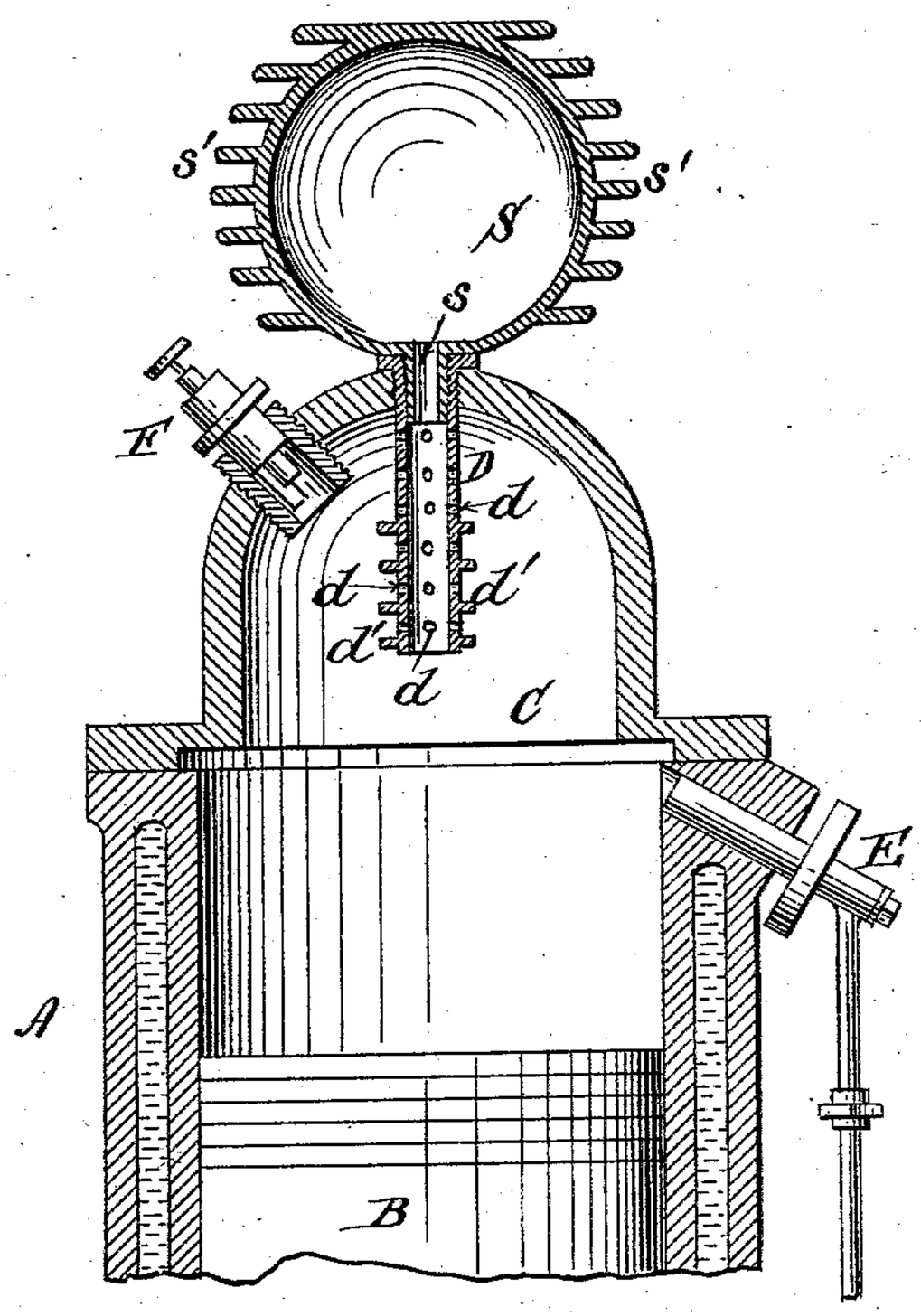
No. 753,280. PATENTED MAR. 1, 1904.

A. A. LOW.

IGNITER FOR EXPLOSIVE ENGINES.

APPLICATION FILED APR. 14, 1903.

NO MODEL.



Witnesses:
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No. 753,280. Patented March 1, 1904.

UNITED STATES PATENT OFFICE.

ABBOT AUGUSTUS LOW, OF HORSESHOE, NEW YORK.

IGNITER FOR EXPLOSIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 753,280, dated March 1, 1904.

Application filed April 14, 1903. Serial No. 152,496. (No model.)

