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L. V. HOSFORD

1,744,310

INTERNAL COMBUSTION ENGINE

Original Filed Oct. 11, 1926

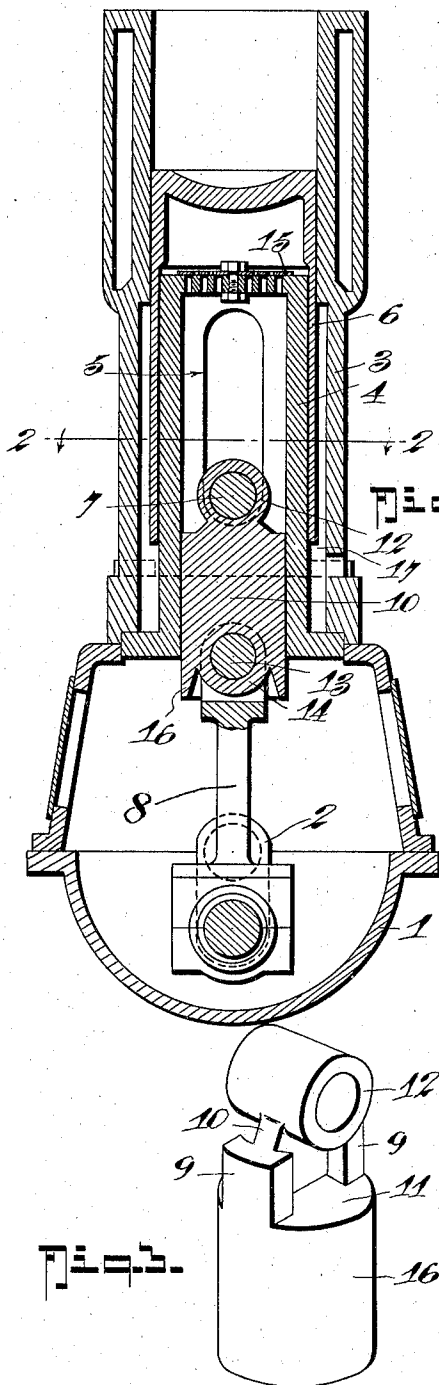


Fig. 2.

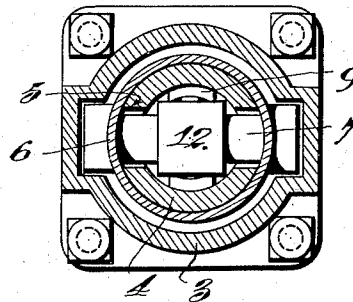


Fig. 4.

Fig. 5.

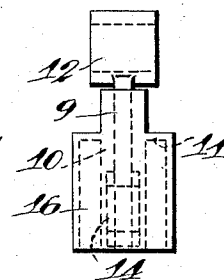
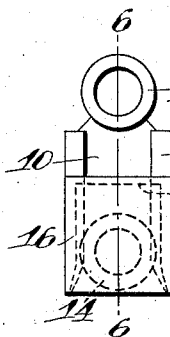
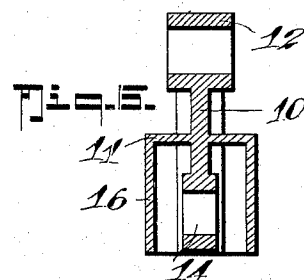


Fig. 6.



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INTERNAL-COMBUSTION ENGINE

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My invention has for its object to provide an improved construction of stationary piston and piston rod connection with a moving piston of the sleeve type and it particularly has for its object to provide a modification of the construction disclosed in Letters Patent No. 1,567,949, issued December 29, 1925. In that patent the air is drawn into the moving piston through the stationary piston's head from the crank case around the cross head; my present invention provides means to eliminate the connection between the crank case and the interior of the stationary piston so that the air drawn into the moving piston through the head of the stationary piston can be taken from a chamber around the outside of the stationary piston instead of from the crank case, and yet I am enabled to utilize a sliding cross head to overcome the side thrusts and maintain the advantages of the construction forming the subject matter of the patent aforesaid.

I accomplish the objects above indicated by providing the cross head with a cylindrical skirt and horizontal web to constitute a dam or cutoff, locating the horizontal web between the place where the connecting rod and the cylinder cross pin have bearings in the cross head.

In its more detailed nature the invention also resides in those novel features of construction, combination and arrangement of parts, all of which will be first fully described, then be specifically pointed out in the appended claims, reference being had to the accompanying drawing, in which:—

Figure 1 is a vertical longitudinal section of a portion of an engine embodying the invention.

Figure 2 is a horizontal section on the line 2—2 of Figure 1.

Figure 3 is a detail perspective view of the cross head.

Figures 4 and 5 are detail side elevations taken at right angles to one another, showing the cross head.

Figure 6 is a detail vertical section on the line 6—6 of Figure 4.

In the drawing, in which like numerals of reference indicate like parts in all the figures,

1 represents the crank casing, 2 the crank shaft, 3 the cylinder and 4 the stationary piston which, in the present case as in the patent aforesaid, is provided with opposed longitudinal slots 5, through which the reciprocating piston cross head pin 7 passes. The pin 7 is secured in suitable bearings in the reciprocating piston 6 which moves within the cylinder and over and around the stationary piston.

The cross head in the present invention has opposed bearing slides 9 united by a vertical web 10 which is provided with a cross head pin bearing lug 12 at the top and a cross head connecting rod pin bearing 14 at the bottom. Between the lug 12 and bearing 14 is a partition web 11 which is provided with a skirt 16, the skirt and web 11 constituting a partition shell together with the adjacent parts of the bearing slides 9.

13 is the connecting rod pin and 8 the connecting rod which joins with the crank shaft.

The stationary piston is provided with suitable one-way valves 15 in its head so that on the up stroke of that piston air will be drawn from the interior of the stationary piston and through the slots 5 from the chamber 17 surrounding the stationary piston at the lower end of the cylinder 3, air being admitted to this chamber 17 through suitable ports provided for the purpose.

The provision of the partition shell on the cross head serves to cut off communication between the interior of the stationary piston and the interior of the crank case.

From the foregoing description, taken in connection with the accompanying drawing, it is thought the complete construction, operation and advantages of my invention, will be clear to those skilled in the art to which it relates.

What I claim is:

1. In an internal combustion engine wherein is provided a crank case, a crank shaft, a cylinder secured to the crank case, a stationary piston secured within the cylinder, and a reciprocating piston in the cylinder over the stationary piston, said stationary piston having longitudinal slots and said reciprocating piston having a cross pin pass-

