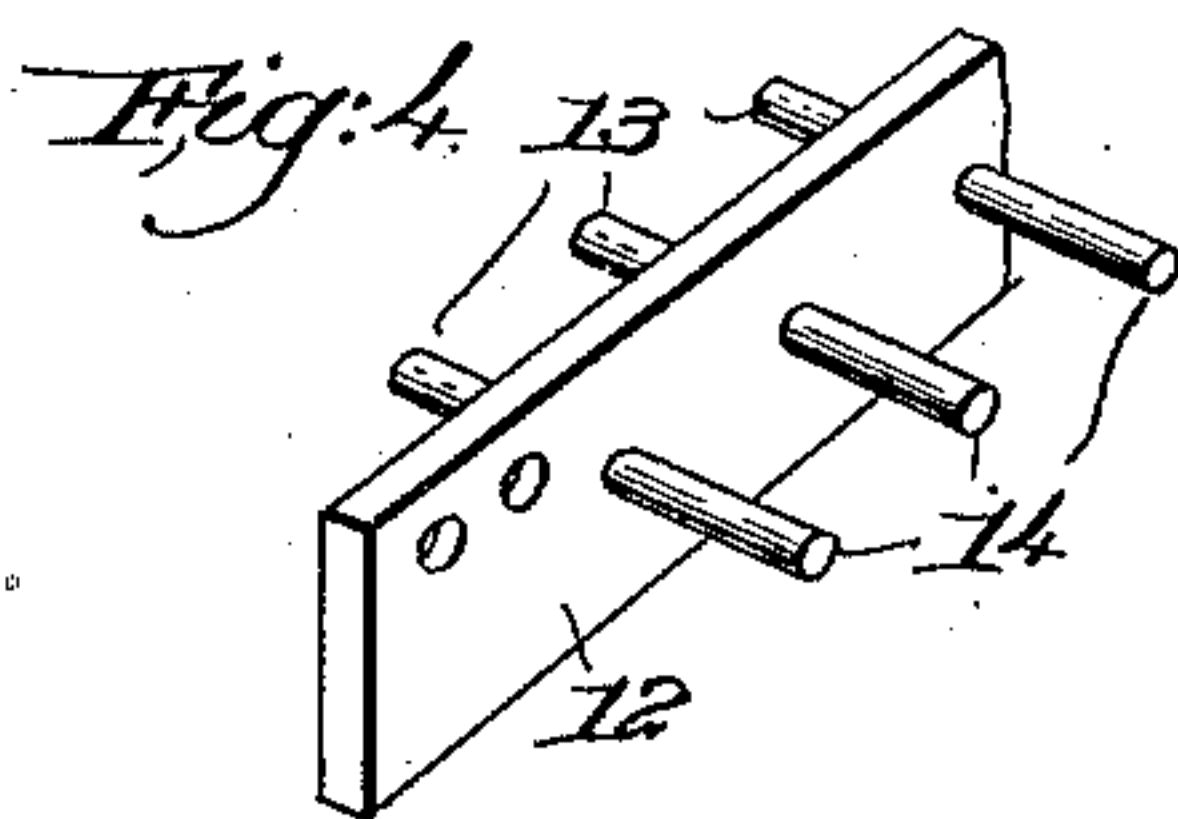
