Referring to Figure 1, Page 4, we see the gas coming from the carburetor through the port (G) and the valve (I) into the cylinder, the combustion chamber of which is shown out of proportion to the real thing in order to make the illustration plain. We will assume that the mixture has been properly made at the carburetor, and take up the carburetor question later. The piston (P) is moving downward, as shown by the arrow, owing to its being pulled down by the connecting rod (R), which is actuated by the crank (A) on the crank shaft (S), which we will say we are revolving by means of the crank. The movement of the piston downward increases the size of the chamber, thus causing a partial vacuum, and at the same time the inlet valve (I) is lifted mechanically and the gas rushes through the carburetor and the intake pipe (G) and from there past the valve (I) into the cylinder to fill this partial vacuum. The intake valve opens at the beginning of the stroke, or close to that, according to the ideas of the designing engineer. At the bottom of the stroke the intake valve will close, and we then have a volume of gas, represented by the combustion chamber and the space in the cylinder, through which the piston has passed, in the form of the letter T. The Hudson motor cylinder is in the form of an inverted L, but for ease of illustration we are showing a T-head.

As the crank continues to revolve, we refer to Figure 2, in which you see both valves closed. Therefore the advancing piston is decreasing the size of the space containing the gas, hence putting same under compression, which in Hudson motors ranges between 50 and 60 pounds per square inch. At the moment the piston arrives at the top of the stroke, or dead center (being when the crank (A) and the connecting rod (R) are in line), the charge of gasoline vapor and air is exploded by means of an electric spark, generally given with a spark plug (U), described later. Upon firing, the expansion of the gas is very great, causing the pressure of 200 to 300 pounds and thus forcing the piston downward again, as shown in Figure 3, which is called the power stroke, or the explosion stroke.