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C. B. BAILEY

GASKET

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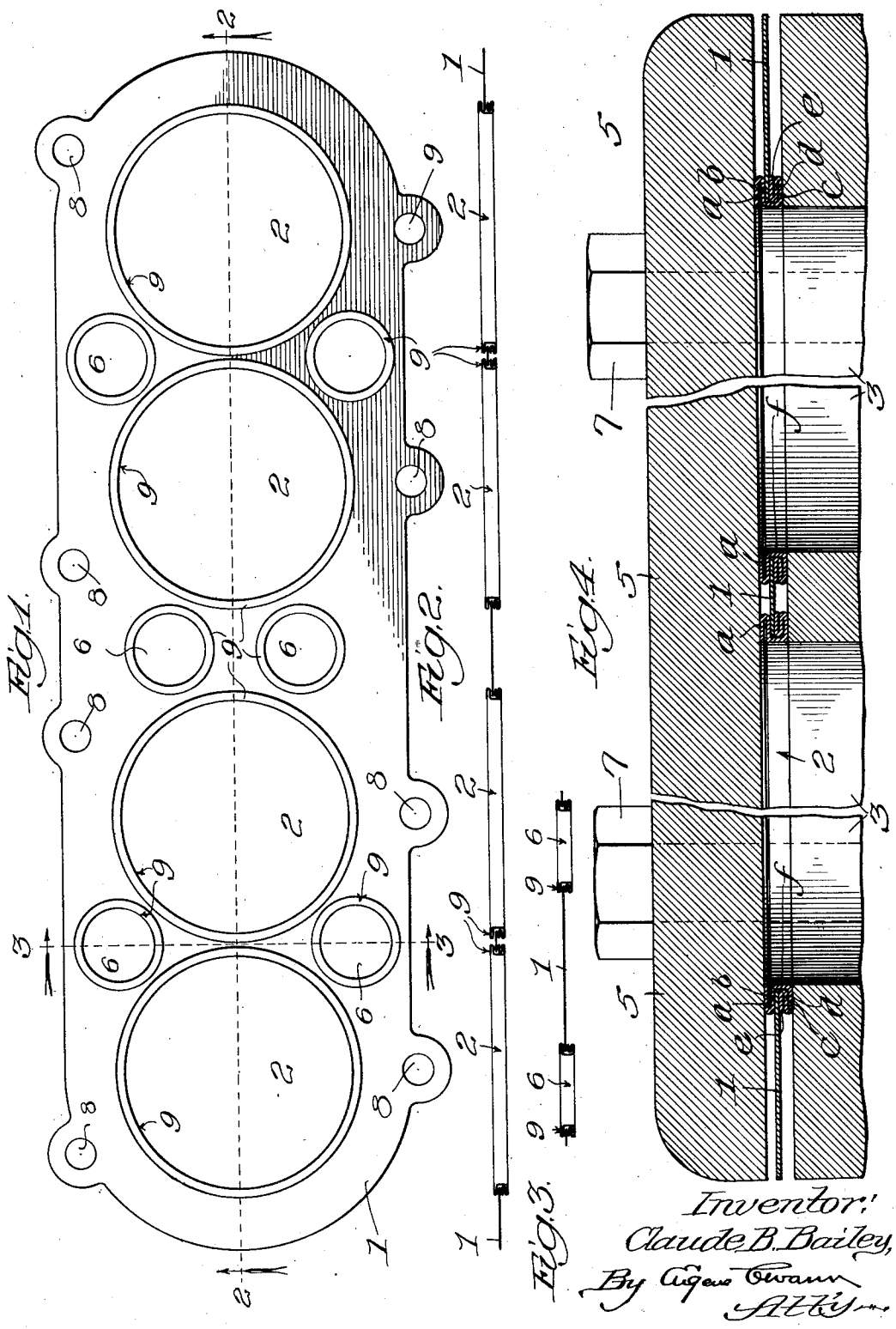


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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GASKET.

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The gasket contemplated by this invention has a plurality of spaced port holes in its body portion, with the latter made entirely of sheet metal, preferably from a single layer of such material, and with folded pressure receiving portions about the respective port holes and made of sheet metal independent of the body layer and inserted in said port holes.

The main object of the invention is to have these pressure receiving portions in such folded form that they provide at least two folds or layers on each side of the gasket body about the port holes to produce the cushions required without the use of asbestos or like material for rougher as well as the smoother surfaces between which the gaskets are clamped.

The invention consists further in the matters hereinafter described and claimed.

In the accompanying drawings—

Fig. 1 is a plan view of a cylinder head gasket constructed in accordance with my invention;

Figs. 2 and 3 are longitudinal and transverse sectional views, respectively, taken on lines 2—2 and 3—3 of Fig. 1; and

Fig. 4 is a vertical sectional view showing the gasket clamped between a cylinder block and cylinder head.

As shown in the drawings, the gasket has a flat body portion 1, stamped or otherwise formed from a single layer of sheet metal, such as copper, brass, aluminum, zinc, or other suitable material. Said gasket has a plurality of relatively large port holes or openings 2, 2 disposed in a row lengthwise of the gasket body. Said port holes 2, 2 are substantially the same in size and arranged to fit about the cylinder bores 3, 3 in the cylinder block 4 against which the gasket is clamped by the cylinder head 5, as shown in Fig. 4.

