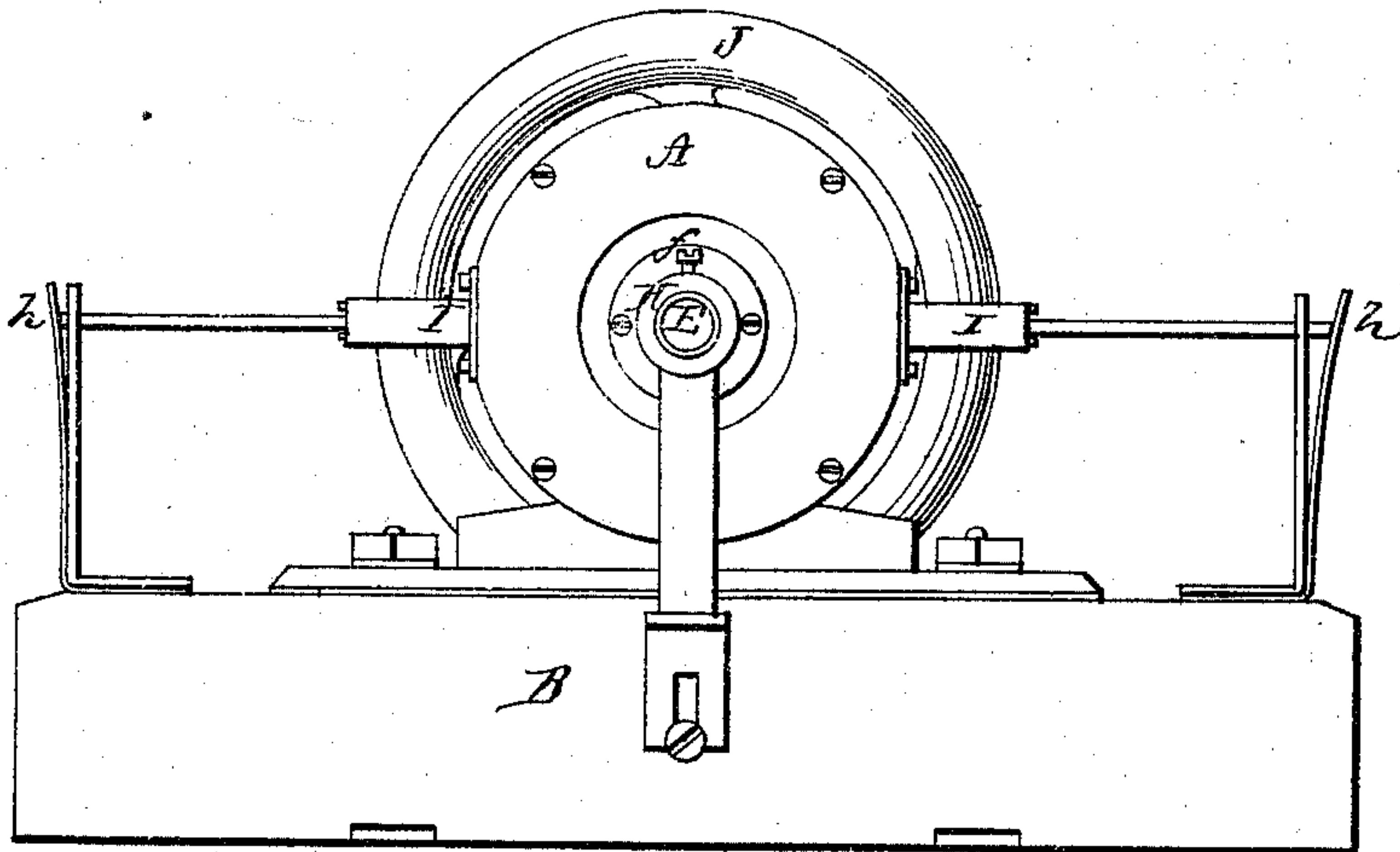


**S. B. FRANK.**  
**Rotary Steam-Engines.