

(No Model.)

2 Sheets—Sheet 1.

D. DUNN.

WEFT STOP MECHANISM FOR LOOMS.

No. 364,163.

Patented May 31, 1887.

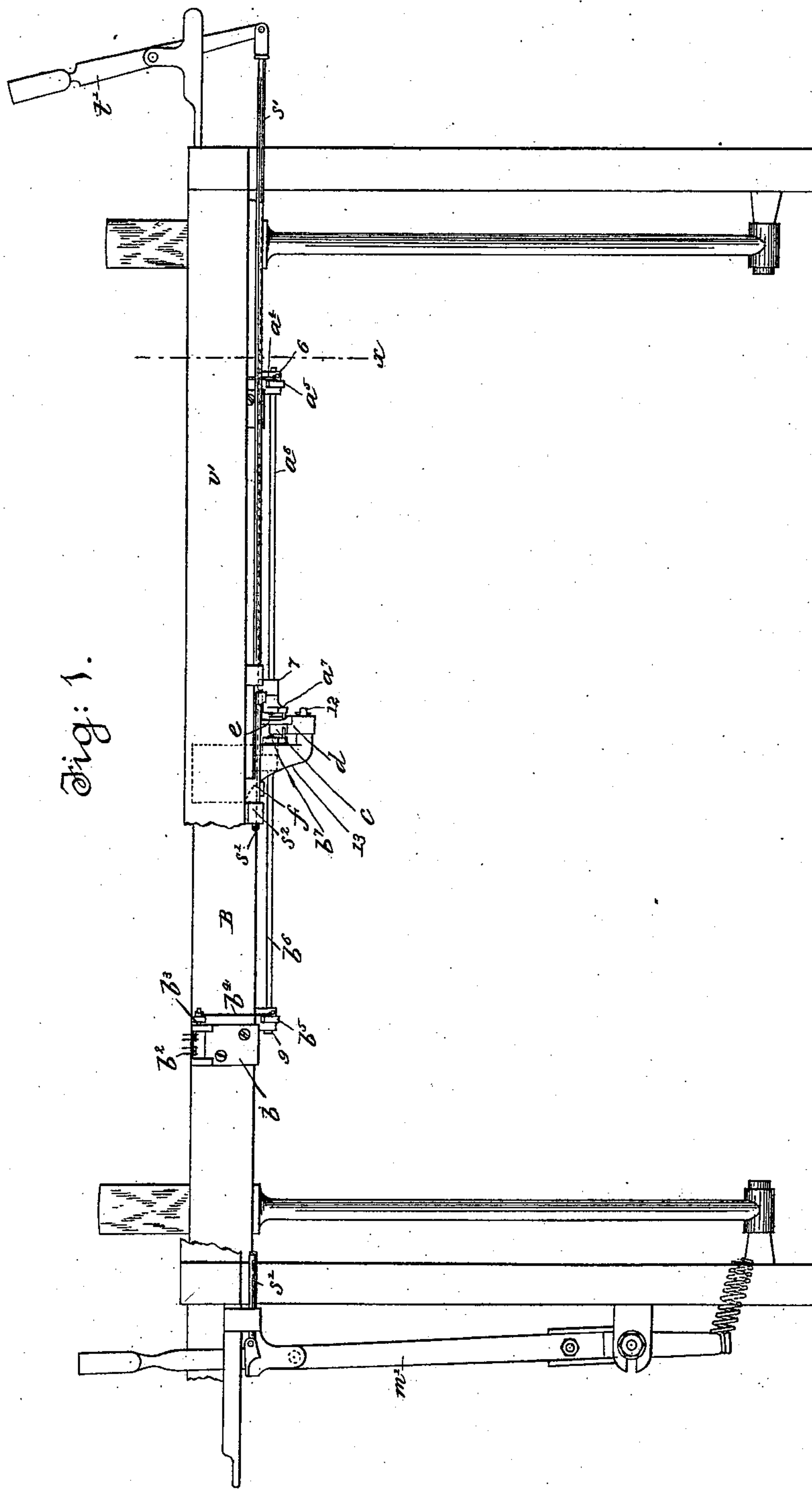


Fig. 1.

