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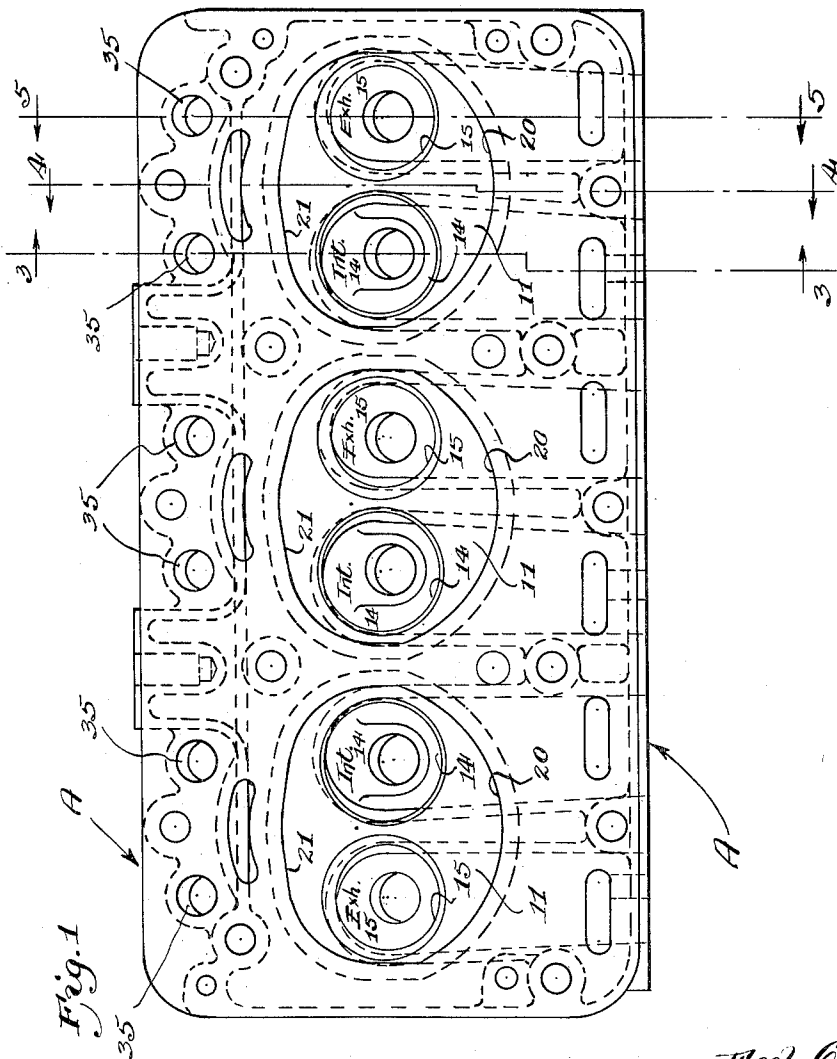
E. GINN ET AL

2,361,191

CYLINDER HEAD CONSTRUCTION

Original Filed April 9, 1942

3 Sheets-Sheet 1



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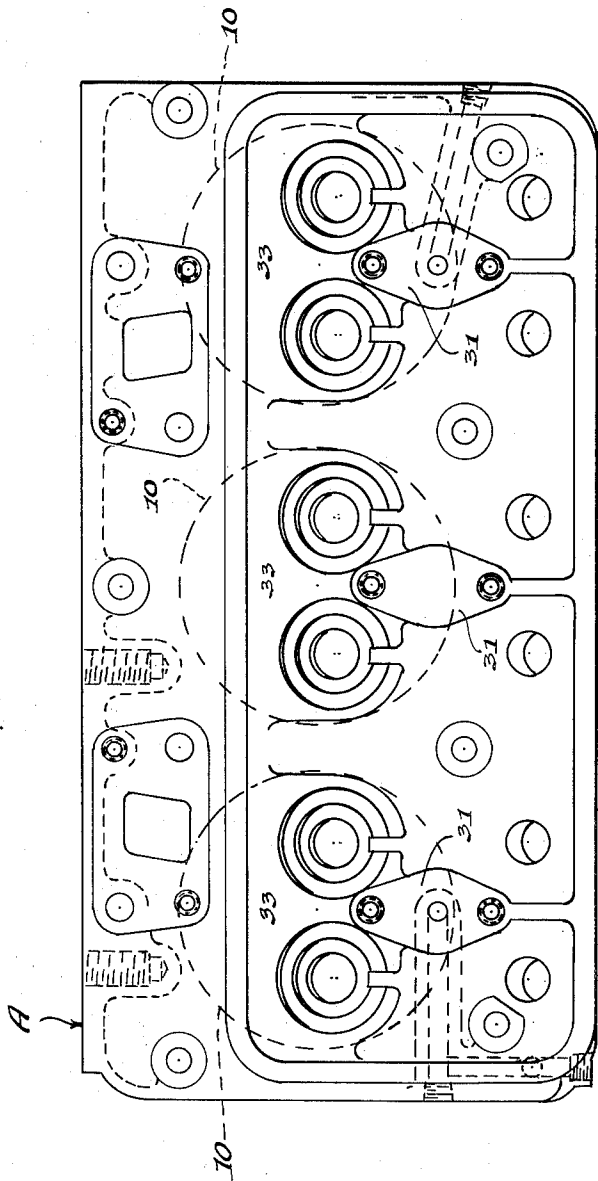


