E. T. ROSS.

CYLINDER HEAD.

APPLICATION FILED DEC. 29, 1916.

1,241,024.

Patented Sept. 25, 1917.

2 SHEETS—SHEET 1.

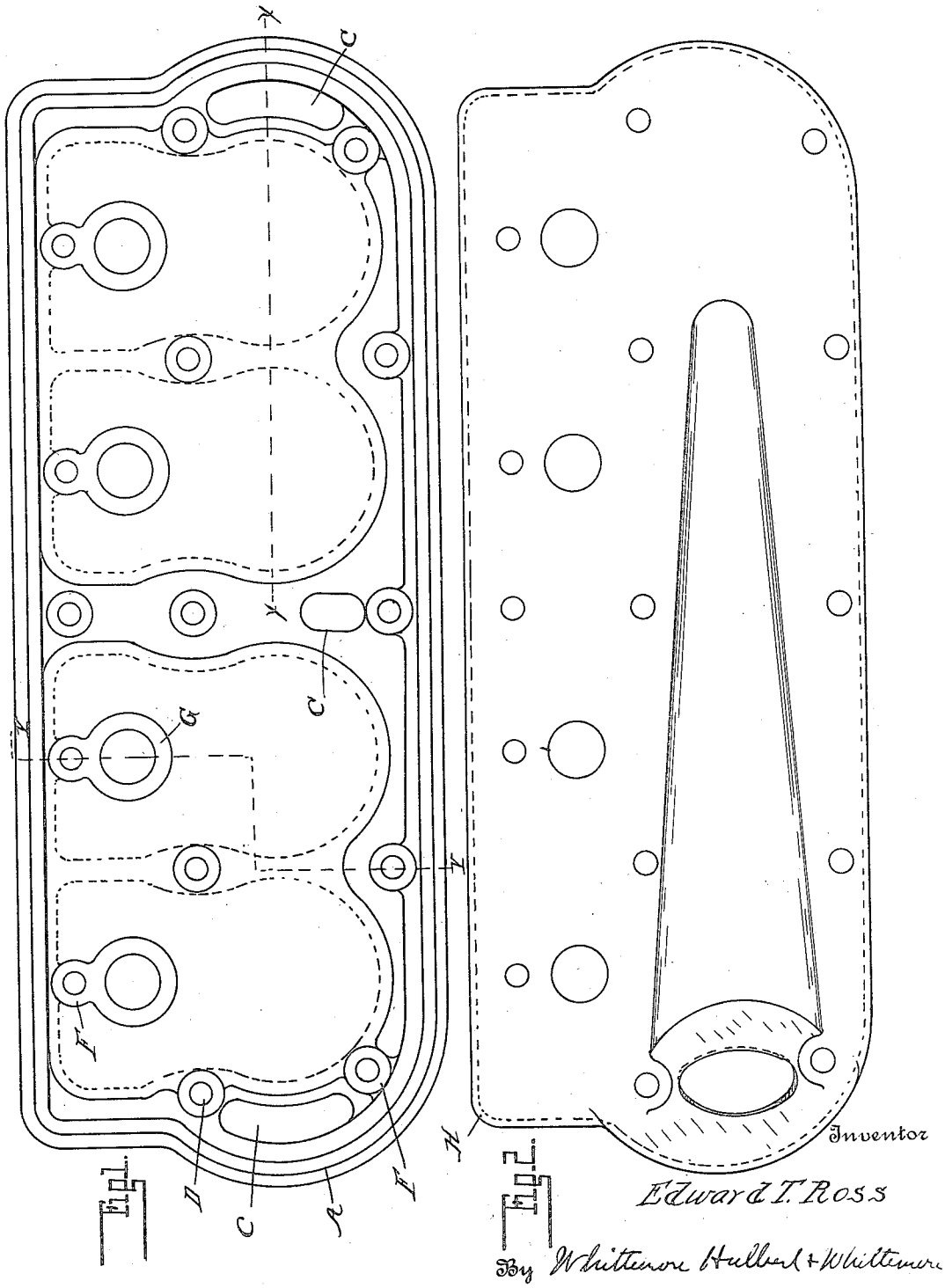


Fig. 1.

Fig. 2.

