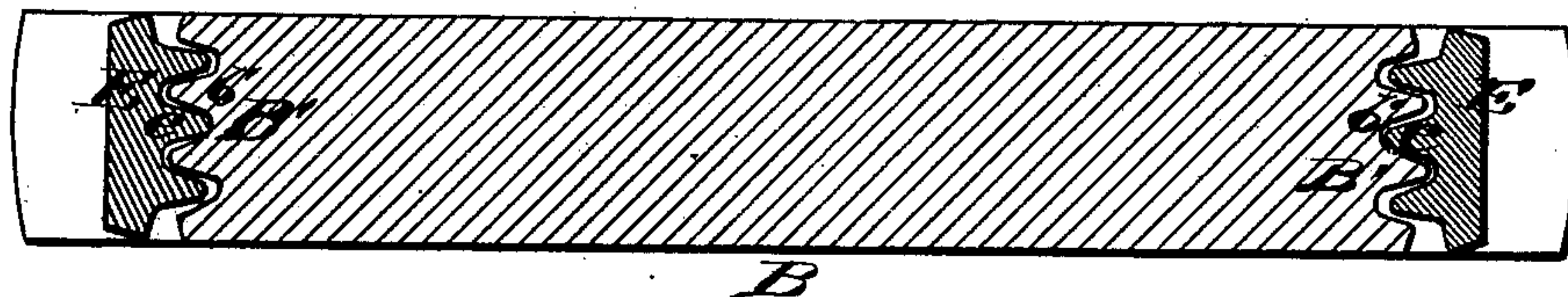


E. C. JOHNSON.  
PACKING FOR ROTARY-ENGINES.

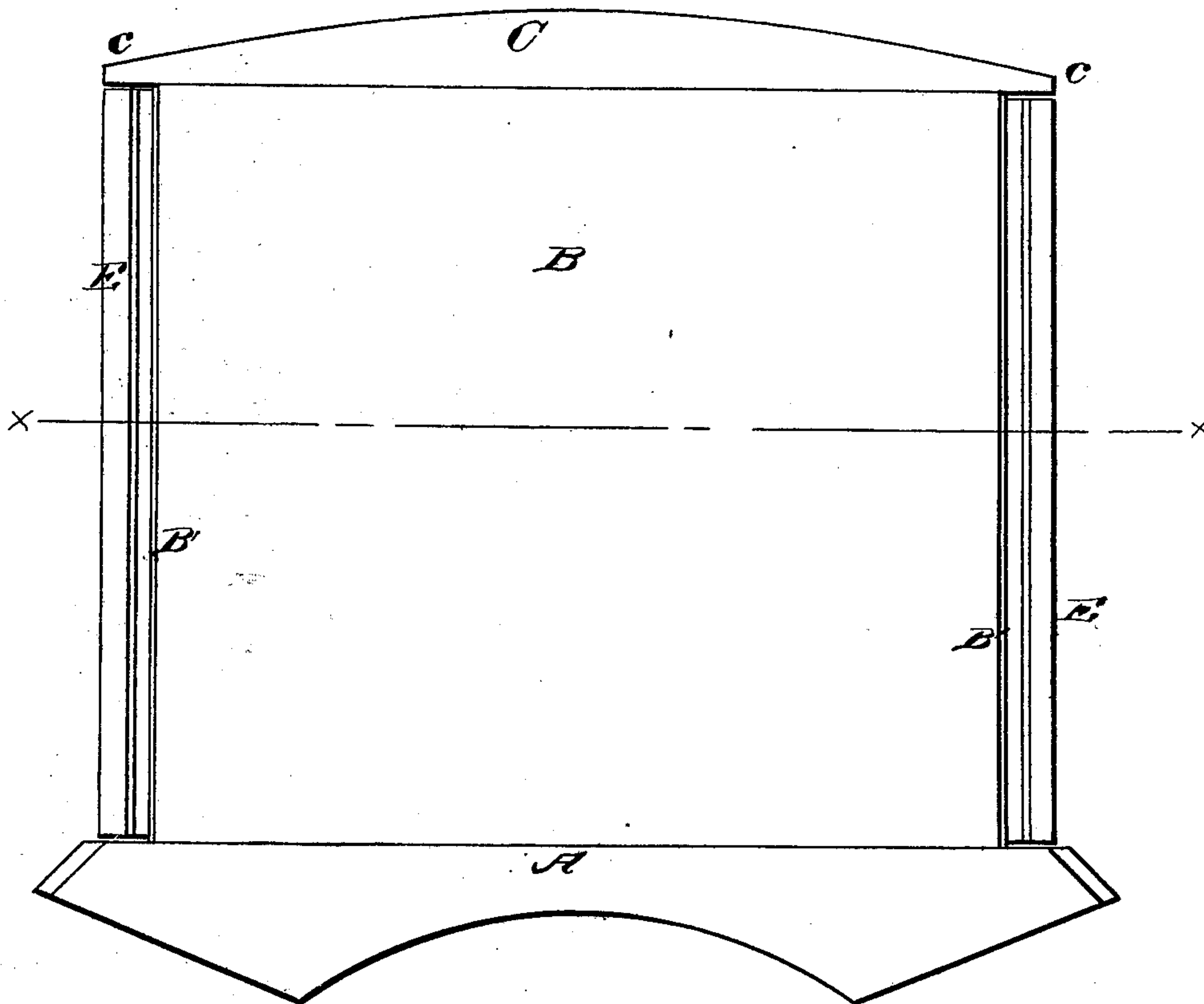
No. 191,434.

