

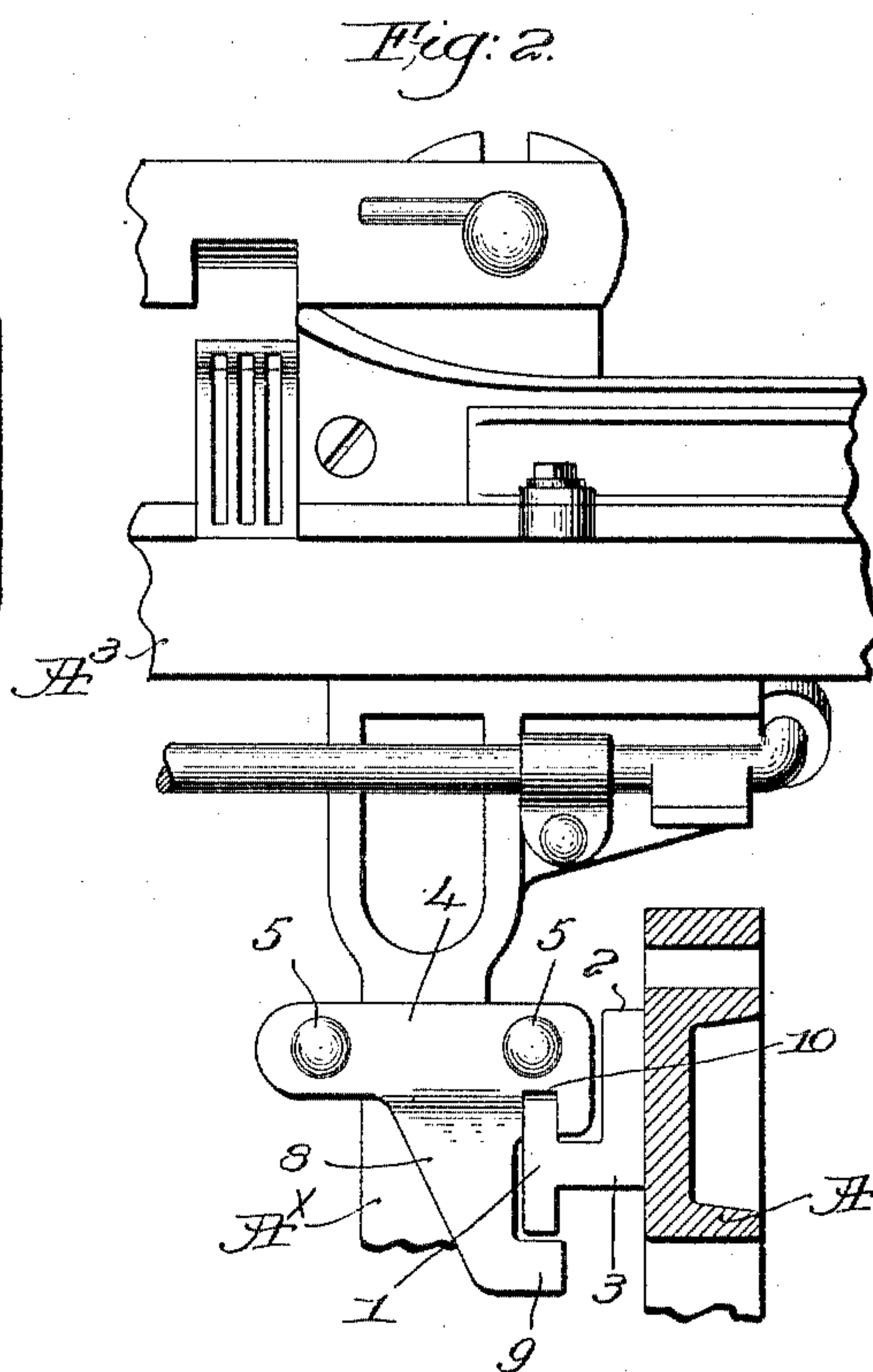
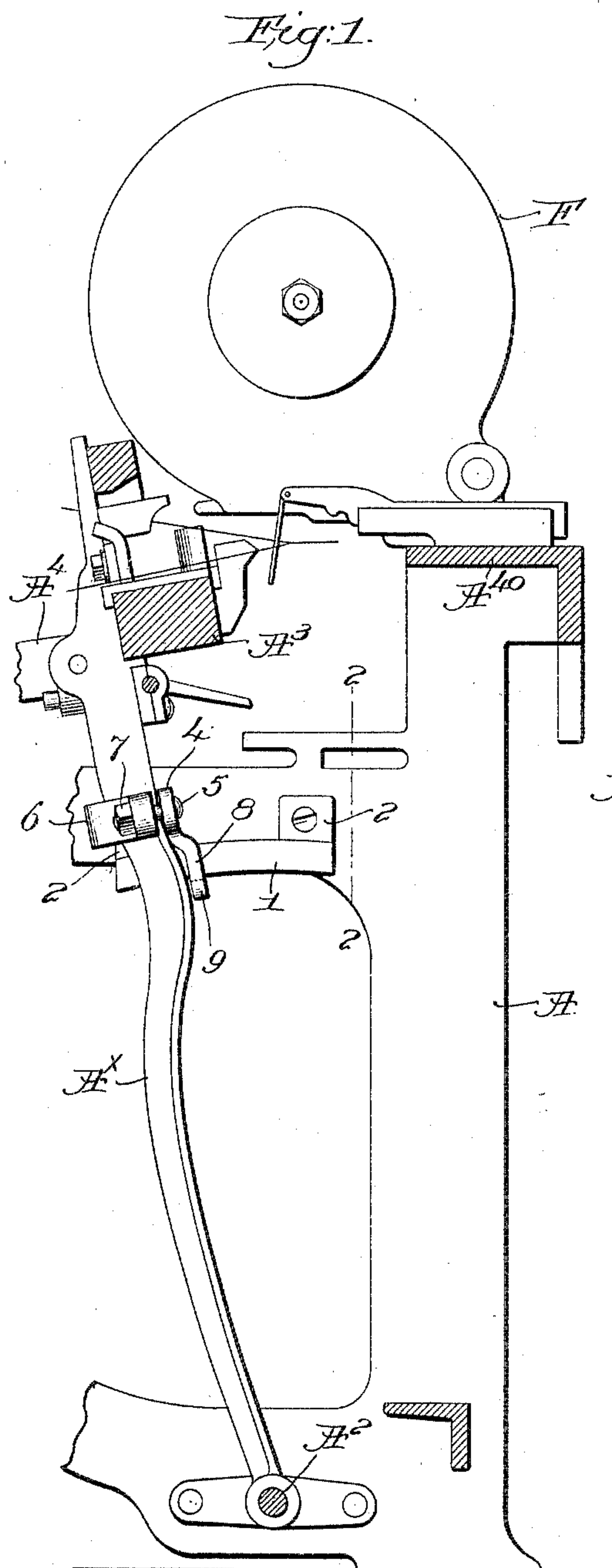
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E. S. WOOD.
DOWNHOLD FOR LOOM LAYS.