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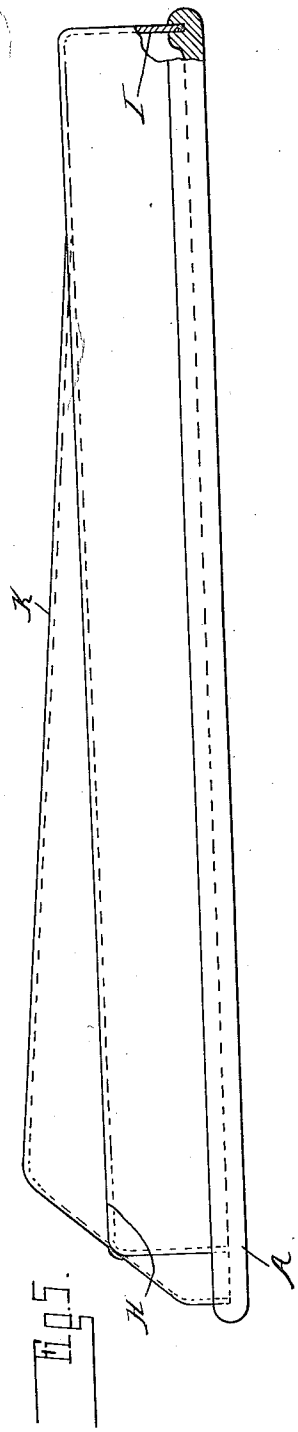


Fig. 5.

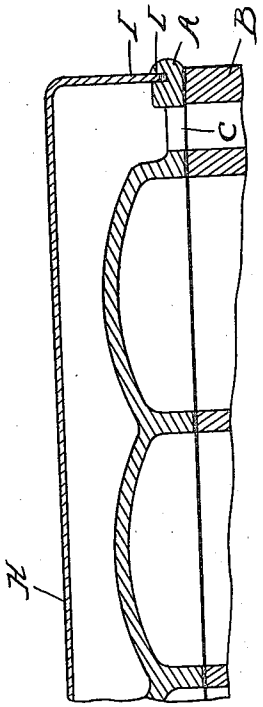


Fig. 7.

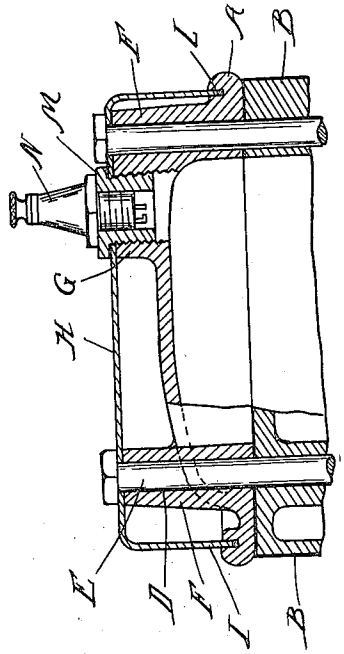


Fig. 4.

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UNITED STATES PATENT OFFICE.

EDWARD T. ROSS, OF DETROIT, MICHIGAN.

CYLINDER-HEAD.

1,241,024. Specification of Letters Patent. Patented Sept. 25, 1917.

Application filed December 29, 1916. Serial No. 139,652.

To all whom it may concern:

Be it known that I, EDWARD T. ROSS, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Cylinder-Heads, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to internal combustion engines and has particular reference to the construction of cylinder head. In the present state of the art, it is usual to provide the cylinder heads with integral water-jackets which are formed by coring. With my improved construction the head is formed of a plain casting without any core work, and the water-jacket is separately formed of pressed sheet-metal. The construction is also such as to permit of easily assembling the parts and maintaining a water-tight joint when assembled.

In the drawings:

Figure 1 is a plan view of the cylinder head with the water-jacket removed;

Fig. 2 is a plan view of the water-jacket;

Fig. 3 is a longitudinal section on the line *x—x* Fig. 1;

Fig. 4 is a cross section on line *y—y* Fig. 1;

Fig. 5 is a side elevation.

A is the cast cylinder head, which as shown is designed for a multi-cylinder engine. This head not only covers the cylinder proper but is extended marginally to cover the water-jacket surrounding the cylinder walls, as shown at B. Apertures C are arranged at suitable points for opening into the water-jacket of the cylinder, and apertures D are formed for engagement with the studs or securing bolts E which fasten the head to the cylinder. These latter apertures are formed in upwardly-extending lugs F, the upper ends of which are in a common horizontal plane, and apertured lugs G are also extended upward from the head to the same plane, these being used for the spark-plugs.

