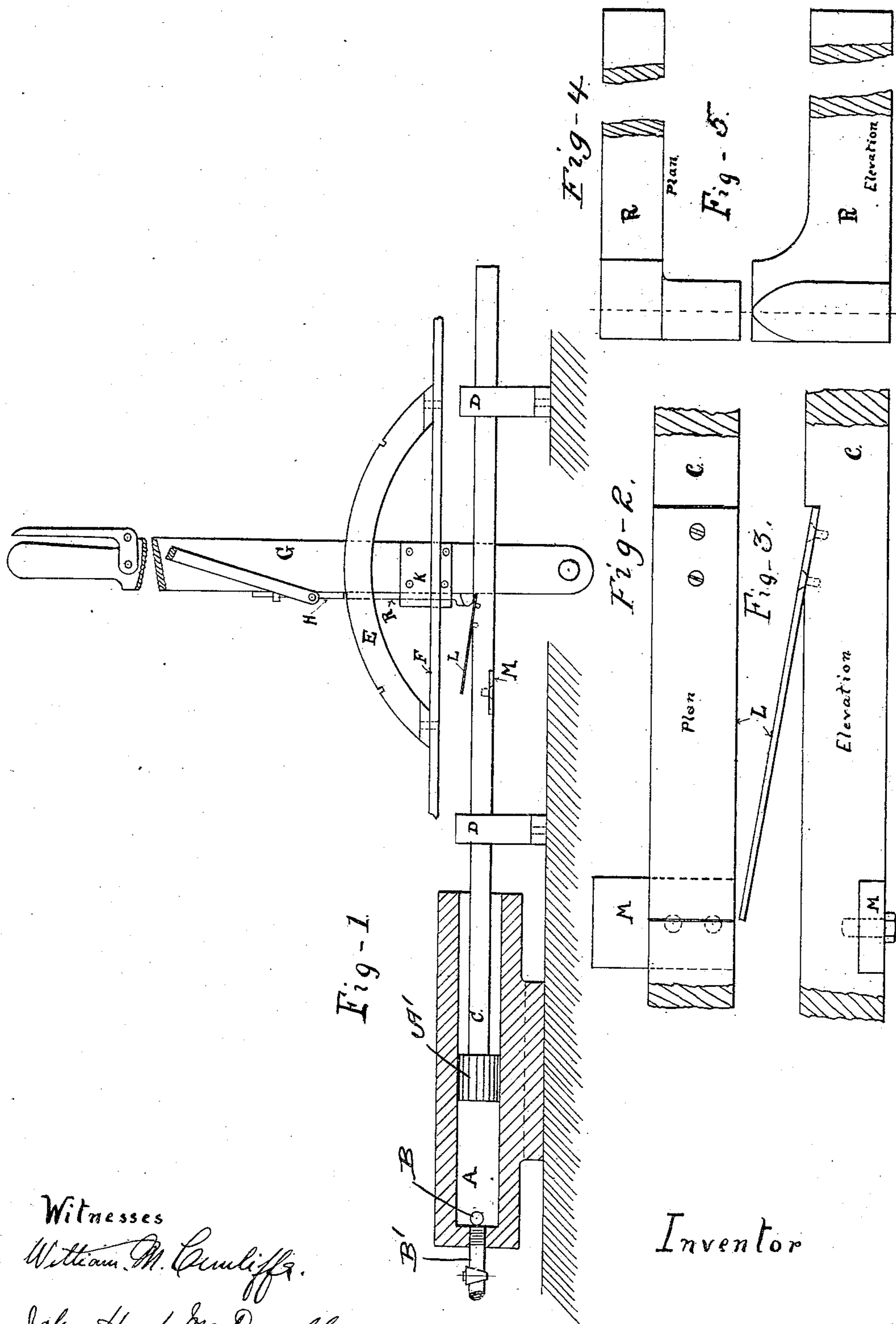


No. 862,687.

PATENTED AUG. 6, 1907.

C. R. WELCH.
ENGINE CONTROLLING APPARATUS.

APPLICATION FILED JUNE 27, 1906.



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ENGINE-CONTROLLING APPARATUS.

No. 862,687.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed June 27, 1906. Serial No. 323,692.

To all whom it may concern:

Be it known that I, CLARENCE RICHARD WELCH, a citizen of the United States of America, residing at the city of Rossland, in the county of Kootenay, Province of British Columbia, Canada, have invented a new and useful Engine-Controlling Apparatus, of which the following is a specification.

This invention relates to what I shall for convenience term an engine controlling apparatus, the object of the invention being to provide a simple and effective device of this character which can be used with advantage in many different connections, for example, for preventing the overwinding of hoisting engines.