**

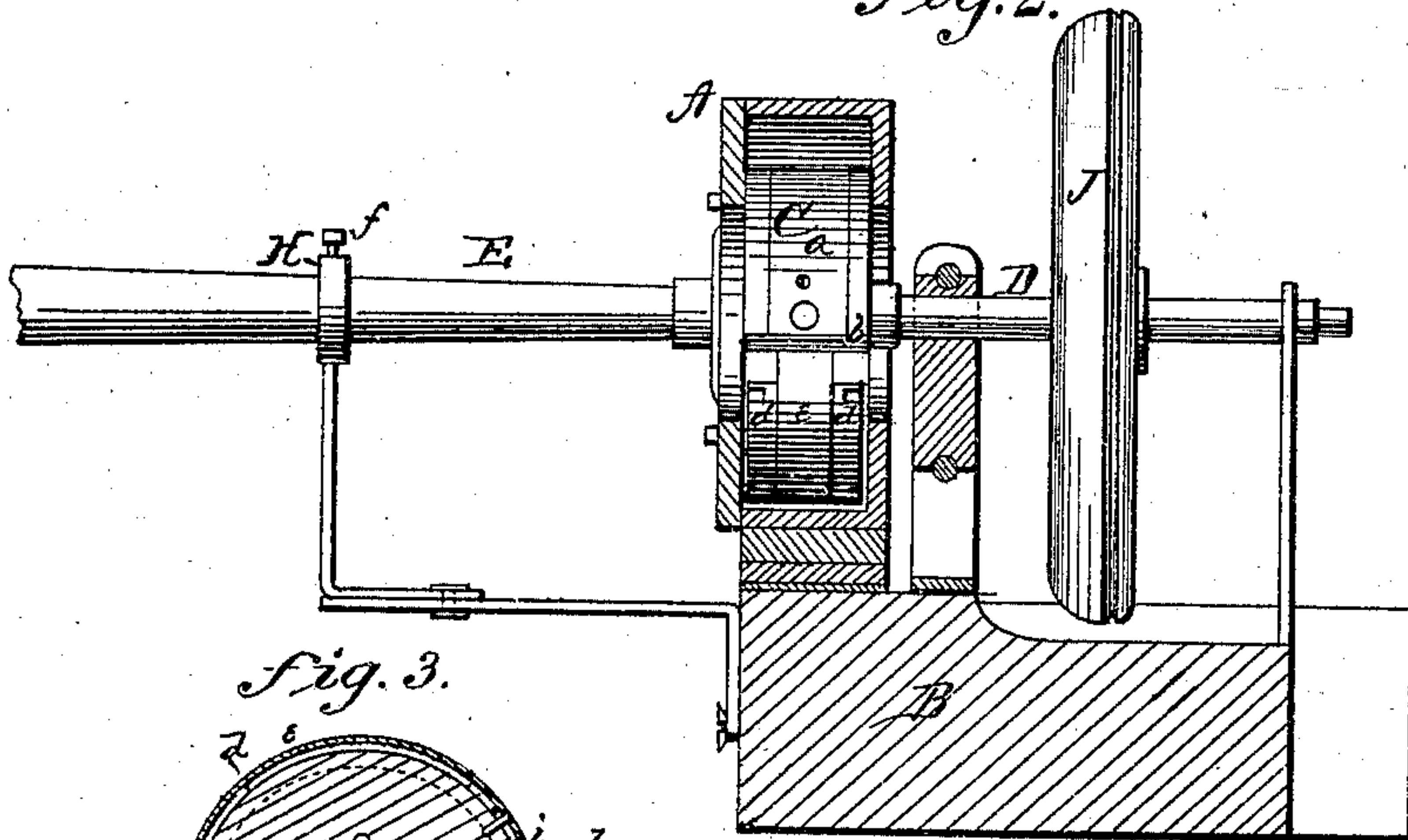
No. 143,504.

Patented Oct. 7, 1873.

