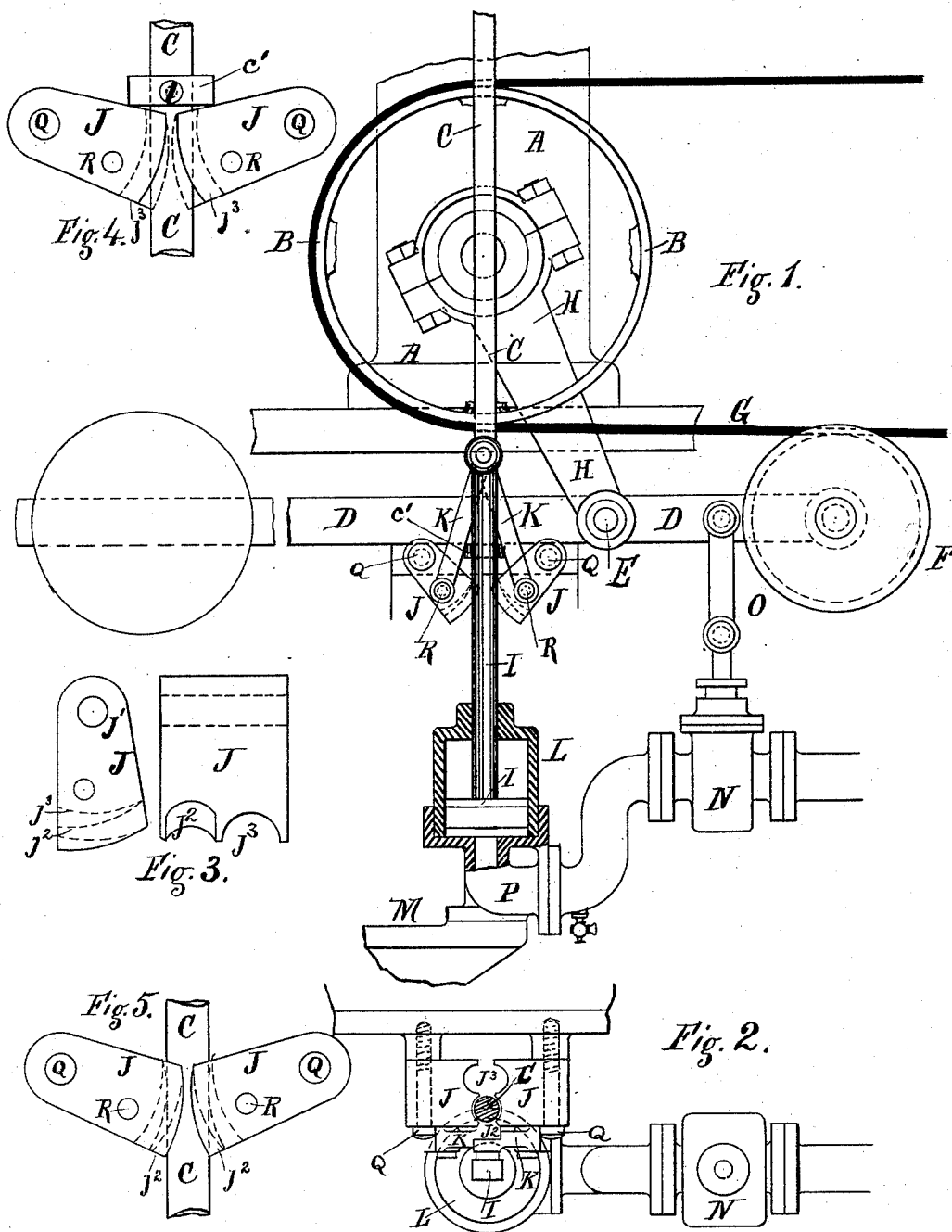


(No Model.)

G. H. WARD.  
ENGINE GOVERNOR.

No. 489,171.

Patented Jan. 3, 1893.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

GEORGE H. WARD, OF BROOKLYN, NEW YORK.

## ENGINE-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 489,171, dated January 3, 1893.

Application filed September 27, 1892. Serial No. 447,089. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE H. WARD, a citizen of the United States, residing in Brooklyn, Kings county, and State of New York, have invented certain new and useful Improvements in Safety Attachments for Engine-Governors, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to and has for its object the safe control of the movements of the valves of an engine cylinder and steam chest by an appliance or attachment independent of, but acting upon the engine governor, whereby in case of the breaking, slipping off or similar releasing of the governor belt, the engine shall not have any opportunity to "run away" or lose its regular movement, but may be stopped at leisure, or may be permitted to operate temporarily under the immediate control of my independent appliance.

