

E. AUGUSTIN & J. M. McDONNELL.

GAS ENGINE VALVE.

APPLICATION FILED AUG. 2, 1913.

1,102,183.

Patented June 30, 1914.

2 SHEETS—SHEET 1.

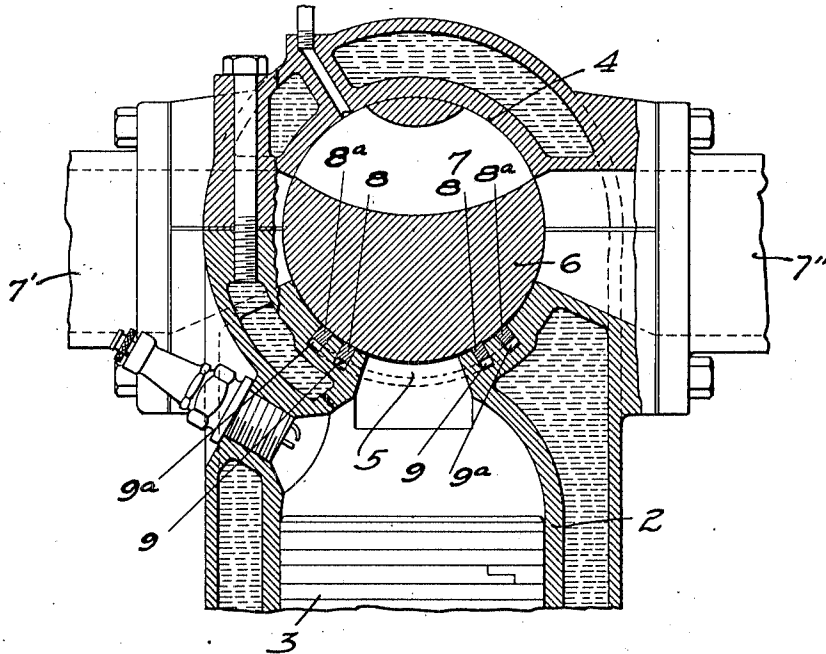


FIG. 1.

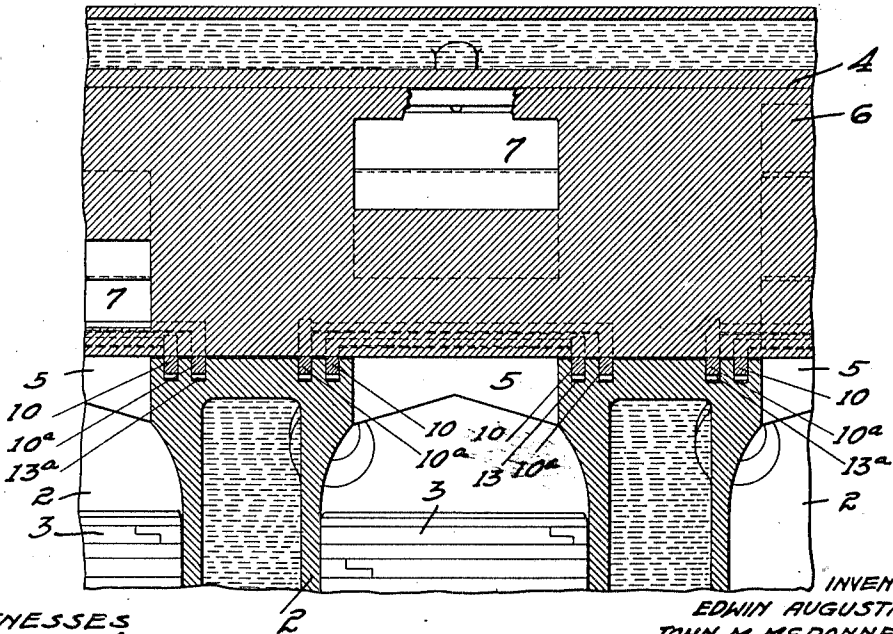


FIG. 2.

