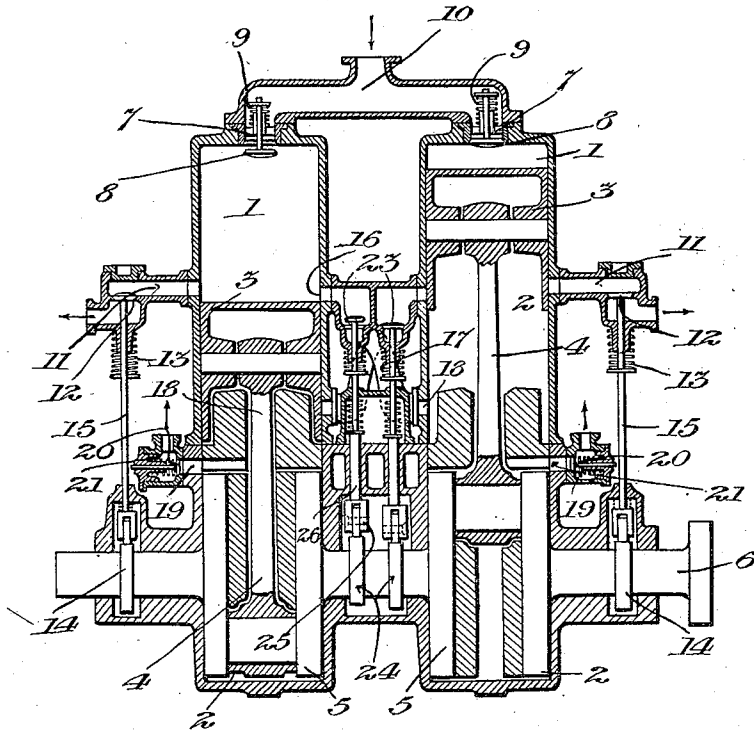


H. SCHEIT.  
TWO CYCLE EXPLOSION MOTOR.  
APPLICATION FILED JULY 10, 1907.

1,015,909.

Patented Jan. 30, 1912.



Witnesses  
*L. H. Latham*  
*J. W. [unclear]*

Inventor  
*Hermann Scheit*  
by  
*Stuart & Stuart*  
Attorneys

# UNITED STATES PATENT OFFICE.

HERMANN SCHEIT, OF DRESDEN-STREHLEN, GERMANY.

TWO-CYCLE EXPLOSION-MOTOR.

1,015,909.

Specification of Letters Patent.

Patented Jan. 30, 1912.

Application filed July 10, 1907. Serial No. 333,055.

*To all whom it may concern:*

Be it known that I, HERMANN SCHEIT, a subject of the Emperor of Germany, residing in Dresden-Strehlen, in the Empire of Germany, have invented certain new and useful Improvements in Two-Cycle Explosion-Motors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to multi-cylinder internal combustion engines and has as an object the production of such an engine in which the expulsion of the residue of combustion and the introduction of a fresh charge into each cylinder takes place by means of a reduction of pressure in the rear of the piston of another cylinder. In this way the thorough scavenging of the cylinder is secured.

Another advantage is that the combustible mixture does not enter the crank chamber before passing into the motor cylinder, with the result that the mixture is not contaminated with lubricating oil.

The drawing shows a vertical axial cross-section of a two-cylinder engine embodying my invention.

In each cylinder there is a combustion chamber 1 and a closed crank case 2. In each combustion chamber or cylinder 1 is a reciprocating piston 3, having a connecting rod 4, which is pivotally connected to a corresponding crank 5 of the main shaft 6. Each combustion chamber 1 has an inlet passage 7 controlled by an inlet valve 8, which is normally closed by means of a compression spring 9 of such strength as to yield to the difference between the pressure of the supply of combustible mixture in the inlet 10 and the pressure which exists in the combustion chamber after exhaust, as hereinafter described. For each combustion chamber there is an exhaust outlet 11, preferably opening out of the chamber near its forward end, so as to be uncovered by the piston at the end of the working stroke. In each exhaust passage 11, as shown, there is an exhaust valve 12, which is normally maintained closed by means of a spring 13. A cam 14 for each unit and cam rod 15 connected to the valve 12 operate to open the exhaust valves 12 at the proper intervals. These valves 12 and the ports 11 which they control will hereinafter be known as the main exhaust valves and ports. Each combustion chamber is also provided with a supplementary exhaust port 16, placed a little in advance of the main exhaust port so as to be uncovered by the corresponding piston just after the main port is uncovered. From the exhaust port 16 of each cylinder a passage 17 leads to an inlet or suction port 18 in the crank case or vacuum chamber 2 of the other unit. Each passage 17, as shown, is controlled by a valve 23, which is actuated by means of a cam 24 having a follower 25 and a follower rod 26. The combustion cylinders are cross-connected to the crank cases, but the crank cases, instead of serving to compress the charge as in the well-known cross-over engines, serve to clear the combustion chambers of burned gases by sucking the residue of the exploded charge therefrom. Each crank case or vacuum chamber 2 is provided with an outlet port 19, in which is a check valve 20 opening outward. These valves are maintained normally closed by compression springs 21.

In describing the operation of this engine it will be assumed that a compressed charge has been exploded in the lefthand combustion chamber and that expansion of the products of combustion has advanced the piston 3 so that the port 11 has been uncovered and the valve 12 has been opened to permit the escape of the burned gases until the pressure in the combustion chamber is reduced nearly to that of the atmosphere. Following this, the supplementary exhaust port 16 has been uncovered and the valve 12 closed. At the point of the stroke, illustrated in the drawing, which is subsequent to the closing of the main exhaust port 11, the valve 23 is open. As illustrated the righthand piston is compressing a charge in the combustion chamber, so that the space of the vacuum chamber 2 of the righthand cylinder which is available to receive gas is expanded and the residue of the burned charge is drawn therein. The suction due to connecting the combustion chamber 1 with the crank case 2 of the other unit reduces the pressure on the valve 8, causing it to open as shown and combustible mixture which is supplied from any suitable source to the passage 10 is drawn into the lefthand chamber.

The valve 23 is then closed. The piston 3 advances, the valve 8 is closed and the charge compressed ready for ignition. While the left-hand piston is advancing in the compression stroke the working stroke is taking place in the righthand cylinder.

I have thus described specifically an embodiment of my invention in order that its operation may be clearly understood. However, I do not limit myself to the exact details of the device disclosed.

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

1. In a two-cycle engine, a plurality of units, each having a cylinder and a crank case, an admission port, a main exhaust port and a supplementary exhaust port in each cylinder, a passage connecting the supplementary exhaust port of each cylinder with the crank case of another unit, means for controlling the admission port, means for opening and closing the main exhaust port, and means for opening and closing the supplementary exhaust port subsequently to the closing of the main exhaust port.

2. In a two-cycle engine, a plurality of units, each including a cylinder and a crank case, an admission port and a main exhaust

port in each cylinder, a supplementary exhaust port and passage connecting each cylinder to the crank case of another unit, means for controlling the admission port, means for opening and closing the main exhaust port, means for opening the supplementary exhaust port subsequently to the opening of the main exhaust port and for closing the supplementary exhaust port.

3. In a two cycle engine, a plurality of units, each having a cylinder and a crank case, an admission port, a main exhaust port in each cylinder, a passage connecting the supplementary exhaust port of each cylinder with the crank case of another unit, a non-return valve for controlling the admission port, means for opening and closing the air exhaust port, and means for opening and closing the supplementary exhaust port subsequently to the closing of the main exhaust port.

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

HERMANN SCHEIT.

Witnesses:

OSKAR KRONZ,

WALTER CHILIAN.