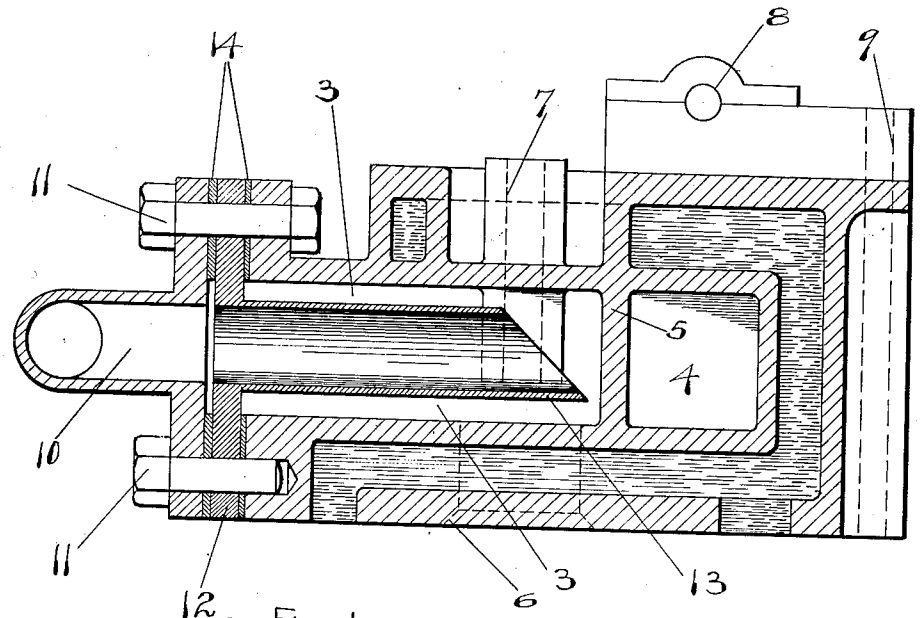
D. S. DU BOIS.

MANIFOLD FOR INTERNAL COMBUSTION MOTORS.

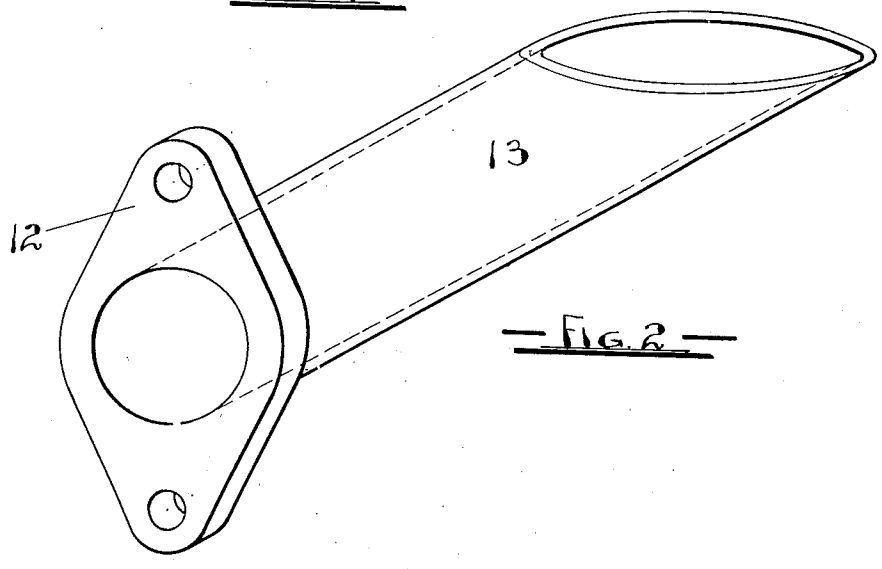
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1,393,887.

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—Fig. 1—



—Fig. 2—

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MANIFOLD FOR INTERNAL-COMBUSTION MOTORS.

1,393,887. Specification of Letters Patent. Patented Oct. 18, 1921.

Application filed September 22, 1920. Serial No. 411,928.

