H. S. HOUGHTON.

Stop-Motion for Drawing-Frames.

No. 198,111. Patented Dec. 11, 1877.

Fig. 3.

Fig. 2.

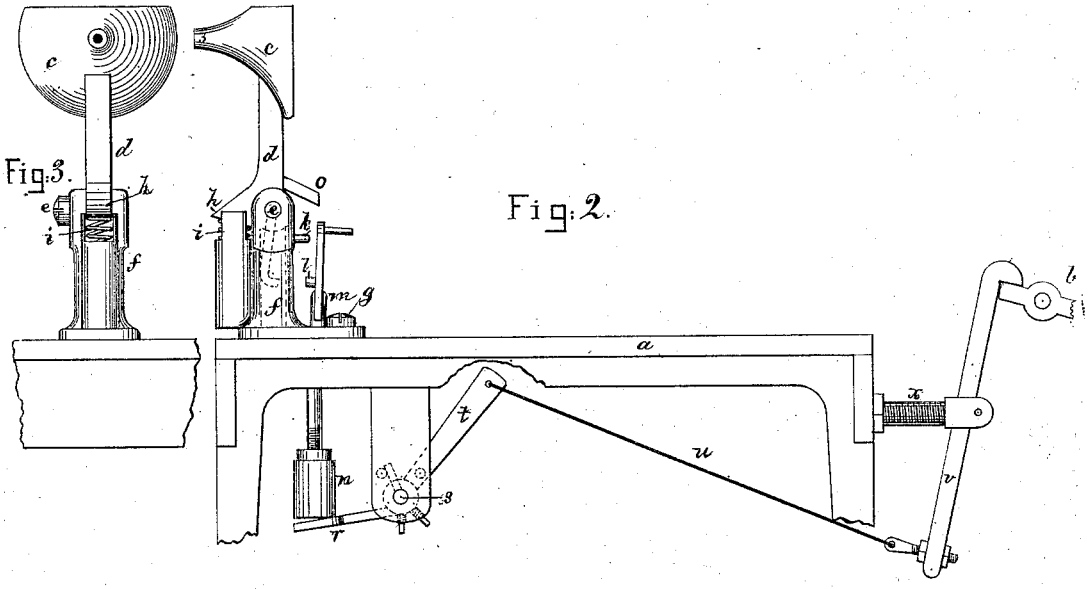
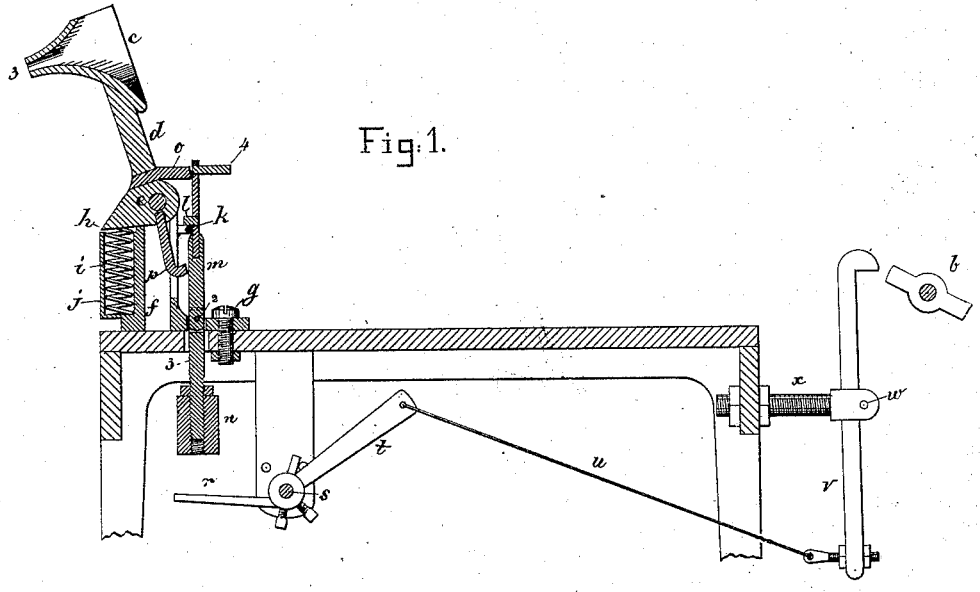


Fig. 1.



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY S. HOUGHTON, OF SMITHVILLE, MASSACHUSETTS.

IMPROVEMENT IN STOP-MOTIONS FOR DRAWING-FRAMES.

Specification forming part of Letters Patent No. **198,111**, dated December 11, 1877; application filed August 21, 1877.

To all whom it may concern:

Be it known that I, HENRY S. HOUGHTON, of Smithville, in the county of Worcester and State of Massachusetts, have invented an Improved Stop-Motion for Drawing-Frames, of which the following is a specification:

This invention relates to stopping mechanism for drawing-frames and railway-heads, whereby such mechanism may be stopped when the sliver breaks or becomes too small. Provision is also made to stop such machines when the sliver is too large.

In most of the drawing-frames now commonly in use, as far as I am aware, the trumpet and the devices intermediary between it and the usual stop-wheel are located above the top plate or roller-beam of the frame, and a catch and stop-wheel, or equivalent, are used with each trumpet.

