

(No Model.)

P. DAVIDSON.
AUTOMATIC SHUT-OFF FOR ENGINES.

No. 464,858.

Patented Dec. 8, 1891.

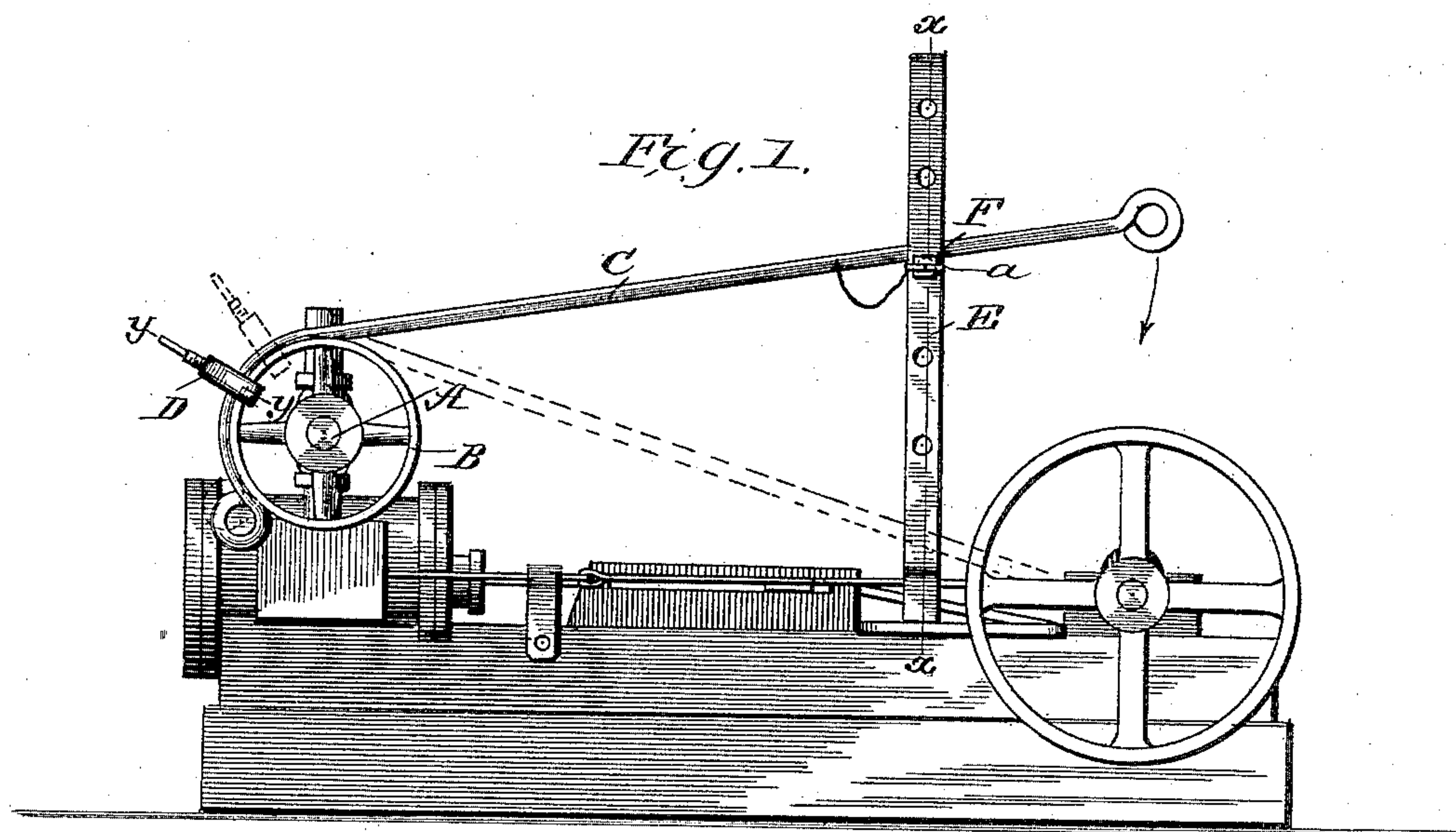


Fig. 2.

