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No. 758,076. PATENTED APR. 26, 1904.

R. JARDINE.

CONTROLLING MECHANISM FOR EXPLOSIVE ENGINES.

APPLICATION FILED APR. 24, 1903.

NO MODEL.

Winton, 636,606, Nov. 7, 1899; (Speed Reg.): British patent to Justice, #4,871, March 7, 1901; (4 cycle).

Fig. I.

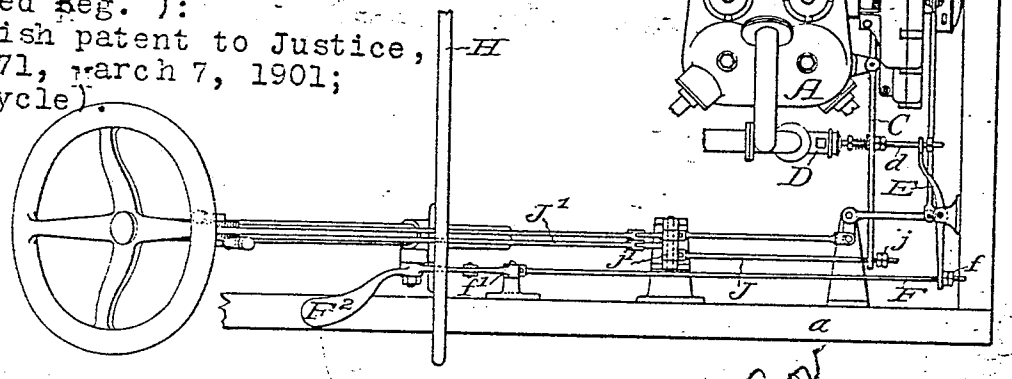


Fig. II.

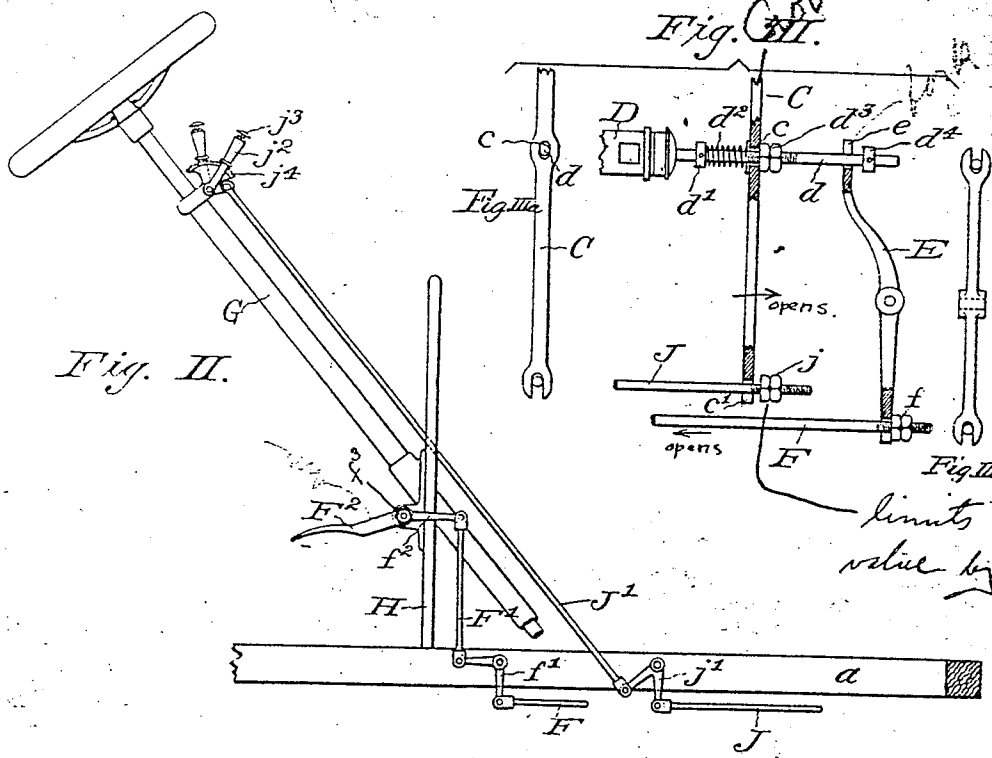


Fig. III.

limits opening of valve by governor.

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No. 758,076. Patented April 26, 1904.

UNITED STATES PATENT OFFICE.

ROBERT JARDINE, OF CLEVELAND, OHIO, ASSIGNOR TO BERG AUTOMOBILE COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF NEW JERSEY.

CONTROLLING MECHANISM FOR EXPLOSIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 758,076, dated April 26, 1904.

Application filed April 24, 1903. Serial No. 154,105. (No model.)

To all whom it may concern:

Be it known that I, ROBERT JARDINE, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Controlling Mechanism for Engines, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to mechanism for controlling the speed of engines, and particularly the speed of engines of the explosive type, as applied to automobiles.

