

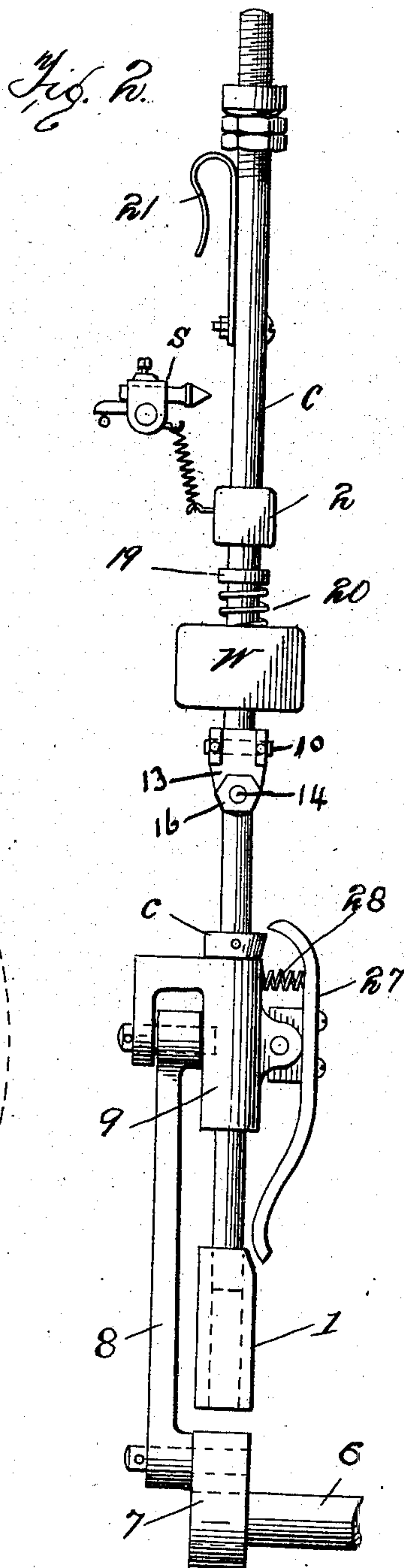
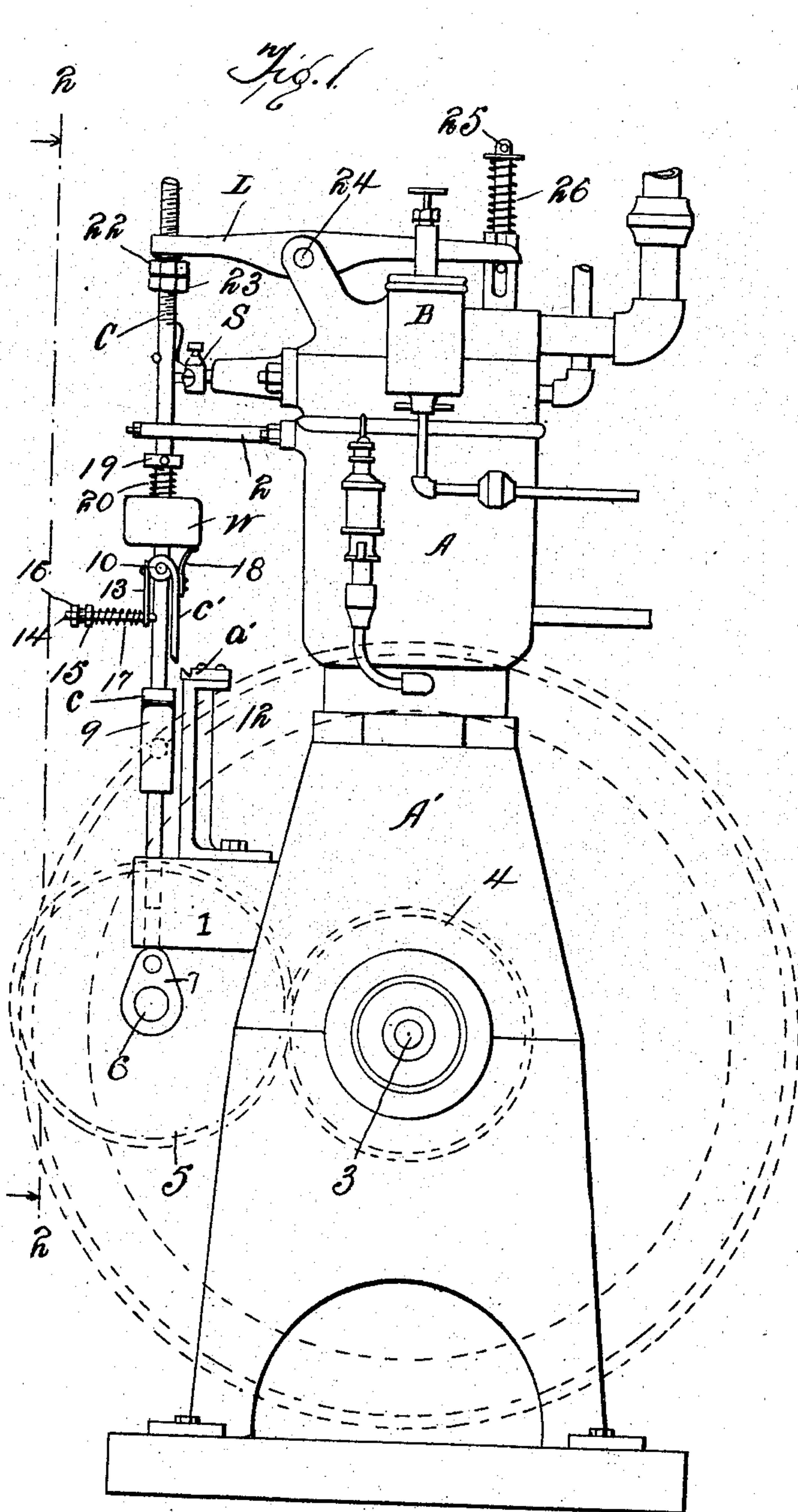
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Patented Dec. 30, 1902.

