

E. B. PARKHURST.
WATER JACKET FOR ENGINE CYLINDERS.
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952,576.

Patented Mar. 22, 1910.

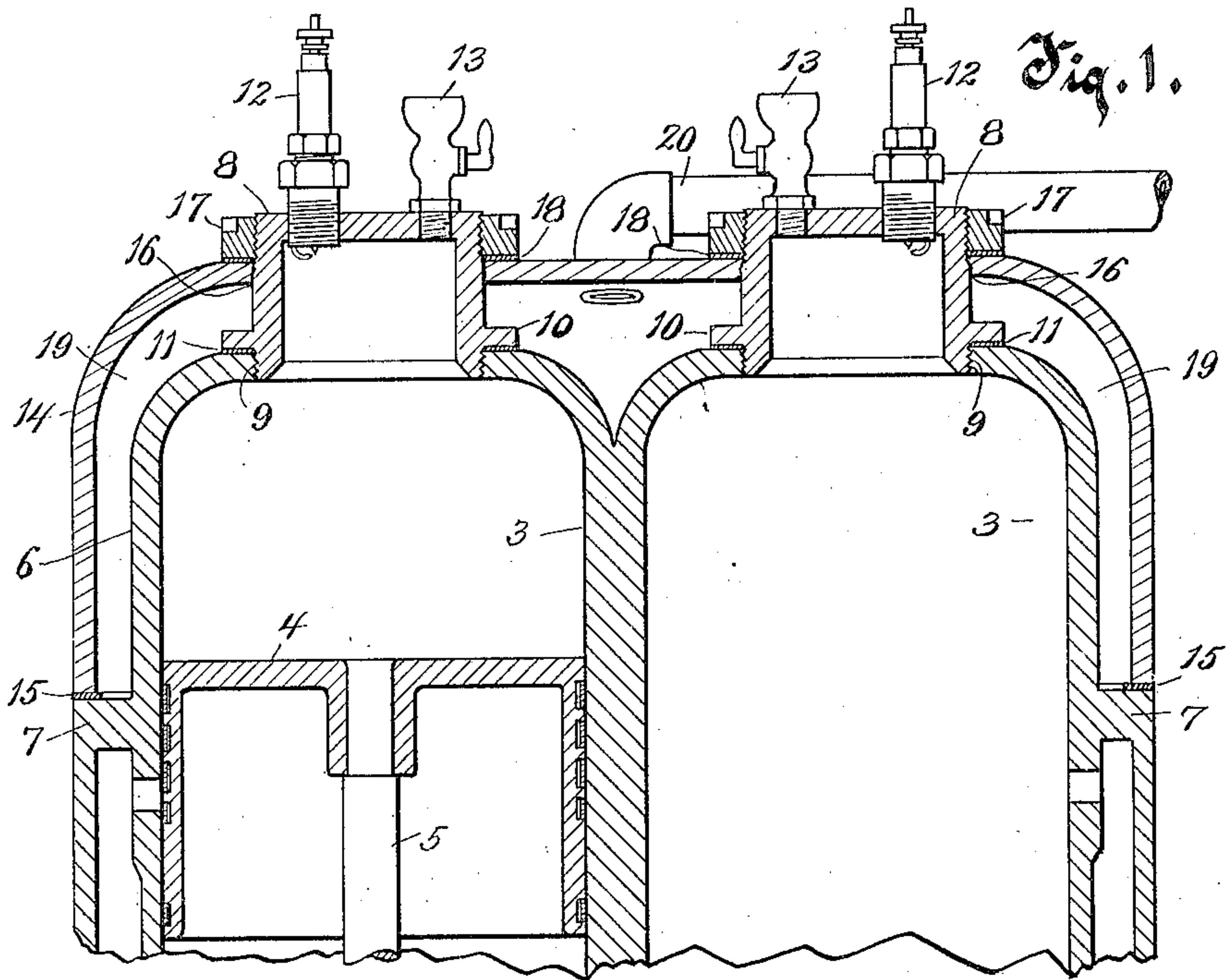
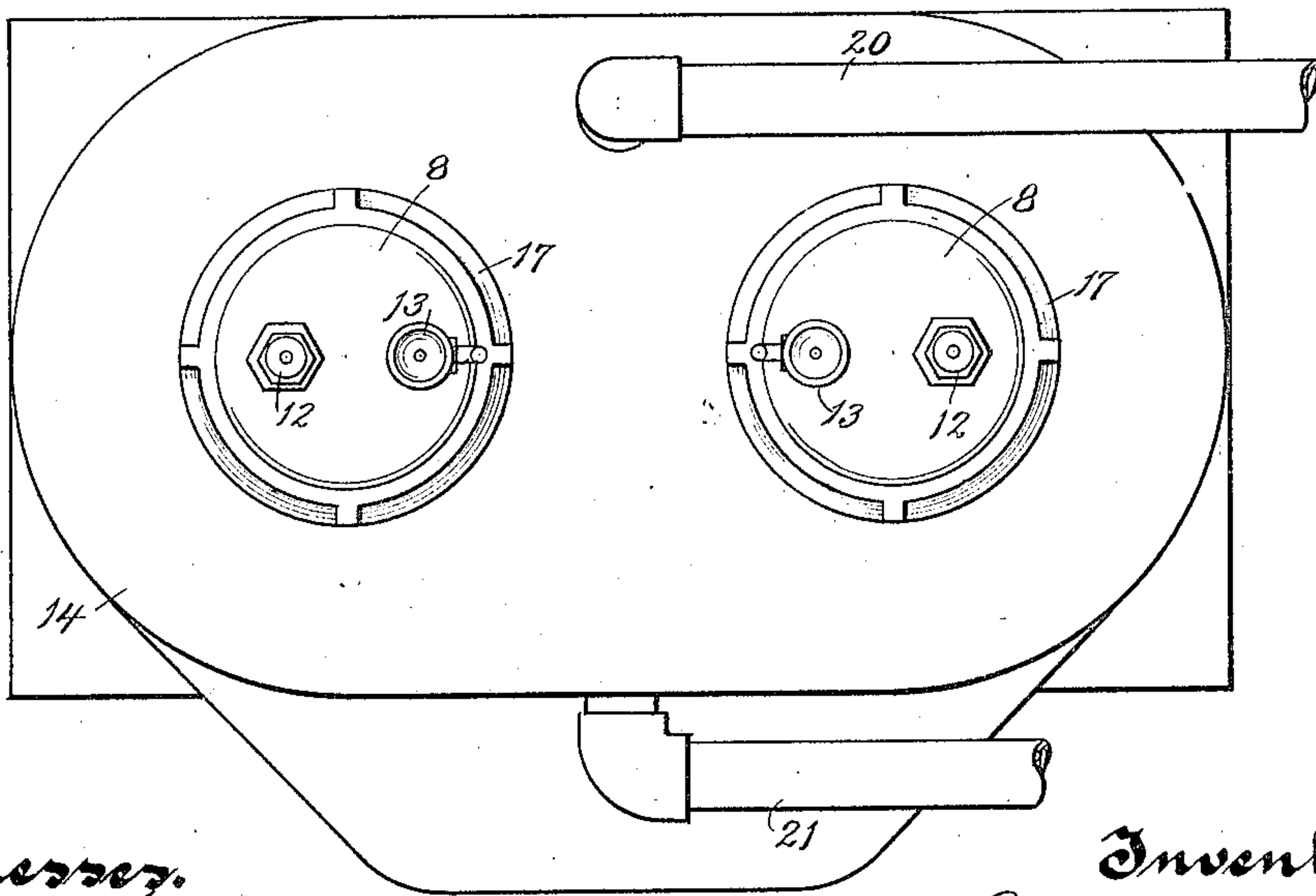