Fig. 2

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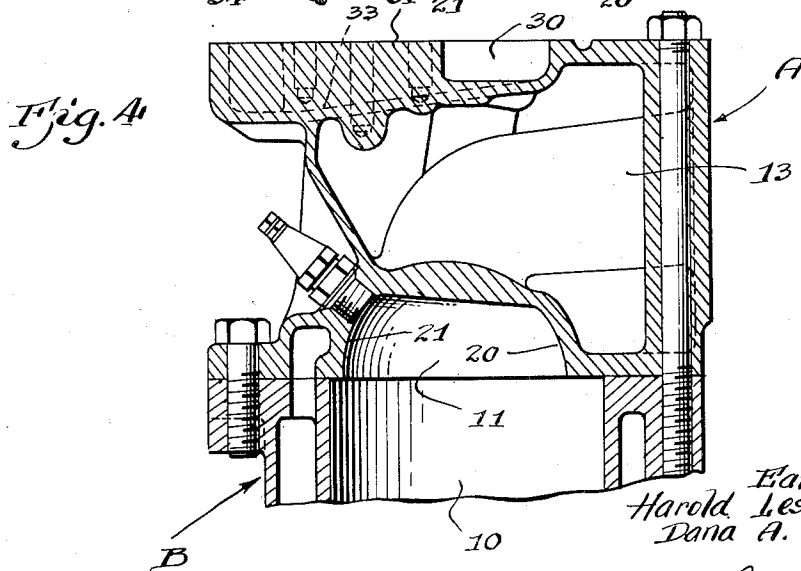
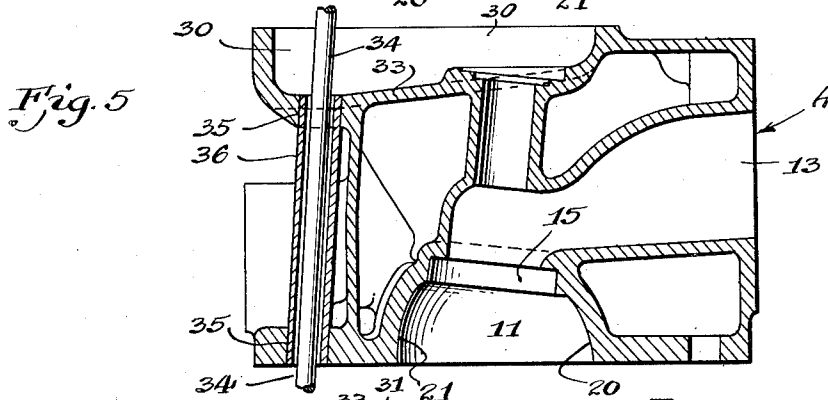
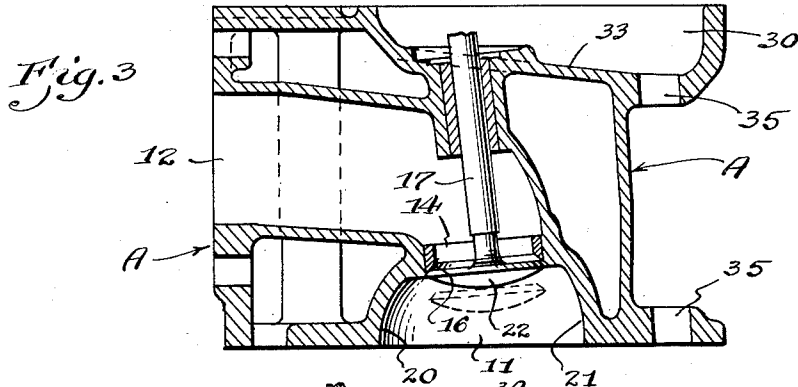
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UNITED STATES PATENT OFFICE

2,361,191

CYLINDER HEAD CONSTRUCTION

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Original application April 9, 1942, Serial No. 438,244. Divided and this application February 11, 1943, Serial No. 475,519

4 Claims. (Cl. 123—173)

Our invention relates to an improved cylinder head construction and more especially to a cylinder head structure constructed for cooperative assembly with the cylinder block of an over-head valve internal combustion engine.

This application is a division of our copending application for United States Letters Patent Ser. No. 438,244, filed April 9, 1942, entitled Cylinder head and combustion chamber construction.

In this type of engine the combustion chambers are carried in the cylinder head structure and are arranged to over-lie the engine cylinders. In the present day high output engines it is necessary to employ large intake and exhaust valves and to provide as large a port area as is possible.

An object of our present invention is to construct an improved cylinder head structure which embodies a recessed portion for housing a plurality of sets of rocker arms, and which is so constructed as to drain oil accumulations from said rocker arm housing.

