E. R. HUBBARD.

STOP-ATTACHMENTS FOR STEAM-GOVERNORS.

No. 183,304. Patented Oct. 17, 1876.

Fig. 1.

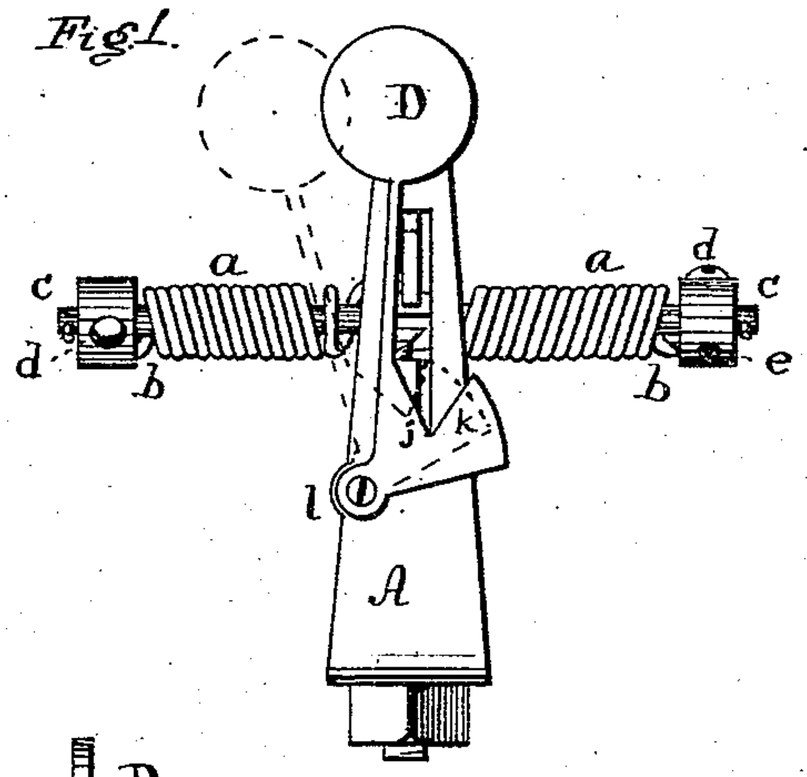


Fig. 2.

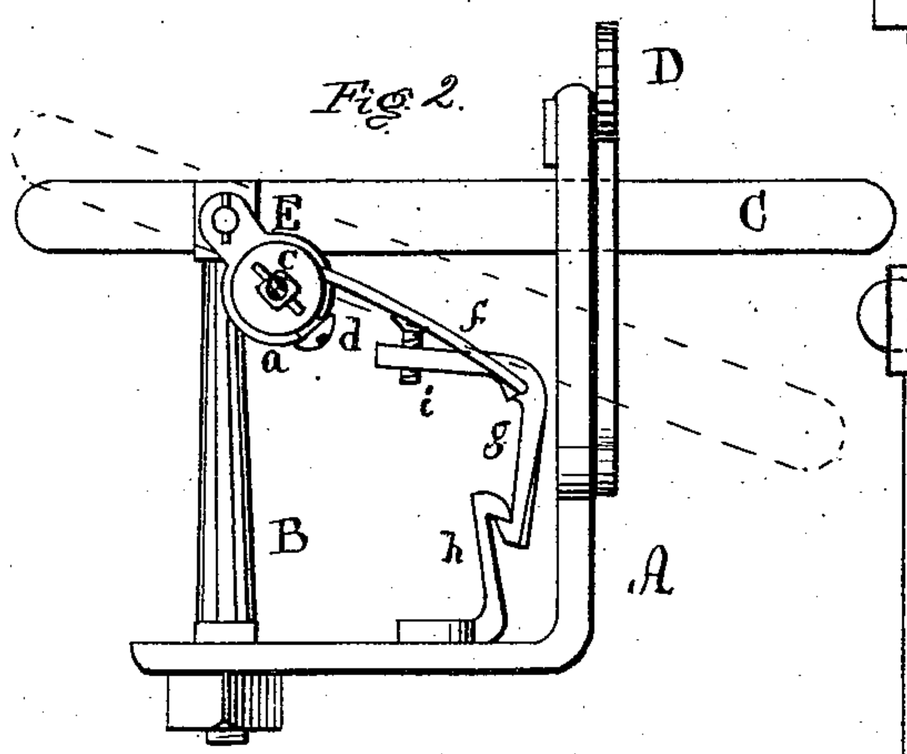


Fig. 3.

