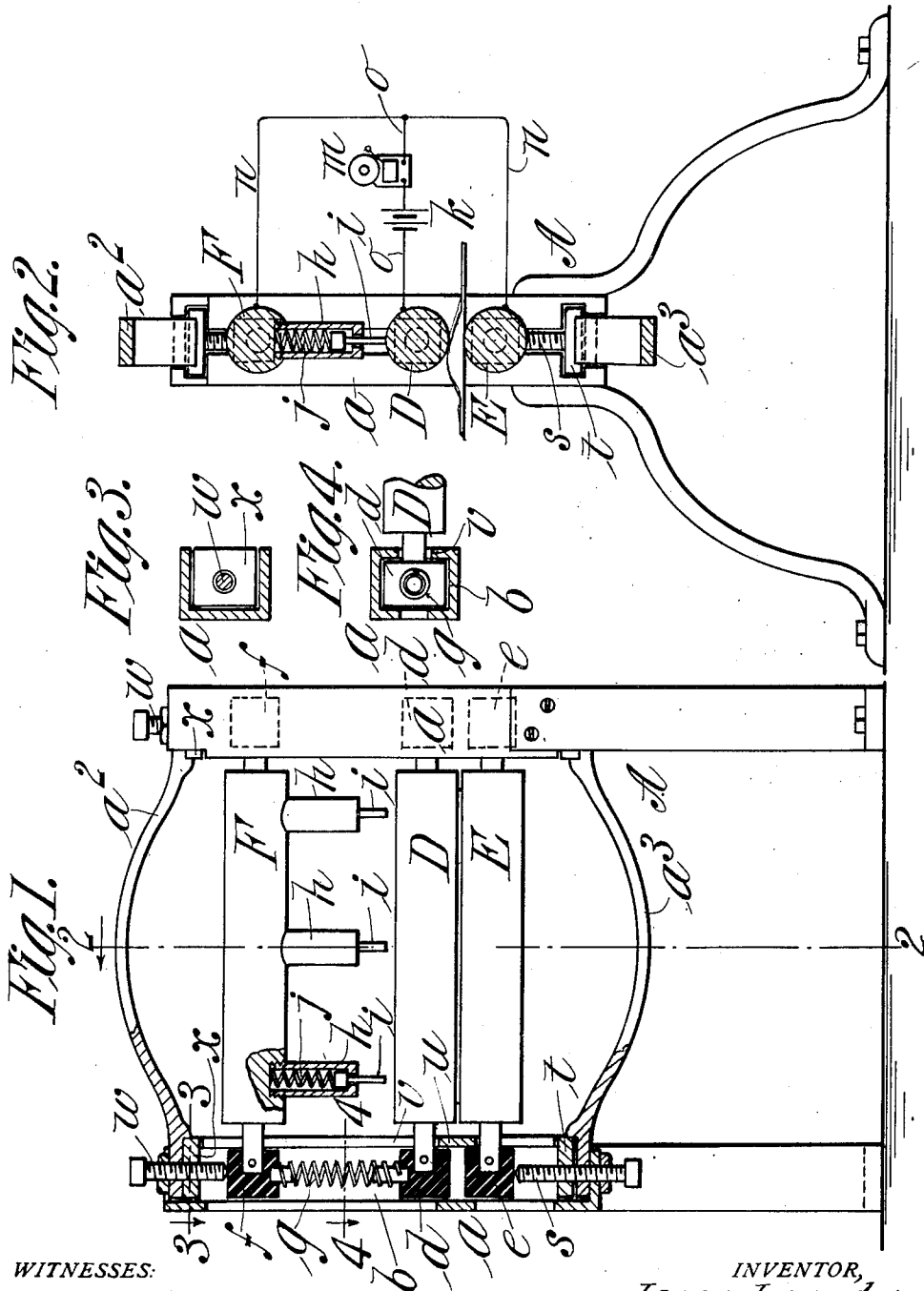


I. LONGDEN.
 DETECTOR DEVICE FOR CLOTH FINISHING MACHINES.
 APPLICATION FILED NOV. 5, 1909.

1,012,379.

Patented Dec. 19, 1911.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ISAAC LONGDEN, OF THREE RIVERS, MASSACHUSETTS.

DETECTOR DEVICE FOR CLOTH-FINISHING MACHINES.

1,012,379.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed November 5, 1909. Serial No. 526,374.

To all whom it may concern:

Be it known that I, ISAAC LONGDEN, a citizen of the United States of America, and resident of Three Rivers, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Detector Devices for Cloth-Finishing Machines, of which the following is a full, clear, and exact description.

As well known, cloth fabrics passing to a cloth finishing machine occasionally carry embedded, woven, or otherwise incorporated therein, not only small metallic objects such as needles, pins or pieces of reeds, but also sometimes hard and bulky non-metallic objects, resulting in injury to the surface of the finishing roll or rolls which are of expensive character.

This invention relates to a detector device to be located at a place to be reached by the cloth running to the finishing machine previous to its arrival at the latter for operating a signal which may be of any suitable character, either audible or visual, by which the attention of the machine tender is immediately directed to the presence of the injury producing object in the cloth and so that he may at once remove the same.

The invention consists in the combination or arrangement of parts and the constructions of certain of the parts all substantially as hereinafter described in conjunction with the accompanying drawings and set forth in the claims.

