J. H. JONES.

ROTARY ENGINE.

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1,126,224. Patented Jan. 26, 1915.

Fig. 1.

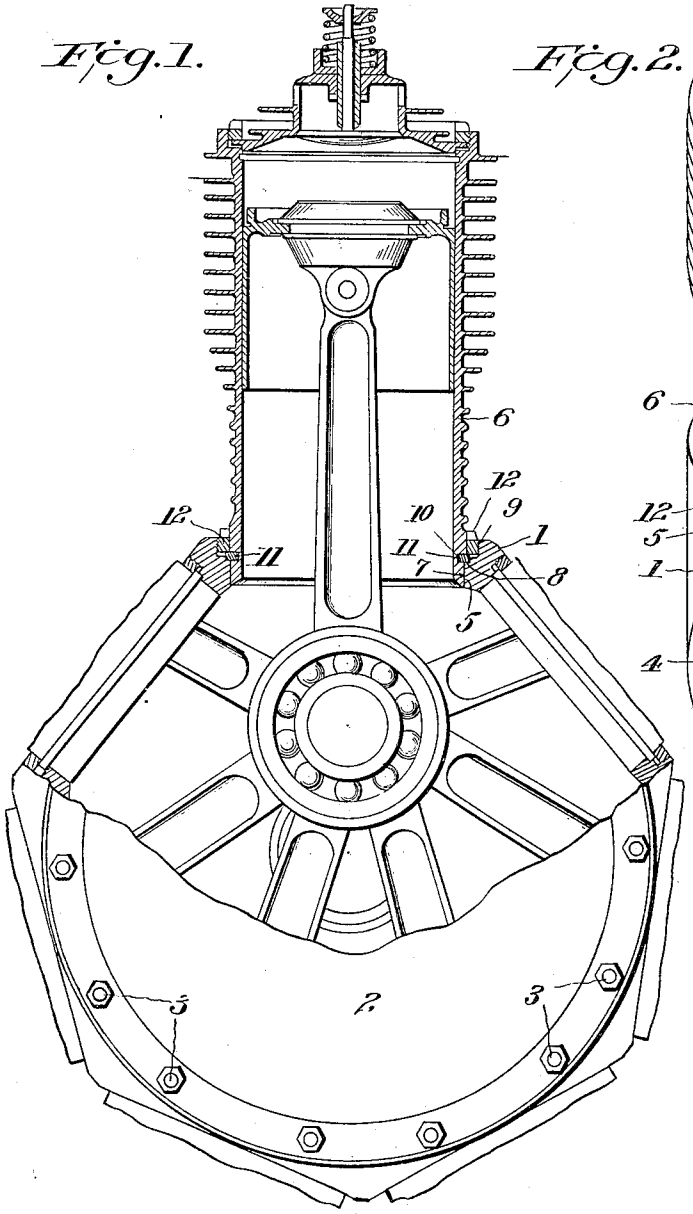
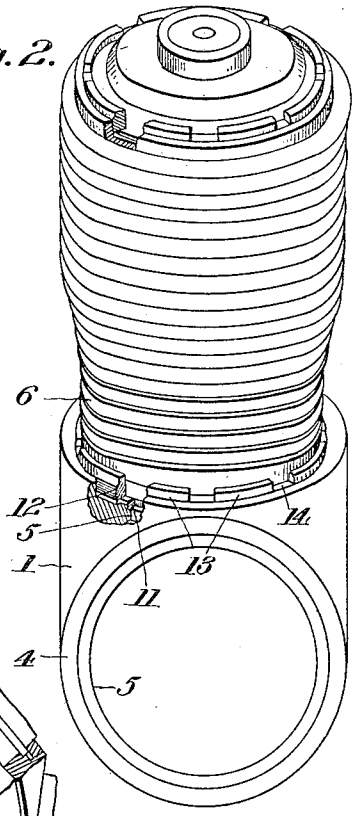


Fig. 2.



WITNESSES

C. M. Walker.

Grace P. Brereton

INVENTOR

James H. Jones

By Sturtevant & Mason

Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES H. JONES, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO HENDEE MANUFACTURING COMPANY, OF SPRINGFIELD, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

ROTARY ENGINE.

1,126,224. Specification of Letters Patent. Patented Jan. 26, 1915.

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To all whom it may concern:

Be it known that I, JAMES H. JONES, a citizen of the United States, residing at Springfield, in the county of Hampden, State of Massachusetts, have invented certain new and useful Improvements in Rotary Engines, of which the following is a description, reference being had to the accompanying drawing, and to the letters and figures of reference marked thereon.

The invention relates to new and useful improvements in rotary engines, and more especially to the construction whereby the cylinders of a rotary engine are connected to the casing.

