

C. & S. Weed,

Rotary Steam Engine.

N^o 43,729.

Patented Aug. 2, 1864.

Fig. 1.

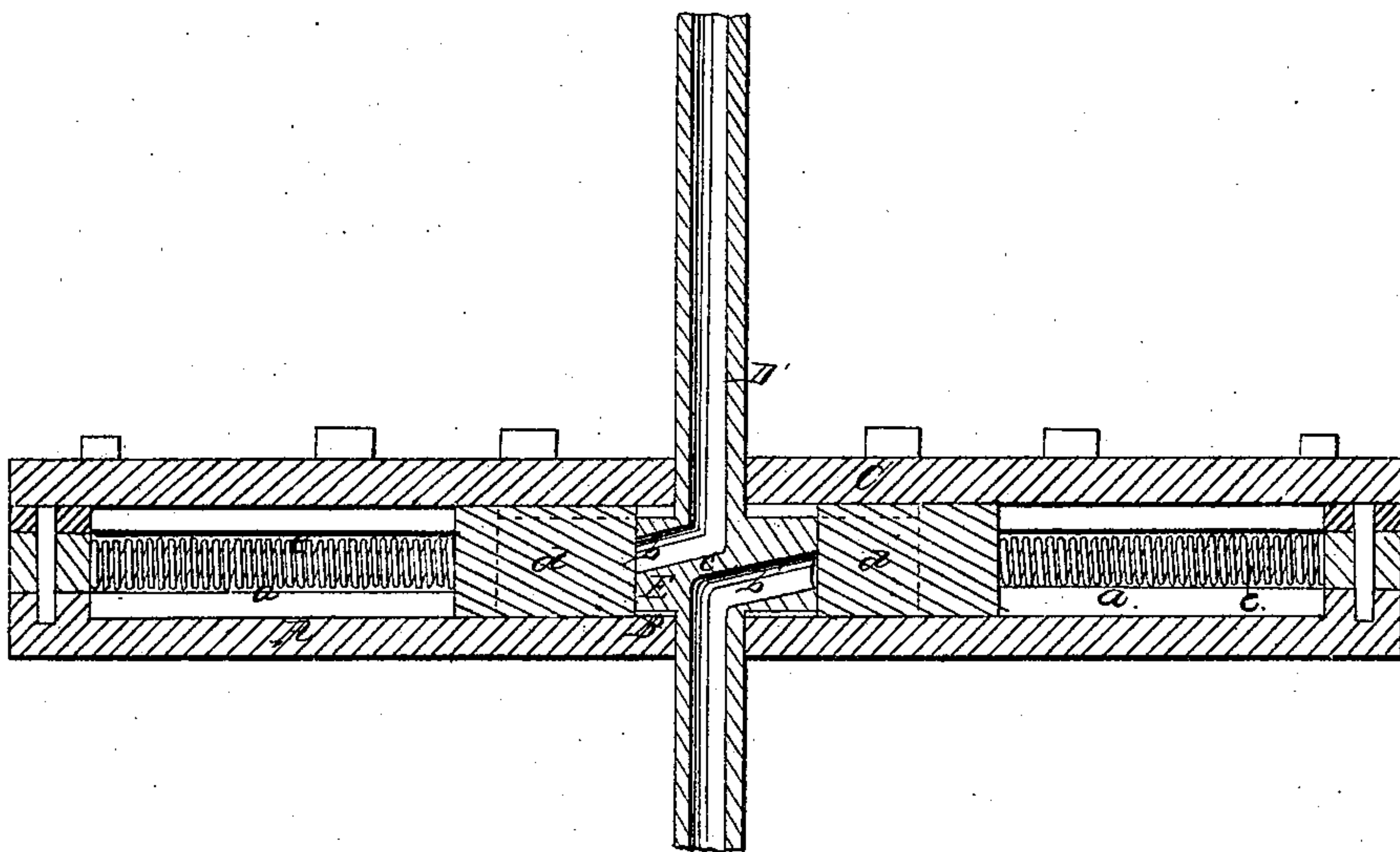
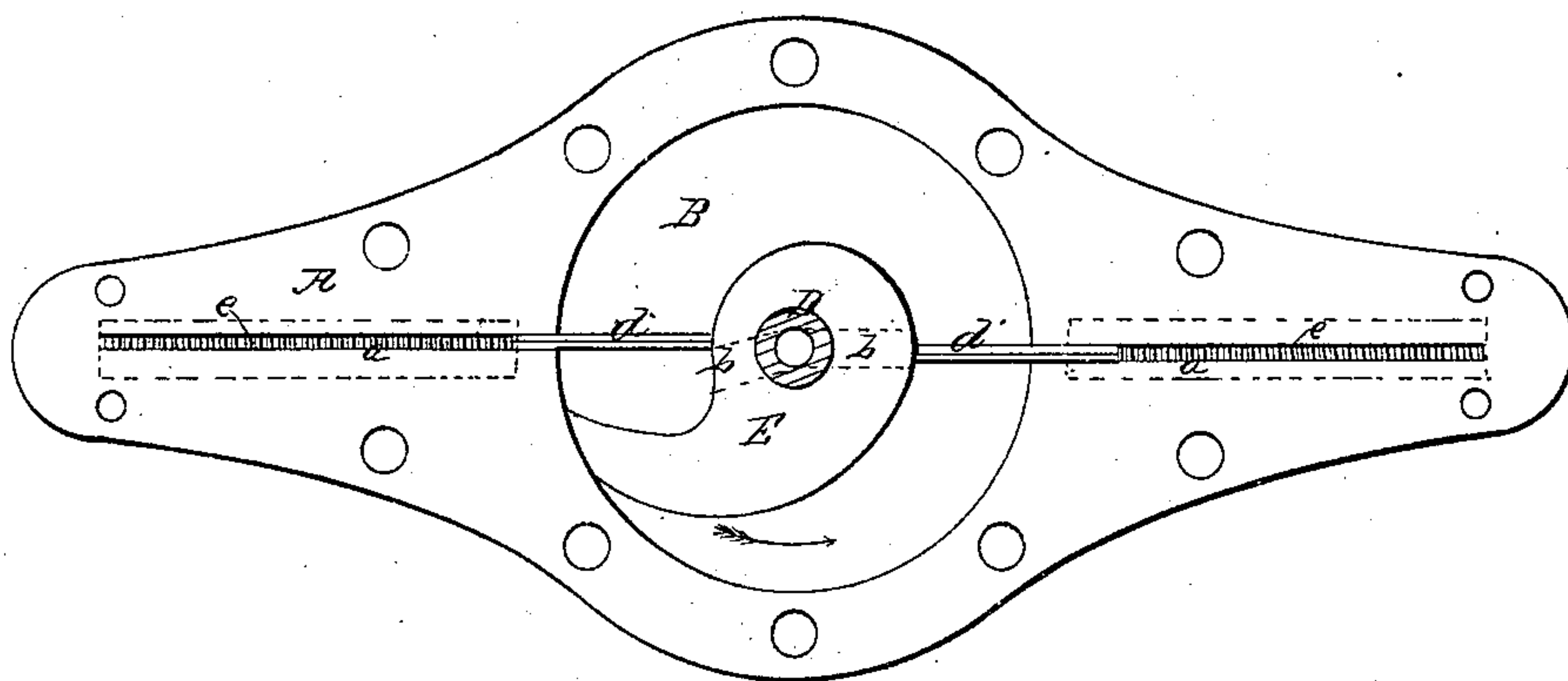


