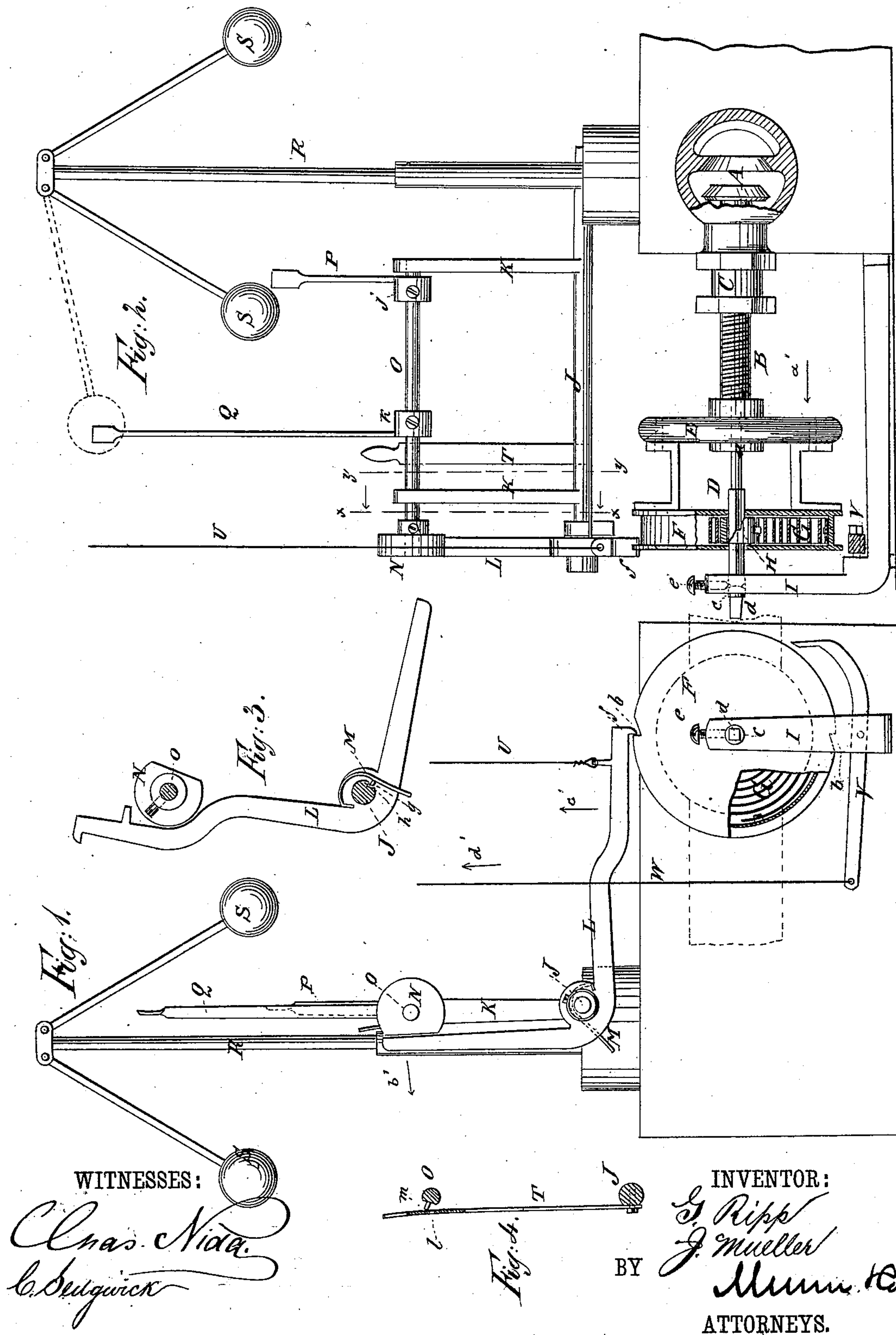


G. RIPP & J. MUELLER.
Automatic Apparatus for Stopping Engines.

No. 226,553.

Patented April 13, 1880.



UNITED STATES PATENT OFFICE.

GUSTAV RIPP AND JOHN MUELLER, OF JERSEY CITY, NEW JERSEY.

AUTOMATIC APPARATUS FOR STOPPING ENGINES.

SPECIFICATION forming part of Letters Patent No. 226,553, dated April 13, 1880.

Application filed December 11, 1879.

To all whom it may concern:

Be it known that we, GUSTAV RIPP and JOHN MUELLER, of Jersey City, in the county of Hudson and State of New Jersey, have invented a new and Improved Automatic Apparatus for Stopping Engines, of which the following is a specification.

The object of our invention is to provide a new and improved automatic apparatus which will shut off the motive element from the engine in case the belts or machinery break or become disordered.

In the accompanying drawings, Figure 1 represents a side elevation of our improved automatic stopping device. Fig. 2 represents a front elevation of the same. Fig. 3 is a detail sectional view on the line *xx*, Fig. 2. Fig. 4 is a detail sectional view on the line *yy*, Fig. 2.

Similar letters of reference indicate corresponding parts.