H is the water-jacket, which is formed of pressed sheet-metal having the downturned peripheral flanges I and the top portion H which is seated upon the apertured lugs F and G. There is also preferably formed centrally and extending longitudinally of the jacket a tapering portion K, which at its large end is apertured for connection with the hose leading to the radiator. The flange I is seated in a marginal groove L formed in the member A, and suitable packing material is placed in this groove to form a water seal. The member H is also apertured in registration with the apertures in the lugs F and G, so that the bolts or studs E which secure the head to the cylinder will also fasten down the water-jacket. In addition to this securing means flanged bushings M have a threaded engagement with the apertured lugs G, so as to clamp down the water-jacket, said bushings being internally threaded for the engagement of the spark-plugs N.

The construction described decreases the cost of manufacture by dispensing with core work in casting and at the same time the substitution of the sheet-metal jacket for the integral cast-metal construction reduces the weight.

What I claim as my invention is:

1. A cylinder head, comprising a cast-metal member for engaging the cylinder, a pressed sheet-metal member seated upon said cast member and forming a water-jacket, and a common clamping means for securing said cast and pressed sheet-metal members to the cylinders.

2. A cylinder head, comprising a cast-metal member for directly engaging the cylinder, marginally extended to cover the water-jacket side walls and apertured in registration with the water-jacket, a pressed sheet-metal member for covering said cast member, having downturned marginal flanges seated with a water sealing joint upon the cast member, and securing bolts passing through alined apertures in both of said members and holding the same to the cylinder.

3. A cylinder head, comprising a cast-metal member for directly engaging the cylinder and extended marginally to cover the water-jacket, being apertured in registration with said jacket and being provided with a marginal groove on its upper face, a water-jacket formed of a pressed sheet-metal member having a depending flange seated in said marginal groove, and common clamping means for securing said sheet-metal member and cast-metal member to the cylinder.

4. A cylinder head, comprising a cast-metal member for directly engaging the cylinder, marginally extended to cover the water-

jacket and provided with one or more upwardly-extending apertured lugs, a pressed sheet-metal water-jacket having a depending flange seated upon the marginal portion of said cast-metal member and also seated on said upwardly-extending lugs, being apertured in registration therewith, and clamping bolts passing through the registering apertures for securing both the pressed sheet-metal member and cast-metal member to the cylinder.

5. A cylinder head, comprising a cast-metal member for directly engaging the cylinder, being marginally extended to cover the water-jacket and having a marginal groove in the upper face thereof, said member being also provided with upwardly-extending apertured lugs, a pressed sheet-metal water-jacket covering said cast-metal member having a marginal depending flange seated in said marginal groove and also bearing upon said upwardly-extending apertured lugs, and means engaging said apertured lugs and registering apertures in the pressed sheet-metal member for securing the latter to the former.

6. A cylinder head, comprising a cast-metal member for directly engaging the cylinder, having a marginal portion extending to cover the water-jacket and having a groove in its upper face, said member being also provided with upwardly-extending apertured lugs, a pressed-sheet-metal water-jacket covering said cast-metal member having a depending marginal flange seated in said groove and also seated upon said upwardly-extending apertured lugs, a bushing engaging one of said apertured lugs and a registering aperture in the water-jacket, securing said members to each other and forming a socket for the spark-plug, and a clamping bolt engaging another apertured lug and registering aperture in the water-jacket for securing both of said members to the cylinder.

7. A cylinder head, comprising a cast-metal member for directly engaging the cylinder, said member having upwardly-extending apertured lugs, a pressed sheet-metal water-jacket covering said cast-metal member and seated upon said lugs, said member having depending marginal flanges, a bushing engaging one of said apertured lugs and a registering aperture in the water-jacket, securing said members to each other and forming a socket for the spark-plug, and a clamping bolt engaging another apertured lug and registering aperture in the water-jacket for securing both of the members to the cylinder.

8. A cylinder head, comprising a cast-metal member for directly engaging the cylinder, said member having upwardly-extending apertured lugs, a pressed sheet-metal water-jacket covering said cast-metal member and seated upon said upwardly-extending lugs, and means engaging said apertured lugs and registering apertures in the sheet-metal member for securing the latter to the former.

In testimony whereof I affix my signature.

EDWARD T. ROSS.