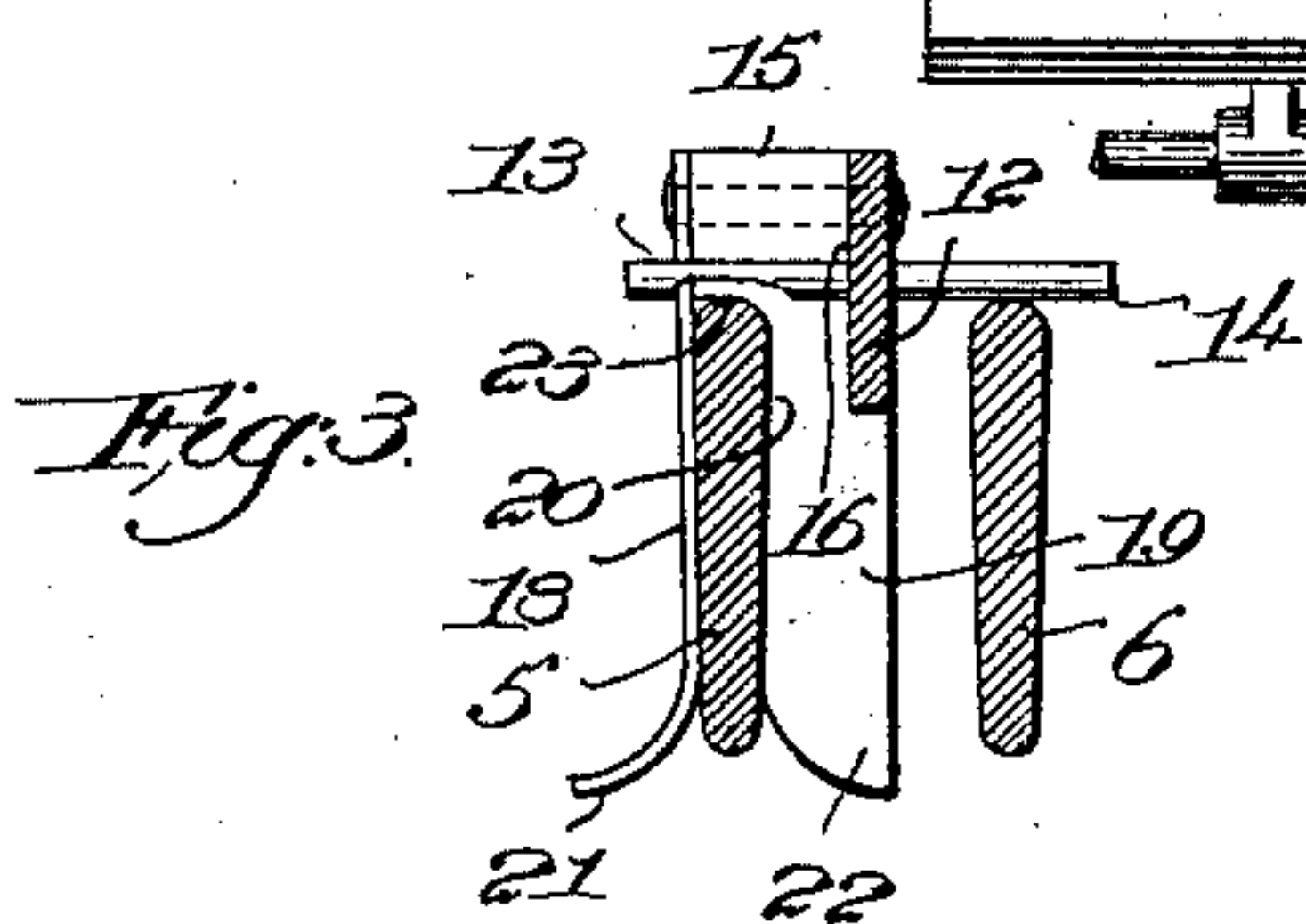
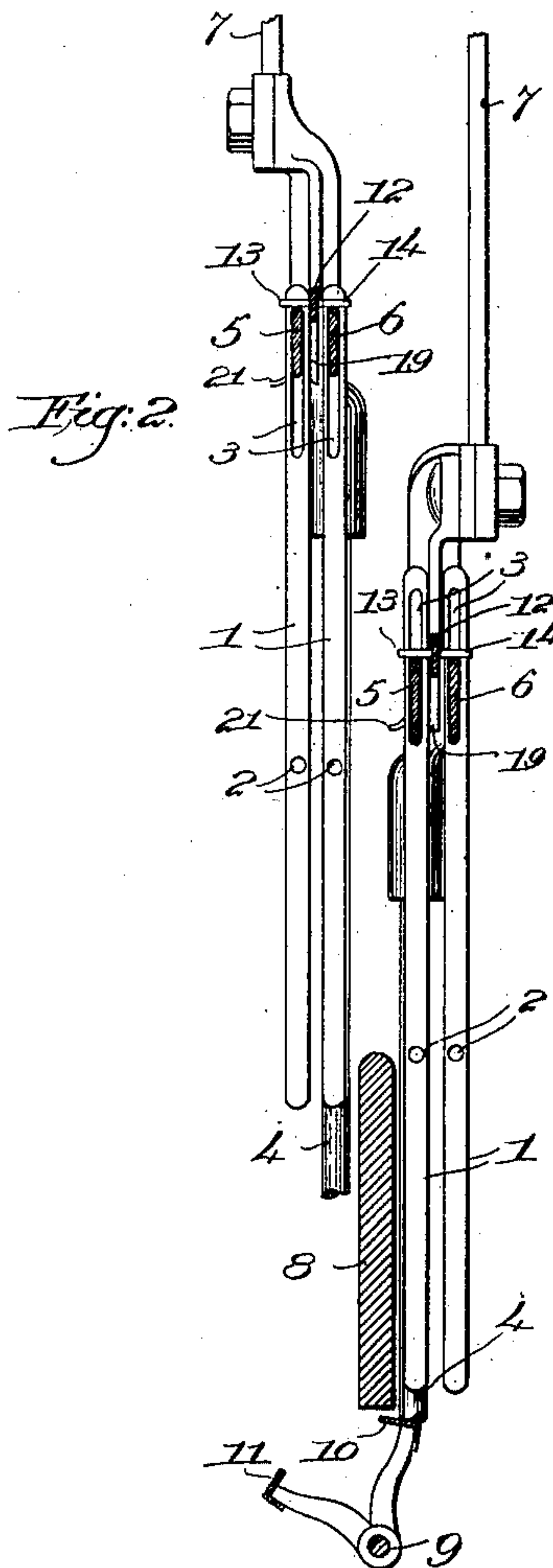
