Jan. 3, 1928. 1,655,082

O. G. ARMSTRONG

EXHAUST MANIFOLD

Filed March 24, 1925

Fig. 1.

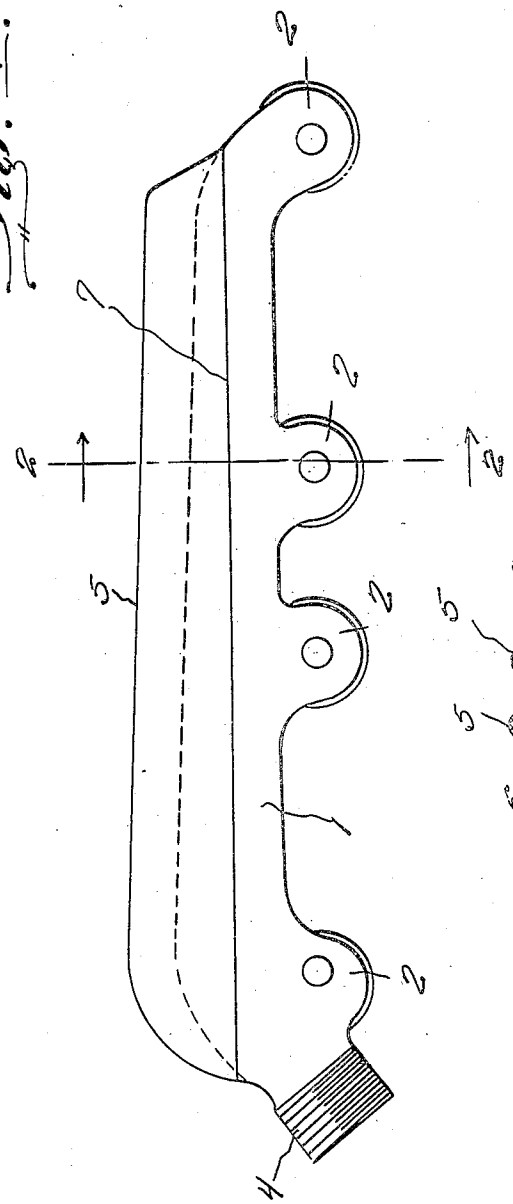
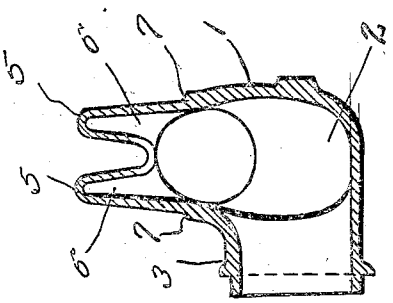


Fig. 2.



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EXHAUST MANIFOLD.

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This invention relates to new improvements in exhaust manifold structures for internal combustion engines.

An object of the invention resides in providing an exhaust manifold structure having a plurality of hollow veins or ribs formed integrally therewith, which extend longitudinally of the manifold structure, for increasing the interior capacity of the manifold, and providing a substantially hollow surface, to permit ready radiation of heat.

A further object of the invention is to provide a manifold structure having a plurality of vanes on the upper portion thereof extending longitudinally of the structure, in order to provide for a larger capacity in the interior of the manifold and for increased radiation of the heat therein, the manifold structure being formed with a pair of shoulders extending longitudinally of the central portion and at the base of the hollow rib, on which a suitable jacket may be seated when it is desired to utilize the radiated heat for heating the interior of the automobile body, to which the manifold may be applied, in a suitable manner.

The invention comprehends other objects and improvements in the details of construction, and formation of the manifold, in order to permit the construction of the improved manifold at substantially the same cost as for the well known types of manifolds now used, as more particularly pointed out in the following detailed description, and in the claim directed to a preferred form of the invention, it being understood, however, that minor changes may be made, without departing from the spirit and scope of the invention as described and claimed.

In the drawing, forming a part of this specification:

Figure 1 is a side elevation of the improved manifold structure.

Figure 2 is a vertical transverse sectional view, taken on the line 2—2 of Figure 1.

While the manifold construction, forming the subject matter of the present invention may be applied in the construction of manifold generally used upon internal combustion engines, the manifold, as illustrated in the drawing, is designed particularly for application to the well known Ford type of engine, and comprises the unitary casting 1, which is provided with depending hollow extensions 2 at the proper points, having lateral extensions 3 therefrom, for engagement in the exhaust openings in the side of the engine block. At the rear end portions, the casting is provided with an outlet externally threaded as at 4, all of which structure so far described is of usual form and now used in the construction of manifolds for internal combustion engines. The upper portion of the manifold as illustrated in the drawing is provided with a pair of vertically extending projections 5 arranged in spaced relation, and which are hollow, as indicated at 6, the hollow portion 6 opening into the main interior portion of the manifold. This provides an additional capacity in the interior of the manifold extending longitudinally thereof for the passage of exhaust gases through the threaded outlet 4 and it in addition provides a greater surface for the application of heat from the exhaust gases. These hollow projections provide a substantially increased exterior surface for the radiation of the heat from the exhaust gases, which may be used for heating the interior of the automobile body by suitable means when desired. In this connection, a shoulder is provided at 7, extending longitudinally from the manifold, on opposite sides thereof, which may be used for a seat for a suitable jacket forming a part of the heat conveying structure when it is desired to utilize the heat in the exhaust manifold for any suitable purpose.

An additional feature of the invention resides in the fact that the casting may be readily made, in view of the form of the projections which are of greater section at their bottom portions than at the upper edges so that in the making of the sand core for the mold, little difficulty will be experienced in removing the patterns and replacing the parts of the mold for pouring the castings. This particular construction also facilitates removing the sand core after the casting is completed. In this way, the casting can be made in the same time as the ordinary exhaust manifold casting and with substantially the same amount of material, so that the cost of production is not increased.

What is claimed is:

As an article of manufacture, an exhaust manifold, comprising a cast body formed of a lower substantially semi-cylindrical portion having a plurality of depending tubular extensions having the lower ends terminating in lateral tubular projections for

engagement in the exhaust openings of an internal combustion engine cylinder block, the upper portion having a pair of upwardly extending relatively converging side walls provided with offset junctures with the lower portion of the body to provide external shoulders on opposite sides of the center portion of said manifold extending longitudinally thereof, and a V-shaped portion formed between said side walls and in spaced relation thereto having the upper edges jointed to the upper edges of the side walls, said body having the wall portions thereof formed of substantially uniform section, said side walls and V-shaped portions forming a part of passages extending throughout the length of said manifold above the connections for the manifold with the engine block for conducting the gases in said manifold longitudinally thereof through an outlet formed at one end of said body.

In testimony whereof I affix my signature.

ORLAN G. ARMSTRONG.