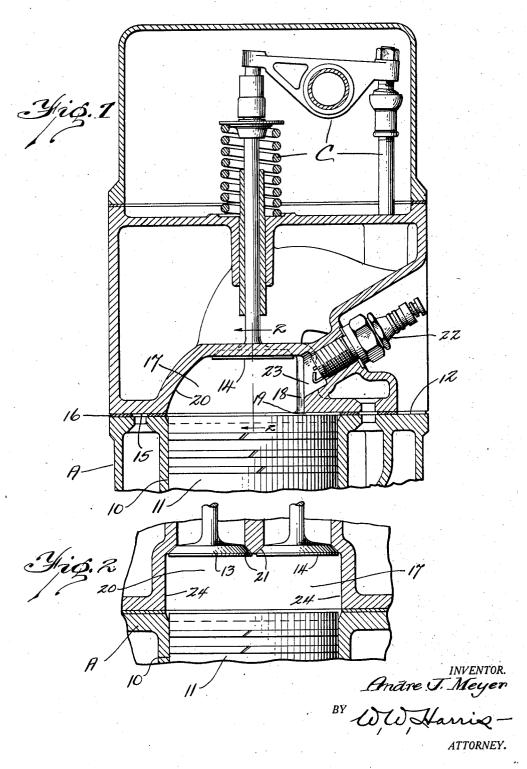
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## INTERNAL COMBUSTION ENGINE

Filed Jan. 30, 1928



## UNITED STATES PATENT OFFICE

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## INTERNAL COMBUSTION ENGINE

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tion engines and refers more particularly to the valve-in-head type. One object of this invention resides in an engine of the afores said type which will afford increased efficiency, increased power, and generally improved engine performance.

struction for valve-in-head engines which will provide turbulence for the fuel mixture during the compression of the combustible charge. In engines of the aforesaid type it is customary to locate the valve combustion chamber over the cylinder, this gen-15 eral arrangement not affording the desirable turbulence for the fuel mixture.

Further objects of my invention reside in providing an improved valve-in-head engine capable of being manufactured at relatively

Referring to the accompanying drawings illustrating one embodiment of my invention,

Fig. 1 is a sectional elevation view through typical cylinder of my engine, and

Fig. 2 is a sectional view at right angles

thereto through 2-2 of Fig. 1.

In the drawings reference character A represents the cylinder block having the 30 cylinder 10 and piston 11 reciprocating therein in accordance with conventional or other suitable engine constructions. In Figs. 1 and 2 the piston 11 is shown in its upper limit of travel in which position the piston 35 face is preferably substantially in the plane of the cylinder block top face 12.

B is the cylinder head carrying the intake and exhaust valves 13 and 14 respectively, these valves being aligned longitudinally of 40 the engine and operating substantially in the plane longitudinally of the engine containing the cylinder axis, said valves being operated by suitable mechanism C which may be of the usual well known construc-45 tion. The cylinder head has a machined face 15 seating on the cylinder block face 12 preferably by the interposition of a sealing gas-ket 16. The cylinder head has a valved combustion chamber 17 generally over the cyl-50 inder 10, and is provided with a portion 18

This invention relates to internal combus- extending inwardly of the cylinder and overlying a portion of the piston face. The under face of the portion 18 is preferably an extension of the face 15 so that a relatively small amount of clearance 19 will be pro- 55 vided between the portion 18 and the piston face with the piston in its upper limit of I have provided a novel cylinder head con-travel. Such construction further facilitates machining of the head. The overhanging portion 18 may be continued around the 60 combustion chamber as desired for securing the preferred amount of turbulence. In the illustrated embodiment of my invention the portion 18 extends generally along one side of the combustion chamber adjacent the 65 valves 13, 14, the opposite side of the combustion chamber walls preferably being curved at 20 from the valve seats 21 to the face 15 as shown in Fig. 1. Thus a smooth comparatively frictionless flow of the gases 70 past valves 13, 14 is afforded. A spark plug 22 is located at a suitable point at a recess 23 in the portion 18. The opposite combustion chamber walls 24 generally below the outer peripheral portions of valves 13, 14 are pref- 75 erably substantially vertical.

