

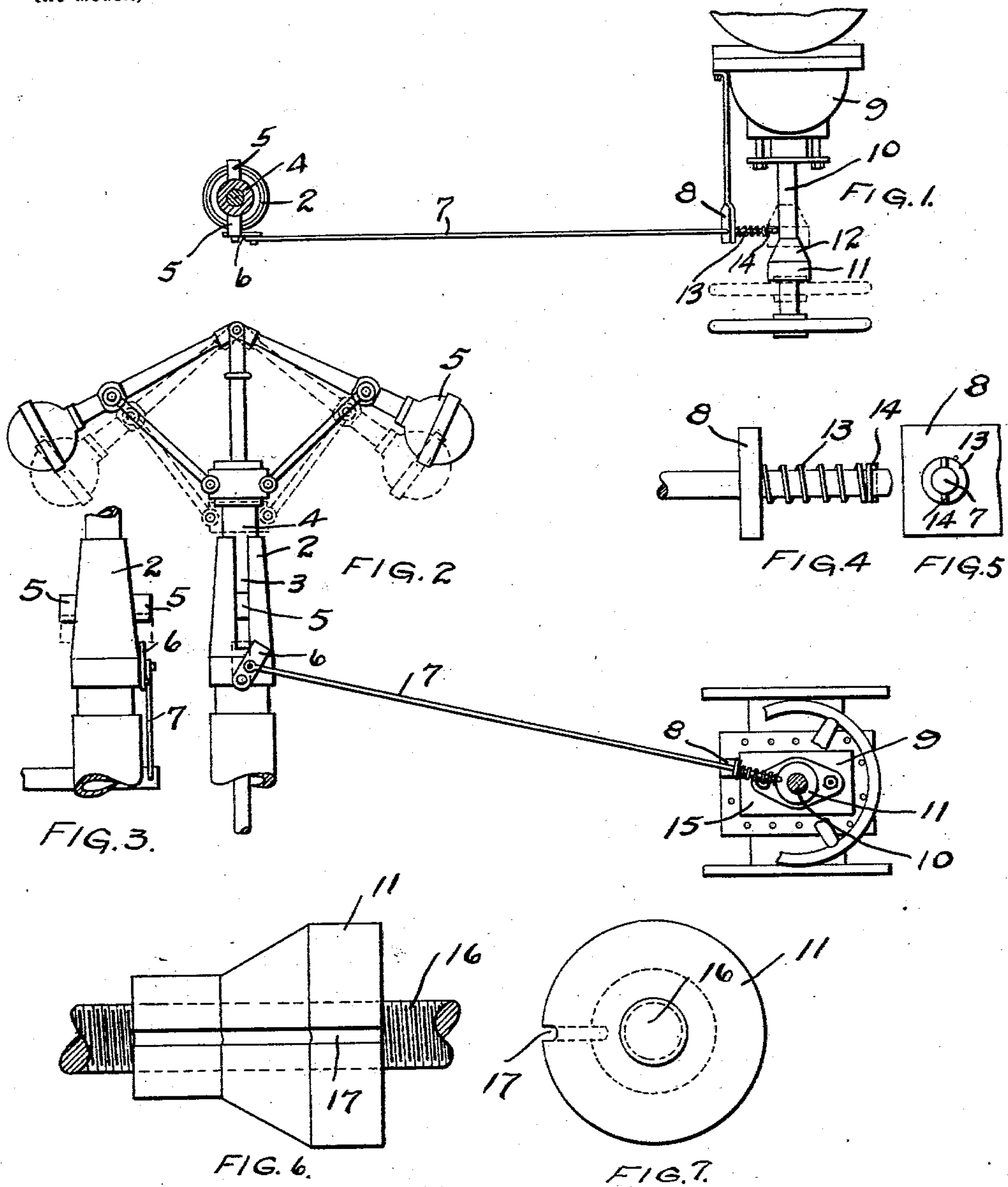
No. 715,481.

Patented Dec. 9, 1902.

W. G. KACHEL.
AUTOMATIC STOP FOR GOVERNORS.

(Application filed Mar. 28, 1902.)

(No Model.)



WITNESSES
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UNITED STATES PATENT OFFICE.

WILLIAM G. KACHEL, OF MINNEAPOLIS, MINNESOTA.

AUTOMATIC STOP FOR GOVERNORS.

SPECIFICATION forming part of Letters Patent No. 715,481, dated December 9, 1902.

Application filed March 28, 1902. Serial No. 100,357. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM G. KACHEL, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Automatic Stops for Steam-Governors, of which the following is a specification.

The invention relates to attachments for steam-engines, particularly those of the Corliss type, where the governor-stem is connected with the governor-cams, whose movement controls the steam-supply valves and the operation of the engine. If the governor-stem drops to its lowest position, steam will be cut off entirely from the cylinder, and it will be necessary to raise the stem before the engine can be started. It has been customary heretofore to wedge or plug the stem to prevent its dropping far enough to entirely cut off the supply of steam to the cylinder. This method of limiting the downward movement of the stem has been found inconvenient and is sometimes forgotten in the haste of shutting down the engine; and the object, therefore, of my invention is to provide means in connection with the main steam-supply-pipe valve for automatically locking the stem in its raised position when the valve is being closed and releasing the stem when the valve is open.