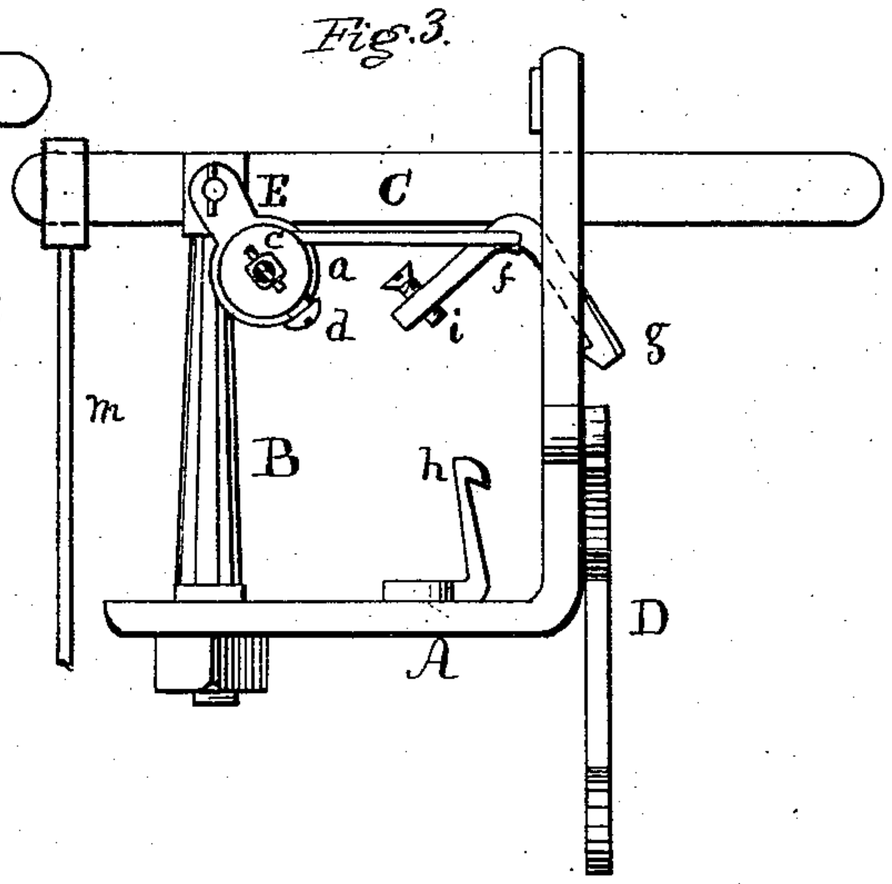
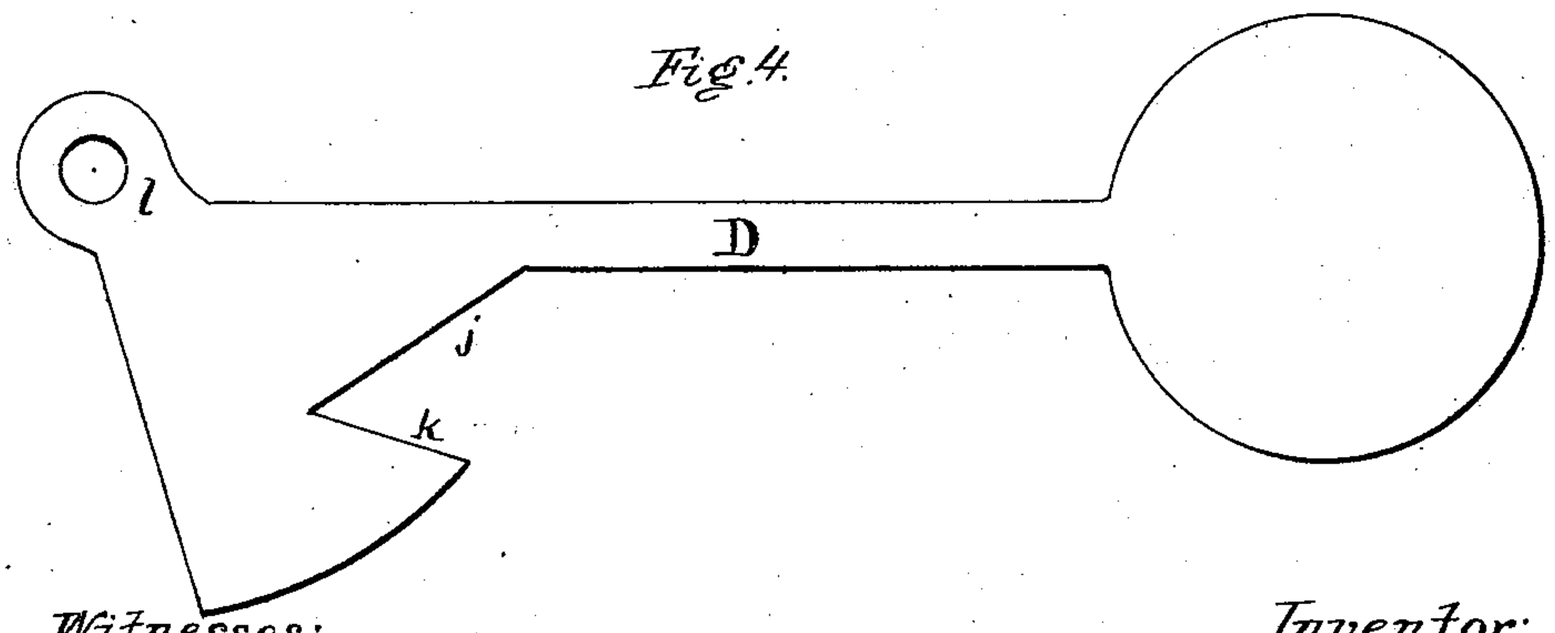


