

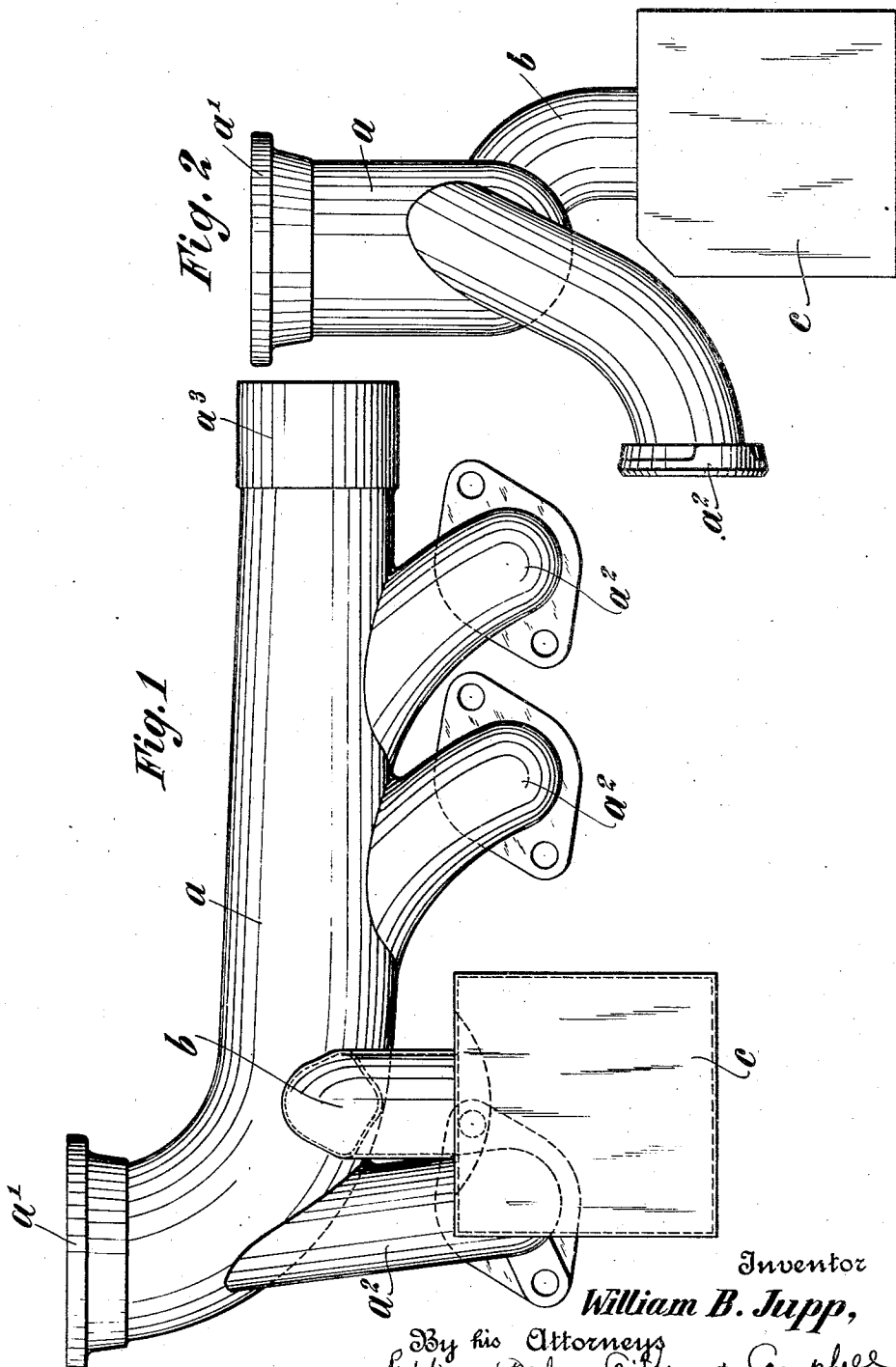
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EXHAUST MANIFOLD

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UNITED STATES PATENT OFFICE

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EXHAUST MANIFOLD

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This invention relates to an improved form of exhaust manifold which incorporates, with the usual manifold construction, a device for deadening the sound of the exhaust gases. In the copending applications Serial No. 260,855 filed March 12, 1928 and Serial No. 281,504 filed May 29, 1928, there have been illustrated constructions designed for the same purpose as the present construction and this invention embodies a further form of manifold having the characteristics outlined in the above mentioned applications. An object of the invention is to provide a pocket in the form of a pot-like extension or chamber in the exhaust manifold, the column of gas within which vibrates in accordance with wave impulses produced by the exhaust explosions entering the manifold.

A further object of the invention is to provide a chamber of the above character upon the exhaust manifold, its construction and design being such that it does not increase the length of the manifold nor occupy any space which is usually required for the auxiliary apparatus of the engine. In the specific embodiment, the axis of the chamber is disposed substantially at right angles to that of the manifold, thus forming a pulsating gas column, the direction of the impulses of which are impressed upon the manifold gases at a substantial angle to the direction of movement thereof.

Further objects and advantages will appear as the description of the invention continues and reference will now be had to the accompanying drawings, wherein:

Figure 1 is a view in elevation of a preferred embodiment of the invention.

Figure 2 is an end view of the exhaust manifold formed in accordance with the present invention.

Referring to the above drawings, *a* indicates the rear portion of an exhaust manifold for a six cylinder engine, the manifold being formed in two portions. In the particular embodiment, this is the rear portion and is provided with exhaust ports *a'*, gas ports *a''* and a connection *a'''* for securing the forward manifold section thereto.

Formed integral with the rear section *a*, is

a downwardly extending chamber *b* or passage which terminates in a pot-like compartment *c*. This compartment is completely closed and forms, with the chamber *b*, a closure for a column of gas which communicates with the interior of the exhaust manifold *a*. The explosions in the engine cause wave impulses to be set up in the exhaust manifold and these wave impulses are, in turn, impressed upon the column of gas in the chamber *b* and extension *c*. In this manner, the column of gas above referred to is caused to vibrate and its length and dimensions are of such character as to cause the reflected sound wave to be out of phase with the impulses in the manifold. With the wave impulses out of phase, they are mutually destructive and the resulting noise transmitted through the manifold and exhaust gases is greatly reduced. The wave crests ordinarily existing in the manifold will be ironed out by the pressure built up in the column since, due to the characteristics of design, the built-up pressure is exerted upon the gas within the manifold at the periods of negative pressure thereof.

Minor changes in design and parts may be made without departing from the scope of the invention as defined in the appended claim.

I claim as my invention:

The combination with an exhaust manifold for a multiple cylinder internal combustion engine, said manifold extending parallel to the line of the cylinders and having extensions at angles thereto communicating with the exhaust ports of said engine, the manifold being formed to permit the escape of gases therefrom at one end only, of an enlarged, closed compartment and a relatively small, always-open passage connecting said compartment to the manifold adjacent the end thereof at which the exhaust escapes and offset with respect to the extensions and exhaust valves.

This specification signed this 17th day of May, A. D. 1928.

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