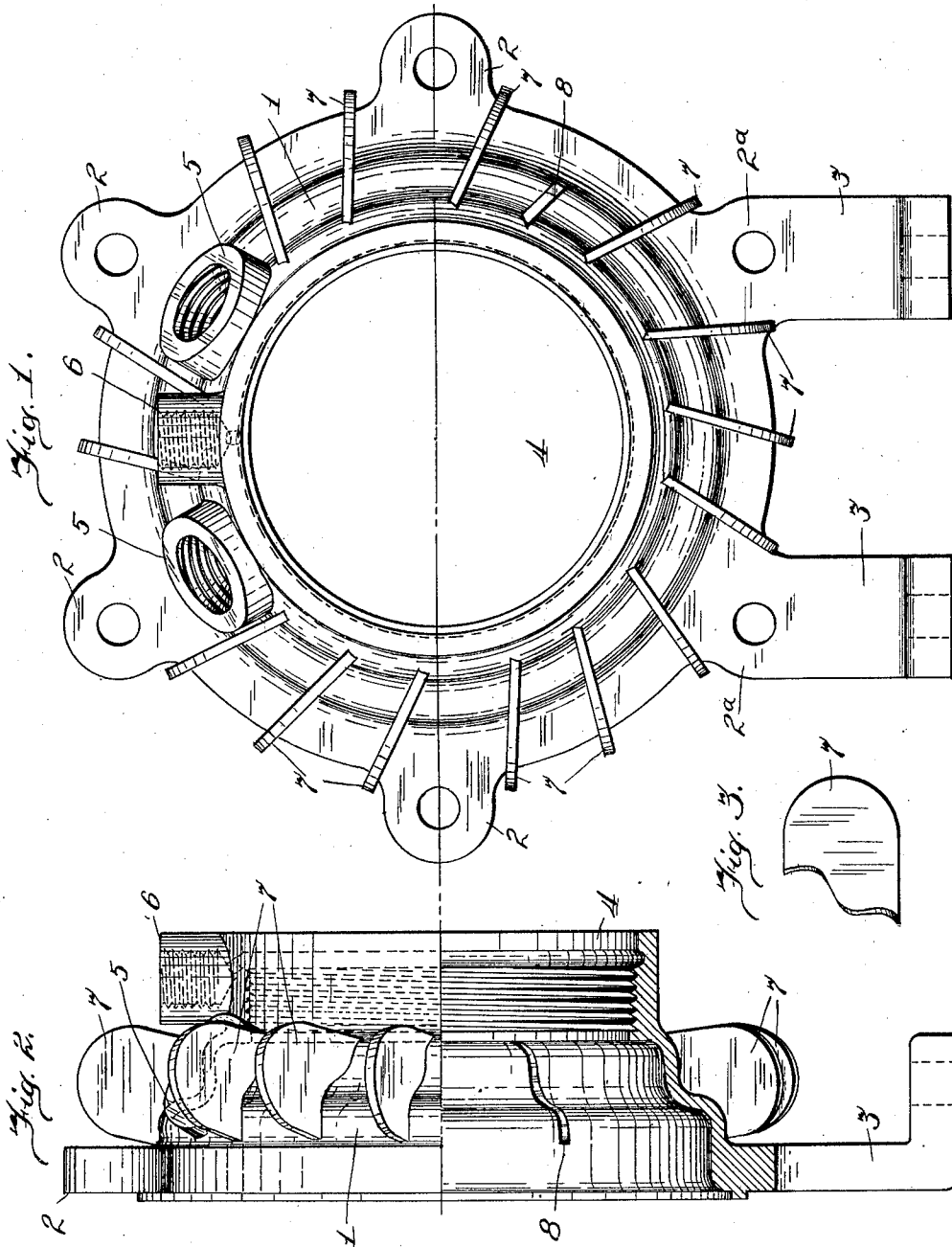


H. W. JACOBS.
CYLINDER HEAD.
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1,002,849.

Patented Sept. 12, 1911.



Witnesses

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UNITED STATES PATENT OFFICE.

HENRY W. JACOBS, OF TOPEKA, KANSAS.

CYLINDER-HEAD.

1,002,849.

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To all whom it may concern:

Be it known that I, HENRY W. JACOBS, a citizen of the United States, residing in Topeka, in the county of Shawnee and State of Kansas, have invented a certain new and useful Improvement in Cylinder-Heads, of which the following is a description, reference being had to the accompanying drawing, which forms a part of my specification.

My invention relates to cylinder heads for internal combustion engines, for example in connection with cylinders of engines of the four cycle type; and has for its object the provision of a cylinder head which may be readily machined to shape so as to produce a light and uniform construction.

A further object of my invention is to provide the cylinder head with means secured to or protruding from the outer face thereof, whereby heat may be readily dissipated, as will more fully be understood from the following detailed description.