To all whom it may concern:

Be it known that I, ABBOT AUGUSTUS LOW, a citizen of the United States, residing at Horseshoe, St. Lawrence county, and State of New York, have invented certain new and useful Improvements in Igniters for Explosive-Engines, of which the following is a specification sufficient to enable others skilled in the art to which the invention appertains to make and use the same.

My invention relates to motors in which the explosion of a vaporized charge is utilized to impart motion to the piston, and particularly to that class of motors in which an igniter is situated in a combustion-chamber.

One of the objects of my invention is to insure the perfect admixture of air with the vaporized explosive and the circulation of the same freely in the combustion-chamber and igniter and also through a supplementary chamber, as hereinafter set forth, whereby the whole charge is instantaneously flashed and perfect combustion is attained, thereby avoiding irregularity in action and the formation or collection of solid products of combustion within the engine.

An important advantage attained by my present construction consists in avoiding the overheating of the combustion-chamber and igniter by the use of a supplemental cooling-chamber, a series of such supplemental cooling-chambers of different sizes being provided for each engine in order to adapt it to the requirements of use.

This invention is an improvement on that set forth in my concurrent application, Serial No. 150,174, filed March 30, 1903; and it consists in the special construction and arrangement of parts herein shown and described and claimed specifically.

In the accompanying drawing the figure shows the parts of an engine essential to an understanding of my invention.

A is the cylinder, in which the piston B reciprocates in the usual manner.

C is the combustion-chamber, formed in the head of the cylinder. In this combustion-chamber C is situated my improved igniter D, of cylindrical form, constructed with a series of perforations *d*, as well as with a series of external radial projections *d'*. The igniter D is secured to the walls of the combustion-chamber C by any suitable mechanical expedient, and its inner end opens into the combustion-chamber. Its outer end opens into a supplementary chamber S, of globular or any other desired configuration. This supplemental chamber S is external to the combustion-chamber C. It may be coupled to the outer end of the igniter D by any suitable mechanical expedient, as by being formed with a threaded neck *s*, which engages with a female screw-thread in the end of the igniter D, as shown in the drawing by way of illustration only. The supplementary chamber S is preferably formed with a series of external projections *s'* for the purpose of increasing its radiating-surface, so that the interior of the said chamber S will cool more or less rapidly.

I design to have a series of interchangeable supplementary chambers S of different sizes for use in connection with each combustion-chamber and igniter, the object being to regulate the temperature within practical and desirable limits by regulating the cooling effect attained by a supplementary chamber of appropriate size and capacity.

F is an electric sparking device of any well-known form arranged to effect a preliminary explosion of the charge until the igniter D attains the requisite degree of heat, when the sparking device may be dispensed with, as will be readily understood.

I do not confine myself to the identical construction and arrangement of parts shown in the accompanying drawing, since my supplemental chamber S and igniter D may be used in conjunction with various forms of sparking or flashing devices or without the latter where other means for preliminary heating are resorted to, nor is the form of oil-injector F essential, since any device for introducing the explosive charge into the combustion-chamber C may be substituted for the injector E. (Shown in the accompanying drawing by way of illustration.)

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

1. In an explosive-engine, the combination with the combustion-chamber, and an internal

igniter, of an external supplementary chamber mounted on the combustion-chamber and communicating directly with the interior of said igniter.

2. In an explosive-engine, the combination with the combustion-chamber, and an internal igniter, of an external supplementary chamber mounted on the combustion-chamber and communicating directly with the interior of said igniter, said external supplementary chamber being formed with a series of external projections to increase its heat-radiating surface.

3. In an explosive-engine, the combination with the combustion-chamber, and an internal igniter, of an external supplementary chamber mounted on the combustion-chamber and communicating directly with the interior of said igniter, both the igniter and internal chamber being provided with a series of external projections.

4. In an explosive-engine, the combination with the combustion-chamber, and an internal igniter extending axially therein, of an external supplementary chamber secured within and communicating directly with said igniter.

5. In an explosive-engine, the combination with the combustion-chamber, and an internal igniter extending axially therein, of an external supplementary chamber secured within and communicating directly with said igniter, and having a multiplicity of external projections, as and for the purpose specified.

6. In an explosive-engine, the combination with the combustion-chamber, of an internal igniter secured therein, and an external supplementary chamber removably held within the outer end of said igniter whereby the said external chamber may be readily replaced by one of different capacity, as and for the purpose specified.

7. In an explosive-engine, the combination with the combustion-chamber, of an internal igniter secured therein, and an external supplementary chamber removably held within the outer end of said igniter, said external chamber being provided with a plurality of projections, as and for the purpose specified.

ABBOT AUGUSTUS LOW.

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