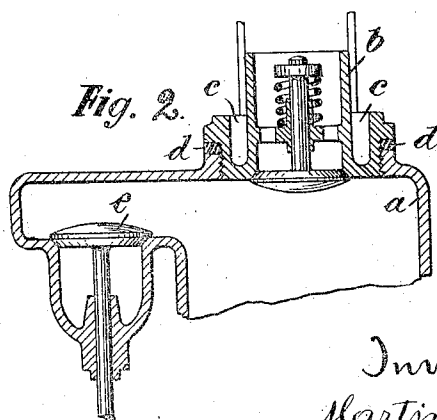
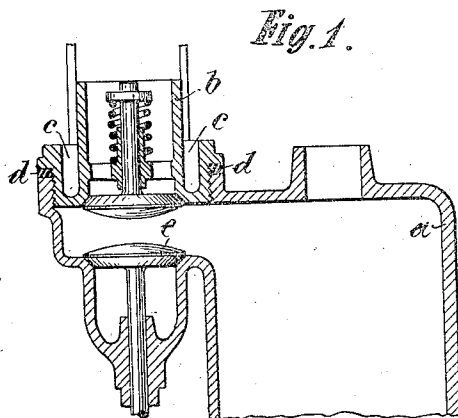


No. 868,978.

PATENTED OCT. 22, 1907.

M. FISCHER.
EXPLOSIVE ENGINE.
APPLICATION FILED FEB. 27, 1906.



Witnesses:
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UNITED STATES PATENT OFFICE.

MARTIN FISCHER, OF ZURICH, SWITZERLAND.

EXPLOSIVE-ENGINE.

No. 868,978.

Specification of Letters Patent.

Patented Oct. 22, 1907.

Application filed February 27, 1906. Serial No. 303,222.

To all whom it may concern:

Be it known that I, MARTIN FISCHER, a citizen of Switzerland, residing at Zurich, Switzerland, have invented new and useful Improvements in Explosive-Engines, of which the following is a specification.

My invention pertains to explosive engines, and more particularly to means for keeping cool the driving medium for such engines.

Owing to the explosions that take place in the interior of the working cylinders of explosive engines, not only do the walls of the cylinders become highly heated, but likewise the adjacent casings and the pipes that convey the driving medium thereto, and that usually are made of heat conducting material.

In order to attain the maximum efficiency of the motor, it is necessary to keep the driving medium conveyed into the working cylinders (especially in the case of motor cars) as cool and therefore as dense as possible up to the moment of use. To accomplish this object, hitherto, certain cooling devices have been used by means of which constantly fresh air is thrust against the pipes that convey the driving medium.

My invention essentially differs from such devices in that it consists in providing the valve casing at its outside with a deep annular groove adapted to contain fresh air, that in circulating around the casing will constantly cool the latter, and thus keep the same and the supply pipe isolated from the highly heated walls of the working cylinders and prevent them from being affected by the heat created by the explosions that take place within the working cylinders.

In order to make my invention more clear, the same is illustrated in the accompanying drawing in which similar reference letters denote corresponding parts and in which

Figure 1 illustrates the valve casing provided with an annular groove; and Fig. 2 a similar view as Fig. 1 showing the arrangement of the valve centrally of the piston chamber.

With reference to the drawing, and particularly to Fig. 1, *a* denotes the working cylinder to which the valve casing *b* is secured. The latter is provided with a deep annular groove *c* adapted to contain fresh air to circulate around the casing *b* and to constantly cool the latter, and thus practically isolate it from the highly

heated walls of the working cylinder. Owing to this, the valve casing as well as the pipe conveying the driving medium will remain unaffected by the heat created in the working cylinder.

In addition to the cooling of the valve casing by the circulation of fresh air a gasket *d* of material which is a bad conductor of heat is arranged between the adjoining surfaces of the valve casing and the working cylinder.

For the purpose of increasing the cooling effect the driving medium may be fed to the working cylinders in such manner that on entering the latter it does not come in contact with, *i. e.* it does not flow past, the heated exhaust casings and valves. To accomplish this, the isolated suction valve casings are located centrally above the piston chambers of the working cylinders so that the driving medium is fed directly into the piston chambers instead of flowing past the exhaust casings. This arrangement is illustrated in Fig. 2, in which the suction valve casing *b* is shown as located centrally on top of the cylinder *a*. The valve casing may, as in the construction illustrated in Fig. 1, be provided with the air groove *c* and the gasket *d*.

What I claim and desire to secure by Letters Patent is:

1. In an explosive engine, the combination with the working cylinder, of an admission valve, a casing therefor, the said casing having on its outside a deep annular groove to constantly hold fresh air circulating around the said casing and cooling the latter, and a gasket, of material which is a bad conductor of heat, arranged between the adjoining surfaces of the said valve casing and the working cylinder for isolating the same from one another, substantially as and for the purpose specified.

2. In an explosive engine, the combination with the working cylinder, of an admission valve mounted on the working cylinder centrally above the piston chambers, a casing therefor, said casing having, on its outside, a deep annular groove to constantly hold fresh air circulating around said casing and cooling the latter, and a gasket, of material which is a bad conductor of heat, arranged between the adjoining surfaces of said valve casing and the working cylinder, substantially as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MARTIN FISCHER.

Witnesses:

PAUL VORBRÖDT,
A. LIEBECKNECHT.