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES WEED AND STEPHEN WEED, OF EL DORADO, IOWA.

IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. 43,729, dated August 2, 1864.

To all whom it may concern:

Be it known that we, CHARLES WEED and STEPHEN WEED, both of El Dorado, in the county of Fayette and State of Iowa, have invented a new and Improved Rotary Engine; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable any person skilled in the art to make and use the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a horizontal central section of our invention. Fig. 2 is a front elevation of the same.

Similar letters of reference indicate like parts.

This invention relates to a rotary engine constructed with a hollow shaft, which is provided with a suitable steam and exhaust port, and operates in combination with a curved piston and two or more sliding spring-abutments in such a manner that by the direct action of the curved piston itself the abutments are forced in, and the steam passing through the piston into the cylinder and acting on the working side of the piston causes the latter to revolve, while at the same time the space on the exhaust side of the piston communicates freely with the exhaust port and allows the steam to exhaust without obstruction.

The nature of our invention and its peculiar advantages will be readily understood from the following description:

A represents a case, made of cast iron or any other suitable material, and provided with two notches or cavities, *a*, which terminate in the central cylindrical space, B. This space forms the cylinder of our engine, and access can be had to the interior of this cylinder by removing the cover C, which is fastened to the case A by screw-bolts or in any other convenient manner. Through the center of the cylinder B passes the hollow shaft D, to which the piston E is rigidly attached. The piston E is curved in the manner as clearly shown in Fig. 2 of the drawings. Its point bears steam-tight against the inner circumference of the cylinder, and its body is perforated with two ports, *b b'*, which extend from the interior of the hollow shaft in opposite or slightly angular direction to the interior of the cylinder, as clearly shown in the drawings. The ports *b b'* are separated from each other by the partition *c*, and the port *b*

communicates with the steam end of the tubular shaft D, while the port *b'* communicates with its exhaust end. The notches or cavities *a* in the case A form the guides for the abutments *d d'*, and these abutments are exposed to the action of springs *e*, so that their edges are continually held in contact with the surface of the piston. This piston is calculated to revolve in the direction of the arrow marked near it in Fig. 2, and if it has arrived in the position shown in said figure steam enters through the port *b* in the space between the abutment *d* and the concave or working face of said piston, while at the same time the steam between the convex or exhaust side of the piston and the abutment *d'* has a chance to exhaust freely through the port *b'*. The steam acting on the working-face of the piston carries the same round, and the abutment *d'* is gradually forced back until the point of the piston passes the same, when the steam changes, the semicircular space just traversed by the piston commences to exhaust, and the other semicircle, into which the point of the piston has just entered, takes steam, and the motion of the piston continues, as previously described.

This engine is exceedingly simple in its construction. It requires very little packing, and all the working parts are so combined that they create comparatively little friction, and that they are not liable to get out of order.

We are aware that our rotary engine is not new in the general principles of its operation, and also that the various parts thereof, separately considered, are old; but we are not aware of the previous existence of any rotary engine in which the various parts are constructed and combined in the particular manner herein specified.

We claim as new and desire to secure by Letters Patent—

The combination of the hollow shaft D, curved piston E, partition *c*, supply-port *b*, exhaust port *b'*, plurality of sliding abutments *d d'*, closed cavities *a a*, and springs *e*, when all the said parts are constructed and arranged in the manner and for the purposes specified herein.

CHARLES WEED.
STEPHEN WEED.

Witnesses:

I. E. RILEY,
WILLIAM MYERS.