In the drawings accompanying and forming part of this specification I illustrate in detail one form of embodiment of the invention which, to enable those skilled in the art to practice the same, will be hereinafter set forth, while the novelty of the invention will be included in the claims succeeding said description.

Referring to said drawings, Figure 1 is a sectional side elevation of a device including my invention; Fig. 2 is a detail in top plan view of portion of a piston rod; Fig. 3 is a side elevation of the same; Fig. 4 is a plan of a sliding member hereinafter more particularly described; and Fig. 5 is an elevation of the same. Figs. 2 to 5, inclusive, are upon an enlarged scale.

Like characters refer to like parts throughout the several figures.

The apparatus preferably includes in its construction a cylinder as A into which steam, air or other fluid may be admitted for the purpose of advancing the piston A', said piston on its advancing motion traveling toward the right in Fig. 1. The fluid for operating the piston A' can be admitted to the cylinder A through a port as B, while the exhaust from the cylinder can enter a pipe as B' leading from said cylinder and equipped with a suitable valve as shown by opening which exhaust may take place. Upon the exhaust of the cylinder the piston A' can be returned to its original position, or can move from the right toward the left in said Fig. 1.

The rod for the piston is denoted by C, and said rod is supported and guided by brackets or uprights as D. I prefer to make the rod C square in cross section as indicated clearly in Figs. 2 and 3 to prevent turning motion thereof.

I have shown a notched segment E which may be supported by a bar as F and associated with the said segment is the hand lever G suitably pivoted and which constitutes an engine controlling member. This lever may be the reversing lever of the engine coöperative with the throttle valve thereof as common in hoisting engines. The lever G carries a detent or dog as H which is adapted to enter any one of the several notches in the outer edge of the sector E. When the dog H is in one of said notches, and it is shown in this relation in Fig. 1, the lever G will be held against motion.

The lever G is furnished with a sliding member as R directly coöperative in the present case with the dog H, and which is adapted on its outward movement to lift said dog out of a notch which it may occupy in the sector E.

To the piston rod C, and ordinarily on the upper side thereof, I fasten one end of a spring as L, the other end of said spring being free of the rod, as clearly indicated in Fig. 3. This spring constitutes a yieldable actuator for the sliding member R, while the lever G may be operated by an actuator as M fastened to the under side of said rod and extending laterally therefrom, as shown clearly in Fig. 2.

It will be apparent that when the spring L engages the lower end or toe of the sliding member R on the movement of the piston rod C to the right, said sliding member on the continuation of such movement, will, owing to the angular disposition of said spring, be thrust upward thereby lifting the dog G out of the notch in which it may be seated in the segment E. On the continuation of the movement of the piston rod the actuator M, which extends laterally from said rod, operates the lever G to positively shift the same for the purpose of operating a throttle valve.

As previously stated, the apparatus may be used in various ways, for example, it may be used in connection with an elevator cage, which cage when it reaches a certain point, operates a valve to admit steam to the cylinder A for the purpose of driving the piston A' to the right in Fig. 1, during which action the operations described take place. When the lever G is shifted by the actuator or lateral projection M the engine may be reversed, brake mechanism set in operation, or any other result can be accomplished, for the invention does not reside in any particular use of the apparatus, but in certain structural relations. I have mentioned one way of admitting a motive agent to the cylinder A; this result can be accomplished in any other manner, and the lever G need not be necessarily employed in the manner set forth.

On opening the valve in the exhaust pipe B' the piston A can be returned to its original position, whereby the sliding member R can by gravity return to its primary relation.

What I claim is:—

1. In an apparatus of the class described, the combination of a controlling member, a detent to hold the same in predetermined relation, a cylinder and its piston, means operable by the piston for operating the detent to release the controlling member, and means operable by the piston, for positively shifting said controlling member when the detent is thus operated.

2. In an apparatus of the class described, the combination of a lever, a notched member, a detent coöperative with the lever and with the notched member and operable to hold the lever in a predetermined relation, a sliding member on the lever, a cylinder and its piston, the piston being provided with a rod, means on the rod for operating

said slidable member to cause the detent to be disengaged from said notched member to thereby release said lever, and means on said rod for operating the lever when thus released.

- 5 3. In an apparatus of the class described, the combination of a lever, a notched member, a detent on the lever co-
operative with said notched member for holding the lever in a predetermined relation, a cylinder and its piston, a
rod extending from the piston, a sliding member on said
10 lever, an angularly disposed spring fastened at one end to

said rod and operable on the advancing movement of the rod to operate the slidable member in a direction to disengage the detent from said notched member for the purpose of releasing said lever, and a projection on the rod to engage and shift the lever when thus released.

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