By reason of my invention I have provided a valve-in-head engine having a cylinder head affording a compact combustion chamber such as required in modern relatively 80 high compression engines, and providing turbulence for the fuel mixture.

What I claim as my invention is:

1. A cylinder head for an engine cylinder and associated piston having a combustion 85 chamber above the cylinder and having intake and exhaust valves substantially aligned longitudinally of the engine and carried by the cylinder head in the top of the combustion chamber and opening inwardly of the 90 combustion chamber toward the piston face; said cylinder head having an inwardly extending part closely overlying a portion of the piston when in the outer limit of travel for producing turbulence of the fuel mixture, 95 said cylinder head part being recessed, and a sparking device within said recess.

2. A cylinder head for an engine cylinder and associated piston having a combustion chamber above the cylinder and having in- 100 take and exhaust valves substantially aligned valves, the combustion chamber having a wall longitudinally of the engine and carried by the cylinder head in the top of the combustion chamber and opening inwardly of the combustion chamber toward the piston face; said cylinder head having an inwardly extending part closely overlying a portion of the piston when in the outer limit of travel for producing turbulence of the fuel mixture, the combustion chamber having a wall substantially opposite the said projecting part curved upwardly from the cylinder and inwardly toward the valves.

3. A cylinder head for an engine cylinder and associated piston having a combustion chamber above the cylinder and having intake and exhaust valves substantially aligned longitudinally of the engine and carried by the cylinder head in the top of the combustion chamber and opening inwardly of the combustion chamber toward the piston face; said cylinder head having an inwardly extending part closely overlying a portion of the piston when in the outer limit of travel 25 for producing turbulence of the fuel mixture, said cylinder head part being located to one side of a plane longitudinally of the engine containing the cylinder axis, said combustion chamber lying substantially below said intake and exhaust valves.

4. A cylinder head for an engine cylinder and associated piston having a combustion chamber above the cylinder and having intake and exhaust valves substantially 35 aligned longitudinally of the engine and carried by the cylinder head in the top of the combustion chamber and opening inwardly of the combustion chamber toward the piston face; said cylinder head having an inwardly 40 extending part closely overlying a portion of the piston when in the outer limit of travel for producing turbulence of the fuel mixture, said cylinder head part being located to one said of a plane longitudinally of the engine 45 containing the cylinder axis, the combustion chamber having a wall on the other side of said plane curved upwardly and inwardly from the cylinder to the valves.

5. A cylinder head for an engine cylinder 50 and associated piston having a combustion chamber above the cylinder and having intake and exhaust valves substantially aligned longitudinally of the engine and carried by the cylinder head in the top of the combus-55 tion chamber and opening inwardly of the combustion chamber toward the piston face; said cylinder head having an inwardly extending part closely overlying a portion of the piston when in the outer limit of travel 60 for producing turbulence of the fuel mixture, said cylinder head part being located to one side of a plane longitudinally of the engine containing the cylinder axis, the transverse combustion chamber walls extending sub-65 stantially vertically from the cylinder to the

on the side opposite to said projecting part extending solely below the intake and exhaust valves.

6. A cylinder head for an engine cylinder 70 and associated piston having a combustion chamber above the cylinder and having intake and exhaust valves substantially aligned longitudinally of the engine and carried by the cylinder head in the top of the combus- 75 tion chamber and opening inwardly of the combustion chamber toward the piston face; said cylinder head having an inwardly extending part closely overlying a portion of the piston when in the outer limit of travel 80 for producing turbulence of the fuel mixture, said cylinder head part being located to one side of a plane longitudinally of the engine containing the cylinder axis, the combustion chamber having a wall on the other 85 side of said plane curved upwardly and inwardly from the cylinder to the valves, the transverse combustion chamber walls extending substantially vertically from the cylinder to the valves.

In witness whereof, I hereunto subscribe my name this 27th day of January, A. D. 1928.

ANDRE J. MEYER.

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