Other objects of our present invention pertain to various structural details described and claimed in particular detail hereafter.

For a more detailed understanding of our invention, reference may be had to the accompanying drawings illustrating a preferred embodiment of our invention, wherein like figures refer to like parts throughout the several views and in which:

Fig. 1 is a bottom plan view of the cylinder head structure embodying our invention,

Fig. 2 is a top plan view of the cylinder head structure, and

Figs. 3, 4 and 5 are detail transverse sectional views through the cylinder head structure taken substantially on the lines 3—3, 4—4, and 5—5 respectively in Fig. 1.

The cylinder head structure herein illustrated by these several figures provides improved engine performance, and said head structure is preferably formed of a casting A which may be bolted in the usual manner to an engine cylinder block B by means of suitable bolts. The preferred construction embodies a structure overlying a plurality of cylinders 10 (see Figs. 2 and 4) and is provided with combustion chambers 11 cooperatively associated with each of the engine cylinders. The cylinder head is provided with intake and exhaust passages 12 and 13 respectively terminating in intake and exhaust ports 14 and 15, as more particularly shown in Figs. 3 and 5. The said ports have valve seats 16 fitted therein, the one illustrated being the intake valve seat. An intake valve 17 is operable to control this intake

port 14 and it will be seen that same opens inwardly of the combustion chamber and substantially axially inwardly of the cylinder 10. The side walls 20 and 21 of said combustion chamber are constructed somewhat spherical in contour thus providing immediately for a maximum clearance between the unseated valve heads 22 and the adjacent combustion chamber wall, said clearance being increased as the valve opens, to provide more space or area through which the gases may flow without being restricted.

The upper portion of the cylinder structure is recessed as at 30, and the rocker arms are assembled in this recess or pocket in a conventional manner, same being mounted on the conventional rocker arm shaft (not shown) supported in bearings 31 which may be mounted on the bearing supports 31 rising from the floor 33 of the recess 30. The floor 33 of this recess or pocket 30 is sloped or inclined, as clearly shown in Figs. 3 to 5, to drain any oil accumulations to one side of the cylinder head. Preferably the low point of the floor 33 is in that region where the push rods 34 are operable. The cylinder head is provided with suitable openings 35 which support a push rod housing 36 and the oil accumulations are drained from the pocket or recess 30 into the push rod housing 36 and thence preferably into the oil return or oil drainage tubes. As will be noticed in Fig. 2, the bearings 31 projecting from the floor form partitions extending transversely of the recess in the lowermost portion of said recess to form a plurality of compartments into which the oil will drain, one or more push rod housings communicating with each of said compartments.

It will be observed that the cylinder head structure herein illustrated facilitates economical engine manufacture and furthermore functions to provide for improved engine performance.

Although I have illustrated but one form of our invention and have described in detail but a single application thereof, it will be apparent to those skilled in the art to which our invention pertains, that various modifications and changes may be made therein without departing from the spirit of our invention or from the scope of the appended claims.

We claim:

1. A cylinder head structure for an internal combustion engine and comprising a rocker arm housing provided with a recessed portion housing a plurality of rocker arm bearings rising from the floor of said recessed portion, the floor of said recessed portion comprising a substantially plane

surface lying below the rocker arm bearings and sloping downwardly to one side of said cylinder head structure, said bearings extending transversely of said recessed portion and forming partitions which divide the recessed portion into compartments, said structure having a plurality of openings through which valve push rods are extended and through which said oil accumulations are drained off from said compartments.

2. A cylinder head structure for an internal combustion engine and comprising a rocker arm, provided with a recessed portion housing a plurality of rocker arm bearings rising from the floor of said recessed portion and forming partitions which divide said recessed portion into compartments, the floor of said recessed portion comprising a substantially plane surface lying below the rocker arm bearings and sloping downwardly to one side of said cylinder head structure and constructed to drain lubricating oil into said compartments, and means draining off said lubricating oil from each of said compartments.

3. A cylinder head structure for an internal combustion engine and comprising a rocker arm, provided with a recessed portion housing a plurality of sets of rocker arm bearings rising from the floor of said recessed portion and forming partitions which divide said recessed portion into

a plurality of compartments, the floor of said recessed portion being inclined to drain oil accumulations to one side of the cylinder head structure and into said compartments, and oil drainage means comprising oil drain openings in substantially the deepest part of each of said compartments.

4. A cylinder head structure for an internal combustion engine and comprising a rocker arm, provided with a recessed portion housing a plurality of rocker arm bearings rising from the floor of said recessed portion and extending transversely of said head structure and part way of said recessed portion to form partitions whereby to provide compartments aligned along one side of head structure, the floor of said recessed portion being inclined to drain oil accumulations to that side of the cylinder head structure into said compartments, and oil drainage means comprising a plurality of aligned oil drain openings spaced longitudinally of the engine and oil conducting drainage tubes connected with said drain openings, at least one of said oil drainage tubes communicating with each of said compartments.

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