

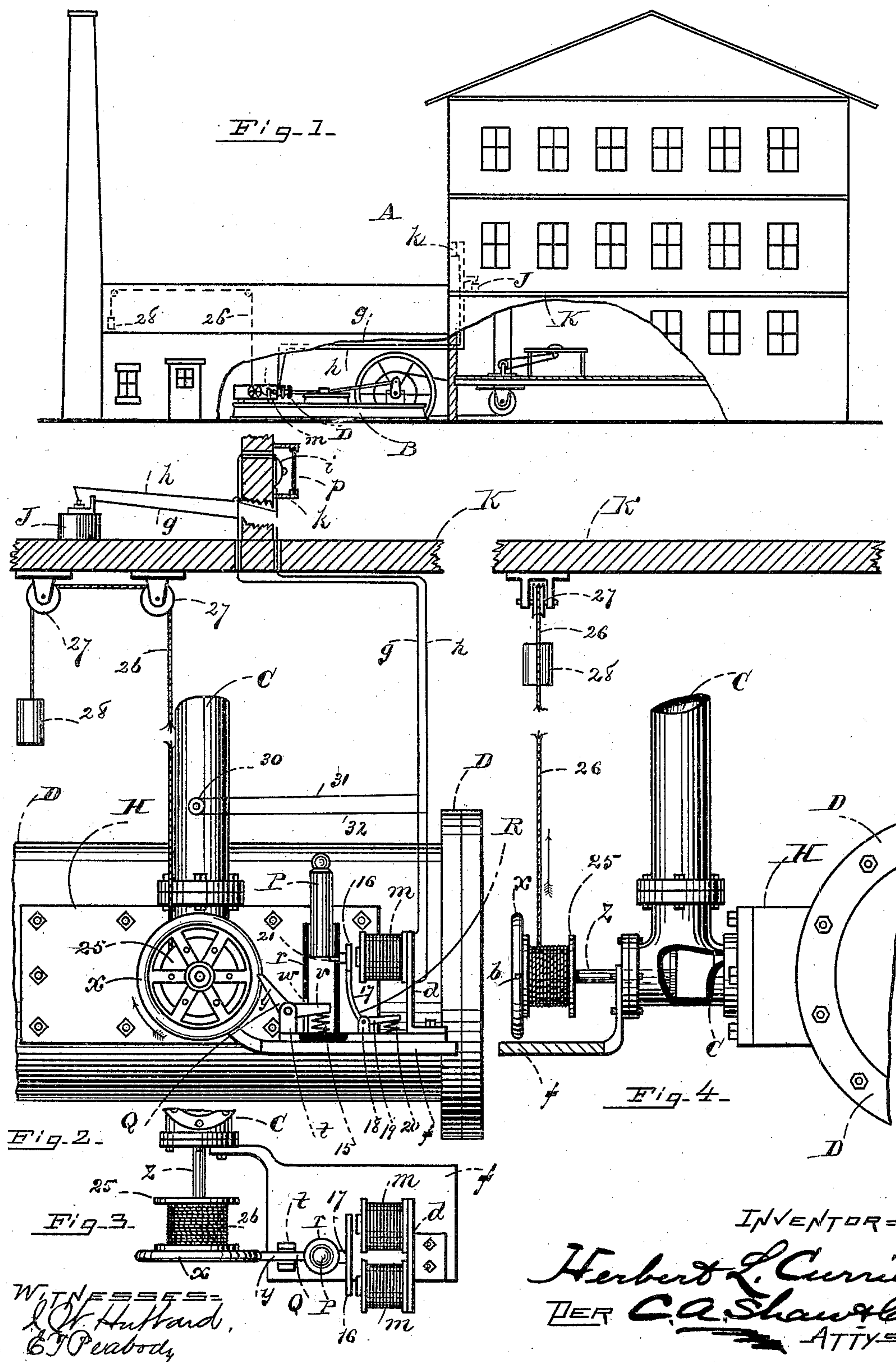
(No Model.)

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## STOP MECHANISM FOR STEAM ENGINES.

No. 398,314.

Patented Feb. 19, 1889.





# UNITED STATES PATENT OFFICE.

HERBERT L. CURRIER, OF LYNN, MASSACHUSETTS.

## STOP MECHANISM FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 398,314, dated February 19, 1889.

Application filed May 14, 1888. Serial No. 273,763. (No model.)

*To all whom it may concern:*

Be it known that I, HERBERT L. CURRIER, of Lynn, in the county of Essex, State of Massachusetts, have invented a certain new and useful Improvement in Stop Mechanism for Steam-Engines, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation showing an engine provided with my improvement and in a position for use in a building, a portion of the wall of the building being represented as broken away; Fig. 2, an enlarged front elevation of the steam-cylinder and throttle provided with my improvement, the body of the engine being removed and a floor of the building shown in section; Fig. 3, a top plan view of the throttle and magnet, the steam-pipe being represented as broken off; and Fig. 4, an elevation showing certain details of construction.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

My invention relates to a stop mechanism for steam-engines which is actuated by electricity; and it consists in certain novel features, as hereinafter fully set forth and claimed, the object being to produce a simple, cheap, and effective device of this character, by means of which the engine may be instantly stopped from any point in the building in which it is located.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation:

In the drawings, A represents the building, B the engine considered as a whole, C the steam-supply pipe, D the cylinder, and H the steam-chest, these parts being all of the ordinary form and construction. An ordinary throttle-valve, (not shown,) provided with a stem or shaft, *z*, and hand-wheel *x*, is fitted to work in the supply-pipe C in the usual manner. A horizontally-arranged shelf or bracket, *f*, is attached to the steam-pipe C near the stem *z*, and secured to a standard, *d*, on said

shelf there is a small electro-magnet, *m*, of the ordinary form and construction. Conducting-wires *g h* lead from the electro-magnet *m* through the floor K to an ordinary primary battery, J, which may be disposed in any convenient position in the building. An ordinary push-button, *i*, is introduced in said wires in the usual manner, said button being located in a room of the building (see Fig. 2) and preferably inclosed in a box, *k*, provided with a glass front, *p*, which may be readily broken when it becomes necessary to use said button for operating the electric device. A vertically-arranged cylinder or tube, *r*, is secured to the shelf *f*, and fitted to slide vertically in said cylinder is a circular bolt or weight, P.

