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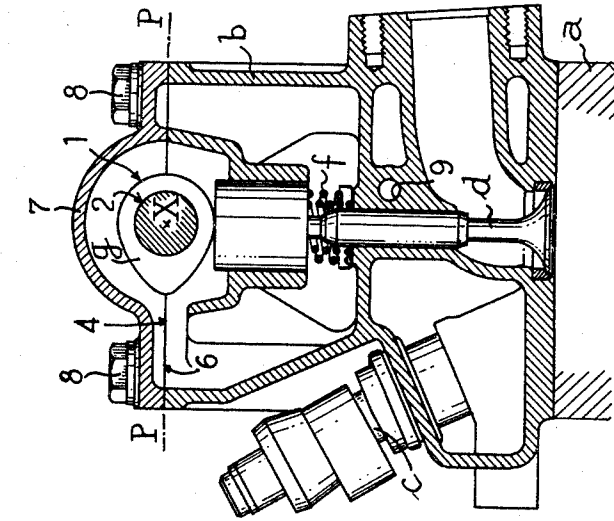


Fig. 3

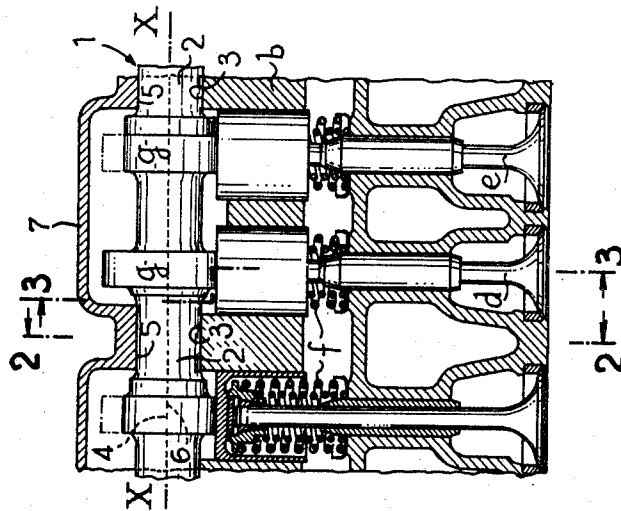


Fig. 1

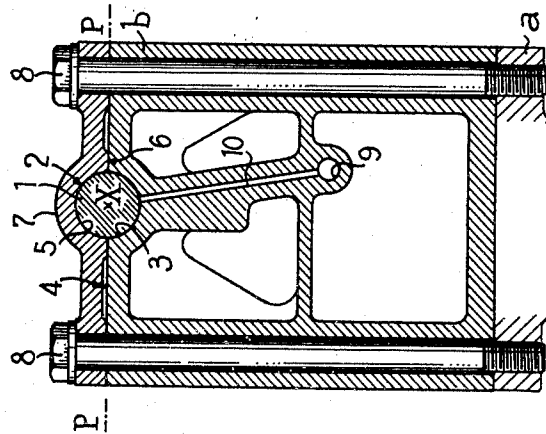


Fig. 2

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CAMSHAFT IN A HEAT ENGINE OR COMPRESSOR AND THE MACHINE
RESULTING THEREFROM

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Fig. 5

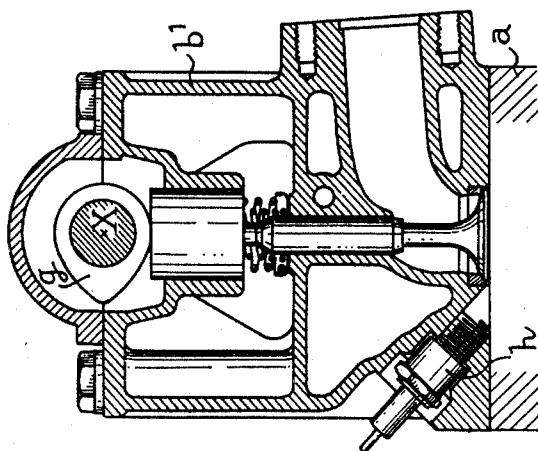
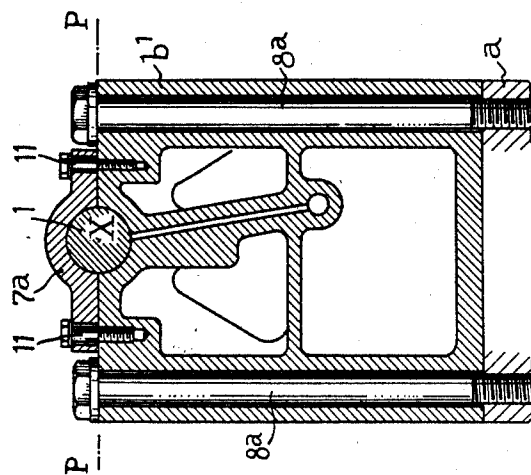


Fig. 4



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2

CAMSHAFT IN A HEAT ENGINE OR COMPRESSOR AND THE MACHINE RESULTING THEREFROM

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U.S. Cl. 123—90

1 Claim

ABSTRACT OF THE DISCLOSURE

An arrangement for a camshaft of the overhead type for a machine constituting an engine or compressor, wherein the camshaft is journaled in semi-cylindrical bearing portions provided directly and respectively in the cylinder head and in a rigid cover attached to the cylinder head, the joint plane between the cylinder head and the cover intersecting the axis of the camshaft.