To all whom it may concern:

Be it known that I, DANIEL S. DU BOIS, a citizen of the United States, residing at Portland, county of Multnomah, State of Oregon, have invented certain new and useful Improvements in Manifolds for Internal-Combustion Motors, of which the following is a specification.

It is well known that in many internal combustion motors the transverse area of the intake valve chamber is greater than the transverse area of the intake manifold connected thereto, and that thus the incoming gas is allowed to expand as it enters the valve chamber, which expansion cools the gas and causes condensation of the same just prior to its entering the motor cylinder.

The object of my invention is to overcome this difficulty, and the device illustrated and described in this application is designed for that purpose. As will be obvious from the description and illustrations my device may be made an integral portion or part of the intake manifold, but in order that it may be applicable to motors already in existence without requiring alteration of the motor or the manifold it is desirable to make it a separate member of the manifold, and it is so illustrated in the accompanying drawing.

I accomplish the above object by means of the construction illustrated in the accompanying drawing, which is a part of this application for Letters Patent, like characters of reference indicating like parts throughout the several views thereof, and in which:

Figure 1 is a sectional view of the cylinder head of an internal combustion motor with my device installed therein, and Fig. 2 is a perspective view of my device upon an enlarged scale.

In Fig. 1 the intake valve chamber is designated by 3 and the exhaust passageway by 4, there being therebetween a wall 5 which will become highly heated by the exhaust gases in passageway 4. The valve seat is shown at 6 and the valve stem guide at 7, while the rocker shaft bearing is shown at 8 and the tappet rod guide at 9. The intake manifold 10 is secured to the head by bolts 11 in the usual manner, and my device is secured between the flange of the intake manifold and the head.

My device consists of a flange 12 adapted to receive the bolts 11 and to be thereby clamped between the flange of the intake manifold 10 and the motor head, and a tube 13 integral with said flange 12 and normal thereto, and opening through the flange. Said tube 13 is inserted within the valve chamber 3 and secured therein by bolts 11 passing through the flange 12, suitable gaskets 14 being provided to insure a tight joint between the flange 12 and the motor head and also between the flange 12 and the flange of the intake manifold 10.

By this means the incoming gases are not allowed to expand until just before they are impinged upon the hot wall 5 just above the intake valve of the motor, and therefore condensation is avoided. Sufficient room must be left between the end of the tube 13 and the wall 5 for the free escape of the gases from said tube, but as a further precaution against condensation I bevel the end of said tube 13 so that the lower portion thereof may be brought into close juxtaposition to the wall 5 without unduly restricting the escape of the gases through the space between the end of the tube 13 and the wall 5.

By thus beveling the end of the tube 13 I provide that any liquid particles that may have condensed from the gas within the tube 13 and are carried along the bottom of said tube will issue therefrom substantially against the wall 5 and thereby become gasified before entering the intake valve of the motor.

It is obvious that the gas intake tube 13 may be made a part of the intake manifold without departing from the spirit of my invention, which is to provide means of restricting the area of the valve chamber to that of the intake manifold and of conveying the incoming gas through the long valve chamber to a point adjacent the hot wall of the exhaust passageway and there discharging the gas into the valve chamber.

The tube 13 is thus an extension of the intake manifold into the valve chamber to a point adjacent the hot wall of the exhaust passageway.

My device may be made of any size, and constructed of any materials deemed convenient and suitable for a device of this character, and while I have illustrated and described a form of construction found desirable in materializing my invention, I wish to include in this application all mechanical equivalents and substitutes that may fairly

be considered to come within the scope and purview of my invention as defined in the appended claim.

Having disclosed my invention so that others may be enabled to construct and to use the same, what I claim as new, and desire to secure by Letters Patent is:

In an internal combustion motor, a flange secured between the intake manifold and the motor, and a tube integral with said flange and having a beveled end, the longest portion of said tube extending into the intake valve chamber of said motor to a point adjacent the wall of the exhaust passageway of said motor.

In witness whereof I claim the foregoing as my own I hereunto affix my signature in the presence of two witnesses at Portland, county of Multnomah, State of Oregon, this 14th day of Sept., 1920.

DANIEL S. DU BOIS.

Witnesses:
L. J. ROBINSON,
C. F. BLAKE.