In the drawings:—Figure 1 is a front view of the detector device, the left hand portion thereof being shown in vertical section; Fig. 2 is a cross sectional view on line 2—2, Fig. 1; Figs. 3 and 4 are partial cross sections respectively on the lines 3—3, and 4—4, Fig. 1.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents a frame comprising opposite uprights *a a* united by the upper and lower cross ties *a²*, *a³*. The said uprights are made with vertical guide ways *b* therein having in each an adjacent pair of supporting blocks *d*, *e* and a remotely located supporting block *f*, these blocks being in vertical arrangement, the upper and lower ones *f* and *e* being vertically adjustable, and having suitable means for effecting their adjustments while the intermediate block *d* is vertically movable or yieldable against a spring *g*, which in

the present instance is applied in compression between and reacts in a downward direction against block *d* and in an upward direction against block *f*.

Bars D and E are arranged in parallelism with slight separation and supported by the oppositely located blocks *d* and *e*, these bars being here shown of cylindrical form, and they may be affixed in the supporting blocks in which their end extensions are engaged, or they may be free to rotate therein according to the preference of the constructor.

The bar F has the end extensions thereof supported in the blocks *f f* with provisions for preventing any rotative tendency. The said bar F is provided with downwardly projecting hollow or tubular extensions *h* which project toward the movable bar D, any they have in each a stud *i*, the head of which plays in the tubular extension in an upward direction against the inclosed spring *j*, while the stem or attenuated portion of the stud extends from the head through the contracted hole in the lower end of the part *h* and terminates at a suitable distance above the upper surface of the bar D. The flange at the lower end of the tubular extension *h* forms a stop against which the head bottoms. The lower ends of the several studs *i* are in a horizontal line parallel with the length of the bar D.

Electric conductors are connected with all three of the bars in a manner to constitute a normally open circuit and having connected therein a battery or generator *k* and a signaling device *m*, it becoming possible to close the circuit to cause the operation of the signaling device whenever a metallic piece forms a connection between the rolls D and E and also whenever the roll D is forced upwardly sufficiently far to contact against the lower ends of the studs *i* which are of metal and which have metallic connections with the metal bar or member F.

The wiring connections are as follows:—A wire *n* runs from connection with roll F around and down to bar E, and a wire *o* runs from connection with roll D to an intermediate part of the wire *n*, there being connected in this wire *o* the battery *k* and the signaling device *m* which is here indicated as an electric bell. If the cloth proceeding to the finishing machine has a metallic piece therein, of small size, as, for instance a pin or some fugitive portion of the loom such piece will metallically con-

nect the bars D and E, closing the circuit through the wires *o* and *n*. In case a comparatively thick object is carried along in or with the cloth, whether the same be metallic or non-metallic, it will have the effect of crowding the bar D upwardly,—the latter yielding against the duplicated spring *g*,—and metallic connection will be established between the bars D and F, closing the circuit also comprised in the wire roll and the portion of the wire therewith connected and connected with the bar F.

In order that the degree of the separation between the bars D and E may be varied and controlled to a nicety, an adjusting screw *s* is provided for coaction with the supporting block *e* for each end extension of the bar E, such screw having a thread engagement vertically through a tapped block or member *t* provided to or made as a part of the frame uprights.

The frame uprights have each, as represented at the left hand portion of Fig. 1, a portion *u* traversing the slotway *v* in which the end extension of the bar has its vertical play, such traversing part *u* serving as a stop for limiting the position of the member D; and in order that the upper bar or member F may be adjusted bodily vertically so that the lower ends of the studs *i* are in the most satisfactory proximity to the top of the member D, the screws *w* are provided which have thread engagements downwardly through the blocks fitted or affixed in the upper portions of the frame uprights and engaged at their lower ends against the tops of the supporting block *f*.

For proper insulation, and as manifest, the supporting blocks *f* *d* and *e* are composed of hardened fiber or analogous material.

I claim:—

1. In a detector device for cloth finishing machines, a pair of parallel slightly separated bars, one of which is composed of metal, and yieldably movable away from the other, and a third metallic bar having yielding members separated from and relatively to which said yieldable metallic bar is movable and conductors connected with the

yieldable metallic bar and the bar having said yielding members in such manner that said bars and said conductors form a normally open circuit, and a generator and a signal connected in said circuit whereby in the passage of the cloth carrying a somewhat bulky object between the said pair of bars the circuit will be closed by the yieldable bar of such pair contacting against the yieldable members of the third bar.

2. In a device of the character described, a pair of slightly separated bars, of metal, one movable yieldingly away from the other, and a metallic member toward which the yieldable bar moves, provided with a tubular extension projecting toward the movable bar and having a spring pressed stud guided therein and extending beyond the end thereof, conductors connected with the movable bar and said member to form together therewith a normally open electric circuit, said circuit having a generator and a signal connected therein.

3. In a device of the character described, a frame comprising opposite side uprights having in each an adjacent pair of supporting blocks and a remotely located supporting block in vertical arrangement, the upper and lower ones of said blocks being vertically adjustable and having means for adjusting them, and a spring operating in a downward direction against the intermediate one of said blocks, means for limiting the downward movement of each intermediate block, metallic bars having supports at the ends thereof in said blocks, conductors connected with the several bars comprised in a normally open circuit and having a generator and a signal connected in said circuit, and contact members carried by the uppermost of said bars with which the intermediate one of said bars makes contact when raised above a predetermined point.

Signed by me at Springfield, Mass., in presence of two subscribing witnesses.

ISAAC LONGDEN.

Witnesses:

G. R. DRISCOLL,
WM. S. BELLWS.