APPLICATION FILED AUG. 3, 1904.

NO MODEL.



Witnesses,
Edward H. Allen
Warren D. Owen

Inventor,
Everett S. Wood,
by Crosby Ferguson,
attys.

UNITED STATES PATENT OFFICE.

EVERETT S. WOOD, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO
DRAPER COMPANY, OF HOPEDALE, MASSACHUSETTS, A CORPORATION OF MAINE.

DOWNHOLD FOR LOOM-LAYS.

SPECIFICATION forming part of Letters Patent No. 775,881, dated November 22, 1904.

Application filed August 3, 1904. Serial No. 219,266. (No model.)

To all whom it may concern:

Be it known that I, EVERETT S. WOOD, a citizen of the United States, and a resident of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Downholds for Loom-Lays, 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 means to prevent the very serious damage resultant from rupture of the supporting means of the swinging lay in a powerloom.

Not only is the present speed of the modern loom high, but there is also a demand for decreased weight in the loom structure, calling for the exercise of great care, ingenuity, and skill on the part of the builder to so construct and proportion the different parts that the decrease in metal may not unduly lower the factor of safety or diminish the speed of operation. The swinging lay, moving at high speed, acquires great momentum, and if there is a rupture or breakage of its supporting means, such as the rocker-shaft or lay-swords, it will be manifest that the relatively heavy lay-beam will be thrown upward, creating great havoc with the warp and other parts of the loom.

In automatic filling-replenishing looms such an accident has not only resulted in an almost complete smashing of the warp, but it has also broken and destroyed the greater part of the filling-replenishing mechanism, causing a great loss in time and labor, to say nothing of the large cost for repairs. Such an accident usually results from rupture of one or both of the lay-swords along their smaller lower portions, between the lay and the rocker-shaft or close to the latter, and if only one lay-sword breaks it will be manifest that the adjacent end of the lay will be thrown upward and cause much damage, the other lay-sword being broken by the sudden torsional strain to which it is subjected.

In my present invention I have provided a simple but very efficient form of downholding means for the lay to prevent its upward movement should either or both of the lay-swords or the rocker-shaft be broken, the novel features of my invention being fully described in the subjoined specification and particularly pointed out in the following claims.

Figure 1 is a transverse sectional view of a portion of a loom, taken between the loom sides and showing one embodiment of my present invention, a filling-feeder forming part of automatic filling-replenishing mechanism being illustrated; and Fig. 2 is an enlarged front elevation and sectional detail, on the line 2 2, Fig. 1, of the downholding means at one side of the loom.

In order to fully protect the other parts of the loom from injury, it is preferable to provide means at each side of the loom to prevent lifting of the lay, and as such means at one side is the duplicate of the means at the other side of the loom I have herein illustrated the downholding means at only one side.

Referring to Fig. 1, the main frame A of the loom, lay A³, having two attached lay-swords, one of which is shown at A^x, the lay rocker-shaft A², which is connected with the lay by the lay-swords so that the lay swings fore and aft upon the rocker-shaft, the breast-beam A⁴, and the filling feeder or hopper F, mounted on the breast-beam at one end thereof, may be and are all of usual or well-known construction.

The filling-feeder F forms a part of filling-replenishing mechanism of the "Northrop" type—such, for instance, as is shown and described in United States Patent No. 529,940—and projecting rearward to overhang the adjacent shuttle-box as the lay beats up, as usual in looms of this type.

The lay swings back and forth in well-known manner on the rocker-shaft A² as a fulcrum, the swinging motion being imparted to the lay by the pitman A¹, (see Fig. 1,) connecting the lay-swords and crank-shaft (not shown) in usual manner.

Upon the inner face of each side of the main frame A, I secure an upright segmental plate or downhold 1, held in place by bracket-like ears 2, bolted to the frame, the curved upper and lower edges of the downhold being parallel and struck from the center of the rocker-shaft A², and viewing Fig. 2, wherein one of the downholds is shown, it will be seen that it is set in from the loom side by the in-
 10 turned bases 3 of the ears 2.

A cooperating member for each fixed downhold is mounted to move back and forth with the lay, and herein I have shown the cooperating member as formed by a clamp-plate 4, resting upon the front face of the lay-sword below but near the lay and held in position thereon by bolts 5, passed through a second clamp-plate 6, shaped to embrace the lay-sword.

20 Nuts 7 on the bolts, Fig. 1, draw the plates toward each other and rigidly clamp the same in position on the lay-sword.

