

There are two different methods to produce this action.

The first method is based on the use of the fuel-air mixture which is drawn in by the suction produced by the piston on its downward motion and passes through an inlet valve into the compression space. As soon as the piston again approaches the top dead-centre, the inlet valve is closed and, consequently, the fuel-air mixture compressed in the combustion chamber. The mixture is ignited by an electric spark and the expanding gases again force the piston downward to bottom dead-centre (Fig. 23).

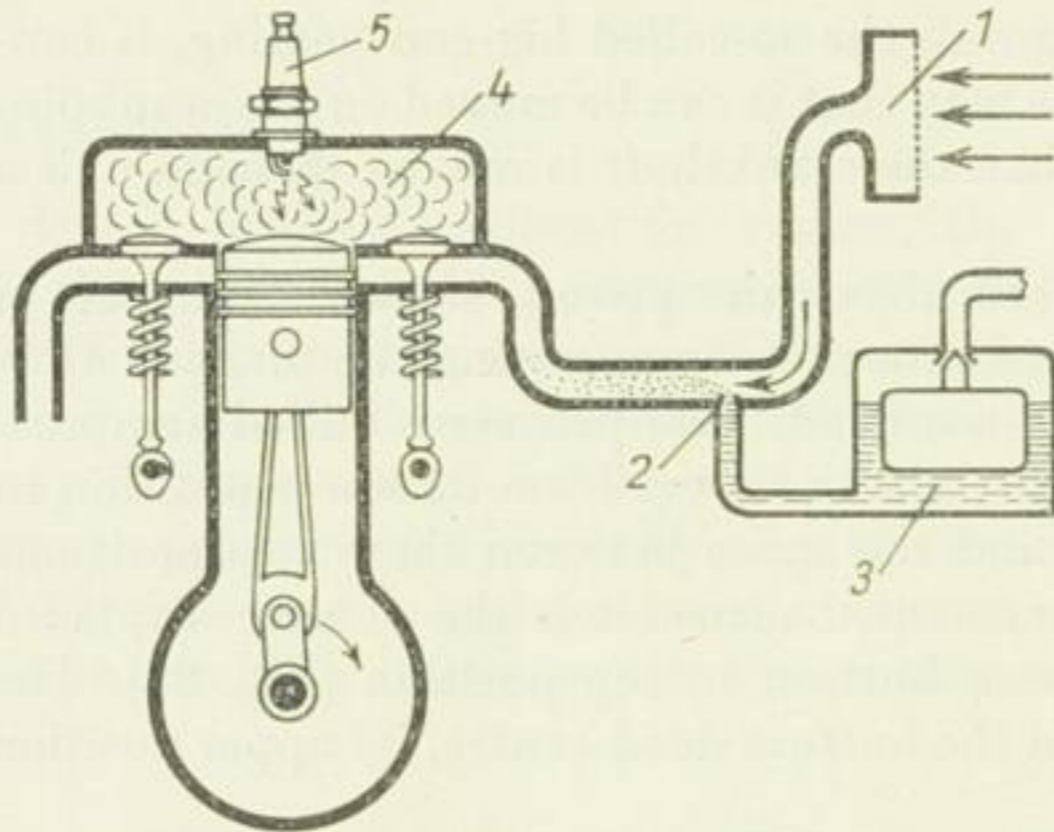


Fig. 23. Cycle of the petrol engine  
The intake air (1) passes nozzle (2) and mingles with fuel from the carburettor (3). This fuel-air mixture flows into the combustion chamber (4) where it is compressed by the piston upstroke and then ignited by the spark across the sparking-plug (5). This type of ignition is called applied ignition.

Internal-combustion engines whose mode of operation is based on this principle are called petrol engines or carburettor engines because a highly volatile fuel is used and a combustible mixture of air and petrol vapour is produced in the carburettor and fed into the chamber of combustion through the intake line and inlet valve. Sometimes these engines are also called spark-ignition engines because the mixture must be ignited electrically since the rise in temperature in the gaseous mixture due to the relatively low ratio of compression is insufficient to fire the charge automatically.

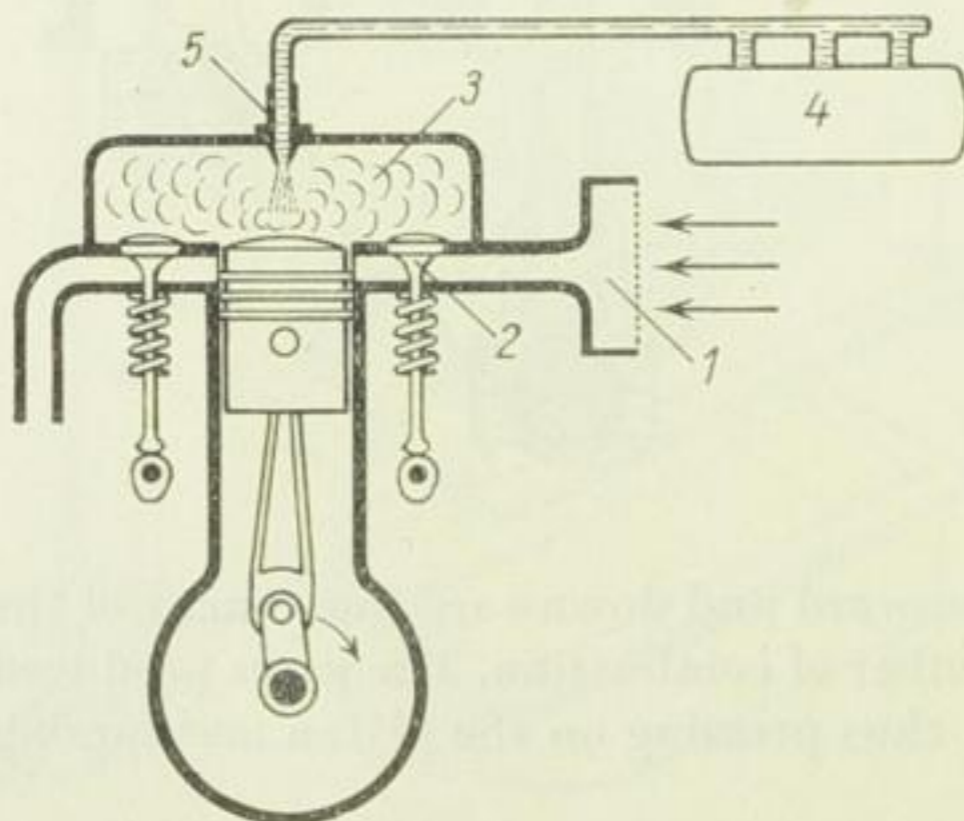


Fig. 24. Cycle of the Diesel engine  
The intake air (1) passes through intake valve (2) into the combustion chamber (3) where it is compressed, while considerable heat is generated. Fuel passes from injection pump (4) to injection nozzle (5) from where it is injected in atomised state into the compressed air. The mixture obtained in this way is fired automatically by the heat of compression. This type of ignition is called compression-ignition or self-ignition.