Witnesses:  
Fred L. Emery.  
John F. C. Painschok.

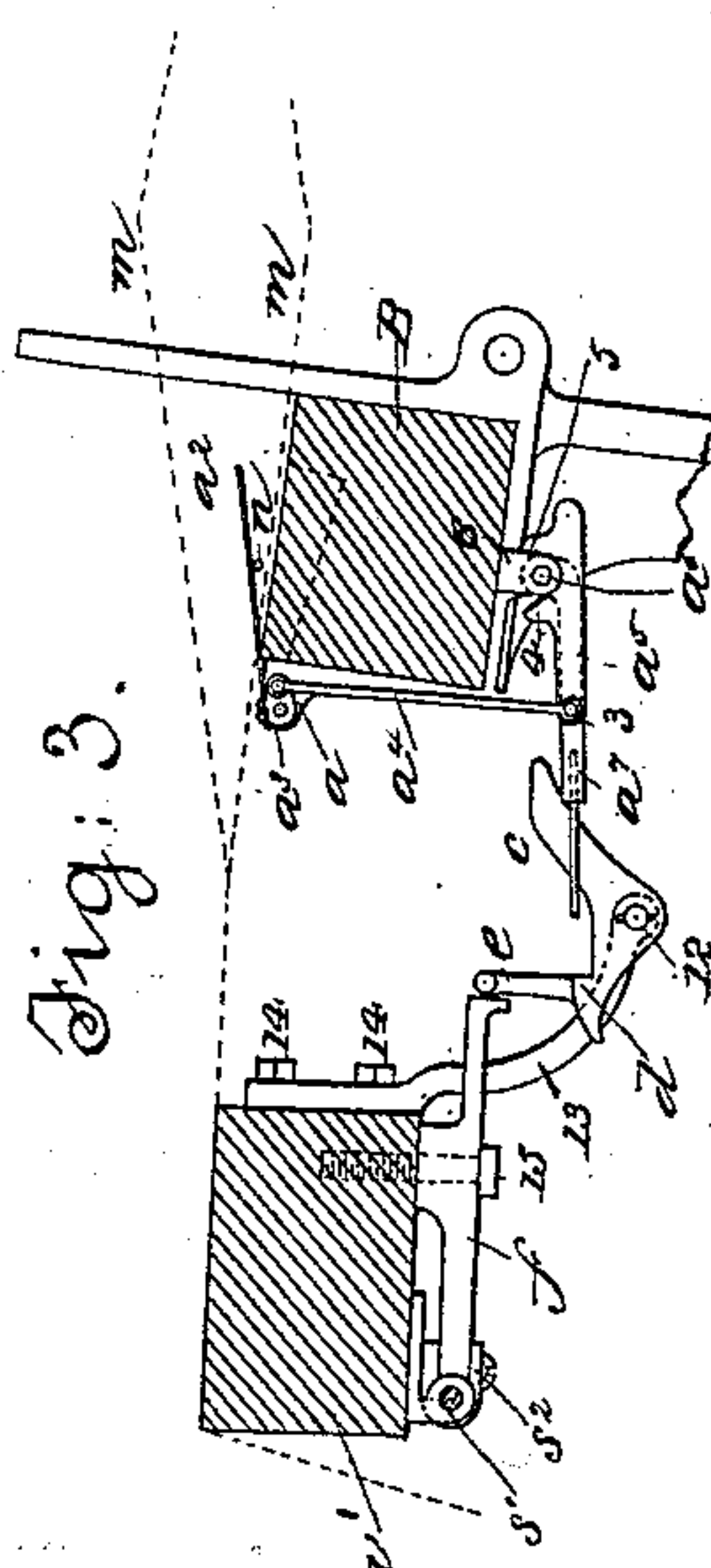