Fig. 4.



Witnesses:
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L. L. Bond

Inventor:
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UNITED STATES PATENT OFFICE.

EDWARD R. HUBBARD, OF CHICAGO, ILLINOIS, ASSIGNOR TO FREDERICK C. WELLS, OF SAME PLACE.

IMPROVEMENT IN STOP ATTACHMENTS FOR STEAM-GOVERNORS.

Specification forming part of Letters Patent No. **183,304**, dated October 17, 1876; application filed January 29, 1876.

To all whom it may concern:

Be it known that I, EDWARD R. HUBBARD, of the city of Chicago, in Cook county, State of Illinois, have invented certain new and useful Improvements in Stop Attachments for Steam-Governors, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is an end view; Fig. 2, a side view with spring and detent in position for running; Fig. 3, a side view with detent unhooked; and Fig. 4, a side view of the latch detached and enlarged, or full size.

The object of my improved device is to prevent steam-engines from "running away" or running at too great a speed from any failure of the governor to act properly, or its failure to act at all by reason of the breaking or slipping of its driving-belt, overheating, or from other cause; and the nature of my invention consists in interposing a lever or bar between the moving parts of the governor and the throttle or governor valve, in combination with a spring arranged to operate the lever or bar in case of any failure of the governor to act, as hereinafter more fully described, and in providing a latch or catch to prevent any undue action of the safety device.

