

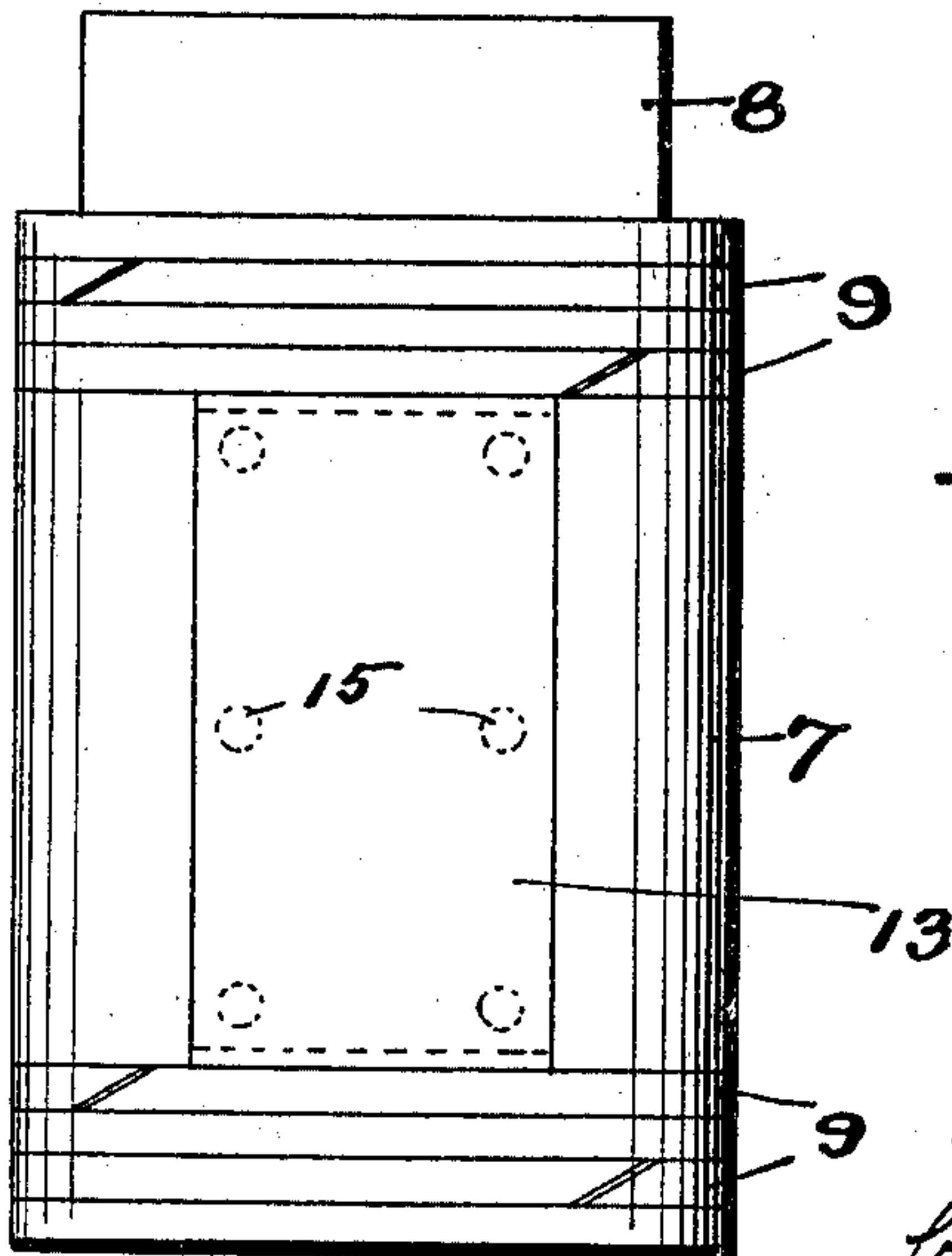