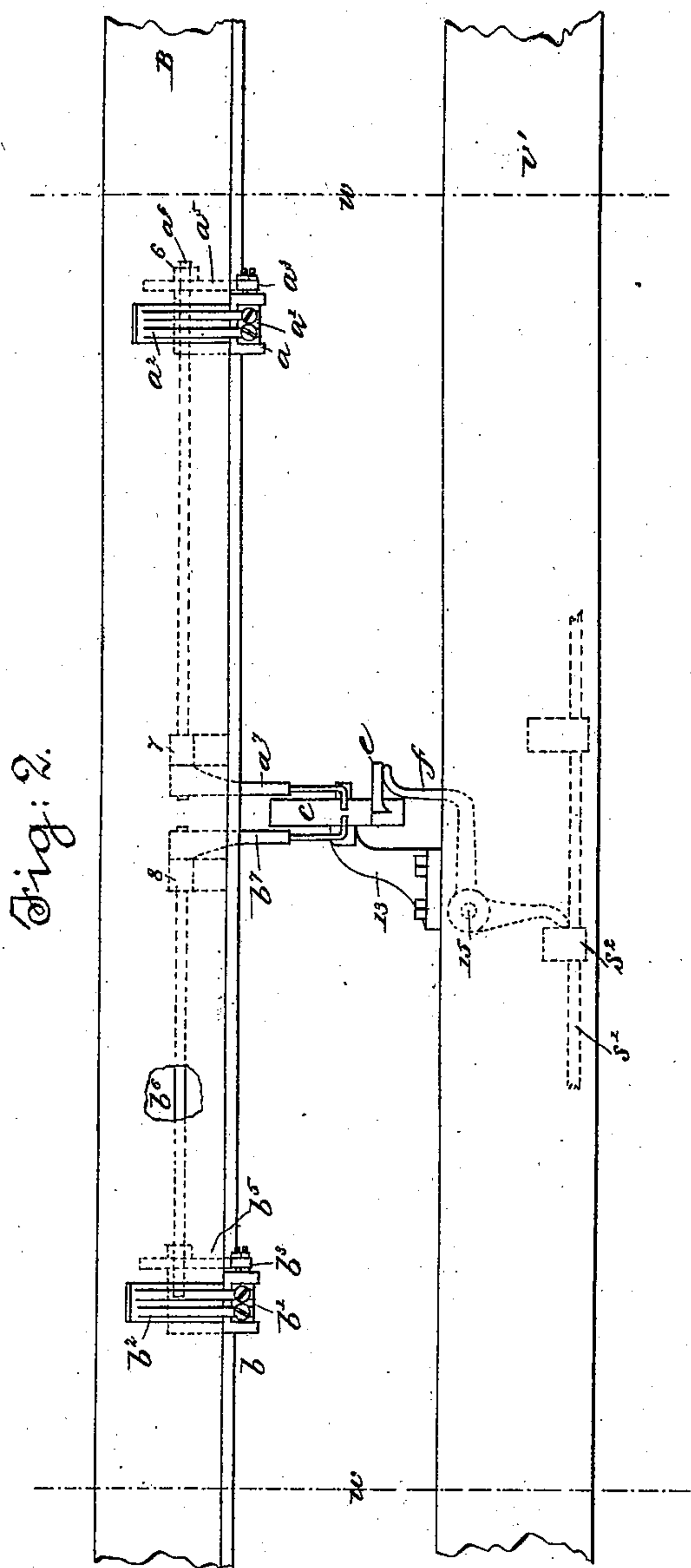
Inventor,  
Dennis Dunn  
by Geo W Gregory atty.