H. H. & C. B. SEGNER.
GOVERNOR FOR EXPLOSIVE ENGINES.

(Application filed Sept. 13, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

HARRY H. SEGNER AND CHARLES B. SEGNER, OF HAGERSTOWN,
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GOVERNOR FOR EXPLOSIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 717,508, dated December 30, 1902.

Application filed September 13, 1901. Serial No. 75,245. (No model.)

To all whom it may concern:

Be it known that we, HARRY H. SEGNER and CHARLES B. SEGNER, citizens of the United States, residing at Hagerstown, in the county of Washington and State of Maryland, have invented certain new and useful Improvements in Governors for Explosive-Engines, of which the following is a specification.

Our said invention consists in various improvements in the details of construction of governors for gasoline or other engines operated by an explosion, whereby a very simple, inexpensive, and perfectly-operating governor is provided, all of which will be herein-
after more fully described and claimed.

Referring to the accompanying drawings, which are made a part hereof and on which similar reference characters indicate similar parts, Figure 1 is a side elevation of a gasoline-engine embodying our said invention; and Fig. 2, a view of the governor mechanism, on an enlarged scale, as seen when looking in the direction indicated by the arrows from the dotted line 2 2 in Fig. 1.

In said drawings the portions marked A A' represent the cylinder and base, respectively, of the engine, B the gasoline-feed regulator, and C the governor-operating rod.

The cylinder A, base A', and all other parts of the engine are or may be of any approved construction and need no special description herein, except incidentally in describing the governor mechanism, which is made the sole subject-matter of this application.

