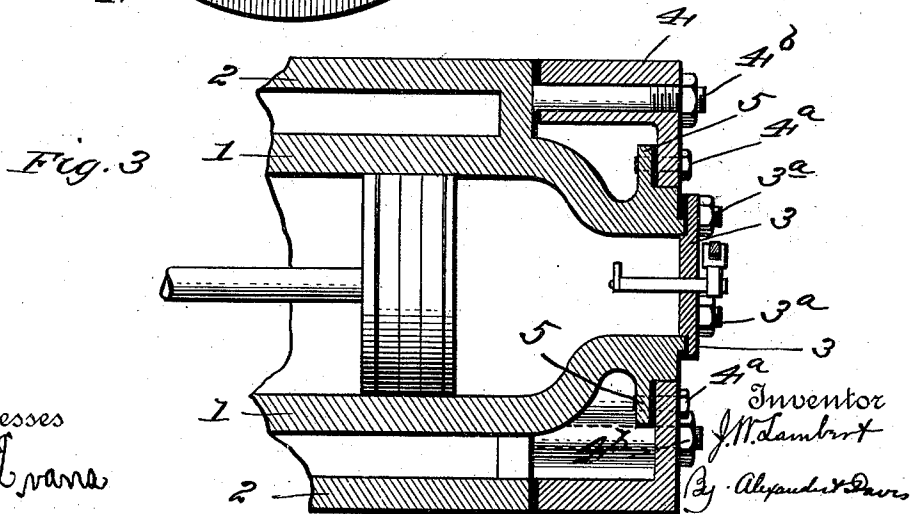
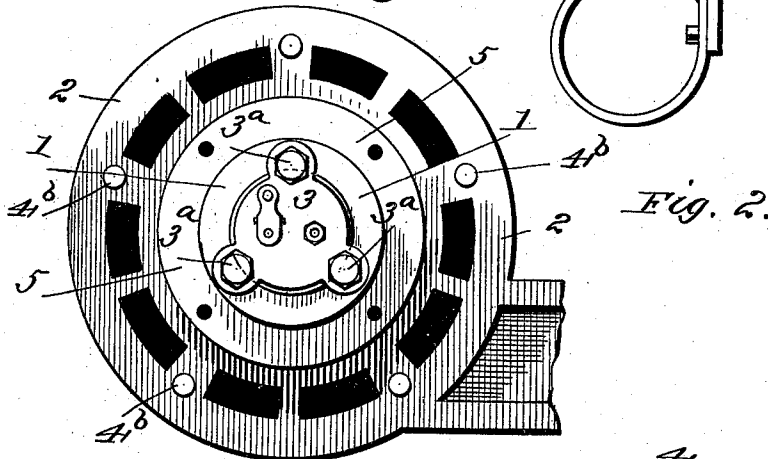
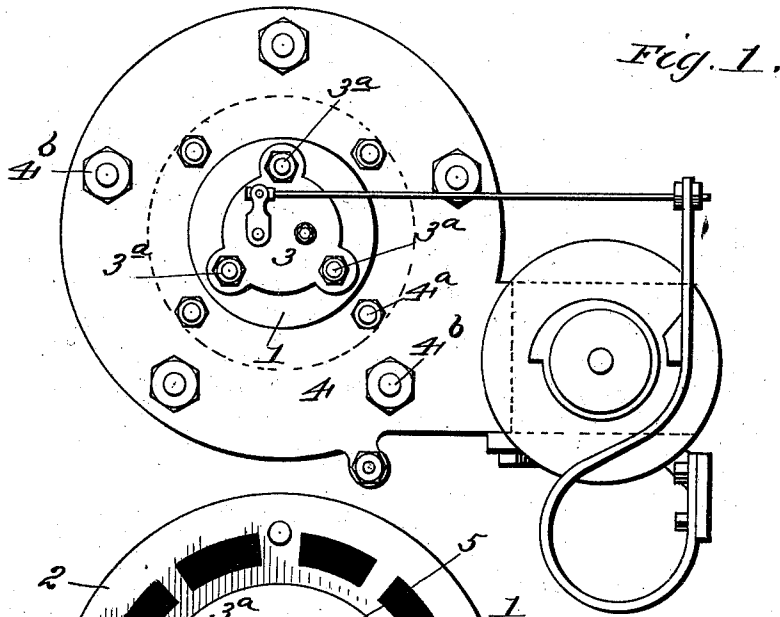


(No Model.)