My invention consists in connecting to an engine governor, an appliance or attachment whereby the balls or revolving weights of said governor are kept to their regulation steam admitting position should, through any cause whatever, the governor belt cease to act.

The improvements consist in the construction arrangement and combination of the several parts or portions comprising the apparatus as may be hereinafter described and claimed.

Referring to the accompanying drawings, Figure 1 represents a front elevation of an apparatus embodying my improvements. Fig. 2 represents a plan view of same. Figs. 3, 4 and 5 are details of operating parts.

Similar letters of reference designate like parts or portions in all the figures.

The letter A designates a base, B a belt pulley and C any reciprocating portion of an engine governor.

D designates a weighted lever operating, by gravity through fulcrum E to press an idler pulley F against the face of governor belt G. The fulcrum E may be supported by any fixed portion of engine or governor, it is here shown as held in place by means of the rod and strap H attached to the belt wheel bearing. Connected to and operating in connection with the lever D is a link O acting upon a pressure valve represented at N, the opening of

which admits pressure through the connecting pipe P, to the piston and rod I moving in a closed cylinder L. The upward movement of piston and rod I carries links K in an upward direction, causing, by means of the connecting pins R, the movable stops J, to swing on center pin Q in an upward direction, to grasp and hold fast the reciprocating rod C.

Referring to Fig. 3, the movable stops J are shown constructed with a pair of grooves, either one or both of which may be used. One of the grooves  $j^3$  is made radial from the supporting center  $j'$  and the other  $j^2$  is made eccentric to said supporting center. The object of the two grooves is to provide two different methods of hindering the reciprocating rod C from dropping when released by the breaking of the governor belt. To use either groove the movable stops J are made reversible. When the eccentric groove  $j^2$  is in position to act upon reciprocating rod C as shown in Figs. 1, 2 and 5, the upward movement of the movable stops effect a wedge toggle grasping of the rod C stopping it at once and holding it in such position at which it is stopped until all pressure is released from the piston and rod I so that it drops.

If it be desired to control the holding of the rod C at some special position, the movable stops J, are changed to bring radial grooves  $j^3$  in position to act upon the rod C and rod C is provided, as shown in Figs. 1 and 4, with a loose collar capable of adjustment to any position on the reciprocating rod C. With the collar in place the rod will drop until met by the movable stops J as shown in Fig. 4.

In the regular operation of the device as shown, made necessary for instance by the breaking of the governor belt, and a release of all belt pressure upon wheel F, the wheel end of lever D at once moves in an upward direction at that end. Such upward movement of this wheel-end of lever D pulls upon link O opening the valve N. The opening of valve N supplies pressure beneath piston and rod I within the cylinder L, causing an upward movement of piston and rod I, which lifts links K and the attached movable stops J, stopping any downward movement of reciprocating rod C, and holds the governor of the engine in position with valve open to admit steam as usual, but permitting of no ex-

cess of steam admission. The engine can then be stopped to reset the governor belt or, if necessary, the engine can be kept running under steam admission controlled by the grasp  
5 of the radial stops upon the reciprocating rod.

Any style of pressure can of course be used to lift the movable stops J to an action and fixed grip, or any style of pressure can be entered into cylinder L to raise the piston and  
10 cause it to act upon the stops.

A single movable stop J can be used by placing a backing block in a fixed position opposite to the single movable stop, or by setting either one of the radial stops in a fixed  
15 and immovable position. A sliding stop can be used instead of the radially acting stop.

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

1. In combination with a reciprocating portion of an engine governor, one or more movable stops acting upon said reciprocating portion, pressure mechanism connected to and operating said stops, and a gravity-operated lever connecting with and actuating said  
20 pressure mechanism at the breaking of the governor belt as and for the purposes set forth.

2. In combination with a reciprocating portion of an engine governor, one or more movable stops acting upon said reciprocating por-

tion, a pressure cylinder with its inclosed piston and rod connected with and actuating said stop or stops, a pressure admission valve and a gravity operated lever connecting with and actuating said pressure valve at the breaking of the governor belt as and for the  
35 purposes set forth.

3. In combination with a reciprocating rod of an engine governor, an adjustable collar attached to said rod, one or more movable stops acting upon said collar, pressure mechanism operating said stop or stops, and a gravity-operated lever connecting with said pressure mechanism as and for the purposes set forth.

4. In combination with a reciprocating rod 45 of an engine governor, an adjustable collar attached to said rod, one or more movable stops acting upon the said collars, a pressure cylinder with its inclosed piston and rod connected with and actuating said stop or stops, 50 a pressure admission valve, connected to said pressure cylinder, and a gravity-operated lever connecting with said valve, as and for the purposes set forth.

GEORGE H. WARD.

Witnesses:

WM. H. WEIGHTMAN,

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