The governor-operating rod C is mounted to reciprocate in apertures in arms 1 and 2, which are mounted to project from the side of the base A' and the cylinder A at suitable points. It is driven from the engine-shaft 3 through a gear-wheel 4, which meshes with another gear-wheel 5 on a counter-shaft 6, which has a crank-arm 7 on its opposite end connected by a connecting-rod 8 with a sliding sleeve 9, mounted on rod C beneath a collar c, which is rigidly secured in the proper position thereon. Above the collar c a latch c' is mounted on a pivot 10, which extends through a suitably-located perforation in rod C. Said latch extends down from its pivot on the side of the rod C next the engine and is adapted upon occasion to engage a catch a'

on the top of a standard 12, which extends up from the arm 1 alongside said rod C. On the opposite side of the pivot 10 a wing 13 is rigidly secured to the latch c' and extends down on the opposite side of the rod C. Said wing is provided with a perforation near its lower end through which a pin 14 projects into said rod C, being provided with nuts 15 and 16 on its outer end, with a spring 17 interposed between said nuts and said wing. The action of said spring, as will be readily seen, is to tend to throw the latch out to engage the catch a', the force or tension of said spring being properly adjusted by the nut 15, which is located in the desired position by the jam-nut 16. Another wing 18 is also formed or secured on the latch c', being practically a continuation of the upper end thereof to above the pivot 10. A weight W is mounted to slide on the rod C above the latch, normally resting upon and being carried by the wing 18. The action of said weight is thus opposed to that of the spring 17, and being sufficient under normal conditions to overcome said spring it operates to keep said latch, normally in position to escape the catch a' as the rod reciprocates. A collar 19 is rigidly secured above the weight on rod C to limit its movement, and a spring 20 may be interposed between said collar and weight to assist in its operation and insure a quick action.

Above the guide-arm 2 a spring trip or cam 21 is secured to the rod C for operating the sparker S; but as this feature is not made a part of this application it will not be particularly described, being shown to make clear the operation of the governor mechanism. The upper end of the rod C is adjustably connected, by means of the nuts 22 and 23, with the lever L, which is pivoted to a bracket on the top of the engine on a pivot 24 and at its opposite end is connected with the stem 25 of the exhaust-valve of the engine, which is normally closed by a spring 26. A catch 27 is pivoted on one side of the sliding sleeve 9, its lower end being formed and positioned to work over a cam-surface on one corner of the arm 1, so as to throw said catch forward toward rod C just after it starts on its down-stroke. A spring 28 serves to throw said catch back as soon as its lower end reaches

the point where its engagement with the cam-surface is relieved.

The operation of the governor is as follows: The engine being started, as usual, the rod C is rapidly reciprocated up and down, the gearing being so arranged that shaft 6 makes one revolution each time the exhaust-valve is to be opened. At the limit of each upward stroke of said rod through lever L and stem 25 said valve is therefore opened, permitting the burned charge to exhaust from the cylinder and the new charge to be drawn in and compressed in the well-known manner. As soon as the crank 7, with connecting-rod 8, with sliding sleeve 9, starts on the downward movement the spring 26 acts to close the valve and also through the lever L to start rod C down, and before the action of said spring has reached its limit the catch 27 is thrown into engagement with the collar c by the cam-surface on arm 1, thus locking said sleeve to said rod and insuring a positive motion therewith. By this means the downward as well as the upward movement of said rod is made positive and not dependent upon gravity alone, the advantages of which arrangement are apparent. When the speed of the engine reaches a point in excess of that desired, the weight W will by its own inertia at the instant of the reversal of the movement of the rod C relieve the latch c' of sufficient of its weight, so that the spring 17 may throw said latch out in position to engage the catch a', which then holds the rod suspended and the exhaust-valve open and prevents the sparker from being operated, so that no charge will be taken into the engine and no spark made to explode one. When the rod C is held suspended, the sleeve 9 slides freely thereon, the catch 27 being adapted to engage collar c only after said collar has started on its downward stroke. When the speed falls to below that desired, the upstroke of sleeve 9 as it contacts with collar c lifts the rod C sufficient to disengage latch c' from catch a', when the action of the weight W and spring 20 will overcome force of spring 17 and hold said latch out of engagement, permit the rod to fall, the exhaust-valve to open, and the usual operation of the engine to be resumed. By adjusting the tension of the spring 17 the action and speed of the governor can be very finely regulated, and as this can be done while the engine is in motion its speed can be changed at will without stopping it, which is of great advantage. The parts being simple and of very positive action, a very reliable and satisfactory operation is secured.