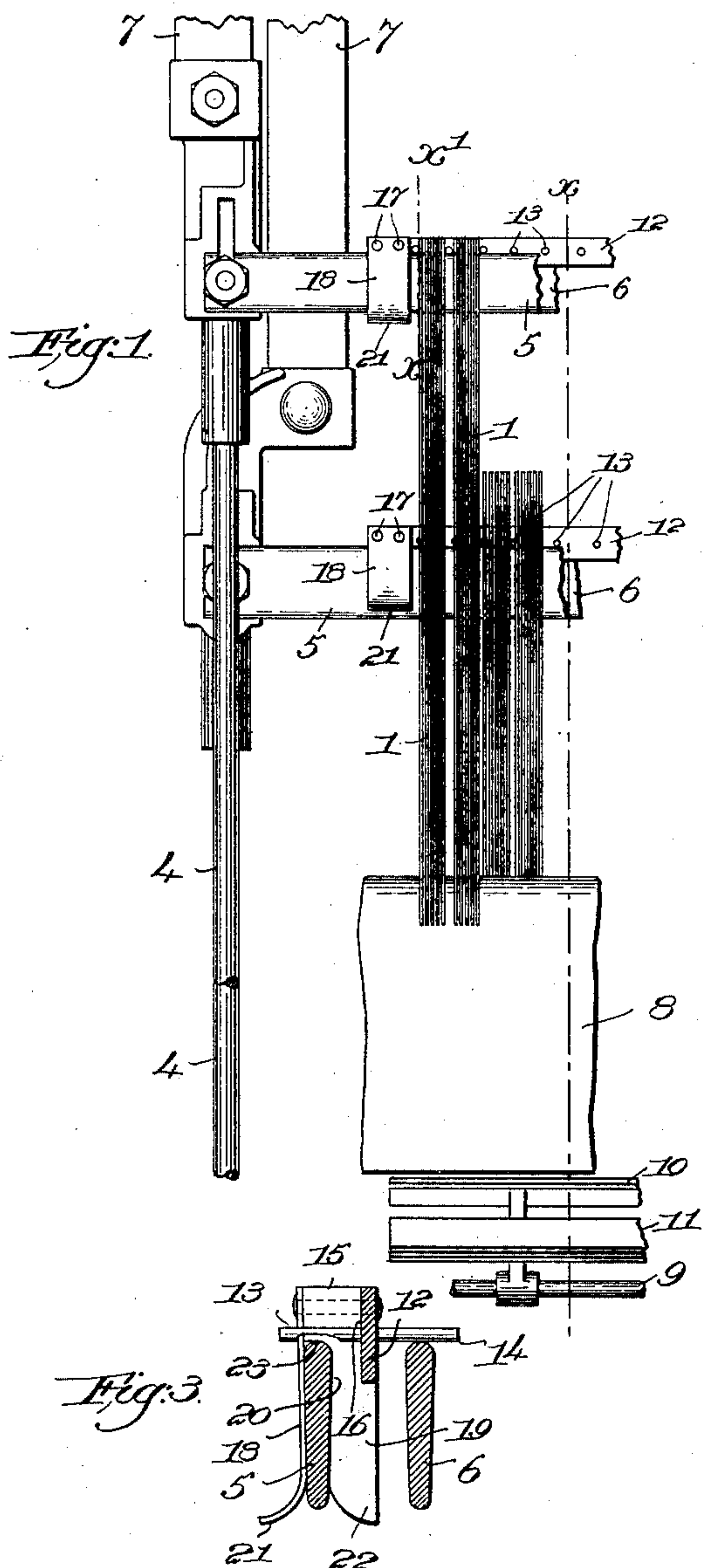
No. 717,132.

