

No. 640,667.

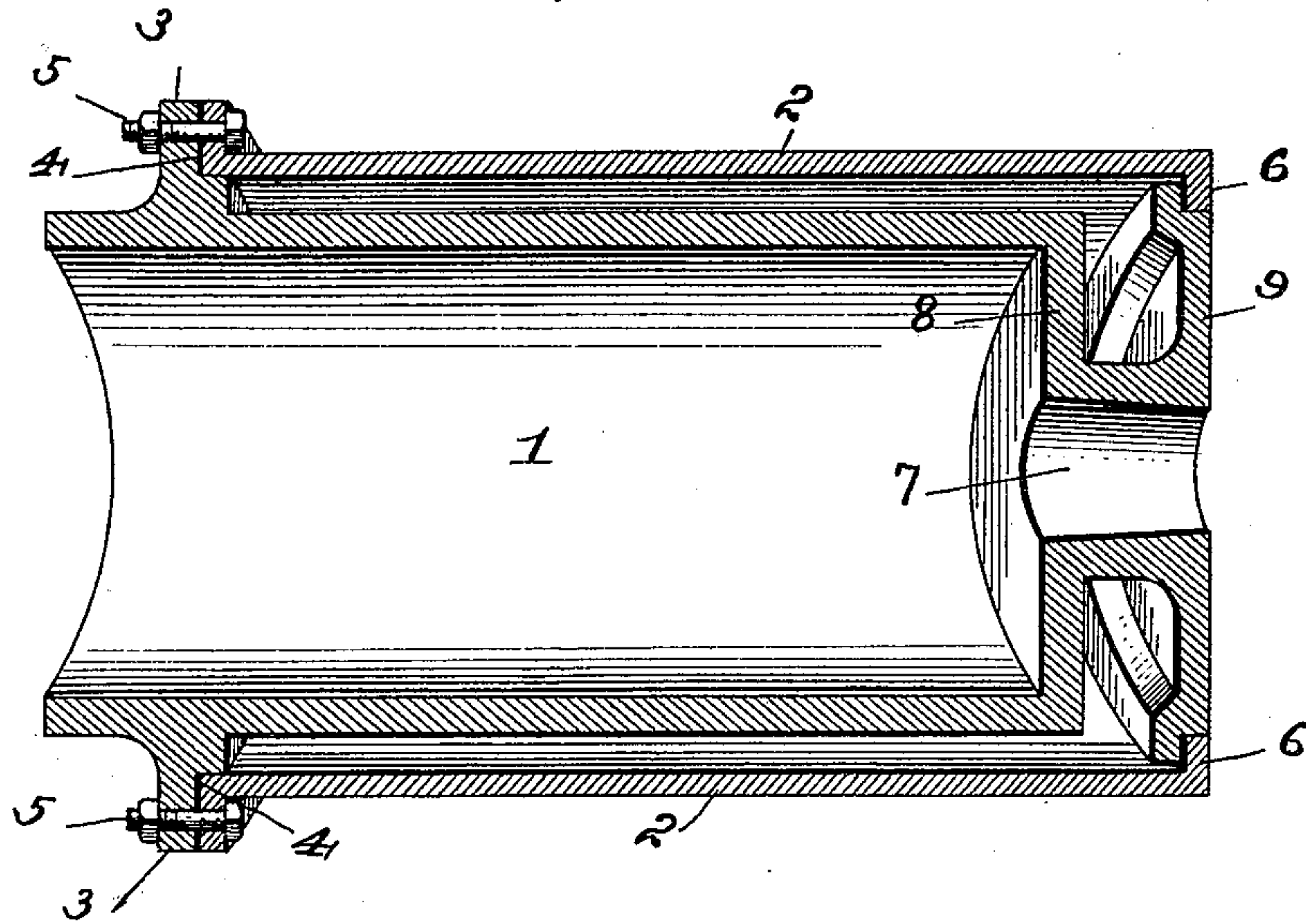
Patented Jan. 2, 1900.