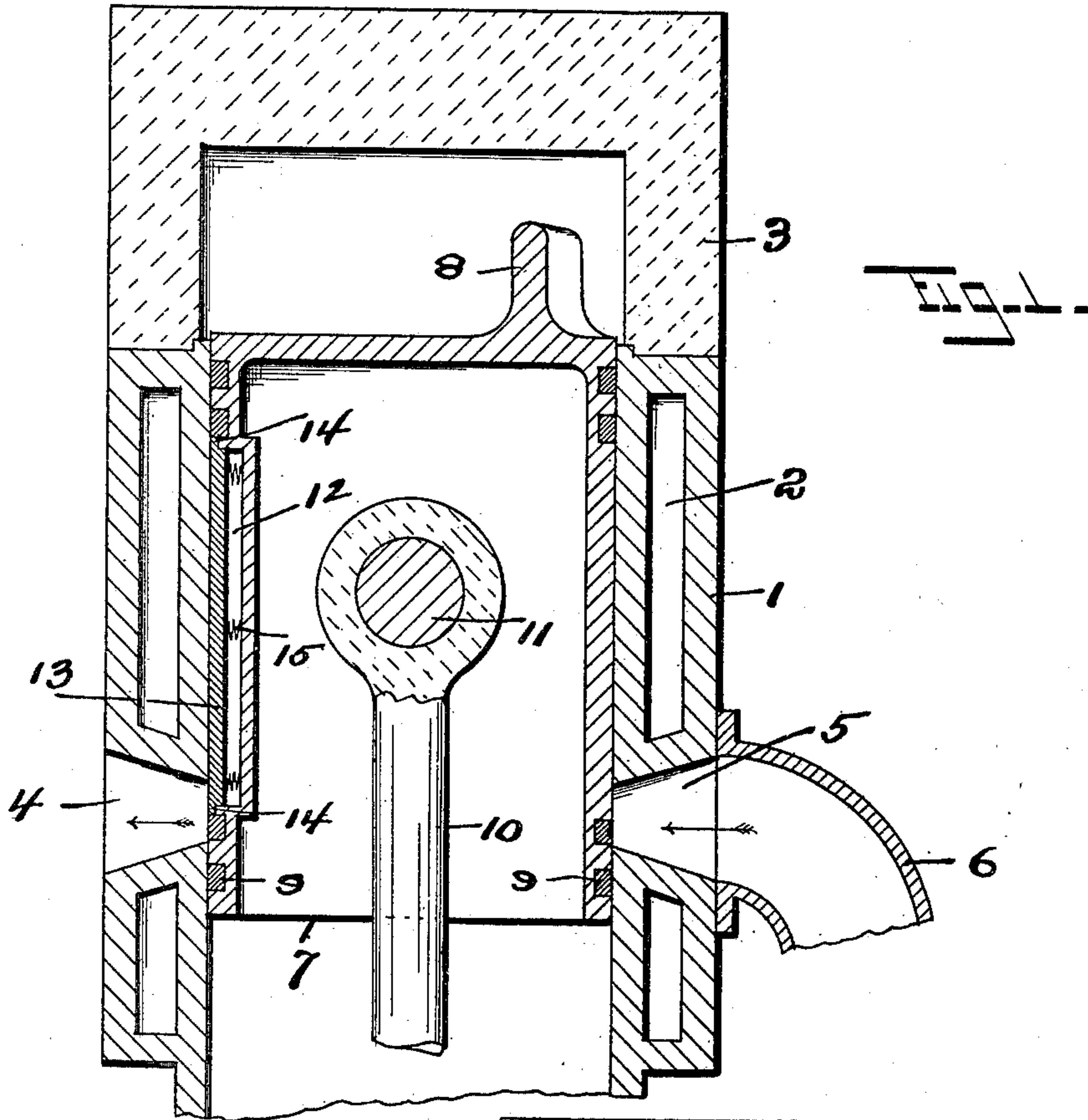
No. 697,965.