Patented Dec. 30, 1902.

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

(Application filed Feb. 8, 1902.)

(No Model.)



Witnesses,  
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# UNITED STATES PATENT OFFICE.

EDWARD S. STIMPSON, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO  
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## WARP STOP-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 717,132, dated December 30, 1902.

Application filed February 8, 1902. Serial No. 93,171. (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, 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 numerals on the drawings representing  
10 like parts.

My present invention relates more particularly to looms provided with that type of warp-stop-motion mechanism wherein controlling-detectors, which also serve as heddles, are  
15 governed and normally maintained inoperative by the warp-threads. In such apparatus the rapid and constant vertical reciprocation of the harness-frames and the movement of the warp-threads in forming the shed  
20 cause a very marked lateral swaying of the detectors. Such swaying is highly objectionable, as thereby the lower ends of the detectors are moved out of the path of the normally vibrating feeler, so that when a detector is released by failure of its warp-thread it  
25 cannot engage and arrest the feeler, and the stop-motion fails to operate. Other practical objections arise from the swaying, and unless it is prevented the proper functions of  
30 the stop-motion mechanism are not performed with the requisite accuracy and promptness.

By dividing the detectors of a series into relatively small groups or sections the swaying is prevented, and the objections hereinbefore noted are obviated.  
35

My present invention accordingly has for its object the production of novel and effective means for preventing the swaying movement of the detectors; and the various novel  
40 features of the invention will be hereinafter fully described, and particularly pointed out in the following claims.

Figure 1 is a front elevation of a portion of a warp-stop-motion mechanism applied to  
45 a loom, the stop-motion-controlling detectors serving also as heddles, and with one embodiment of my invention applied thereto. Fig. 2 is a transverse sectional view thereof on the line  $x x$ , Fig. 1, looking toward the left. Fig.

3 is an enlarged sectional detail on the line  
50  $x' x'$ , Fig. 1, to show more clearly one mode of applying the separating means for the detector-heddles. Fig. 4 is a perspective detail of the separator-carrier and separators thereon, and Fig. 5 is a perspective detail of  
55 a species of comb which is temporarily employed to conveniently group the detectors of a series in readiness for the cooperation of the separators.

In Figs. 1 and 2 I have shown the detector-  
60 heddles arranged in double series or banks for each harness-frame, the said detector-heddles being preferably made as flat thin elongated metal strips 1, provided each with a  
warp-eye 2 and a longitudinal slot 3 at or near  
55 the upper end, substantially as in United States Patent No. 590,551, dated September 21, 1897. The vertically-reciprocated harness-frames comprise, essentially, upright  
65 side bars 4, each pair of side bars being connected by two cross-bars 5 6, which are extended through the slots 3 of the detectors, substantially as in the patent referred to, the  
70 cross-bars being of less depth than the length of the slots, the detector-heddles being suspended from said bars with the warp-eyes 2  
75 below the same. The cross-bar 5 is shown as extended through the slots of the front bank of detectors of each frame and the  
80 cross-bar 6 through the slots of the rear bank. Overhead flexible connections or straps 7 lead from the tops of the harness-frames to the  
usual sheaves (not shown) on the overhead  
85 rock-shaft, and the lower ends of the frames are connected in usual manner with cam-actuated treadles. (Not shown.) The vertically-  
arranged and transversely-extended plate 8,  
90 extended between the lower ends of the detectors of the two frames, the normally oscillated rock-shaft 9, and the feelers 10 11 thereon  
to cooperate, respectively, with a released detector of the front or back frame may be and  
are all substantially as in the patent referred  
95 to and operating as therein set forth. I prefer to separate the detectors of each bank or series into relatively small groups or sections, and I have herein shown such a practical  
embodiment of my invention as enables me



to attain such result, though it will be manifest hereinafter that it is entirely within the scope of my invention to separate one bank or series, even when applied to multiple-bank structures, such as herein illustrated.