J. W. LAMBERT.  
GAS ENGINE CYLINDER.

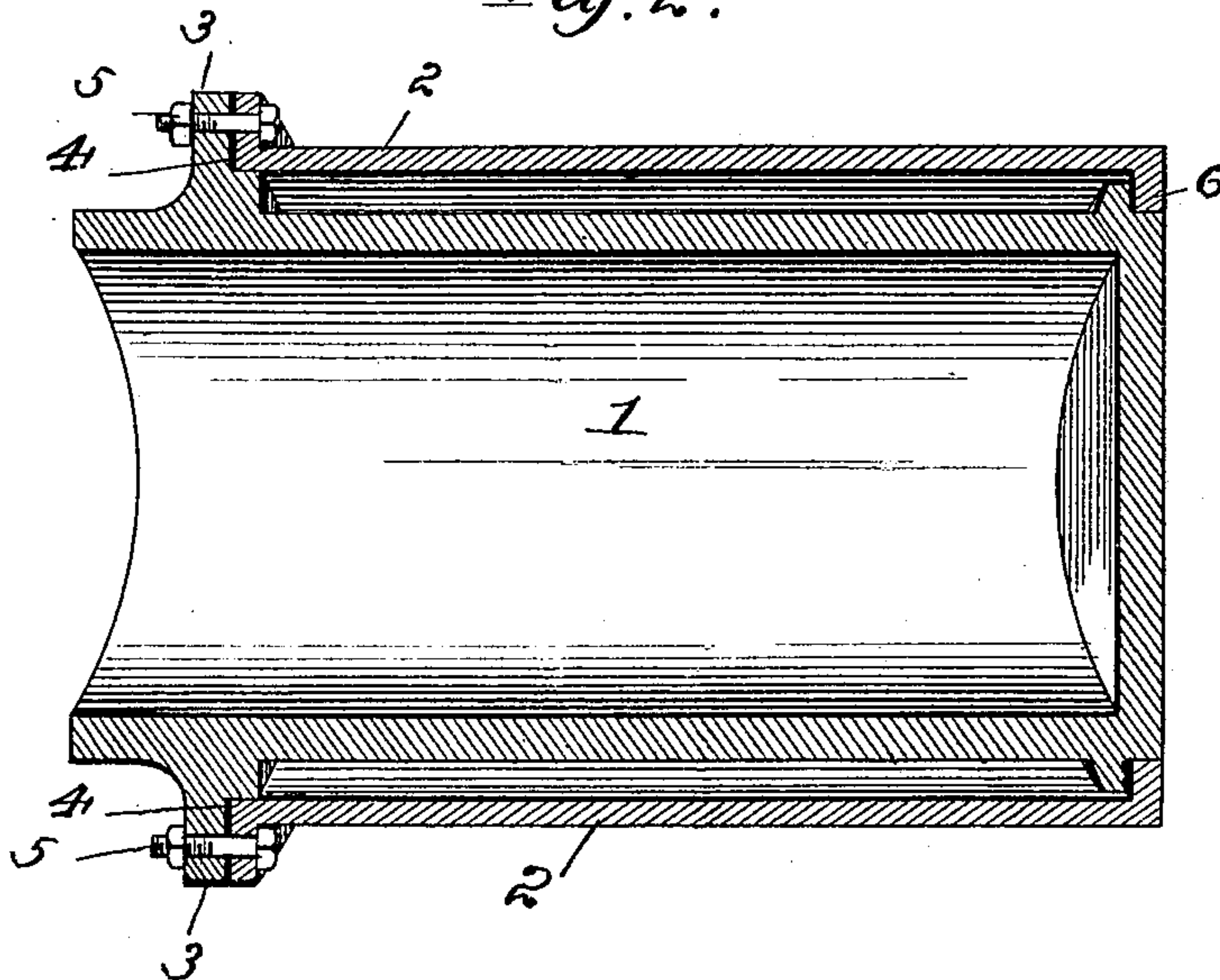
(Application filed May 13, 1900.)

(No Model.)

*Fig. 1.*



*Fig. 2.*



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## GAS-ENGINE CYLINDER.

SPECIFICATION forming part of Letters Patent No. 640,667, dated January 2, 1900.

Application filed May 13, 1899. Serial No. 716,736. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. LAMBERT, a citizen of the United States, and a resident of Anderson, county of Madison, State of Indiana, have invented certain new and useful Improvements in Gas-Engine Cylinders, of which the following is a specification, reference being had therein to the accompanying drawings, in which—

10 Figures 1 and 2 respectively represent longitudinal perspective views of the two preferred forms of my present invention.