Patented May 29, 1877.

*Fig. 1.*



*Fig. 2.*



WITNESSES

*W. Bate*  
*George E. Upham.*

INVENTOR.

*Edward C. Johnson.*  
*Gilman & Smith & Co.*

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

EDWARD C. JOHNSON, OF WILLIAMSPORT, PENNSYLVANIA.

## IMPROVEMENT IN PACKING FOR ROTARY ENGINES.

Specification forming part of Letters Patent No. **191,434**, dated May 29, 1877; application filed October 7, 1876.

*To all whom it may concern:*

Be it known that I, EDWARD C. JOHNSON, of Williamsport, in the county of Lycoming and State of Pennsylvania, have invented a new and valuable Improvement in Flat Packing for Rotary Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of transverse vertical section, and Fig. 2 is a front elevation of the same.

This invention relates to rotary engines; and it consists in providing the pistons of the same with longitudinal corrugations on its sides, into which flat packing-strips, similarly corrugated, are fitted, to prevent the escape of steam between the sides of the piston and the cylinder-heads.

My invention further consists in the employment, in connection with a piston having corrugated sides and flat packing, similarly corrugated, of a cap on the outer end of the piston, projecting beyond the piston at its ends, thus affording a recess or seat for the packing, and protecting its ends from wear in the revolution of the piston, as will be hereinafter more fully set forth.

In the annexed drawings, A designates the inner end of one of the pistons of a rotary engine; B, the body of the same, having corrugated edges B' B'; C, the cap, having projecting ends c c; and E E, two flat packing-strips, which are secured to said edges B' B'. Said cap C is curved on its surface, to correspond to the inside of the cylindrical casing or outer cylinder. The corrugations or flutings b' b' in edges B' B' are arranged longitudinally, and

flat strips E E are provided, with corresponding corrugations or flutings e e, which interlock with b' b', and so form an even and tight joint. As the said piston revolves in the outer cylinder the said packing prevents the escape of steam between the edges of said piston and the heads of the cylinder. The extensions c c of cap C protect the ends of said packing-strips, and also fill the space which would otherwise be left between the ends of said strips and the outer cylinder or cylindrical casing at some points in the revolution of said piston. The head or inner cylinder, to which the said piston is attached, is eccentrically pivoted within said outer cylinder in the usual manner. The construction of every one of the pistons is similar to that above described. The packing-strips E are made of rubber or any suitable packing material.

The above-described improvements are applicable to rotary pumps as well as to rotary engines.

What I claim as new, and desire to secure by Letters Patent, is—

1. A piston provided with longitudinal flutings or corrugations at its edges, in combination with packing-strips having similar flutings or corrugations on its corresponding face, substantially as set forth.

2. The combination of piston-edge B', having corrugations b', with strips E, having corrugations e, and cap C, having the end extensions c c, substantially as set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

EDWARD C. JOHNSON.

Witnesses:

ANTHONY BRANIN,  
JAMES M. WOOD.