A. J. SEAMAN.

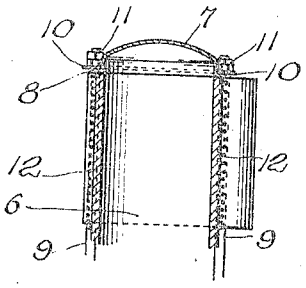
COOLING DEVICE FOR ROTARY GAS ENGINES.

APPLICATION FILED APR. 28, 1913.

1,123,403.

Patented Jan. 5, 1915.

Fig. 4.



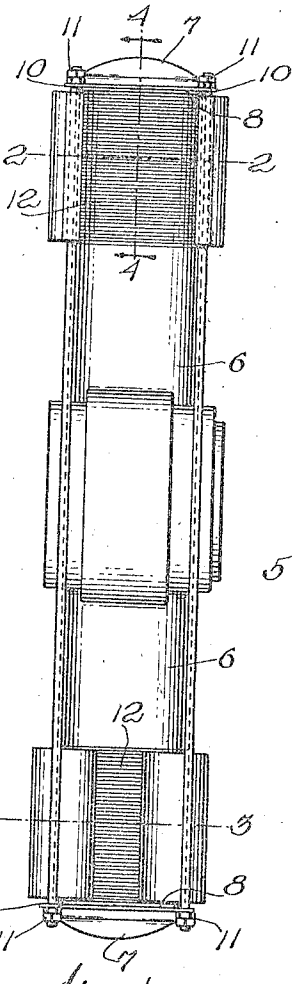


Fig. 1.

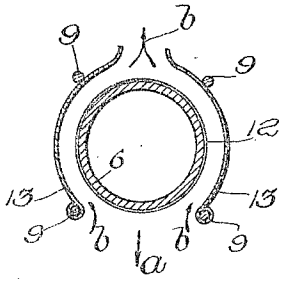


Fig. 2.

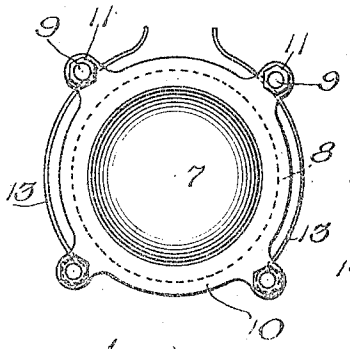
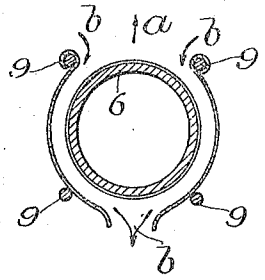


Fig. 5.

Fig. 3.



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UNITED STATES PATENT OFFICE.

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COOLING DEVICE FOR ROTARY GAS-ENGINES.

1,123,463. Specification of Letters Patent. Patented Jan. 5, 1915.

Application filed April 28, 1913. Serial No. 763,276.

To all whom it may concern:

Be it known that I, ALBERT J. SEAMAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Cooling Devices for Rotary Gas-Engines, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

This invention has reference to improvements in cooling devices for cylinders for rotary gas or internal combustion engines.

The invention relates particularly to the construction of cooling devices for cylinders of gas engines whereby currents of air are directed around the combustion chambers of said cylinders to take heat radiated therefrom.

One object of the invention is to provide a novel and efficient means for effecting radiation of heat from the combustion chambers of the cylinders of rotary gas engines and for more effectually carrying off the heat radiated.

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

The invention consists in the means for strengthening the cylinders against radial pressure and assisting in the radiation of heat therefrom as well as in the means for directing air currents around said cylinders.

The invention also consists in such other novel features of construction and combination of parts as shall hereinafter be more fully described and pointed out in the claims.

Figure 1, represents the improved cylinder member in elevation, line *x*—*x* indicating the direction of its axis. Fig. 2, represents a cross sectional view taken on line 2—2 Fig. 1. Fig. 3, represents a similar view taken on line 3—3 Fig. 1. Fig. 4, represents a longitudinal sectional view taken on line 4—4 Fig. 1. Fig. 5, represents an end view of one of the cylinders.

Similar characters of reference designate corresponding parts throughout.

As shown in the drawings 5 indicates the crank case of any suitable construction for a motor of this character and having the cylinders 6, 6 the ends of which are closed by the sheet metal cylinder heads or caps 7, 7 having the flanges 8, 8. These caps 7, 7 are secured in place by the rods 9, 9 secured in the bearing plates 10, 10 which engage the flanges 8, 8 of the respective heads or caps 7, 7. Nuts 11, 11 are provided for said rods 9, 9 to resist the outward pressure on said plates 10, 10.

In order to strengthen the outer end portion of the cylinder approximately at the point at which the pressure of the internal explosion is exerted I wind this portion of the cylinder with wire 12 of a suitable size and for this purpose I have found that piano wire, so called, is particularly adapted. I also find that the coils of this wire 12 tend to assist the radiation of heat from the cylinder to the atmosphere and, in order to more effectually carry off such radiated heat I provide the cylinders with the pairs of baffle plates 13, 13 each of which is secured to one of said rods 9, 9 and extends partially around the wire wound portion of the cylinder to another of said tie rods 9, 9, against which said baffle plate bears, and is then bent outward. Each pair of these baffle plates, spaced from the wire wound portion of the cylinder, forms an air cooling chamber having a comparatively large mouth or entrance located toward the direction in which the cylinder is adapted to move and a comparatively small outlet located in the opposite direction so that, when the cylinders are moving in the direction indicated by the arrows *a*, *a* in Figs. 2 and 3 of the drawings, the air currents will pass through said cooling chambers in the directions indicated by the arrows *b*, *b* of said figures, whereby the air currents will be directed with considerable force against the coils of the wire 12, 12 and, to some extent, between the coils of said wires so that heat latent between said coils will be disturbed and driven off by said air currents.

By the use of the cylinder heads or caps 7, 7 and their securing means I reduce the cost of manufacturing the cylinders and I find that the strain on one of said heads or caps at the explosion of a charge of fuel therein is resisted largely by the other of said heads or caps and the connections therewith which, at this time, is under pressure of the exploding charge in its cylinder. That is the charges of gas in both cylinders are exploded simultaneously and the pres-

sure of said explosions on the heads or caps 7, 7 is resisted by the rods 9, 9.

Having thus described my invention I claim as new and desire to secure by Letters Patent.

1. A gas engine cooling device comprising a crank case, cylinders mounted thereon and in alinement on opposite sides of the crank case, cylinder heads, a series of tie rods extending the full length of said cylinders and crank case for holding said heads in place, and baffle plates mounted on certain of said tie rods and partially embracing said cylinders.

2. A gas engine cooling device comprising a crank case, cylinders mounted thereon in alinement on opposite sides of said crank case, cylinder heads for said cylinders, tie rods for said cylinder heads spaced from said cylinders, wrappings of coiled wire on said cylinders, and pairs of baffle plates mounted on certain of said tie rods and partially embracing said wire windings whereby air chambers are formed having wide mouths and restricted outlets.

3. A rotary gas engine comprising a crank case, a pair of cylinders mounted thereon and extending in alinement on opposite sides of said crank case, cylinder heads mounted on said cylinders, bearing members on said cylinder heads, tie rods to which said bearing members are secured, wire windings closely embracing the cylinders adjacent said cylinder heads, and pairs of baffle plates secured to pairs of said tie rods, spaced from and partially embracing said wire windings, said respective pairs of baffle plates extending in opposite directions from the tie rods to which they are secured whereby air cooling compartments are formed having mouths open in opposite directions.

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