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Witnessed:  
John J. Rennie  
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Inventor,  
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# UNITED STATES PATENT OFFICE.

DENIS DUNN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO GEORGE CROMPTON, OF WORCESTER, MASSACHUSETTS; MARY C. CROMPTON ADMINISTRATRIX OF SAID GEORGE CROMPTON, DECEASED.

## WEFT-STOP MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 364,163, dated May 31, 1887.

Application filed February 11, 1886. Serial No. 191,545. (No model.)

*To all whom it may concern:*

Be it known that I, DENIS DUNN, of the city and county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Weft-Stop Mechanisms for Looms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention has for its object to improve the construction of weft-stop motions in looms, whereby the operation of the same is made more certain and efficient.

In accordance with my invention I provide two feelers, each of which is located at one side the center of the lay and between the selvage-threads rather than outside of the said selvage-threads, such location of the feelers enabling the absence of the weft to be sooner detected to stop the loom, the feelers arranged between the selvages being much more out of the way of other operative parts of the loom than if located outside the selvage-warps, the employment of two feelers, located as described, enabling more perfect cloth to be woven than can be done with but one stop-motion located near the middle of the lay.

My invention consists, essentially, of the combination, in a loom, of a shipper-lever, a lay, two sets of feelers located at opposite sides of the center of the lay between the selvage warp-threads, the said feelers being pivoted at the front of and extended backward over the said lay, two independent daggers, means to connect them with the said feelers, a dog adapted to be struck by one or both of the daggers, and means between the said dog and the shipper-lever to release it preparatory to stopping the loom whenever, for any reason, the filling-thread is passing from under either of the said feelers, as will be described.

Figure 1 represents a sufficient portion of the front of a loom to enable my invention to be understood, the breast-beam being broken out to show a portion of one of the stop-motions attached thereto. Fig. 2 is a partial plan or top view of the lay and breast-beam with the weft stop-motions or the chief parts thereof

added; and Fig. 3 is a section of Fig. 1 in the dotted line *x*, looking toward the left.

The lay *B*, the breast-beam *v'*, the shipper-lever *m'*, the auxiliary shipper-lever *t'*, the rod *s'*, the angle-lever *f*, and the lug *s''* are all substantially the same in construction and operation as the parts designated by like letters in United States Patent No. 299,966, dated June 10, 1884, to which reference may be had.

In Fig. 3, by dotted lines *m*, I have shown the warp-threads open to form a shed, and in Fig. 2, by the dotted lines *w w*, I have represented the selvage warp-threads.

To the front of the lay, at each side of its center, I have attached by suitable screws two stands, *a b*. The stand *a* has pivoted in it the head *a'* of the feeler *a''*, a journal extended through the said head having attached to it an arm, *a'''*, which by a rod, *a''''*, is jointed at 3 to an arm, *a''''''*, which is secured to the rock-shaft *a''''''''*, having its bearing in stands 6 7, attached to the under side of the lay, the said rock-shaft at its opposite end having attached to it the dagger *a''''''''''*, the outer extremity of which, as herein shown in Fig. 2, is bent substantially at right angles to extend over the dagger-lifting cam *c*.

At the opposite side of the loom is a feeler like the one just described, and in the stand *b* is journaled the head *b'* of the feeler *b''*, the journal of the said head extended through the stand *b* having an attached arm, *b'''*, like the arm *a'''*, the said arm *b'''* being connected in like manner by a rod to an arm, *b''''*, (shown by dotted lines in Fig. 2,) which is attached to the rock-shaft *b''''''*, sustained at the under side of the lay in suitable bearings, as shown, and, as described, of the rock-shaft *b''''''*, the said rock-shaft *b''''''* having attached to its inner end a dagger, *b''''''''*, which is like dagger *a''''''''''*, and has one end bent or shaped to extend over the dagger-lifting cam. These two feelers and the dagger co-operating with each one of them are connected together and operate in like manner.

The dagger-lifting cam *c* is pivoted at 12 upon the bracket 13, attached by bolts 14 to the breast-beam at its inner side, and, as herein shown, the said cam has forming a part of it a dog, *d*, and extending over the dog is an arm,



*e*, which acts upon the inner end of the angle-lever *f*, before referred to, it being pivoted at 15 to the under side of the breast-beam.