In this my invention the upper portion of the roller-stand, in the vicinity of the rollers, is left unobstructed, and I need employ but one catch and stop-wheel, or equivalent, to act upon the catch for all the trumpets.

Figure 1 represents, in elevation and partially in section, sufficient portion of an ordinary drawing-frame head to illustrate this my invention, the trumpet being in the position it will occupy when the sliver is of the proper size and the frame is working evenly; Fig. 2, an elevation, showing the parts in the positions they will occupy when any serious imperfection occurs in the sliver; Fig. 3, a front view of the trumpet and its supporting-spring.

The frame *a* is intended to represent the top plate or roller-beam of any usual drawing-frame. The drawing-rollers—usually located above the roller-beam and the smooth compacting-rollers, in advance of the trumpet—are omitted, as unnecessary to be shown, as they will be of usual form.

The great majority of drawing-frames are provided with a so-called "stop-wheel," (shown at *b*,) which, when it is engaged by a catch, *v*, or equivalent, controlled as to its position by the trumpet and its connections, operates, through certain well-known devices, to stop the drawing-frame. These devices between the stop-wheel and shipper I have not deemed it necessary to show or describe, for they will be of any usual construction; and so, also, it is understood that any other usual or equivalent stop may be used instead of the stop-wheel *b*.

The trumpet *c* is carried by an arm, *d*, pivoted at *e* to the trumpet-stand *f*, attached to the top plate or roller-beam *a* by a screw, *g*. The trumpet-arm *d* has a toe, *h*, which rests upon a spring, *i*, and removably applied to the socket *j*, (shown as attached to the trumpet-stand,) the spring being of such stiffness, as compared with the size and weight of the sliver being operated upon by the trumpet, as to cause the arm and trumpet to remain in the position shown in Fig. 1, the frame then working regularly.

The trumpet-stand has a sustaining-rest, *k*, to receive a supporting projection, *l*, from a bar or rod, *m*, controlling a weight, *n*. This weight-controlling bar is shown as jointed at 2, and the weight is shown as attached to the lower portion of the bar.

The trumpet-arm *d* has two projections, *o p*, the former to act upon the rod when the trumpet is turned to the right by its spring *i*, as when the sliver is too small or is broken, and the latter to act upon the rod when the sliver is too large. The spring *i* is made of such strength that it will throw the trumpet-arm into substantially vertical position when the trumpet is not pressed forward by the sliver, and so that it will not permit the trumpet to move far enough to cause the projection *p* to move the rod *m* so long as the sliver is of proper size. Consequently, when the frame is working properly, the parts are as in Fig. 1, wherein the projection *l* is lodged upon the rest *k*, and the weight *n* is supported above the weight-catcher *r*, attached to a shaft, *s*, extended throughout the length of the frame. This shaft is provided with a weight-catcher, *r*, for each trumpet, and with one arm, *t*, connected by a rod or chain, *u*, with a catch-lever, *v*, pivoted at *w* on an adjustable stud, *x*, so as to place the catch in proper position with relation to the stop-wheel *b*, that it may engage the catch, when the weight *u*, connected with any trumpet, being released or disconnected, is permitted to fall upon its catcher *r*, as shown in Fig. 2. In this way but one stop-wheel and catch is required for each frame.

With the parts as in Fig. 1, if the sliver breaks, the spring *i* will move the trumpet-arm

so that the projection *o* will strike the rod *m*, and push the projection *l* from the rest *k;* and if the sliver is too large, the trumpet-arm will be moved toward the left until the projection *p* moves the rod and permits the weight to fall. In this way I am enabled to operate a frame having any number of trumpets with one shaft, one catch, and one stop-wheel.

The projection *p* may be omitted. In such case the nose 3 of the trumpet will rest in the bite of the rolls, and the sliver, if too large, will be broken.

It will be observed that the parts heretofore commonly extended from the trumpet back over the top plate or roller-beam to the stop-wheel are omitted. With devices constructed and arranged as described, space is left on the top plate or roller-beam, upon which the rolls may be laid when being cleaned or repaired, and when the sliver breaks it does not get entangled with levers in connection with the trumpet.

The movement of the trumpet, by a defect in the supply of the sliver, causes a weight in connection with it (the trumpet) to drop and operate the catch to be engaged by the stop-wheel. The stud 4 serves the purpose of a handle by which to lift the weight.

I claim—

1. The combination, with the trumpet and its arm *d*, of a weight, *n*, arranged to be disconnected and dropped by the movement of the trumpet-arm, so as to stop the frame, substantially as described.

2. In a drawing-frame, a single catch, *v*, and stop-wheel *b*, a shaft, *s*, and a series of catchers, *r*, one for each trumpet, whereby a weight disconnected and dropped by the action of either of the trumpet-arms of the series of trumpets will stop the frame.

3. The trumpet-arm *d* and its projection *o*, in combination with a rod, *m*, and weight, said rod being provided with a projection, *l*, and supported as described, whereby, when the sliver breaks, the projection *o* will be moved to release the weight and let it drop, substantially as and for the purpose described.

4. The trumpet-arm *d*, provided with projections *o p*, in combination with a weight, *n*, and with mechanism to support it until released by the movement of the trumpet, to operate as and for the purpose described.

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

HENRY S. HOUGHTON.

Witnesses:

G. W. GREGORY,

S. B. KIDDER.