The bolt-holes in the plate 4 may be made large enough to permit adjustment thereof when necessary in order to secure the proper cooperation with the adjacent downhold 1.

Each plate 4 has a depending ear 8, which is provided with a lateral offset 9 to extend beneath the downhold, and in Fig. 2 I have also shown the plate as provided with an upright notch 10, which receives the upper part of the downhold.

It is not necessary that the offset 9 be in actual sliding contact with the lower edge of the downhold, though there is no objection to such engagement so long as the latter at all times overhangs and is closely adjacent the offset; but I prefer to make a sliding fit between the downhold and the notch 10, as thereby the downhold and the offset or follower are always maintained in proper cooperative relation. So, too, any lateral movement of the lay is prevented, the back-and-forth movement of the lay thus being restricted to a well-defined and accurate path.

I make no claim, however, to the means *per se* for preventing lateral movement of the lay, as the same is not of my invention, and it is claimed herein only in connection with other parts.

Inasmuch as the fixed members or downholds are fixedly mounted on the loom-frame and at all times overhang the cooperating movable members or followers 9, it will be manifest that any rupture of either lay-sword, or both of them, at a point below the plates 4 will not result in any upward movement of the lay, for immediately upon the occurrence of such rupture the followers bear against the downholds, and the lay is held from rising and causing damage.

Should the rocker-shaft break or work loose from its bearings, the downholding means for the lay will act as described.

At time of rupture of the lay-supporting means the cooperation of the downholds with the notched and offset portions hereinbefore described causes the lay to move only in a fore-and-aft path, where comparatively little, if any, damage will result.

My invention is not restricted to the precise construction and arrangement shown and described herein, as the same may be modified or varied in different particulars without departing from the spirit and scope of my invention.

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

1. In a loom, a lay, swinging supporting means therefor, a fixedly-mounted fulcrum member for said means, and means independent of said fulcrum member to prevent lifting of the lay upon rupture of its supporting means.

2. In a loom, a lay, swinging lay-swords to support it, fulcrumed at their lower ends, and means, including fixed members, and cooperating members movable with the lay, to prevent the latter from lifting upon rupture of one or both of the lay-swords.

3. In a loom, a swinging lay, a fixed downhold, and means movable with the lay and in positive and slidable engagement with the downhold throughout the movement of the lay, to prevent upward movement of the lay or substantial departure from its normal path upon rupture of its supporting means.

4. In a loom, a swinging lay, a rocker-shaft with which it is connected and on which it is mounted to swing fore and aft, and means independent of the rocker-shaft to prevent upward movement of the lay upon rupture of its supporting means.

5. In a loom, a swinging lay, a rocker-shaft, lay-swords connecting it with the lay and adapted to swing fore and aft on the rocker-shaft, and means comprising a fixed fore-and-aft downhold at each side of the loom, and a cooperating member movable with the lay and adjacent each downhold, the downholds overhanging the cooperating members, to prevent upward movement of the lay upon breakage of the rocker-shaft or lay-swords.

6. In a loom, a main frame, a swinging lay, a rocker-shaft, lay-swords connecting it with the lay, a fore-and-aft downhold fixedly mounted on the frame at each side of the loom, and a follower rigidly mounted on each lay-sword below and near the lay and in close proximity to the adjacent downhold, the downholds overhanging the followers and cooperating therewith to prevent upward movement of the lay upon breakage of one or both of the lay-swords.

7. In a loom, a swinging lay, a rocker-shaft, lay-swords connecting it with the lay, and means, including a fixed downhold and guide

at each side of the loom, and a coöperating member fixedly mounted on the adjacent lay-sword near the lay and in sliding engagement with the opposite upright sides of the down-
5 hold, to prevent lateral movement of the lay and lifting thereof upon breakage of a lay-sword.

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

EVERETT S. WOOD.

Witnesses:

GEORGE OTIS DRAPER,
ERNEST W. WOOD.