This invention has particular reference to that class of gas-engine cylinders covered by 15 my patent of December 3, 1895, No. 550,832, in which provision is made for the removal of the head of the water-jacket independently of the cylinder proper and its sparker-plate, whereby the necessity of packing the jacket-head against explosive pressure is avoided, 20 the lime incrustation may be readily removed without disturbing the other parts of the cylinder or engine, and the end of the cylinder in which the explosion takes place is more effectively cooled; and the invention consists of 25 certain novel features hereinafter described, and particularly pointed out in the claims.

Referring to the drawings by numerals, 1 designates the cylinder proper, and 2 the water-jacket enveloping the same. Near the 30 open end of the cylinder it is provided with an exterior integral flange 3, extending entirely around the cylinder and rabbeted on its inner face, as at 4. The forward end of the jacket 35 has an outward-extending annular flange which fits into the rabbet 4, suitable bolts 5 being employed to clamp the jacket in place. The rear end of the jacket is provided with an inward-extending annular flange 6, which 40 rests in an exterior rabbet or groove formed in the outer edge of the head of the cylinder, the rear end of the jacket coming flush with the cylinder-head. In Fig. 1 the cylinder is provided with a sparker-passage 7, centrally 45 through its head, the head of the cylinder being double-walled, the inner wall 8 being connected to the outer wall 9 by the tube which forms said sparker-passage, and the walls of the head and the connecting-tube 50 being integral with each other and the main part of the cylinder. This construction is

advantageous in that it provides for cooling the cylinder thoroughly around the sparker-passage, where the cooling effect is most needed, and, further, in that it is at the same 55 time easily manufactured. The essential feature of the invention, however, lies in the arrangement of the jacket. It will be observed that a jacket of this construction may be fastened securely in place by but a single 60 series of bolts used at the open end, leaving the rear end entirely free of bolt-holes and bolts, which is desirable not only on the score of economy, but also because of neatness and simplicity of appearance. It will also be ob- 65 served that the removal of the entire jacket may be readily accomplished without disturbing the sparker devices, whereby the entire inner surface of the walls of the water-chamber may be readily gotten at for the purpose 70 of removing the lime deposit that forms when hard water is used as the cooling medium, and it will be observed that these desirable results are accomplished without being required to pack the joints against anything 75 but the water-pressure, which is so slight as to require but an exceedingly light packing. It will also be observed that the inward-turned flange at the rear end of the jacket is comparatively narrow, the drawings showing 80 it terminating about in the plane of the exterior of the cylinder, the flange on the cylinder-head extending outward but slightly beyond the plane of said exterior wall of the cylinder. The object of this is to obtain the 85 maximum of rigidity and strength with the lightest possible jacket, it being evident that were the flange 6 made deeper or wider the jacket would have to be of heavier metal in order to stand the strain incident to clamping 90 it in place from the rear end of the cylinder.

In Fig. 2 the head of the cylinder is single-walled, the sparker-opening being formed preferably at some point along the side of the cylinder. 95

I claim—

1. In a gas-engine cylinder, the combination of a cylinder proper having an exterior flange at its forward end and a rabbet at its rear closed end, and a removable water-jacket en- 100 tirely encircling the cylinder and having its forward end bolted against said exterior



flange and its rear flanged end engaging said rabbet, as and for the purposes set forth.

2. In a gas-engine cylinder, the combination of a cylinder, having an exterior annular flange at its rear end and an exterior flange at its forward end, and a removable jacket encircling the cylinder between said flanges, said jacket having an outward-turned flange at its forward end engaging the forward flange of the cylinder and an inward-turned flange at its rear end engaging the rear flange of the cylinder, and a series of bolts clamping the two forward flanges together, as and for the purposes set forth.

3. In combination with a gas-engine cylinder having an exterior annular flange at its open end and a double-walled head at its

rear end, the two walls being connected by a spark-tube and the outer wall being flanged at its outer edge, the whole being formed integral, and a water-jacket entirely inclosing the cylinder and clamped at its forward end to the forward flange thereon, said water-jacket having an inward-turned flange on its rear end engaging the flange on the outer wall of the cylinder-head.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 1st day of May, 1899.

JOHN W. LAMBERT.

Witnesses:

G. S. KING,

G. H. LOCKWOOD.