Another object of my invention is to provide the cylinder head with suitable means whereby the head may be readily and securely fastened to the cylinder and the cylinder head form a support for the weight of the internal combustion engine and be secured to a frame or base, as will more fully be understood from the following detailed description, wherein reference is had to the accompanying drawing in which:—

Figure 1 is an end elevation of my improved cylinder head for internal combustion engines. Fig. 2 is a partial side elevation, with the lower half or portion of the head being shown in vertical section. Fig. 3 is a detailed view of one member of the cooling means which is adapted to be secured to or inserted in the wall of the cylinder head.

The cylinder head comprises the body portion 1, preferably made cylindrical in form, and may be machined true to shape; the head being preferably tapered or stepped cylindrically as clearly shown in the drawing, see Fig. 2. The cylinder head 1 is also preferably provided with the lobes or lugs 2, of which any desired number may be provided; which are adapted to receive the bolts or rods whereby the head may be securely bolted onto the end of the cylinder. I have shown the lugs or lobes 2^a, 2^a provided with the extensions or legs 3, 3, whereby the engine may be supported on the base or frame when desired. These legs or supports 3, 3, may either be made integral with

the lobes or lugs 2^a, 2^a by welding the same together or otherwise secured thereto, or the supports may be entirely omitted if desired. The lobes or lugs 2 as well as the legs or supports 3 may be machined to the desired form.

The cylinder head is provided with a large circular central opening 4, extending there-through, whereby a valve cage may be connected to the cylinder head. This aperture 4 may be threaded as shown in Fig. 2. This valve cage may contain either a single valve with direct injection of fuel of a concentric valve arrangement through which the intake and discharge of the explosive mixture may pass. This connection of the valve cage to the cylinder head may be made by employing the means illustrated in the drawing, or the connection may be made in any other suitable manner, as for example a yoke which may be clamped in position by engaging the cylinder bolts that are intended to pass through the lobes or lugs 2 and 2^a.

After the cylinder head 1 has been properly machined, it is then provided with the studs or bosses 5 and 6. These studs or bosses are secured in place on the cylinder head in any suitable manner by inserting them in apertures previously drilled in the cylinder head; the bosses are preferably secured in place by the autogenous method of welding. The studs or bosses 5, 5 are provided for the purpose of receiving the spark plugs, after having been properly drilled and threaded; and the stud or boss 6 is intended to receive suitable connections whereby the oil fuel may be injected through the aperture in the cylinder head surrounded by stud or boss 6; these connections or mechanisms however form no part of my invention.

I provide the cylinder head with the air cooling means which is illustrated in the drawing in the nature of fins 7. I prefer to arrange these fins 7 in the tangential or diagonal manner about the outer face of the cylinder head, the fins being made to extend at an angle across the successive steps as shown. Any suitable number of these fins may be employed. I prefer to form these fins in the manner more clearly illustrated in Fig. 3, wherein the one end of the fin is shown shaped to conform to the shape or wall of the tapering cylindrical cylinder head; and these members or fins 7 are preferably inserted into slots 8 with which the

cylinder head has been provided. The slots 8 are machined in the cylinder head and after the fins or members 7 have been inserted therein, the members or fins 7 are preferably secured in place by welding; though any other suitable method may be employed.

By arranging the radiating members or fins 7, in the manner shown and described, rapid dissipation of the heat is obtained because the fins are in contact with a relatively large portion of the wall of the head, with less tendency of the heat being conducted from one fin or member to the other, thus producing a very efficient air cooling method, as is readily apparent from the construction itself.

In forming my improved cylinder head, I prefer to employ material of considerable tensile strength, preferably steel of high heat conductivity, which may be machined very thin and yet give sufficient strength and rigidity to withstand the pressures to which it is subjected, and at the same time be of sufficient density so as to prevent leakage of the confined gases through the thin walls.

I have shown and described what I believe to be the simplest and preferred form of my invention, with the radiating members or fins arranged and secured in place in the manner described, but it is apparent that the form of my invention, illustrated, may be altered in certain respects without departing from the spirit of my invention, and I do not wish to be understood therefore as limiting myself to the exact construction shown and described, but

What I claim as my invention and wish to secure by Letters Patent is:—

1. An elongated cylindrical cylinder head,

the walls whereof are composed of one or more cylindrical steps of successively diminishing diameters whereby a relatively large radiating surface is produced, with heat-dissipating members arranged diagonally across said cylindrical steps.

2. An elongated cylinder head having a stepped wall of diminishing diameter whereby a relatively large radiating surface is produced, heat-dissipating members arranged diagonally across the stepped wall, and radially extending means whereby the head may be secured to the cylinder.

3. An elongated cylinder head having a stepped wall of diminishing diameter whereby a relatively large radiating surface is produced, said head being provided with an opening therethrough, arranged to receive a valve-cage through which the incoming and outgoing gases of combustion are conveyed, heat dissipating members arranged diagonally across the stepped wall, and means whereby the head may be removably secured to the cylinder.

4. An elongated open-ended cylinder head for internal combustion engines, the walls whereof are stepped and provided with openings therethrough, one of the ends of the head being adapted to receive a valve-cage through which the incoming and outgoing gases of combustion are conveyed, while the openings in the side wall are provided with connection-receiving bosses, and heat-radiating members diagonally arranged across the stepped wall of the head intermediate of its ends.

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Witnesses:

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