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

EDWARD B. PARKHURST, OF MOLINE, ILLINOIS.

WATER-JACKET FOR ENGINE-CYLINDERS.

952,576.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed May 1, 1907. Serial No. 371,340.

To all whom it may concern:

Be it known that I, EDWARD B. PARKHURST, residing in Moline, in the county of Rock Island and State of Illinois, have invented new and useful Improvements in Water-Jackets for Engine-Cylinders, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in water jackets for engine cylinders, more especially intended, although not necessarily, as a water jacket for the cylinders of an explosive engine.

It is the primary object of my invention to provide an improved form of water jacket, cast separate from the cylinder, or separate from a plurality of cylinders, and when adjusted forming a cooling chamber around the sides of the cylinder or cylinders and around the explosive ends thereof, in combination with the cylinder head or heads, and means for readily detaching said jacket and cylinder head or heads with the expenditure of the slightest possible trouble and loss of time.

With the above primary object, and other incidental objects, in view, the invention consists of the devices and parts, or the equivalents thereof, as hereinafter more fully set forth.

In the drawings, Figure 1 is a vertical, sectional view through a fragment of the cylinders of a two cylinder explosive engine, showing clearly my invention in connection therewith; and Fig. 2 is a plan view of the construction illustrated in Fig. 1.