Having thus fully described our said invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an explosive-engine, the combination, of the reciprocating rod connected with the exhaust-valve, a latch pivoted on said rod, a stationary catch on the frame adjacent thereto and adapted to directly engage said latch

to hold said rod in position to hold said valve open when the speed exceeds that desired, and a sliding weight mounted on said rod to engage with said latch and hold it out of engagement with said catch when the speed does not exceed that desired, substantially as set forth.

2. In an explosive-engine, the combination, of the exhaust-valve, a reciprocating rod for operating it, a latch pivoted to said reciprocating rod and a stationary catch arranged alongside said rod to engage said latch and hold said rod to prevent the closing of said exhaust-valve when the speed is above the normal, and a sliding weight on said rod arranged to operate said latch to hold it out of engagement with said catch when the speed is not greater than that desired, substantially as set forth.

3. In an explosive-engine, the combination, of the exhaust-valve, the reciprocating rod connected therewith for opening the same, a sleeve mounted to slide on said rod, gearing connecting said sleeve with the driving-shaft, a collar rigidly secured on said rod at the point to contact with said sleeve to operate the rod, the latch pivoted to the rod, the stationary catch alongside, a spring for normally holding the latch to engage the catch, and a weight mounted to slide on the rod and engaging said latch to act oppositely to said spring and under normal conditions overcome its action and hold said latch out of engagement with said catch, substantially as set forth.

4. In an explosive-engine, the combination, of the reciprocating rod for operating the exhaust-valve, a stationary catch alongside said rod, a latch pivoted to said reciprocating rod with wings extending on opposite sides of its pivot, a spring and weight being adapted to engage said wings respectively and act oppositely to each other, one to throw said latch into engagement with said stationary catch to support said rod and hold open the valve when the speed is above that desired, and the other to hold said latch out of engagement with said catch when the speed is not above that desired, and said catch, substantially as set forth.

5. In an explosive-engine, the combination, of the reciprocating rod carrying the governor mechanism, a sleeve mounted to slide thereon, gearing connecting said sleeve with the driving-shaft, a rigid collar on said rod, and an automatically-operating catch on said sleeve adapted to engage said collar and thereby lock said sleeve to said rod upon the downward movement of said sleeve, substantially as set forth.

6. In an explosive-engine, the combination, of the exhaust-valve, the reciprocating rod connected therewith and carrying parts of the governor mechanism, means for holding said rod to secure the lessening of the speed of the engine when required, and releasing it when not required, a sliding sleeve connected with

the driving mechanism for operating said rod, and a catch arranged to automatically connect said sleeve and rod just after the rod begins its downward stroke, substantially as set forth.

7. In an explosive-engine, the combination of the governor mechanism comprising a reciprocating rod, the sleeve mounted to slide on said reciprocating rod below a fixed collar and connected to the driving mechanism, a catch pivoted on said sleeve with its upper end adapted to engage said collar when the sleeve is in contact therewith and its lower end arranged to contact with a fixed cam to throw it out of engagement with said collar at the proper point, and means for disengaging it at the proper point.

8. In an explosive-engine, the combination, of the reciprocating rod connected with the exhaust-valve, the pivoted latch thereon, having wings extending on opposite sides of its pivot, a weight and a spring arranged to operate against said wings oppositely to each

other, means for adjusting the tension of said spring without stopping the engine, and a stationary catch arranged alongside said latch and adapted to engage it when the action of said spring overcomes the action of said weight, substantially as set forth.

9. In an explosive-engine, the combination, of the reciprocating rod, the latch pivoted thereon, a weight mounted to slide on said rod and adapted to hold said latch in one direction and a spring adapted to hold it in the other, and a stationary catch mounted alongside said rod and adapted to engage said latch when the spring overcomes the weight, substantially as set forth.

In witness whereof we have hereunto set our hands and seals, at Hagerstown, Maryland, this 26th day of July, A. D. 1901.

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Witnesses:

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