In a rotary engine, the expansive force of the operating fluid produces a strain which would tend to separate the cylinders from the supporting casing. Also in this type of engine, the centrifugal force incident to the rotation of the parts of the engine, operates to produce a strain which also tends to separate the cylinders from the supporting casing. It is essential, therefore, in this type of engine to provide a very strong and durable means for attaching the cylinders to the supporting casing. It is also essential to provide such a means for connecting the cylinders to the casing that said cylinders may be readily detached from the casing.

An object of the present invention is to provide means for connecting the cylinders to the casing, which means is readily accessible, so that any one of the cylinders may be detached from the supporting casing without the necessity of opening or removing any parts of the casing.

A further object of the invention is to provide a structure of the above character, which is very strong and durable, so that the extraordinary strains incident to the centrifugal force acting upon the cylinders, and also the expansive force of the operating fluid may be conveyed through the connecting means from the cylinders to the casing, without any liability of separating the cylinders from the casing.

These and other objects will in part be obvious, and will in part be hereinafter more fully described.

In the drawings, which show by way of illustration one embodiment of the invention, Figure 1 is a side view partly in section showing an engine casing with the improved means for attaching the cylinders thereto; Fig. 2 is a perspective view, with parts broken away, showing one of the cylinders and the attaching means therefor.

In carrying out the invention, the engine casing 1 consists of suitable metal which is preferably cast in one piece, although it will be obvious from certain aspects of the invention that this casing may be otherwise made. The casing at each side is provided with side members 2, which are bolted to the main part of the casing by suitable bolts 3.

The casing as herein shown, is formed with seven flat cylinder-supporting faces 4. Each of the supporting faces 4 is provided with an opening 5. Each cylinder 6 is turned at its lower end as at 7, so as to fit the face 5 in the supporting casing. The supporting casing, above the surface 5, is provided with a seating ledge 8, and above this seating ledge the opening is enlarged and threaded, as at 9.

The cylinder, as herein shown, is formed with a groove 10, in which is seated a split ring 11. This split ring 11 may be of hardened steel, and projects beyond the surface of the cylinder. Said seating ring, therefore, forms a projecting member which is carried by the cylinder as the ring is seated in the groove, and will be held from longitudinal movement relative to the cylinder. This ring is adapted to engage the seating ledge 8 when the cylinder is placed in the supporting casing.

The ring nut 12 is threaded on its outer face, so as to engage the threads 9 formed on the casing. This ring 12 also fits the outer face of the cylinder. The ring nut is formed at its outer side with spaced lugs 13, forming grooves 14, adapted to receive a suitable implement for turning the ring. It will be obvious, however, that in place of constructing the ring with spaced lugs, that any other suitable means may be provided whereby the ring may be turned.

In order to attach the cylinder to the casing, the hardened steel ring 11 is placed in the groove in the cylinder, and the end of the cylinder slipped into the casing, until the ring rests on the supporting ledge 8. The threaded ring nut which is first slipped on to the cylinder, is then engaged with the threads on the casing. As this ring is screwed into its seat, the lower edge of the

ring will engage the hardened steel ring 11 carried by the cylinder, and will firmly lock the cylinder to the supporting casing. Each cylinder is secured to the casing in a similar manner. When it is desired to remove the cylinder from the casing, all that is necessary is to remove the ring nut, and the cylinder may be quickly taken from the casing. It will be apparent, therefore, that by the above construction, any one cylinder may be removed from the casing without disturbing the others, and that, furthermore, a cylinder may be taken from the casing without removing any of the parts of the casing. Therefore, the construction herein described affords a very simple means, which may be quickly manipulated for securing the cylinder to the casing, or removing the same from the casing. Furthermore, by this construction, wherein the cylinder is firmly locked to the casing by a ring which extends entirely around the cylinder, and by a threaded ring nut, which also extends entirely around the cylinder, there is provided a very strong and durable connection for uniting the cylinders to the casing, so that there is no liability of the cylinder being separated from the casing by reason of the centrifugal force acting on the cylinder, or by reason of the forces due to the expansion of the operating fluid in the cylinder.

While I have shown an engine having seven cylinders, it will be obvious that any number of cylinders may be provided, and it will also be obvious that minor changes in the arrangement of the parts and the details of construction may be made, without departing from the invention as set forth in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. The combination of a rotary supporting casing having a plurality of independent outwardly facing seating ledges formed thereon, a cylinder resting on each supporting ledge, said cylinder having a projecting member engaging the outer face of said ledge, and means external of the casing for clamping said projecting member on its seating ledge.

2. The combination of a rotary supporting casing having a plurality of independent outwardly facing seating ledges, a cylinder for each seating ledge, each cylinder having a groove formed therein, a split ring adapted to engage said groove and rest on the outer face of the respective seating ledge, a second ring adapted to engage the outer face of the ring carried by the cylinder, and means for holding said second ring in said casing.

In testimony whereof I affix my signature, in presence of two witnesses.

JAMES H. JONES.

Witnesses:
WILLIAM C. FRONK,
WILLIAM SHIELDS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."