Referring now to Figs. 1 to 4, inclusive, a separator-carrier, shown as a long flat bar 12, is provided with series of separators 13 14, extended substantially at right angles there-  
 10 to from its opposite upright faces, the carrier being set on edge when in operation. The separators can conveniently be made as straight pins, inserted through holes in the carrier 12 and secured thereto midway be-  
 15 tween their ends. At each end of the carrier I secure an attaching device, only one of such devices being shown in Figs. 1, 2, and 3, and consisting of a block 15, preferably of metal, notched to form a seat 16, Fig. 3, to  
 20 receive the carrier 12 and secured thereto by suitable bolts 17. The latter also serve to firmly secure to the block a depending resilient or spring clip 18, which extends downward in front of the depending portion 19 of  
 25 the block below the carrier, said portion 19 being cut away at its edge nearest the clip, as at 20. As shown in Fig. 3, the clip is preferably turned or flared out at its free end, as at 21, and the portion 19 is oppositely rounded or curved, as at 22. The separators on  
 30 the carrier are so spaced that between each pair of adjacent separators a suitable number of detector-heddles may be grouped, the distance between the separators depending  
 35 upon circumstances; but in actual practice I have found one inch, more or less, to give the desired results. In order to apply the separators to a frame, it is only necessary to  
 40 cause one of the cross-bars to enter the space between the depending portion 19 of the block and the spring-clip 18, as shown in Figs. 1 to 3, the horizontal shoulder 23 of the block being seated on the upper edge of the cross-  
 45 bar. The carrier 12 is thus brought substantially midway between the two cross-bars 5 and 6, and the series of separators 13 extend transversely to and across the bar 5, while the oppositely-extended separators 14 extend  
 50 across the bar 6, closely adjacent the said bars, and, as shown in Fig. 2, the separators project between the detector-heddles and divide or separate them into groups or sections. With such partitions or separating portions the detector-heddles are grouped and pre-  
 55 vented from swaying laterally, and thereby their lower ends are maintained in proper position to coöperate with and arrest the feeler when released. It will be manifest that the application or removal of the separating  
 60 means is the work of a moment, and there is nothing to interfere with the drawing in of the warp, as the separating means will not usually be applied to the harness-frame until the same is in place on the loom after draw-  
 65 ing in.

To those skilled in the art it is well known that stop-motion detectors of this type when

employed also as heddles tend to wear the upper edge of the supporting cross-bar into grooves if permitted to occupy a substantially  
 70 invariable position thereon. This is readily prevented by my invention, as by sliding the separator-carrier in one direction or the other on the cross-bar which supports it the posi-  
 75 tion of the various groups of detector-heddles will be changed slightly, but enough to equalize the wear upon the cross-bar.

In order to facilitate the grouping of the detectors before the separating means is applied, a comb is used, a portion thereof being  
 80 shown in Fig. 5, said comb comprising a back 24 and a series of teeth or tines 25, secured thereto, the comb being long enough to take in an entire series of detectors. The attendant inserts the teeth of the comb between the  
 85 detectors and moves it laterally with a vibrating motion, shaking the detectors into groups, and then the separating means is positioned as described, after which the comb is with-  
 90 drawn and laid aside. The teeth of the comb will be spaced according to the number of detectors which are to compose a group. This facilitates the grouping and does more rapidly  
 95 and easily what would otherwise have to be accomplished by the attendant with his fingers when positioning the separating means.

It will be manifest that if a single series or bank of detectors is used on a frame my invention is equally applicable thereto, for in  
 100 such case either one series of separators on the carrier would be in use or the carrier might have but one set of pins or separators thereon.

By applying a separator-carrier having its separators differently spaced apart the group-  
 105 ing of the detectors is changed, so that, if desirable, a set of separating devices for different groupings may be kept on hand to be used according to the grouping desired or best  
 110 adapted to the particular character of work in hand or when for any reason it is desirable to change from one grouping to another.

The separators are shown as extended across the supporting-bars above the warp-  
 115 eyes of the detector-heddles and practically in contact with the upper edges of the cross-bars; but it is not necessary that the separators contact with the cross-bars so long as the upper ends of the detector-heddles at all times  
 120 extend above the separators.