Patented Apr. 22, 1902.

E. E. BALDWIN.
PISTON.

(Application filed May 3, 1901.)

(No Model.)



Witnesses.

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UNITED STATES PATENT OFFICE.

EDWIN E. BALDWIN, OF BRANFORD, CONNECTICUT.

PISTON.

SPECIFICATION forming part of Letters Patent No. 697,965, dated April 22, 1902.

Application filed May 3, 1901. Serial No. 58,591. (No model.)

To all whom it may concern:

Be it known that I, EDWIN E. BALDWIN, a citizen of the United States, residing at Branford, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Pistons, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in pistons, and refers more especially to pistons for explosive-engines which are used for a valve for the inlet and exhaust ports in addition to their other functions.

It is the object of my invention, among other things, to construct a piston which will cover the inlet-port in its movement and prevent the premature passage of the explosive mixture therethrough.

To these and other ends my invention consists in the piston having certain details of construction, as will be hereinafter described, and more particularly pointed out in the claims.

Referring to the drawings, in which like numerals of reference designate like part in both figures, Figure 1 is a sectional elevation of a cylinder and the piston of an explosive-engine, and Fig. 2 is a detailed view of the piston.

The heat generated in the cylinder expands the piston, and the friction against the cylinder-bore increases with the length of time that the engine is run. Hence it is necessary to construct a piston which will move freely within the cylinder whether the same is hot or cold. In practice this is accomplished by having the diameter of the piston smaller than that of the cylinder-bore; but this method is defective where the piston is used as a valve, because the explosive mixture entering the cylinder through the inlet-port escapes around the piston and out of the exhaust-port. This escape of the explosive mixture is the principal cause of the disagreeable odor and smell about a gas-engine.

Referring to the drawings, the numeral 1 designates the cylinder, having the usual water-jacket 2 therein; 3, the cylinder-head; 4, the inlet-port; 5, the exhaust-port, and 6 is the duct leading from the exhaust-port. The

detailed construction of the cylinder and adjacent parts is immaterial to my invention, as any style or form can be used equally as well as the one herein shown and described.

The piston is designated 7 and is provided with the usual deflecting-shoulder 8 and piston-rings 9, with the piston-rod 10 secured therein by the wrist-pin 11. Upon the side of the piston adjacent to the inlet-port is a recess 12, within which is a plate 13, having lips 14 at either end, which abut against the inner edges of the inside piston-rings 9, and between the back of said plate and the bottom of said recess are a plurality of springs 15, which exert an outward pressure upon the plate.

In operation the plate 13 is held against the interior of the cylinder by the springs 15 and provides a cover for the inlet-port 5 during the full movement of the piston, and thus effectually closes the said inlet-port irrespective of the dimensions of the piston and of the amount of space that may lie between the exterior of said piston and the bore of said cylinder.

There are minor changes and alterations that can be made within my invention aside from those herein shown and described, and I would therefore have it understood that I do not limit myself to the exact construction herein shown and described, but claim all that falls fairly within the spirit and scope of my invention.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a cylinder having a port therein; of a reciprocating trunk-piston overrunning said port and having a spring-pressed plate mounted in the same side thereof as said port, said plate extending lengthwise of said piston and controlling said port, substantially as described.

2. The combination with a cylinder having a port therein; of a reciprocating trunk-piston overrunning said port and having a recess extending lengthwise therein upon the same side as said port; a plate within said recess; and means, as springs, within said recess engaging the said plate for holding the same against the interior of said cylinder, the said

platê controlling said port during the reciprocation of said piston, substantially as described.

5 3. The combination with a cylinder 1 having a port therein; of a reciprocating piston 7 provided with a lengthwise recess 12 upon the same side thereof as said port; a yielding plate 13 within said recess adapted to cover and uncover said port during the reciprocation of

said piston; and springs 15 bearing against said plate, all constructed and operating substantially as described.

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

EDWIN E. BALDWIN.

Witnesses:

GEORGE E. HALL,

WALLACE S. MOYLE.