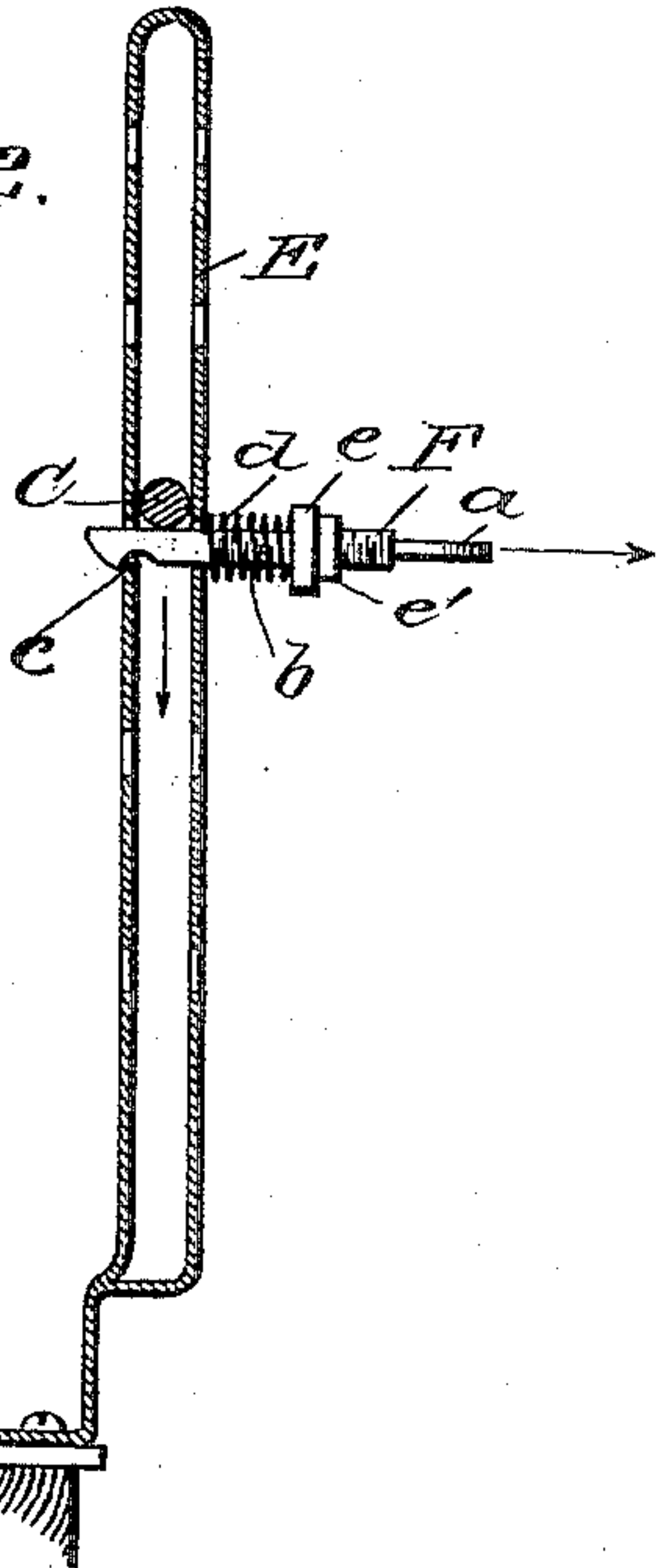
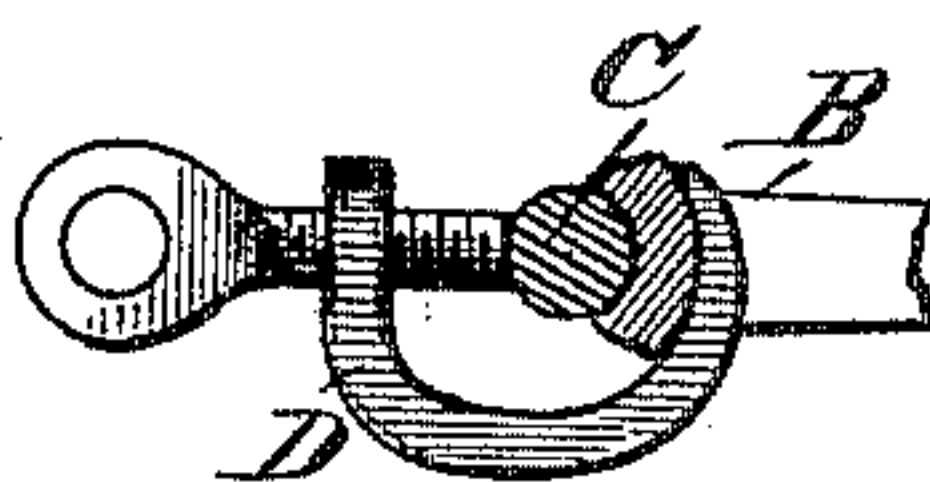


Fig. 3.