WITNESSES
M. R. McInnis
D. E. Souther

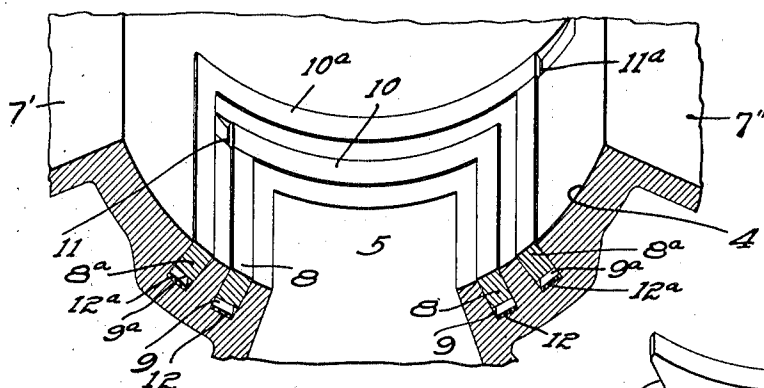
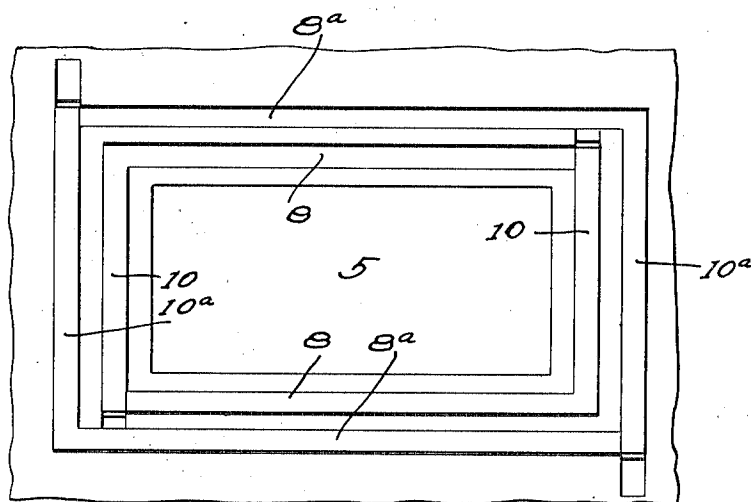
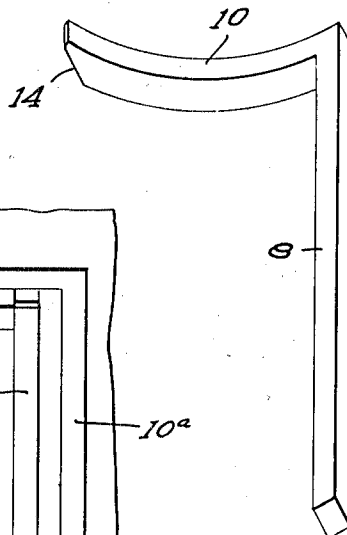
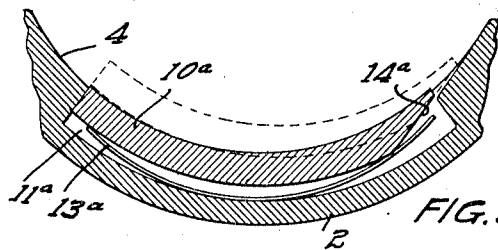
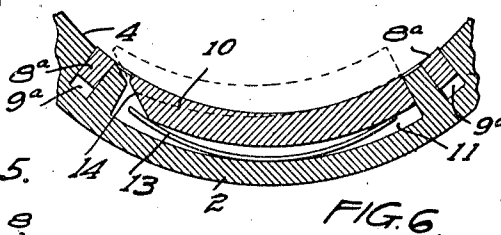
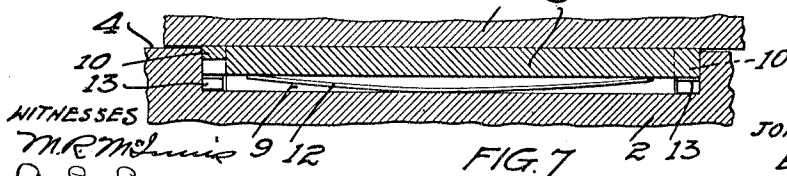
INVENTORS
EDWIN AUGUSTIN
JOHN M. McDONNELL

BY Paul & Paul
ATTORNEYS

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2 SHEETS—SHEET 2.



M. R. McInnis
C. E. Sorensen

INVENTORS
EDWIN AUGUSTIN
JOHN M. MCDONNELL
BY *Paul & Lauch*
ATTORNEYS

UNITED STATES PATENT OFFICE.

EDWIN AUGUSTIN AND JOHN M. McDONNELL, OF MARSHFIELD, WISCONSIN,
ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO AUGUSTIN ROTARY
VALVE ENGINE COMPANY, OF MARSHFIELD, WISCONSIN.

GAS-ENGINE VALVE.

1,102,183.

Specification of Letters Patent. Patented June 30, 1914.

Application filed August 2, 1913. Serial No. 782,653.

To all whom it may concern:

Be it known that we, EDWIN AUGUSTIN and JOHN M. McDONNELL, citizens of the United States, and residents of Marshfield, county of Wood, and State of Wisconsin, have invented certain new and useful Improvements in Gas-Engine Valves, of which the following is a specification.