Referring to the drawings, the numerals 3, 3 indicate the engine cylinders. In one of these cylinders is shown the usual piston 4, and the piston rod 5 extending therefrom. The other cylinder, of course, is likewise provided with a similar piston and piston rod (not shown). The water jacket is applied around the explosive ends of the cylinders, and the wall 6 of said explosive ends is provided therearound with a ledge 7. The cylinder heads 8, 8 are in the form of inverted cups having their lower ends threaded to adapt them to be screwed into threaded openings 9, 9 in the tops of the cylinders. These cylinder heads are provided with flanges 10, 10, located a short distance above their lower ends, and these flanges

when the heads are turned into the threaded openings, are adapted to be brought firmly against the tops of the cylinders, packings 11, 11 being preferably interposed between the tops of the cylinders and the under sides of said flanges.

The top of each cylinder head is provided with two threaded openings into which are adapted to be screwed the usual spark plug 12 and relief cock 13. The shell 14 is preferably of aluminum, and in conjunction with the wall which incloses the explosive ends of the cylinders, forms the water jacket. This shell is cast separate from said wall of the water jacket and is so shaped as to form a top portion and a depending portion, the lower end of the latter fitting on the ledge 7, with a packing 15 preferably fitted between the two. The upper portion of the water jacket shell is provided with two openings 16, 16 through which the cylinder heads extend. The upper ends of the cylinder heads above the upper portion of the water jacket shell are threaded to take thereon lock nuts 17, 17 which are turned down tightly against the upper portion of the shell, and preferably against packings 18, 18.

The water jacket shell, it will be seen, is so shaped as to leave a water space 19 between its inner side and the outer side of the wall forming the cylinders, a water inlet pipe 20 leading to the upper portion of this space and a water outlet pipe 21 leading from one side of the water jacket.

In order to adapt my invention to an engine having more than two cylinders, all that will be required will be to enlarge the size of said shell, and provide additional openings for the extra cylinder heads.

From the foregoing description, it is thought that the construction and operation of my invention will be readily understood.

It will be seen that the construction is such that the entire shell is held firmly in place by simply employing lock nuts, which, in connection with the cylinder heads, serve to bind the shell firmly to the wall of the cylinder, and at the same time permit of the ready removal of the shell and cylinder heads whenever desired for cleaning purposes, or for any other purpose.

While I have hereinbefore set forth that the cooling chamber is adapted to receive water therein as the cooling medium, yet

it will be understood that any other desired cooling fluid may be introduced into the chamber and discharged therefrom.

What I claim as my invention is:

5 1. The combination with the outer wall of an engine cylinder, said wall provided there-
around with an outstanding ledge, a cyl-
der head having its inner end screw-thread-
ed and engaging a threaded opening in the
10 explosive end of the wall of the engine, and
said head provided with an outstanding
flange adapted, when the head is turned into
the opening in the end of the cylinder wall,
to be brought into contact with said end of
15 the wall, an outer shell surrounding the cyl-
inder wall at the explosive end thereof, and
cast separate from the wall, and spaced a
desired distance therefrom to form a cooling
chamber, the inner end of said shell bearing
20 on but unconnected to the outstanding ledge
of the cylinder wall, and the outer end of
the shell being in the form of a dome spaced
a distance from the end of the cylinder wall,
and thereby forming a continuation of the
25 cooling chamber over the end of said wall,
the said end of the shell provided with an
opening through which the cylinder head
passes, a nut turned on to the outer thread-
ed end of the head and against the end of
30 the shell, and an inlet pipe for the cooling
medium, said pipe leading into the cooling
chamber.

2. The combination with a wall parti-
tioned to form a plurality of cylinders, said

wall provided therearound with an out- 35
standing ledge, cylinder heads having their
inner ends screw-threaded and engaging
threaded openings in the explosive ends of
the wall of the engine cylinders, and said
heads provided with outstanding flanges 40
adapted, when the heads are turned into the
openings in the ends of the cylinder walls,
to be brought into contact with said ends of
the cylinder walls, an outer shell surround-
ing the wall forming the cylinders at the 45
explosive ends of the cylinders, and cast
separate from said wall, and spaced a de-
sired distance therefrom to form a cooling
chamber, the inner end of said shell bearing
against but unconnected to the outstanding 50
ledge of the cylinder walls, and the outer
end of the shell being in the form of a dome
spaced a distance from the ends of the cyl-
inder walls, and thereby forming a contin-
uation of the cooling chamber over said ends 55
of the walls, the said end of the shell pro-
vided with openings through which the cyl-
inder heads pass, nuts turned on to the outer
threaded ends of the heads and against the
end of the shell, and inlet pipes for the cool- 60
ing medium, said pipes leading into the cool-
ing chamber.

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

EDWARD B. PARKHURST.

Witnesses:

GEO. A. TOWNSEND, Jr..

MARTIN N. JOHNSON.