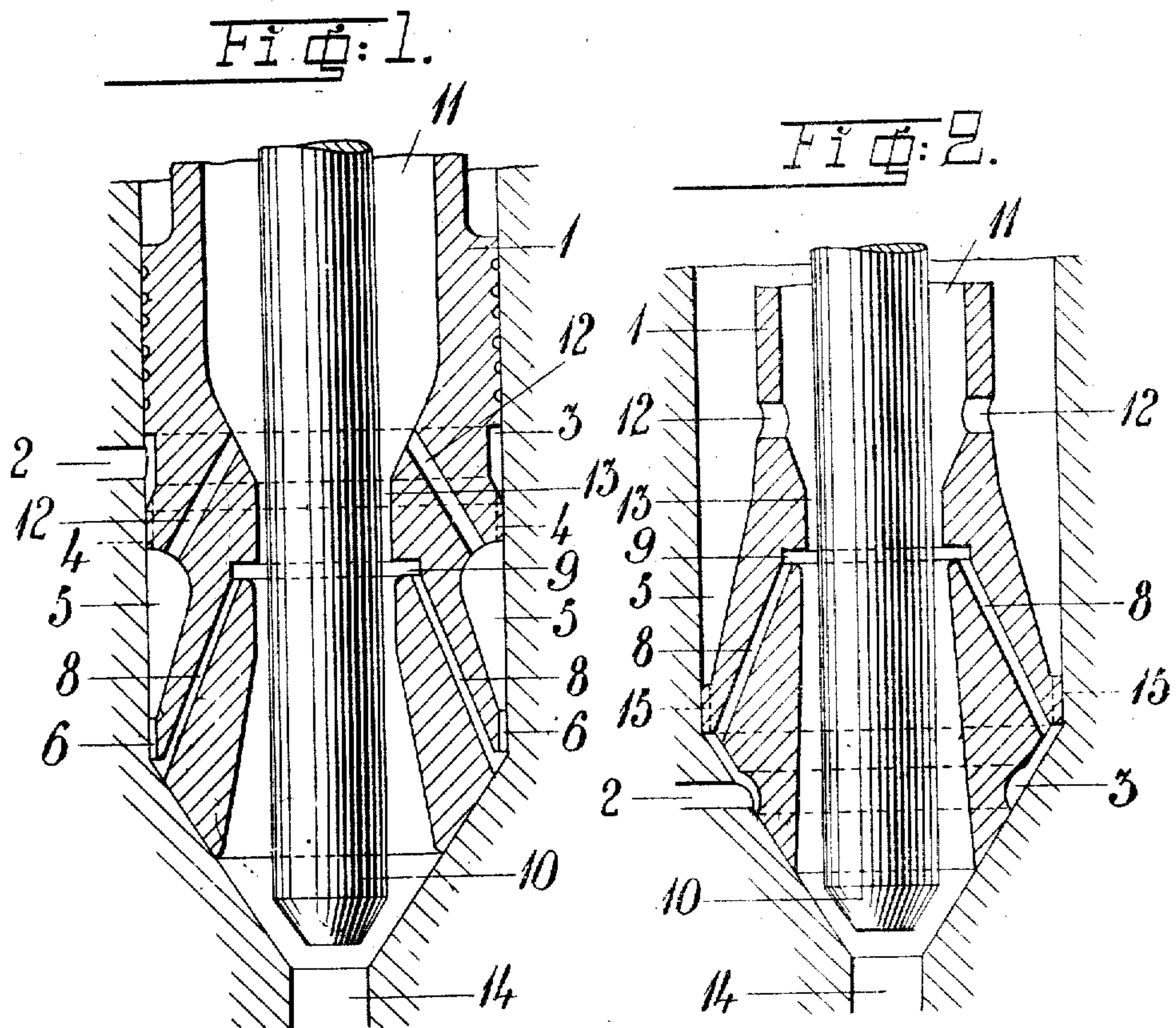


K. J. E. HESSELMAN.
 VAPORIZER FOR INTERNAL COMBUSTION ENGINES.
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910,534.

Patented Jan. 26, 1909.



Witnesses.
 W. C. Healy
 J. J. Sheehy.

Inventor.
 K. J. E. Hesselman.
 by James Sheehy
 Attorney.

UNITED STATES PATENT OFFICE.

KNUT JONAS ELIAS HESSELMAN, OF STOCKHOLM, SWEDEN.

VAPORIZER FOR INTERNAL-COMBUSTION ENGINES.

No. 910,534.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, KNUT JONAS ELIAS HESSELMAN, a citizen of the Kingdom of Sweden, residing at Stockholm, Sweden, have invented new and useful Improvements in Vaporizers for Internal-Combustion Engines, of which the following is a specification.