Our invention relates to gas engine valves of the rotary type and particularly to the packing strips therefor.

The object of our invention is to provide packing strips of such construction and arrangement that the leakage of gas between the valves and the strips will be positively prevented.

A further object is to provide packing strips which will seat themselves smoothly and evenly on the surface of the valve and exert a yielding pressure thereon.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification, Figure 1 is a transverse sectional view through a valve and casing embodying our invention, Fig. 2 is a longitudinal sectional view, Fig. 3 is a perspective view taken on the section line transversely of the valve casing, showing the position of the packing strips therein, Fig. 4 is a plan view, showing the position of the packing strips. Figs. 5, 6 and 7 are detail sectional views, showing the manner of mounting the packing strips in the casing of the valve, Fig. 8 is a perspective view of one of the sections of the packing removed from its seat in the casing.

In the drawing, 2 represents a portion of a gas engine cylinder having the usual piston 3. Any suitable number of these cylinders may be provided, as indicated in Fig. 2, and a valve casing 4 is mounted on these cylinders and each cylinder communicates with the valve casing through a port 5. A rotary valve 6 is provided within the casing, having a passage 7 extending therethrough on one side of its axis and adapted to communicate with the port 5 and form a passage leading from the gas manifold 7' to the

cylinder or from the cylinder to the exhaust manifold 7'.

The packing strips which we prefer to arrange in our improved valve are preferably arranged in two groups, one within the other. The strips are formed in the same manner for both groups, and we will designate them by the same reference numeral with the addition of the exponent "a" for the second group.

The inner group comprises a metallic strip 8 adapted to fit into a recess 9 formed in the wall of the casing and extending lengthwise thereof on one side of the port 5, the strip lying in a plane coinciding with the radius of the casing. At one end of the strip 8 a curved strip 10 is provided, united to the strip 8 and fitting within a transverse groove 11 formed in the casing on an arc that is concentric with said casing. The strips 8 and 10 form an L-shaped section substantially and slide freely within the grooves in the casing, being normally held in a projected position by springs 12 and 13 inserted in the bottom of the grooves. The arrangement of these strips in the manner described insures their freedom of movement in the grooves and a snug contact with the surface of the valve, the strips sliding in and out of the grooves and adapting themselves to the pressure of the valve thereon during its rotation. The end of the strip is beveled, as at 14, to allow freedom of movement of the strip in the groove of the casing.

The end of the other strip 8 upon the opposite side of the port leading to the cylinder has its end abutting the cross strip 10 so that in effect a rectangular frame is formed, composed of these packing strips inclosing the cylinder port. The outer group of packing strips correspond to those described and fit within similar grooves and, as stated, are designated by the same reference numerals with the addition of the exponent "a."

We prefer to provide two groups of strips in the manner shown as affording a greater degree of protection against the escape of gas from the cylinder.

We claim as our invention:

1. The combination, with a rotary valve casing provided with a port therein and longitudinal and transverse grooves encircling said port, packing strips fitting within said grooves and composed of L-shaped sec-

tions, each including a longitudinal and a transverse strip, the longitudinal strip of each section lying in a plane coinciding with the radius of said casing, and the transverse strip of each section coinciding with an arc concentric with said casing and having an end portion provided with an outer beveled face and abutting the end of the adjacent longitudinal strip, and flat springs fitting within said grooves and operating to press said strips inwardly with a yielding pressure.

2. The combination, with a rotary valve casing having a port therein and longitudinal and transverse grooves inclosing said port, packing strips fitting loosely within said grooves and composed of L-shaped sections, each including a longitudinal and a transverse strip, the longitudinal strip of each section lying in a plane coinciding with the radius of said casing, and the transverse strip of each section coinciding with an arc concentric with said casing, one end of each longitudinal strip of a section abutting the transverse strip of the other section, and springs interposed between said strips and the bottoms of said grooves.

3. The combination, with a rotary valve casing provided with a port therein and longitudinal and transverse grooves inclosing said port, there being an inner and an outer group of said grooves, packing strips fitting loosely within said grooves and composed of L-shaped sections, each including a longitudinal and a transverse strip, the longitudinal strip of each section lying in a plane coinciding with the radius of said casing, and the transverse strip of each section coinciding with an arc concentric with said casing, one end of each longitudinal strip of a section abutting the transverse strip of the other section, said sections sliding freely in said grooves, a valve with which said sections contact, and means for holding said sections against the surface of said valve with a yielding pressure.

In witness whereof we have hereunto set our hands this 28th day of July 1913.

EDWIN AUGUSTIN.
JOHN M. McDONNELL.

Witnesses:

FRANK VAUGHN,
H. E. HOERL.