A bell-crank lever, Q, is centrally pivoted in standards *t*, secured to the shelf *f*, one arm, *v*, thereof projecting through a vertical slot, *w*, formed in the side of the tube *r*, and the opposite arm, *y*, engaging a notch, *b*, in the periphery of the hand-wheel *x* on the throttle stem or shaft *z*. A coiled spring, 15, is disposed in the bottom of the cylinder *r* under the arm *v* of said lever, the purpose of said spring being to hold the arm *y* in engagement with the notch *b* in the throttle-wheel *x*.

An armature, 16, is secured to the upper end of the long arm 17 of a bell-crank lever, R, which is centrally pivoted in standards 18 on the shelf *f*, said armature being placed adjacent to the poles of the magnet, or in such position that the magnet will act on it in the usual manner when the circuit is closed by the button *i*.

The outer face of the armature 16 is provided with a horizontally-arranged pin, 21, adapted to enter a hole in the tube or cylinder *r* and project into the path of the weight P, its purpose being to sustain the weight in an elevated position, as shown in Fig. 2.

A coiled spring, 20, is disposed under the short arm 19 of the armature-lever R, which acts expansively to keep said pin in position in the hole in said tube.

The throttle-stem *z* is provided with a reel, 25, on which is wound a cord, 26, said cord passing over a pulley or pulleys, 27, secured to the floor K and being provided on its outer end with a weight, 28.

A push-button, 30, is secured to the steam-



pipe C or other position convenient for use by the engineer, said button being connected by branch conducting-wires 31 and 32 with the main wires *g h*.

5 In opening the throttle to admit steam through the pipe C and start the engine, its wheel *x* is turned from right to left by the engineer in the usual manner, thereby causing the cord 26 to be wound onto the reel 25.

10 The arm *y* of the lever Q is so situated that when the stem *z* is turned out to its fullest extent and the throttle-valve opened, the end of said arm will enter the notch *b* in the throttle-wheel *x*, thereby serving as a pawl to prevent said wheel from being rotated from left  
15 to right, and thus closing the valve until said arm is disengaged.

The weight P having been mounted or adjusted on the pin 21, as shown in Fig. 2, if  
20 now it becomes desirable in any room of the building to have the engine stopped, the glass *p* in the box *k* is broken and the push-button *i* operated in the usual manner to complete the circuit, and thereby cause the magnet *m*  
25 to act. As the electric current passes through the wires to the magnet, the magnet instantly attracts the armature 16 and draws the pin 21 out of the hole in the tube *r*, thereby releasing the weight P, which falls downward  
30 onto the arm *v* of the bell-crank lever Q and frees the throttle-wheel *x* from the arm *y* of said lever. As soon as said arm is disengaged from the wheel *x* the weight 28 at once drops, causing the rope 26 to unwind from the reel  
35 25 and the throttle-stem to be revolved from left to right, thereby shutting off the steam and stopping the engine in a manner that will be readily understood by all conversant with such matters without a more explicit description. By using the push-button 30 the engi-  
40 neer can stop the engine in a like manner, when desired, without turning the throttle-wheel *x* by hand.

45 Instead of providing the throttle-stem *z* with a reel, 25, and cord 26, as described, a spring may be secured to the steam-pipe and throt-

tle-wheel *x*, said spring acting torsionally to turn said wheel from left to right when released from the pawl, thereby stopping the engine.

It will be understood that each room in the building is to be provided with a push-button, *k*, connected with the battery and magnet by conducting-wires in substantially the same manner as described.

Having thus explained my invention, what I claim is—

1. The combination of a tube provided with a perforation, a weight within said tube, an electro-magnet in proximity thereto, an electric circuit in connection therewith, an armature provided with a stop-pin normally projecting through the perforation in said tube for sustaining said weight in elevated position, an automatic valve-closer, and adjunctive mechanism actuated by said weight for releasing the valve-closer.

2. In a device of the character described, the combination of the engine B, having the steam-pipe C, a throttle-valve for said pipe having the stem *z*, the reel 25, and wheel *x*, provided with the notch *b*, disposed on said stem, the cord 26, wound on said reel and provided with the weight 28, the tube *r*, provided with the slot *w*, the weight P, disposed in said tube, the pivotal pawl Q, having the arms *y* and *v*, the arm *v* being inserted in said slot and the arm *y* adapted to engage the notch in the wheel *x*, the spring 15 for the pawl Q, the pivoted lever R, having the arms 17 and 19, the armature 16, and stud 21, mounted on the arm 17, said stud being adapted to pass through a hole in the side of said tube and engage the weight P, the spring 20 for the lever R, the magnet *m*, the battery J, the wires *g h*, and push-button *i*, substantially as specified.

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Witnesses:

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