The present invention relates to the arrangement of a camshaft, of the type known as an overhead camshaft, for controlling valves in a heat engine or compressor.

Usually, such a shaft is journaled in bearings and bearing caps; the bearings are fixed in an adjustable position in the cylinder head so that this shaft is integral with this cylinder head.

This complicated arrangement is due to the necessity in many cases of modifying the setting of the clearance in the rockers or valves which requires the use of a member commonly termed a rocker cover. This member covers everything without playing any part in the mounting of the camshaft and this complicates still more the general arrangement.

The object of the invention is to provide a new simplified arrangement of a camshaft of the so called overhead type of utility in particular in an engine or compressor in the case of a direct control of the valves since experience has shown that no adjustment or intervention over a period of time is necessary.

The invention provides an arrangement wherein the camshaft, instead of being journaled in bearings and bearings caps, is journaled in semi-cylindrical bearing portions provided directly and respectively in the cylinder head and in a rigid cover which replaces the conventional rocker cover and is attached to the cylinder head, the joint plane between the cylinder head and the cover intersecting the axis of the camshaft.

This new arrangement has important advantages and in particular:

A considerable simplification in the casting, machining, checking of the cylinder head and assembly owing to the elimination of attached bearings and cylinder head bosses adapted to receive them.

Smaller overall size for the same reason, which, for a given overall size, could increase the available volume for cooling and consequently improve the efficiency of the machine.

A more rigid and compact assembly.

Another object of the invention is to provide a machine constituting a heat engine or a compressor wherein the camshaft is mounted in accordance with this new arrangement.

Further features and advantages of the invention will be apparent from the ensuing description with reference to the accompanying drawings.

In the drawings:

FIG. 1 is a longitudinal partial sectional view of the cylinder head of an engine or compressor in which the camshaft is mounted in accordance with the improved arrangement according to the invention;

FIGS. 2 and 3 are cross-sectional views thereof, taken along lines 2—2 and 3—3 of FIG. 1; and

FIGS. 4 and 5 are views similar to FIGS. 2 and 3 respectively of a modification of the invention.

In the embodiment shown in FIGS. 1—3, the invention is shown applied to an internal combustion engine of the Diesel injection type having reciprocating pistons, said engine comprising above a cylinder block a cylinder head *b* in which are provided, for each cylinder, the injector *c*, the intake valve *d* and exhaust valve *e*. These valves are maintained against the cams *g* of the camshaft 1 by the action of springs *f*.

According to the invention, this shaft 1 having an axis X—X is rotatably mounted through cylindrical journals 2 in lower semi-cylindrical bearing portions 3 provided in the upper plane face 4 of the cylinder head *b* and in upper semi-cylindrical bearing portions 5 formed in the lower plane face of a rigid metal cover 7.

The axis X—X is in the plane of contact P—P between the plane faces 4 and 6 of the cylinder head *b* and cover 7.

This cylinder head and this cover are both fixed to the cylinder block *a* by long screws 8.

The journals 2 of the camshaft 1 are lubricated by way of conduits, such as 9 and 10, formed in the cylinder head *b*. The lubricant delivered by the oil pump of the machine flows through these conduits.

FIGS. 4 and 5 relate to a modification of the invention in which the cylinder head *b*¹ is fixed to the cylinder block *a* by screws 8^a independently of the cover 7^a which is fixed to the cylinder head *b*¹ by other screws 11. Advantage is taken of the FIG. 5 to show that the engine can be of the explosion type, the spark plug *h* occupying the place of the injector *c* of the first embodiment.

Having now described my invention what I claim as new and desire to secure by Letters Patent is:

1. In a machine constituting an engine or compressor and having a cylinder, a cylinder head, an overhead camshaft, the arrangement wherein said camshaft is journaled directly and respectively in said cylinder head and a rigid cover attached to said cylinder head, the joint plane between said cylinder head and said cover intersecting the axis of said camshaft, said cover and said cylinder head being fixed to the cylinder block by the same fastening means.

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AL LAWRENCE SMITH, Primary Examiner

U.S. Cl. X.R.

123—193, 196; 184—6