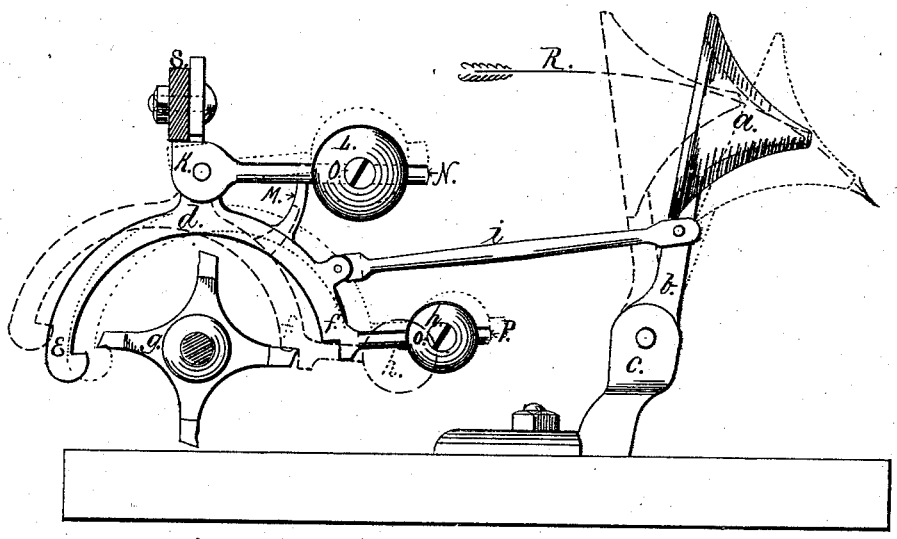
D. W. HAYDEN.

Stopping Mechanism for Drawing-Frames.

No. 166,276. Patented Aug. 3, 1875.



WITNESSES.

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IMPROVEMENT IN STOPPING MECHANISMS FOR DRAWING-FRAMES.

Specification forming part of Letters Patent No. **166,276**, dated August 3, 1875; application filed June 21, 1875.

To all whom it may concern:

Be it known that I, DANIEL W. HAYDEN, of the city and county of Providence, and State of Rhode Island, have invented certain new and useful Improvements in Stop Mechanism for Drawing-Frames; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings forming part of this specification.

My invention relates to that class of mechanism used in drawing-frames and railway-heads or eveners known as detector stop-motions, by which the machine is automatically stopped when the sliver breaks or is delivered lighter or heavier than a given standard, and also when the sliver contains a bunch or the trumpet becomes choked.

In the drawings, my improved detector stop mechanism is shown in view, all the parts being shown in the position occupied when the sliver of standard weight is passing through the trumpet in the direction indicated by the arrow R. The position of the different parts is also shown in broken lines, when the sliver is broken and the machine stopped, and in dotted lines when a bunch chokes the trumpet and the extra strain stops the machine.

a in the drawings represents the trumpet, through which the sliver is drawn in the direction indicated by the arrow R. The trumpet is mounted on the arm *b*, which is pivoted to the standard *c*. The arc *d* is shown suspended from the rail S, and is supported on a pin, so as to swing freely. The lower ends of the arc *d* form stops, one at E and one at *f*, and when either of these comes in contact with the revolving stop-gear *g* the machine will be stopped by the usual mechananism employed on such machines. The arc *d* is connected with the trumpet-arm *b* by the rod *i*, and any motion of the trumpet *a* is communicated to the arc. The drawing of a standard quality of sliver through the trumpet produces a certain amount of friction on the same. To compensate for or balance this friction, and give a positive yet sensitive resistance to the trumpet, I project from the lower part of the arc *d*, at *f*, the rod P, and place on the same the weight *h*, which may be shifted to any position on the rod, and so the exact amount of friction to be resisted can be accurately ascertained when the weight is secured by the set-screw O. When the sliver is below the standard the friction on the trumpet is diminished, and the weight *h* depresses the arc *d* until the same at *f* comes in contact with the revolving gear *g* and stops the machine, and when the sliver breaks the weight *h* instantly brings the arc in contact with the gear *g* and stops the machine.

The operation of the trumpet on the sliver is, to a considerable extent, compensating, for, when a portion of the sliver is heavier than the standard, the additional friction against the side of the trumpet has a tendency to draw out the sliver, and it is not desirable to have the machine stopped unless a bunch chokes the trumpet. To therefore adjust the stop-motion so that the machine shall only be stopped when the strain on the trumpet exceeds a given limit, or when the trumpet becomes choked, I place above the arc *d* the weighted arm N, supported on the same pin on which the arc *d* is supported, and having the stop K, by which the same is held in its proper position, and the adjustable weight L secured to the arm N, by the set-screw O, and by adjusting the weight L on the arm N more or less resistance may be secured.

The projection M on the arc *d* extends up to the arm N when sliver of standard quality is passing through the trumpet, and the weight L on the arm N must be raised before the machine can be stopped, thus giving any desired latitude between the friction of the standard sliver and the choking of the trumpet at which the machine is to be stopped; but when the arm N is raised the arc *d* comes in contact with the revolving gear *g* at E, and stops the machine.

By thus employing the adjustable weights L and *h* great latitude in the variation of the sliver may be allowed before the machine is stopped; or the weights may be adjusted so that the slightest variation in the sliver will stop the frame. In either case the action is positive and reliable, and, when once adjusted, unvarying in its operation.

The arc *d*, instead of being suspended above the revolving stop-gear *g*, may be placed below the same, and the trumpet-arm *b* extended

downward and connected, by the rod *i*, with the arc *d*, and the same result obtained.

By connecting the trumpet-arm near the trumpet directly with the arc *d* by the rod *i*, every motion of the trumpet is communicated directly to the arc, and if the trumpet-arm is extended downward below the fulcrum *c* the same distance as the trumpet is above the same result is obtained as if connected with the arc by the rod *i*.

As the adjustable weights L and *h* act by gravity without friction, and always positively, this improved detector stop mechanism must work with great precision, and is not liable to get out of order.

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

1. The combination, with the revolving stop-gear *g* and the suspended arc *d*, provided with the adjustable weight *h*, of the trumpet-arm *b* and the connecting-rod *i*, the whole adapted to operate substantially as and for the purpose set forth.

2. The combination of the hinged arm N, provided with the stop K and adjustable weight L, with the suspended arc *d* and stop-gear *g*, substantially as described.

3. The combination of the trumpet *a*, the arm *b*, the connecting-rod *i*, the suspended arc *d*, provided with the adjustable weight *h*, and the weighted arm N with the stop K, the whole adapted to operate substantially as specified.

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Witnesses:
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