In the drawings, A represents a curved bar or plate, provided with a long slot or opening to guide the lever or bar C; B, a supporting-post, to which the lever C is pivoted; D, the latch or catch; E, brackets by which the spring-bar is held in position; *a*, springs; *b*, fastening of outer ends of springs; *c*, collars on spring-bar; *d*, set-screws; *e*, openings in collars for turning them to regulate the tension of the spring or springs; *f*, forward extension of the spring for engaging with and forming a pivot for the detent; *g*, the detent; *h*, catch; *i*, adjusting or set screw for the detent; *j*, incline for throwing the latch out of balance, and *k* a catch for holding the latch until the lever C is somewhat elevated from its lowest position. *m* is a portion of a valve-stem. The bar or plate A may be either of cast or wrought iron, and, in practice, it will usually be found best to omit the post B entirely, as the supporting parts of the governor will take its place, for I propose to attach my improvements to all of the styles and forms of governors as now used or made, and in most of the forms the bar A may be directly attached to parts already in use in their construction.

In the form in which my device is shown it is designed to be used with a governor placed directly over the governor-valve, in which case the only connection used is made by attaching or connecting the short arm of the bar C with the valve-stem *m*, so that the bar will play up and down just as the governor moves the stem when the engine is running, and the latch D will remain in the position shown by the full lines of Fig. 2, if it is placed in that position after the engine is started. If the post B is omitted the brackets E will be attached to the frame-work of the governor. The bar which sustains the springs is made fast in these brackets by being made angular or otherwise, as may be found most convenient, and the springs are held in position by the collars *c*, into which the ends *b* of the springs project. The tension of the springs is regulated by inserting a handle or lever into the hole *e*, and turning the collar until the required tension is obtained, when the collar is fastened by the set-screw *d*. The spring *a*, as shown, is made of a single piece of wire, which is passed through the detent and bent back to the proper distance, when the ends are coiled and fastened, as shown.

It is obvious that only one-half of the spring shown may be used, and also that a spiral, volute, elliptic, or other spring may be used, by placing either of them directly under the bar C at either side of the bar A, with only a slight variation of the detent-catch. As shown, the detent is a bent bar provided with a hook at its lower end, which engages with the fixed hook *h;* and at its upper end it is provided with an adjusting-screw, *i*, so that the distance which the bar C has to fall in order to release the hook may be regulated to some extent. The latch D may have its upper end enlarged to give it sufficient weight. Its pivot *l* is at one side, so that when up, as shown at Fig. 1, it will bear slightly against the bar C, so long as the bar remains within the limits of the straight portion. When the bar C

falls below that point it strikes the incline *j*, and throws it over into the position indicated by the dotted lines, where it is held by the short projection K until the arm or bar C is again lifted, when it falls to the position shown at Fig. 3, and out of the way.

In operation, when the steam is throttled off by hand for stopping at night or other time, the latch is thrown out of balance, and is held by the part *k*. When again started the latch falls out of the way, so as to leave the bar C free to drop onto and release the detent. When the bar C, in case of any failure of the governor to act, falls, it is instantly thrown by the spring into the position shown at Fig. 3, which action forces the governor-valve down, and cuts the steam nearly or entirely off. When the engineer wishes to throttle the steam off by hand, or to stop the engine without disturbing the safety attachment, all that is required is to return the latch to its original position, when the bar C will drop into the notch *j k*, which holds it out of contact with the screw or projection *i*, and thereby prevents unlocking the detent. When the engine is again started the latch will fall out of the way, as before stated.

The action or operation of this device in no way depends upon the belts, but it will operate from any cause or obstruction that will cause the governor-balls to fall. It may also be applied to engines where the governor is not over the governor-valve. In that case the governor will be attached at one end and the valve-stem to the opposite end.

What I claim as new, and desire to secure by Letters Patent, is—

1. The latch D, having detent *j* and catch K, in combination with the bar C, bar E, and spring *a*, substantially as and for the purpose specified.

2. The combination of a spring, detent, or catch and operating bar or lever with the latch D, substantially as set forth.

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Witnesses:

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