This invention relates to improvements in vaporizers for internal combustion engines where the liquid fuel is introduced into the combustion chamber or chambers of the engine by means of a gaseous agent under pressure, for instance compressed air, and more especially to such vaporizers which have a fuel supply channel communicating by means of one or more ports with an oil chamber which is arranged below the said fuel supply channel and from which the fuel is forced into the engine by means of the said gaseous agent under pressure.

In order to make my invention fully understood it is necessary to give a short description of the said class of vaporizers, and for this purpose I have shown in the accompanying drawing both the old and the new construction of the vaporizer.

Figure 1 shows the old construction in longitudinal section and Fig. 2 shows a similar view of my improved vaporizer.

Referring to Fig. 1, the vaporizer consists of a substantially cylindrical body 1 having its lower end of conical shape and being inserted in a corresponding opening in the head of the working cylinder of the engine. The fuel or oil is supplied into the vaporizer through the channel 2 communicating with an annular groove or fuel supply channel 3 which by means of ports 4 (shown by the dotted lines) is in connection with an oil-chamber 5 communicating by ports 6 with channels 8 extending to an annular groove 9. Through the body 1 is inserted a valve-body 10 around which is a passage of annular cross-section for the compressed air (or gas). The uppermost portion 11 of said channel is comparatively wide and communicates by means of channels 12 with the oil-chamber 5. Below the portion 11 of the said passage is a narrow portion 13 extending downwards to the annular groove 9. Below the latter the passage is again wider and communicates at the lower end with an inlet channel 14 which is normally closed by the valve 10. The vaporizer now described works as follows: The fuel is by the fuel-pump forced through the channel 2 into the

annular groove or supply channel 3 and therefrom into the oil-chamber 5 through the ports 4, the latter being very fine in order to prevent the oil from flowing down by itself into the oil-chamber and in order to cause a uniform distribution of the oil. When the valve 10 is opened, the air (or gas) rushes through the passage around the valve and through the inlet-passage 14. Inasmuch as the said passage is wider below the groove 9 than above the latter a reduction of the air-pressure will arise below the said groove on account of which a part of the air will flow through the channels 12 into the oil-chamber and force the oil contained therein through the ports 6 and channels 8 into the passage around the valve, whereupon the fuel finely distributed will be carried with the air into the combustion chamber of the engine. The disadvantages of the vaporizer described above are the following: It is necessary to provide above the supply channel 3 a tight fit in order to prevent the oil from coming into the passage around the valve over the upper end of the body 1. It is, however, very difficult both to make and maintain such tight fit. Further the channels 4, as already mentioned, must be very fine which in using only one fuel-pump for a plurality of cylinders easily causes ununiformity of the supply of fuel to the same. Finally when the engine is slightly loaded i. e. when only small quantities of fuel are supplied to the same, the fuel after having passed through the ports 4 adheres to the walls of the oil-chamber 5 and does not reach the bottom of the same on account whereof the fuel is not carried with the air in a reliable manner. All the said disadvantages are removed by the present invention according to which the oil-supply channel 3 is placed below the oil-chamber instead of above the same as heretofore.

A vaporizer constructed in accordance with my present invention is shown in Fig. 2.

The figures 1, 2, 3, 5, 8, 9, 10, 11, 12, 13 and 14 indicate the same details as in Fig. 1. The oil-supply-channel 3, which is placed below the oil-chamber 5, communicates with the latter by means of ports 15 which may be comparatively wide, inasmuch as the fuel flows upwards in the same when driven by the pump. The ports 15 therefore cannot have any influence on the distribution of the fuel in a plurality of cylinders. The tight fit above the oil-chamber otherwise necessary

can be dispensed with. Inasmuch as the fuel is supplied into the oil-chamber from below, it will always keep itself at the bottom of said chamber and consequently be carried with the air in a reliable manner. The working of the new vaporizer is substantially the same as that of the vaporizer shown in Fig. 1. When the valve 10 is opened a part of the air rushes through the oil-chamber 5, the ports 15 and the channels 8 carrying with it the fuel contained in the oil-chamber.

A further advantage of the vaporizer shown in Fig. 2 compared with that shown in Fig. 1 is that the costs of manufacturing and maintaining the same are much reduced on account of its simplified construction.

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

A vaporizer of the type described for internal combustion engines, comprising a body 1 having a passage for fluid under pressure and also having an oil chamber 5 and an oil-supply channel 3 communicating with said chamber and placed below the same, a cylinder portion having an opening receiving said body and also having an inlet channel 14 and a fuel supply channel 2, the latter in communication with the said channel 3, and a valve-body 10 disposed in the passage of the body 1.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

KNUT JONAS ELIAS HESSELMAN.

Witnesses:

EVARD DELMAR,
HILDNE HÅKANSON.