The arms *a*<sup>5</sup> and *b*<sup>5</sup> referred to, both alike, the one marked *a*<sup>5</sup> being shown in side elevation in Fig. 3, have stops 4 5, which co-operate with one of the stands holding one of the rock-shafts, thereby limiting the extent of oscillation of the said shaft, and consequently the movement of the dagger.

The operation of the stop-motion referred to is as follows, viz: As the lay is moved backward from the position shown in Fig. 3, the daggers *a*<sup>7</sup> *b*<sup>7</sup> ride upon the cam *c*, raising the feelers *a*<sup>2</sup> *b*<sup>2</sup> for the passage of the shuttle to lay the filling-thread *n* in the open shed of the warp, as represented in Fig. 3. After the filling has been laid, and as the lay is moved forward toward the breast-beam by the usual cranks and connecting-rods common to United States Patent No. 265,659, dated October 10, 1882, the feelers descend, and if the filling *n* is under both of the feelers *a*<sup>2</sup> *b*<sup>2</sup> they will rest upon the said filling, and the daggers *a*<sup>7</sup> *b*<sup>7</sup> will be held above and pass over the dog *d*; but if the filling should break or be absent from under either of the said feelers, then as the feelers descend that feeler under which there is no filling will descend below the line of the warp and the top of the race of the lay in a recess therein, and the dagger operatively connected with the feeler which is so permitted to descend will, as the lay is moved forward, engage the dog *d*, move it, and cause the arm *e*, connected with it, to act against the end of the angle-lever *f*, moving it upon its fulcrum 15, causing the opposite end of the said angle-lever to act upon the projection *s*<sup>2</sup>, move the rod *s*<sup>1</sup> longitudinally under the breast-beam, effecting the disengagement from its usual holding plate or device of the shipper-lever, the disengagement of the shipper-lever effecting the stoppage of the loom, as provided for in the patents before referred to.

In the stop-motion represented in the Bigelow patent, No. 86,805, and in all other stop-motions heretofore used, where two separate feelers are used, one outside each selvage of the warp, the filling can be laid only under one of the said feelers, never under both of them at the same time, and means had to be provided to prevent the feelers under which there was no filling from acting to stop the loom, for the devices shown in the said patent for connecting the two feelers together are so contrived that when the thread is laid under one feeler the other feeler is prevented from acting to stop

the loom. Feelers connected together as described in said patent can only be used with coarse filling-threads—such as carpet-yarns— which are strong enough to hold or resist the action of the feelers, for there is so much weight in the parts to be moved that when the feelers act to feel for the thread they come down with so much force as to break the ordinary filling-threads used in cotton and woolen goods. It also sometimes happens that the filling-thread, after being laid in the warp and also under the feeler, becomes broken between the feeler and the box outside of it, the said thread being broken sometimes by being caught between the shuttle and the said box and sometimes by imperfection in the filling-thread. When such breakage occurs that part of the filling-thread remaining under the feeler will serve to prevent the operation of the stop-motion to stop the loom, and consequently the shuttle containing the broken thread is thrown through the shed, the broken end of the shuttle-thread trailing behind the shuttle. It sometimes happens that this loose end will catch in the threads of the warp in the shed at a point between the selvages, and thus become interwoven with but a part of the warp; but as the filling-thread, after its end has been caught in the warp, holds up the feeler between the selvage and the box, the loom will continue to run notwithstanding this imperfection in the cloth.

In the apparatus herein described both feelers act upon each crossing of filling laid in the warp, and if the filling be absent under either one the loom will be stopped.

I claim—

The combination, substantially as described, of the shipper-lever, the lay, two sets of feelers located at opposite sides of the center of the lay between the selvage warp-threads, the said feelers being pivoted at the front of and extended backward over the said lay, two independent daggers, means to connect them with the said feelers, the dog adapted to be struck by one or both of the daggers, and means between the said dog and the shipper-lever to release the shipper-lever preparatory to stopping the loom whenever, for any reason, the filling-thread is absent from under either of the said feelers.

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

DENIS DUNN.

Witnesses:

SAMUEL A. WYNN,  
JOHN F. TURNER.