The object of the invention is to provide controlling mechanism for explosive-engines, such as will permit the operator or driver to obtain and substantially maintain a predetermined speed and at the same time obtain for a period a speed greater than maximum speed at required intervals or times during such maintenance of predetermined speed.

The invention consists of means hereinafter described, and particularly set forth in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a diagrammatic plan view of mechanism embodying my invention as particularly applicable for use in automobiles. Fig. II represents a side elevation of same; and Fig. III represents a plan view, on an enlarged scale, of a portion of said mechanism, showing parts in section. Figs. III^a and III^b illustrate certain detail levers of said mechanism.

The engine A has connected with its driving-shaft a suitable governor B, preferably of the centrifugal type, such as is well known and in common use. Connected with this governor is an oscillatory lever C, preferably fulcrumed upon the engine, as shown. This lever is provided with an enlarged opening c, Fig. III, through which extends the valve-stem d of a throttle-valve D. Intermediately of the valve and lever is secured a collar d', and intermediately of the latter and said lever is interposed a helical spring d^2. Intermediately of the said lever and the outer or free end of the valve-stem the latter is provided with a threaded portion, upon which are seated two nuts d^3. Said outer or free end portion of the stem is provided with a fixed collar d^4. A lever E is suitably fulcrumed and formed at one end with a fork or yoke e, which loosely embraces the stem d near the collar d^4 and intermediately of the latter and the nut d^3, as shown. The opposite end of said lever E is similarly forked and loosely embraces the free end portion of a reciprocatory rod F, such end portion being threaded and provided with two nuts f, located intermediately of the end of said rod and said embracing lever end. The opposite end of said rod articulates with one arm of a bell-crank f', suitably mounted upon the frame a of the machine, the other arm of such crank articulating with the lower end of a rod F'. This rod F' articulates at its upper end with an arm f^2, mounted upon a rod or shaft f^3, operated by a pedal F^2, and is mounted in suitable bearings, preferably secured to the dashboard H of the vehicle-body.

The outer or free end of lever C is connected in a manner similar to that of the described connection of lever E and rod F, by means of a forked lever end c' and nuts j, with a reciprocatory rod J. The opposite end of said rod articulates with one arm of a bell-crank j', suitably mounted on a frame a of the machine, the other arm of such crank articulating with the lower end of a rod J'. This rod J' extends along and is parallel with the steering-post casing G, its upper end articulating with a hand-lever j^2, mounted upon said casing. This lever j^2 is provided with a spring-actuated bolt j^3, which engages a toothed segment j^4, secured to the said post, whereby the said lever, and hence the rod J, may be fixed in various predetermined positions.

In operation the above-described mechanism

acts and is manipulated as follows: The hand-lever j^2 having been set in the desired position to obtain a predetermined speed-less than the maximum brings the nuts j into the position required to limit the outward or opening movement of the lever C, which is being constantly vibrated by the governor. The throttling-valve D is hence never opened beyond a fixed predetermined position, itself determined by the position of said nuts j. A speed greater than that determined by the maximum opening of the valve under these conditions can, hence, not be obtained. Now, however, should it be necessary or required to impart to the engine a greater or its greatest possible speed the pedal F^2 is depressed, rod F so pulled back, and the lever E moved to actuate the valve-stem d to actuate the valve to effect a greater or its maximum opening and so permit the engine to operate at a greater or its maximum speed. As soon as the necessity for such speed is removed the pedal is released and the engine returns to its former predetermined and required speed.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed provided the means stated by any one of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention—

1. In controlling mechanism for explosive-engines, the combination of means for controlling the admission of gas into the engine-cylinder, automatic means for governing such controlling means, means for limiting the action of the governor means, and means including a lever connected with said controlling means for actuating said controlling means independently of said governing and limiting means, to effect the maximum admission of gas into the engine's cylinder.

2. In controlling mechanism for explosive-engines, the combination of a throttling-valve, an automatically-operating governor connected to said valve by a lever, a handle together with means for fixing same in various predetermined positions, and a rod having sliding connection with said lever, provided with means arranged to limit the opening movement of said valve, and connected with said handle; the valve being so connected with said governor and limiting means as to permit of its movement independently thereof, and means for so moving said valve.

3. In controlling mechanism for explosive-engines, the combination of a throttling-valve and stem, a governor, a lever connected with said governor and having loose connection with said valve-stem such as will at the same time effect such stem's movement, a rod arranged to be fixed in various positions, having sliding connection with said lever and arranged to limit the valve-opening movement thereof, and an independent lever connected with said valve-stem and arranged to actuate same and said valve to effect the maximum admission of gas into the engine's cylinder.

Signed by me this 4th day of April, 1903.

ROBERT JARDINE.

Attest:
G. W. SAYWELL,
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