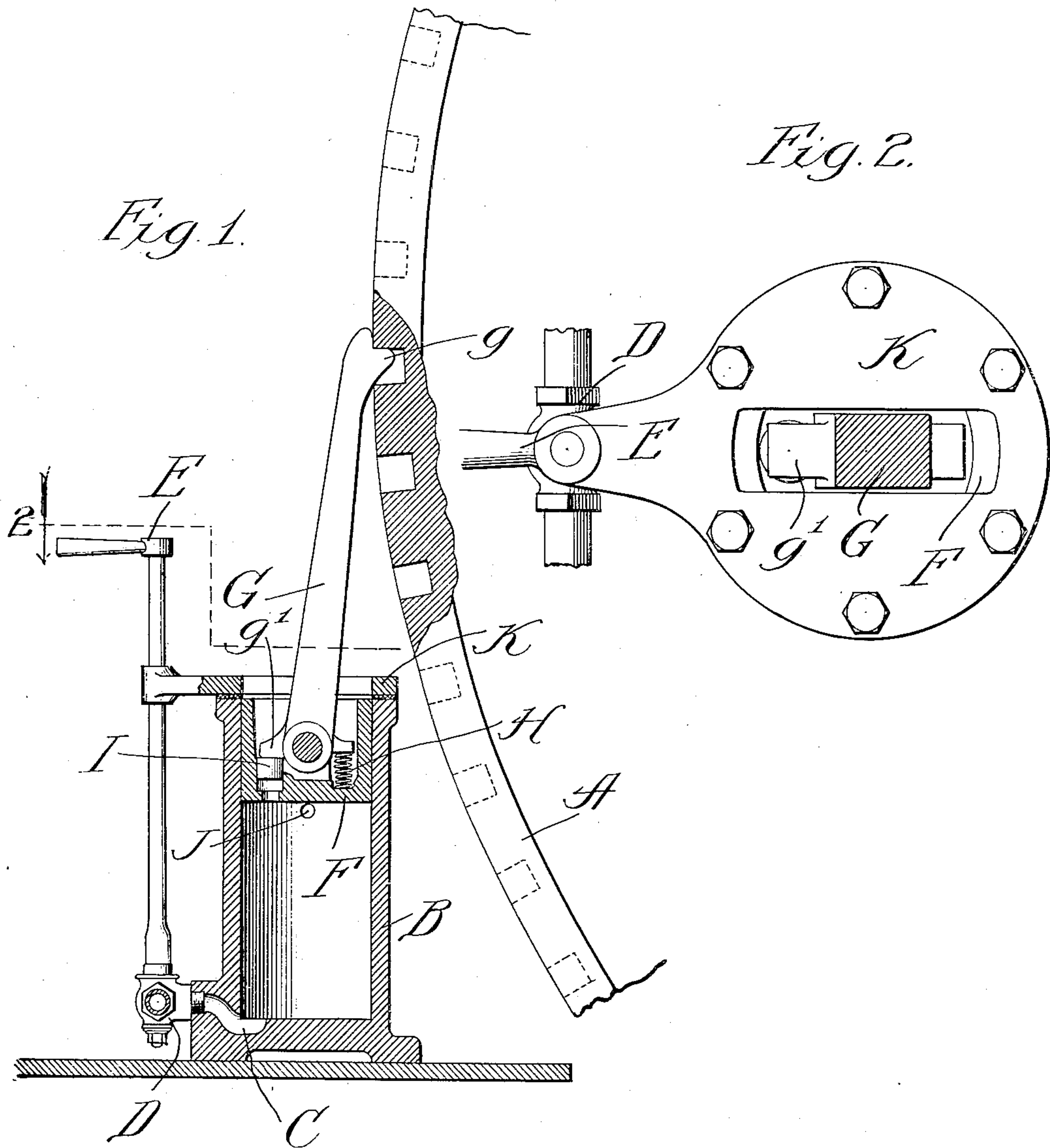


C. E. SARGENT.
 DEVICE FOR BARRING OVER ENGINES.
 APPLICATION FILED JULY 18, 1908.

935,235.

Patented Sept. 28, 1909.



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UNITED STATES PATENT OFFICE.

CHARLES E. SARGENT, OF CORLISS, WISCONSIN, ASSIGNOR TO THE WISCONSIN ENGINE COMPANY, OF CORLISS, WISCONSIN, A CORPORATION OF WISCONSIN.

DEVICE FOR BARRING-OVER ENGINES.

935,235.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed July 18, 1908. Serial No. 444,182.

To all whom it may concern:

Be it known that I, CHARLES E. SARGENT, a citizen of the United States, residing at Corliss, in the county of Racine and State of Wisconsin, have invented a new and useful Improvement in Devices for Barring-Over Engines, of which the following is a specification.

My invention relates to certain new and useful improvements in a device for barring-over engines, and is fully described and explained in the specification and shown in the accompanying drawing, in which:

Figure 1 is a central longitudinal section through my improved device, and Fig. 2 is an enlarged plan view taken at line 2 on Fig. 1.