The body 1 is further provided with a plurality of smaller port holes 6, 6 also the same in size and arranged to fit about the registering water passages in the block 4 and head 5, respectively, as usual in water cooled gas engines. When the gasket is clamped between such parts by the usual studs or bolts 7, 7, as in structures of this kind, the gasket has holes 8, 8 at its margins to receive these studs.

The gasket shown in the drawings is designed for a four-cylinder engine with overhead valves, the latter being omitted for the sake of illustration. Such engines are employed in Chevrolet cars, although it is of course to be understood that gaskets of my invention may be designed for the same number or more cylinder motors and have different valve arrangements without departing from the spirit and scope of my invention.

Around the port holes 2 and 6, I provide pressure receiving portions 9, 9 formed of sheet metal independent of the gasket body 1 and inserted in said port holes. These portions are in folded form and have a plurality of superimposed folds or layers *a* to *e* substantially parallel to each other and to the gasket body 1, as clearly shown in Fig. 4. The layers *a* to *e* of each pressure receiving portion 9 are folded into the form shown from a single piece of sheet metal, so that such layers are integrally connected. The portions 9 are inserted in their respective port holes 2 and 6 with their layers *a* and *b* on one side of the body layer 1 and their layers *c* to *e* on the opposite side. These portions 9 are retained at their port holes by the body portion 1 extending between the layers *b* and *e* with the layers engaging the body 1 on opposite sides thereof, as shown in Fig. 4.

The layers *a* and *b* are integrally connected by the fold in the metal around the outer edge of the portion 9. Layers *b* and *c* are integrally connected by the folded portion *f* which extends through the port hole in the body layer 1 and also across the folded metal connecting the layers *d* and *e* together, as shown in Fig. 4. The fold in the metal connecting the layers *c* and *d* is around the outside of the portion 9 and is substantially in alignment with the folded connection between layers *a* and *b*. The folded portion *f* is substantially in alignment with the inner edge of the layer *a*, so that the pressure receiving portion 9 is substantially uniform in width from one side of the gasket body 1 to the other and thus distributes more or less uniformly the clamping pressure on the gasket throughout this portion 9. To have this uniform width, the layers *d* and *e* are a trifle narrower than the other layers, as shown.

The portions 9, by reason of their fold-

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ing, are thicker than the gasket body 1, and allow the clamping pressures when exerted on the gasket to be concentrated on and confined to these portions 9 to obtain tight joints immediately at and about the port holes without distributing and wasting the pressure over the entire surface or area of the gasket, as with cylinder head gaskets as heretofore generally constructed. This allows less pressure to be used and thus enables smaller studs or bolts to be employed, or the same size studs as now generally employed may be used with less strain or tension on them to provide tight joints, especially for high pressures as encountered in cylinders of internal combustion engines.

With two or more folds or layers of sheet metal on opposite sides of the gasket body 1, sufficient cushions are provided for the gasket to make tight joints, without regard to the smoothness or finish of the surfaces between which the gaskets are clamped. Making the pressure receiving portions 9 in the manner herein disclosed, tight joints can be made between very rough surfaces because there is sufficient metal provided in conjunction with the body layer 1 for the purpose. It is desired to have the outermost layers on opposite sides of the body 1 slightly spaced from their connecting layers so that the metal may be under tension and yield under clamping pressures to produce the tight joints required.

The gaskets being made entirely of sheet metal avoids blow-outs for the reason that there are no separate parts to loosen or fracture under high pressure, as with gaskets made up of separate metal layers or facings and interposed layers of asbestos or like material as heretofore. Moreover, with the pressure receiving portions entirely of sheet metal, asbestos and the like is dispensed with, thereby simplifying the gasket structure by eliminating excess material and reducing the manufacturing cost.

My invention may be applied to gaskets of other types, and I do not desire to be limited in its application to cylinder head gaskets as shown.

I claim as my invention:—

1. A gasket having a body portion of a single layer of sheet metal with a port hole therein, and a pressure receiving portion formed of sheet metal independent of the gasket body and inserted in said port hole, said member being folded to have a plurality of superimposed folds or layers on opposite sides of the gasket body with the layers on one side having folded portions lying between the gasket body and the adjacent outer layer of said member.

2. A cylinder head gasket having a flat body portion of a single layer of sheet metal and having a plurality of port holes therein, and pressure receiving members formed of sheet metal independent of the gasket body and inserted in said port holes, said members being folded to have a plurality of superimposed folds or layers on opposite sides of the gasket body with the layers on one side having folded portions lying between the gasket body and the adjacent outer layers of the members.

3. A gasket having a flat body portion of a single layer of sheet metal and having a port hole therein, and a pressure receiving member formed of sheet metal independent of the gasket body and inserted in the port hole, said member being folded to have a greater number of folds or layers on one side of the gasket body than on the other with an intermediate layer on one side of the gasket layer connected with an outer layer on the opposite side by a fold in the metal extending through the port hole, the intermediate layers on the last mentioned side of the gasket body being narrower than the outermost layer and being integrally connected by the folds in the metal about the inside and outside edges, respectively, of said layers.

In testimony whereof, I affix my signature this 10th day of July, 1925.

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