

H. E. COFFIN.
EXPLOSION ENGINE.
APPLICATION FILED MAR. 1, 1909.

992,482.

Patented May 16, 1911.

Fig. 1.

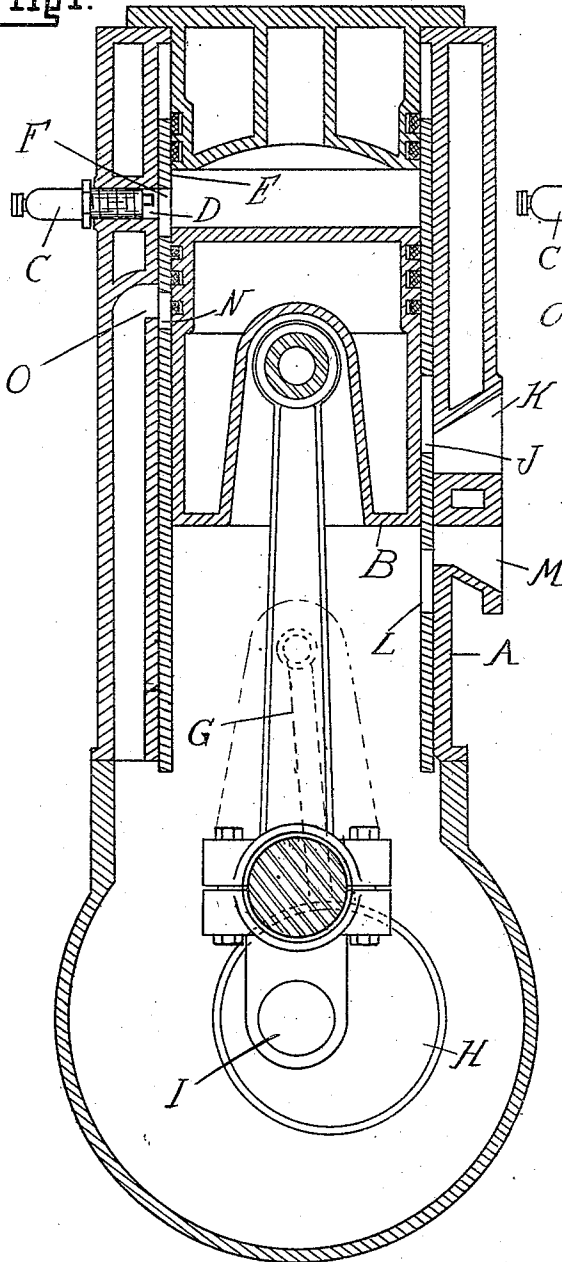
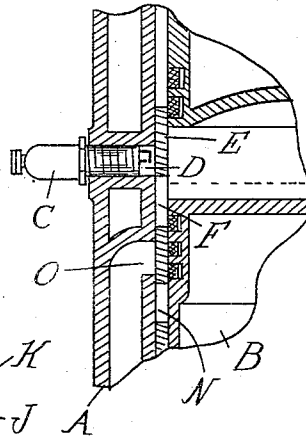


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

HOWARD E. COFFIN, OF DETROIT, MICHIGAN, ASSIGNOR TO CHALMERS-DETROIT
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EXPLOSION-ENGINE.

992,482.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HOWARD E. COFFIN, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Explosion-Engines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 The invention relates to explosion engines and has particular reference to the means employed for protecting the igniter during the combustion of the explosive gases.

To this end the invention consists in a construction in which the igniter is shielded and cut off from the hot gases in the cylinder during the greater portion of the power stroke; further, in the peculiar construction of the shield or cut off; and, further, in the combination of this shield and a valve for controlling the ports of the engine, as hereinafter set forth.

In the drawings—Figure 1 is a longitudinal section through an explosion engine showing the ports in the position of explosion; Fig. 2 is a similar view showing the shield in position for cutting off the igniter from the cylinder.

A is the engine cylinder, B the piston, and C the igniter, which is arranged in a recess D in the cylinder, preferably at one side thereof. Communication between this recess and the cylinder is controlled by a valve preferably in the form of a cylindrical sleeve E which is arranged intermediate the piston and the cylinder. In this sleeve is a port F which periodically registers with the recess C and the timing is such that the recess is open for all the various points of ignition. On the other hand, the movement of the sleeve is so timed that it will quickly cut off communication between the recess D and the cylinder in the early part of the power stroke of the piston.

45 The sleeve E is operated by any suitable

means, but, as shown, is connected by a rod G with an eccentric H arranged directly upon the crank shaft I of the engine, this arrangement being adapted for an engine of the two-cycle type. In addition to its function of shielding the recess D, the sleeve E constitutes a valve for controlling the various ports of the engine. Thus the exhaust passage is formed by a port J in the sleeve, which registers with the port K in the cylinder at the proper point in the power stroke. There is also a port L in the sleeve cooperating with a port M in the cylinder to admit the explosive mixture into the crank case chamber before its preliminary compression, and another port N in the sleeve is arranged to cooperate with the port O in the cylinder to control the transfer of the initially compressed charge from the crank case to the cylinder.

With my construction, the igniter is effectually protected from the heat developed by the combustion of the gases in the cylinder, and at the same time is always in full communication with the explosive charge during the period of ignition.

What I claim as my invention is:

In an explosion engine, the combination with a piston, of a cylinder forming the explosion chamber, said cylinder being provided with a port and having a recess in one side thereof above the highest point of travel of the piston, an electric igniter positioned within said recess, and a cylindrical sleeve between said piston and cylinder forming a valve for controlling said port and being provided with an extension serving as a shield for covering said recess subsequent to said explosion.

In testimony whereof I affix my signature in presence of two witnesses.

HOWARD E. COFFIN.

Witnesses:

LENA M. CARLE,

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