A stop-valve, A, is placed into the pipe leading the steam to the piston, and is connected with a screw-shaft, B, having a bearing in the threaded stuffing-box C. The forward end of the screw is provided with a cavity, *a*, into which the rounded end of the shaft D passes, and with a hand-wheel, E, which is connected with the drum F, provided with a number of notches, *b b*. The drum F contains a strong spiral spring, G, one end of which is fastened to the periphery of the drum, and the other end of which is fastened to a loose collar, H, that can glide on the squared part of the shaft D, upon which it is mounted. The squared end of the shaft D has a rounded bearing, *c*, in the standard I, and then terminates in the squared end *d*. By means of the set-screw *e* the shaft D can be held tight to prevent its rotating. Upon the end of a rod, J, provided with the two standards K K, a bell-crank lever, L, provided with the nose *f* at its lower end, is mounted.

The rod J can be supported in the middle or at the end, or can be replaced by some other suitable similar device. The lever L is provided with a curved spring, M, having a small stud, *g*, which catches in a notch, *h*, in the rod J.

The upper end of the bell-crank lever L rests against a cam, N, mounted on the shaft O, mounted on the standards K K. A short arm, P, attached to the collar *j*, and a long arm, Q,

attached to the collar *k*, are mounted on the shaft O, the long arm Q being nearer the cam N, and both collars *k* and *i* being fastened to the shaft O. The upper ends of these rods are preferably flattened.

The rod J is arranged so in relation to the governor R that the governor-balls S S can strike the tops of the arms P and Q. A spring, T, fastened to the rod J, is provided with an aperture, *l*, into which the stud *m* on the shaft O passes when one of the arms P or Q has been struck by one of the governor-balls S S. The lower end of the bell-crank lever L is connected with a wire, U, which leads to one or more bell-pulls.

A lever, V, one end of which is connected with a wire, W, and the other end of which is adapted to catch in the notches *b b* of the drum F, is pivoted to the framing below the drum. The arms P and Q can also be arranged to be acted upon by spring-governors or any other kind of governor.

The spring G may be replaced by a rope and weight or chain, or by any other suitable motor.

The apparatus is herein described as operating with steam, but can be used with any kind of motive power.

The operation is as follows: Before starting the engine the hand-wheel E is rotated from left to right, and the valve A is thus opened, and the wheel E and the spring-drum F move in the direction of the arrow *a'*, gliding on the shaft D. During the above operation the lever L has been in the position shown in Fig. 3, and is held thus by the stud *g*; but as soon as the spring G has been wound up sufficiently the spring M is raised so as to release the lever L, and the latter is lowered into the position shown in Figs. 1 and 2, catching in one of the notches *b* of the drum F, and preventing the spring G from unwinding. Now the engine is started. If the governor-belt should break or slip off of its pulleys the governor-balls will drop and make only one or two more rotations. The arm P is arranged such a distance from the governor R that when the balls S S drop they will strike the upper end of the shorter arm P, thus causing the cam N to rotate a small distance from right to left and to push the upper end of the lever L in the di-

rection of the arrow *b'*. This will cause the lower end of the lever *L* to move in the direction of the arrow *c'*, thus disengaging the drum *F*, the spring *G* of which uncoils with great
 5 rapidity, and as the drum is attached to the screw *B*, to which the valve *A* is attached, the latter is moved forward very rapidly and closes off the steam, thus causing the engine to stop. If the main belt of the engine breaks
 10 the governor-balls *S* will rotate with enormous rapidity, and the centrifugal force will throw them outward, so that they will strike the top of the arm *Q*, which has been adjusted accordingly on the shaft *O*. This causes the same
 15 movements of the other parts, as described above.

As the nose of the lever *L* might catch in the notches *b b* again immediately after having been raised, we have arranged a spring, *T*, provided with the aperture *l*, on the rod *J*.
 20

As soon as the shaft *O* is rotated by the action of the blow on one of the arms *P* or *Q* the stud *m* catches in the aperture *l* and locks the shaft *O* and cam *N* in this position, preventing the lever *L* from again catching in the notches *b*. Before again setting the apparatus the shaft *O* and cam *N* must be released. The wire *U* is connected with bell-pulls in the several rooms of the building, so that if
 25 any parts of the machinery break, or any other accidents happen with the same, any one can stop the engine by pulling the bell-pull.
 30

It may be desirable not to have the apparatus

worked automatically by the governor, and in this case the lever *L*, the shaft *O*, and rod *J* and connections are dispensed with, and a lever, *V*, is pivoted below or above the drum *F*. The forward end of this lever *V* catches in the notches of the drum *F*, and by pulling the wire *W* in the direction of the arrow *d'* the drum
 35 *F* can be released. 40

The spring *G* can be adjusted to a greater or less strength by means of a key used on the squared end *d*, the set-screw *e* having been previously loosened.
 45

The levers *L* and *V* can also be operated from the several rooms of the building by means of electricity.

Having thus described our invention, we claim as new and desire to secure by Letters
 50 Patent—

The combination, with a governor, *R S*, and pipe having valve *A*, of the screw-shaft *B*, having a bearing in stuffing-box *C*, a hand-wheel, *E*, and cavity *a*, the shaft *D*, journaled in stand-
 55 ard *I*, carrying a notched drum, *F*, and having a spiral spring connected with slide-collar *H*, the rod *J*, having notch *h*, the lever *L*, having nose *f*, the spring having stud *g*, and the rotary shaft having cam *N* and arms *P Q*, as and
 60 for the purpose specified.

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Witnesses:

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 C. SEDGWICK.