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PETER DAVIDSON, OF ST. MARY'S, OHIO.

AUTOMATIC SHUT-OFF FOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 464,858, dated December 8, 1891.

Application filed August 31, 1891. Serial No. 404,355. (No model.)

To all whom it may concern:

Be it known that I, PETER DAVIDSON, of St. Mary's, in the county of Auglaize and State of Ohio, have invented a new and useful Improvement in Automatic Shut-Offs for Stationary Engines, of which the following is a specification.

My invention relates to stationary engines which have no governors for regulating the throttle-valves.

The object of my invention is to automatically shut off steam, so as to stop the motion of the engine whenever an accident occurs, like the breaking of belts, bolts, or other parts of the machinery. It is also designed to afford facility for the proper regulation of the flow of steam and is applicable to either the throttle or butterfly valve. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a stationary engine with my improvement applied thereto. Fig. 2 is a vertical transverse section through line *x x*, and Fig. 3 is a section through line *y y*.

In the drawings, A represents the stem or shaft of the throttle-valve, to which is fastened a wheel B. This wheel has a grooved rim, and in it is seated the curved end of the throttle-bar C. This curved end is bent around the wheel B and lies in contact with it through a portion of its periphery, being rigidly fastened to it by a screw-clamp D. This throttle-bar is extended along the engine to a convenient position within the reach of the engineer and passes between the two bars of a standard E, mounted in upright position on the engine-bed. Through the two bars of this standard is formed a vertical series of holes adapted to receive a combined trip and supporting pin F. This pin, when passed through any one of the series of holes in the standard, serves to sustain the throttle-bar above it, and by holding the throttle-bar at various positions regulates the size of the opening of the throttle-valve through which the steam flows. The supporting-pin F is formed with a head, knob, or eye *a*, a screw-threaded shank *b*, having a notch *c* in

its side, and has around it a spiral spring *d* and two jam-nuts *e* and *e'*. Now whenever the throttle-bar is sustained upon the pin F the spring of the latter is compressed between the nuts *e e'* and the side of the standard and tends to force the pin out of the holes, and would force it out of the holes but for the weight of the throttle-bar and the notch *c* in the side of the pin, which engages with the edge of the hole in the rear side of the standard. This pin, it will be seen, therefore sustains the throttle-bar, but is under a constant strain or tension tending to force it out. As long as the engine runs easily and smoothly at a regular or normal rate of speed the throttle-bar is held in its position by the pin; but as soon as a belt or other part of the machinery breaks and takes the load off of the engine the jump or speeding of the engine makes a jar that allows the tension of the spiral spring to force the pin out of its holes and allows the throttle-bar to drop, turning the throttle-valve and automatically shutting off the steam.

To cause the trip-pin to act more or less sensitively the two nuts *e e'* may be adjusted on the screw-shank of the pin, so as to cause the spiral spring to be compressed under more or less tension when the pin is inserted in the holes of the standard.

Having thus described my invention, what I claim as new is—

1. The combination, with the throttle-valve in an engine, of a rod connected rigidly thereto, and a trip-support for sustaining the rod, arranged to be tripped or dislodged by the jar of the engine in speeding, substantially as and for the purpose described.

2. The combination, with the wheel of the throttle-valve in an engine, of a detachable rod having a bent end arranged in contact with the periphery of the wheel, a screw-clamp for securing the two rigidly together, and a trip-support for sustaining the other end of the rod, arranged to be dislodged by a jar or the speeding of the engine, substantially as shown and described.

3. The combination, with the throttle-valve rod and the standard having a vertical series

of holes, of the combined trip and supporting pin having a dislodging-spring, substantially as shown and described.

4. The combined trip and supporting pin,
5 having a dislodging-spring, and an adjustable bearing for the spring for regulating its tension, in combination with the throttle-

rod and standard with holes, substantially as shown and described.

PETER DAVIDSON.

Witnesses:

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