J. W. LAMBERT.
GAS ENGINE.

No. 550,832.

Patented Dec. 3, 1895.



Witnesses
J. K. Evans
Chas. A. Murphy

Inventor
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UNITED STATES PATENT OFFICE.

JOHN W. LAMBERT, OF ANDERSON, INDIANA.

GAS-ENGINE.

SPECIFICATION forming part of Letters Patent No. 550,832, dated December 3, 1895.

Application filed August 24, 1895. Serial No. 560,414. (No model.)

To all whom it may concern:

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

10 This invention relates to improvements upon that class of gas-engines in which each charge of gas is ignited by an electric spark and in which the cylinder is cooled by means of a water-jacket surrounding the same; and
15 the objects of the invention are, first, to more effectively cool the end of the cylinder in which the explosion takes place; secondly, to enable the lime deposited by the water to be more readily removed from the interior of
20 the water-space and without disturbing the cylinder head or plate carrying the sparker, and, thirdly, to avoid the necessity of packing the main head or ring against the explosion pressure, as more fully hereinafter set
25 forth.

Referring to the drawings, Figure 1 is an end elevation of a portion of a gas-engine provided with my improvements; Fig. 2, an end elevation of the cylinder with the main head
30 removed, and Fig. 3 a vertical section of the end of the cylinder provided with my improvements.

Referring to the drawings by numerals, 1 designates the cylinder proper in which the
35 piston works and which is contracted at its extreme rear end to form the explosion-chamber. Cast integral with the cylinder is the water-jacket 2, whose rear end terminates about where the cylinder begins to contract.
40 Bolted over the open end of the cylinder by bolts 3^a is the plate 3, carrying the sparking devices, this plate being packed against the explosion-pressure. A hollow head or ring 4
45 is fitted over and encircles the projecting end of the cylinder and is substantially flush with the end surface of the same. This hollow head is bolted by bolts 4^a to an annular exterior flange 5, formed on the cylinder near
50 its end, and also by bolts 4^b against the adjacent end of the water-jacket, these two joints being packed against the water-pressure only. This hollow head practically is an extension

of the water-jacket, as it completes and extends the water-chamber around the projecting end of the cylinder.

It will be observed that by this construction it is not necessary to pack the head 4 against the explosion-pressure, it needing only to be packed against the water-pressure. The advantage of this feature will be appreciated
60 when it is understood that the water-pressure is never more than one pound to the inch, while the explosion-pressure is frequently as high as two hundred and fifty pounds to the
65 inch.

It will also be seen that by removing the hollow head access may be readily had to the interior walls of the water-chamber, and especially the projecting end of the cylinder, for the purpose of removing the lime accumulations.

Another advantage is that a large body of water will be maintained entirely around the explosion-chamber, where, on account of the intense heat, it is most needed.

As is obvious, changes in construction may be made without departing from the spirit of the invention. For instance, the rear end of the cylinder may be closed by a solid plate cast with the cylinder or by a plug screwed
80 or otherwise fastened therein, and, further, that the sparker may be located at some other place, if desired.

Having thus fully described my invention, what I claim is—

1. In a gas engine, the combination of the cylinder provided with a water jacket, a sparker-carrying plate bolted over the end of the cylinder, and a head encircling the end of the cylinder and bolted and packed against
90 the cylinder and the adjacent end of the water jacket, substantially as described.

2. The combination, in a gas engine, of a cylinder carrying a water jacket, said jacket terminating short of the rear end of the cylinder, the projecting end of the cylinder being flanged annularly, a plate bolted over the projecting end of the cylinder and carrying the igniter, and a hollow head encircling the projecting end of the cylinder and bolted to
100 said annular flange and against the end of the water jacket, as and for the purposes set forth.

3. In a gas engine, the combination of a cylinder having formed integral with it a water

jacket, said jacket terminating short of the rear end of the cylinder, the projecting end of the cylinder being contracted and provided with an annular flange near its end, an igniter-carrying plate bolted over the end of the cylinder, and a hollow head fitting over the end of the cylinder and packed against said annular flange and the adjacent end of the water jacket, as and for the purposes set forth.

10 4. In a gas engine, the combination of a cylinder surrounded by a water jacket, this water jacket being open at its rear end, a hollow

head encircling the rear end of the cylinder and packed against the same and the water jacket and being removable independently of said rear end of the cylinder and the jacket, substantially as described.

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

JOHN W. LAMBERT.

Witnesses:

F. L. MARSHALL,
H. E. LONGENECKER.