I have herein shown one practical embodiment of my invention; but the same may be modified or rearranged in various particulars  
 125 by those skilled in the art without departing from the spirit and scope of the invention.

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

1. In a loom, a series of warp-stop-motion controlling-detectors, a support upon which  
 130 they are suspended and have a limited movement relatively thereto, a separator-carrier detachably mounted adjacent said support, and a plurality of separators extended from



said carrier transversely of and adjacent the support, the free ends of the separators projecting between the detectors and dividing them into small groups or sections adjacent the support from which they are suspended.

2. In a loom, a series of warp-stop-motion controlling-detectors, a support upon which they are mounted and have a limited movement relatively thereto, a separator-carrier detachably secured to said support in parallelism therewith, and a plurality of separators extended from the carrier substantially at right angles thereto across the support and between the detectors, to divide the latter into small groups or sections at or near their points of support and to restrict their lateral movement.

3. In a loom, two series of stop-motion detectors longitudinally movable into operative position by failure of the warp-threads, a transverse support for each series and relatively to which support its detectors have a limited independent vertical movement, a separator-carrier mounted adjacent said supports, means to detachably secure the separator-carrier in position, and two series of separators extended from the carrier and having their free ends projecting between the detectors of the two series at or near their supports, to divide the detectors into small groups or sections.

4. In a loom, a harness-frame provided with two parallel cross-bars, two series of stop-motion detector-heddles movable into operative position by failure of the warp-threads and supported by said cross-bars, a separator-carrier mounted between the latter, and two series of oppositely-extended separators on the carrier, the free ends of the separators projecting between the detectors of the two series adjacent the cross-bars and dividing the detectors into small groups or sections.

5. In a loom, a harness-frame provided with two parallel cross-bars, two series of stop-motion detector-heddles movable into operative position by failure of the warp-threads and supported by said cross-bars, a separator-carrier, oppositely-extended separators thereon having their free ends projecting between the detectors of the two series adjacent their supporting cross-bars and dividing the detectors into small groups, and means to detachably mount the separator-carrier on the frame between the cross-bars.

6. A harness-frame having a cross-bar, a series of heddles suspended therefrom and each having a warp-eye below the cross-bar, a series of separators, a carrier to which they are secured, mounted adjacent the cross-bar, and means to detachably secure the carrier in operative position, the free ends of the separators extending across the latter between the heddles, to divide the latter at or near their

points of support into small groups or sections and restrict lateral movement thereof.

7. In a loom, a harness-frame provided with two parallel cross-bars, two series of stop-motion detector-heddles movable into operative position by failure of the warp-threads and supported by said cross-bars, a separator-carrier having attaching devices at its ends, and a plurality of straight pins extended from opposite sides of the carrier, said pins extending between the detector-heddles of the two series adjacent their supporting cross-bars when the carrier is in operative position, to divide the detectors into small groups and restrict lateral movement thereof.

8. A harness-frame having two parallel cross-bars, a series of heddles constituting warp-detectors suspended from each cross-bar and having a limited vertical movement thereon, each heddle having a warp-eye below its bar and said heddles being supported by the warp-threads when occupying the lower plane of the shed, a separator-carrier detachably mounted between the cross-bars, and two sets of pins on and projecting from opposite sides of the carrier, the free ends of the pins extending transversely to the two cross-bars and between the series of heddles above their warp-eyes, the pins acting as separators to divide the heddles into small groups or sections and thereby restrict lateral movement thereof.

9. Separating means for heddles of warp-stop-motion mechanism, comprising a carrier, a series of pins constituting separators, projecting from the carrier substantially at right angles thereto, and attaching devices at the ends of the carrier, to detachably secure the same in place.

10. Separating means for heddles of warp-stop-motion mechanism, comprising a carrier, two series of pins constituting separators, mounted on and oppositely extended from the carrier substantially at right angles thereto, and attaching devices at the ends of the carrier, to detachably secure the same in place.

11. Separating means for heddles of warp-stop-motion mechanism, comprising an elongated bar or carrier, a series of pins constituting separators, extended therefrom substantially at right angles thereto, depending, recessed blocks secured to the ends of the bar, and a spring clip or tongue on each block extended in front of the recessed portion thereof.

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

EDWARD S. STIMPSON.

Witnesses:

FRANK J. DUTCHER,  
ERNEST W. WOOD.