The invention consists generally in a pivoted latch adapted to engage a shoulder or lug on the governor-stem and means controlled by the movement of the steam-supply valve for automatically actuating said latch to move it into the path of said lug or withdraw it therefrom.

Further, the invention consists in various constructions and combinations, all as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of a globe steam-supply valve with the governor-stem shown in section and my invention applied thereto. Fig. 2 is a side elevation of the same. Fig. 3 is a detail of the governor, showing the lug on the stem and the pivoted latch. Figs. 4 and 5 are details of the part of the mechanism that engages the steam-supply valve. Fig. 6 is a detail of a portion of the device employed in connection

with a gate-valve. Fig. 7 is an end view of the same.

In the drawings, 2 represents a steam-governor casing having vertical slots 3 and a stem 4, whereon the usual centrifugal governor-balls 5 are supported. The stem is connected with the governor-cams in the type of engine above referred to, and the movement of these cams controls the supply of steam to the cylinder. Should the stem be allowed to drop to its lowest position, steam will be entirely cut off, and it will be necessary to raise the governor before starting the engine.

As above referred to, it has been customary to wedge or plug the governor before starting the engine to limit the downward movement of the stem; but it has been found inconvenient, and I prefer to provide means for automatically locking and releasing the governor when the main steam-supply valve is operated to stop or start the engine. With this end in view I provide lugs 5 on the governor-stem that are vertically slidable in the slots 3 and act as guides for said stem, and near the lower end of said slots I pivot a latch 6, to which a rod 7 is pivotally connected at one end, its opposite end being slidable in a guide 8 on the globe steam-supply valve 9. Upon the stem 10 of this valve I secure a block 11, having an inclined or beveled face 12, that is adapted to engage the end of the rod 7 and move the same lengthwise while the stem is being revolved to close the valve. This movement of the rod swings the latch to the vertical position, (indicated by dotted lines in Fig. 2,) where its end will be in the path of the lug 5 and limit the downward movement of the governor-stem. The position of the latch and of the lug is determined by experiment, so that downward movement of the governor will be arrested before the steam-supply is entirely cut off. During the lengthwise movement of the rod 7 a spring 13, provided on said rod between the guide and a pin 14, will be compressed, so that when the valve is opened and the end of the rod slides down the inclined surface the tension of the spring will be sufficient to return the rod to its normal position and draw the latch to one side out of the path of the lug on the governor-stem. In this way a perfect auto-

matic stop is provided that is positive in its action, being controlled wholly by the movement of the steam-supply valve, and so simple in construction that it cannot possibly become inoperative through the disorder of any of its parts or connections.

In Fig. 2 I have shown a gate-valve 15, having a threaded stem 16, whereon the member 11 is loosely arranged, and provided with a longitudinal groove 17, that is adapted to receive the end of the rod 7. In this form of valve when the stem is rotated the block 11 will be held from turning by the rod, the end of which traveling in the groove will cause lengthwise movement thereof and consequent oscillation of the locking-latch.

I am aware that various devices and attachments may be provided for operating the pivoted latch by the movement of the main steam-supply valve; but I regard such changes as mere modifications that would suggest themselves to any one skilled in the art.

I claim as my invention—

1. The combination, with a centrifugal steam-engine governor having a stem provided with a suitable stop, of a pivoted latch adapted to engage said stop and limit the downward movement of said stem, and means controlled by the movement of the main steam-supply valve for automatically moving said latch into the path of said stop and withdrawing the same therefrom when said valve is being operated to stop and start the engine.

2. The combination, with a centrifugal steam-governor stem, of a pivoted latch adapted to engage said stem and limit the downward movement of the same, a rod pivotally connected with said latch, a steam-supply valve, a block provided on the stem of said

valve and having an inclined surface to engage the end of said rod, to move the same lengthwise and oscillate said latch to swing it into the path of said stem when said valve is being closed, and a spring provided in connection with said rod for automatically withdrawing said latch from the path of said stem when the valve is being opened.

3. The combination, with a centrifugal steam-governor stem, of a stop provided in the path of said stem and adapted to limit the downward movement of the same, and suitable connections provided between said stop and the main steam-supply valve for automatically operating said stop to move it into the path of said stem or withdraw it therefrom accordingly as said valve is being closed or opened.

4. The combination, with a centrifugal steam-governor stem, of a stop device adapted to limit the downward movement of said stem, a rod connected with said stop device, a guide wherein said rod is slidable, a steam-supply valve, an inclined or beveled surface provided on the stem of said valve and adapted to engage the end of said rod to move the same lengthwise and actuate said stop device when the valve is being closed, and a spring provided on said rod and adapted to return said stop device and said rod to their normal position when said inclined surface is moved out of engagement with said rod by the opening of said valves.

In witness whereof I have hereunto set my hand this 25th day of March, 1902.

WILLIAM G. KACHEL.

In presence of—

RICHARD PAUL,
M. C. NOONAN.