Referring to the drawing, A is a fly-wheel of an engine provided with the usual notches for the engagement of the means by which the engine is to be barred-over. Adjacent to the fly-wheel and upon the floor of the engine-room or other suitable support is mounted a cylinder B provided with an intake-port C, access to which is controlled by a three-way cock D which can be operated by means of a handle E. Vertically movable in the cylinder B is a piston F to which is pivoted a pawl G having a tooth *g* adapted to engage with the notches in the fly-wheel A. The pawl G is normally held out of engagement with the fly-wheel by means of a spring H mounted upon the piston F and engaging with a projecting finger on the pawl G. On the opposite side of the pivot of the pawl G to the piston F, the piston is perforated and in the perforation is a vertically movable pawl-operating piston I which is adapted to engage with a projecting finger *g*¹ on the pawl G. The cylinder B is provided with an exhaust-port J which is uncovered by the piston in its upward movement. The cylinder is surmounted by a cover K slotted for the passage of the pawl as illustrated.

The device is operated in the following manner: When the piston is in its lowered position the pawl will be out of engagement with the fly-wheel. If the cock D be then turned to the proper position, it will open communication between the port C and a supply of compressed fluid, preferably compressed air. The compressed air entering the cylinder will first force upward the pawl operating piston I, thereby swinging the

pawl to the right, into engagement with the fly-wheel, whereupon its tooth *g* will engage one of the notches of the fly-wheel. The piston will then move upward, rotating the fly-wheel to the extent of its scope, which will be in practice the distance between two or three of the notches of the fly-wheel. When the piston reaches the upper limit of its movement, it will uncover the port J, relieving the pressure in the cylinder and thereby arresting the upward movement of the piston. Thereupon the cock can be turned to another position so as to throw the port C into communication with the atmosphere, whereupon the pawl will drop back to its original position and the piston will fall by gravity. The operation can then be repeated indefinitely and the fly-wheel turned over by slow degrees to any desired extent.

The apparatus is particularly desirable for use in connection with gas engines for the reason that all modern high power engines are provided with means whereby they can be started with compressed air and the supply of compressed air being always accessible the application of the device requires no special appliance. It is to be borne in mind that modern high power gas engines are so made that they must be barred-over to certain positions in order to be started with compressed air unless they are of the twin-tandem type and even twin-tandem engines frequently require to be barred-over for adjusting valves and similar operations. The device can, if desired, be applied to steam engines which often require to be barred-over for adjustment purposes and in many cases must be barred-over before they can be started.

I realize that considerable variation is possible in the details of construction of my improved device, without departing from the spirit of my invention, and I do not intend, therefore, to limit myself to the specific form herein shown and described.

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

1. The combination with a fly-wheel, of a barring-over device comprising a cylinder mounted adjacent thereto, a piston reciprocable in the cylinder, a port entering the cylinder, a hand-valve controlling the port and adapted by its operation to produce movement of the piston, and fly-wheel engaging

means movable with the piston and constructed and arranged to engage the fly-wheel while the piston is moving in one direction, and to be automatically disengaged therefrom when the piston is moving in the opposite direction.

2. The combination with a fly-wheel, of a barring-over device comprising a cylinder mounted adjacent thereto and provided with an intake port, a three-way hand-operated cock adapted to connect the cylinder alternately with a source of fluid under pressure and with the atmosphere, a piston reciprocable in the cylinder, and fly-wheel engaging means carried by the piston and constructed and arranged to engage the fly-wheel while the piston is moving under the influence of fluid pressure and to be automatically disengaged therefrom when the piston is moving in the opposite direction.

3. The combination with a fly-wheel, of a barring-over device comprising a cylinder mounted adjacent thereto, hand operated means for alternately admitting fluid under pressure to the cylinder and releasing the same therefrom, a piston movable in the cylinder and fly-wheel engaging means carried by the piston and constructed and arranged to automatically engage the fly-wheel when the piston is moving under the influence of fluid-pressure and to be automatically disengaged from the fly-wheel when the piston is moving in the opposite direction.

4. The combination with a fly-wheel, of a barring-over device comprising a cylinder mounted adjacent thereto, means for alternately admitting fluid under pressure to the cylinder and releasing it therefrom, a piston movable in the cylinder, fly-wheel engaging means carried by the piston, means for normally holding the engaging means out of engagement with the fly-wheel, and a device operated by the entrance of fluid under pressure to the cylinder for engaging said means with the fly-wheel.

5. The combination with a fly-wheel, of a barring-over device comprising a cylinder adjacent thereto, means for alternately admitting fluid under pressure thereto and releasing the same therefrom, a piston movable in the cylinder, a fly-wheel engaging device pivoted to the piston and normally out of engagement with the fly-wheel, and a supplemental piston carried by the main piston and constructed and arranged to cause engagement between the fly-wheel engaging device and the fly-wheel when fluid-pressure is admitted to the cylinder.

6. The combination with a fly-wheel, of a barring-over device comprising a cylinder adjacent thereto, means for admitting fluid under pressure to the cylinder and releasing the same alternately, a piston movable in the cylinder, a pawl pivoted to the piston and normally out of engagement with the fly-wheel and a pawl-operating piston movable in the main piston and adapted to engage the pawl to move the same against the fly-wheel when pressure is admitted to the cylinder.

7. The combination with a fly-wheel, of a barring-over device comprising a cylinder mounted adjacent thereto, means for alternately admitting fluid under pressure to the cylinder and releasing the same therefrom, a piston movable in the cylinder, an exhaust-port adapted to be uncovered by the piston near the end of its upward movement, a pawl pivoted to the piston and normally out of engagement with the fly-wheel and a pawl operating piston mounted in the main piston and arranged to engage the pawl to move the same against the fly-wheel when fluid under pressure is admitted to the cylinder.

CHARLES E. SARGENT.

In presence of—

K. M. CORNWALL,
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