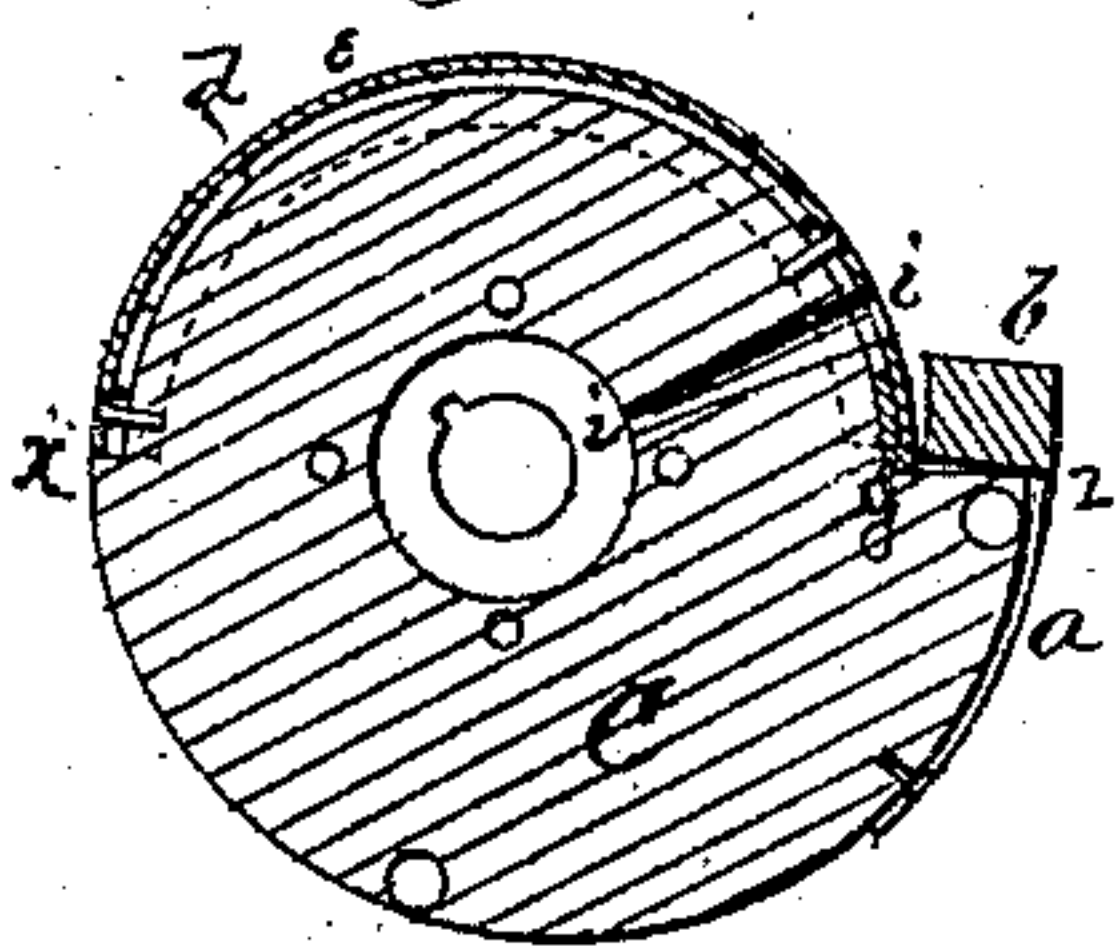
*Fig. 1.*



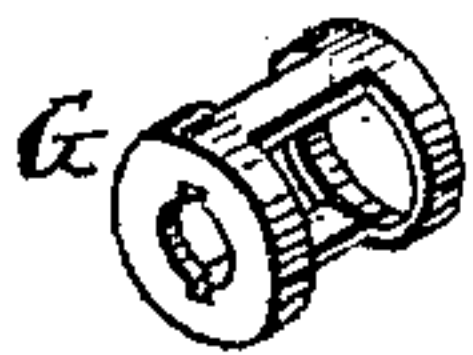
*Fig. 2.*



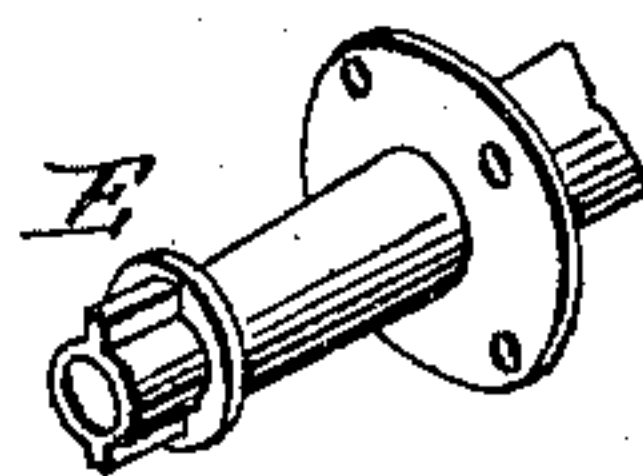
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



*Witnesses*

*John A. Ellis*  
*Edward C. Ellis*

*Inventor*  
*Samuel B. Frank*

*Per*  
*C. H. Watson & Co*  
*attys*



# UNITED STATES PATENT OFFICE.

SAMUEL B. FRANK, OF KNOBNOSTER, MISSOURI.

## IMPROVEMENT IN ROTARY STEAM-ENGINES.

Specification forming part of Letters Patent No. 143,504, dated October 7, 1873; application filed April 21, 1873.

*To all whom it may concern:*

Be it known that I, SAMUEL B. FRANK, of Knobnoster, in the county of Johnson and State of Missouri, have invented certain new and useful Improvements in Rotary Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

The nature of my invention consists in the construction and arrangement of a rotary engine, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side view of my rotary engine. Fig. 2 is a vertical cross-section of the same; and Figs. 3, 4, and 5 are views of detached parts thereof.

A represents a stationary circular casing secured to a bed-plate, B, and containing within it the revolving eccentric C, which is secured on the end of a shaft, D. The eccentric C, for one-half of its circumference, from *x* to *y*, is a true circle, having the same center as the casing A, while the other half, from *x* to *z*, is eccentric, making the point *z* nearly touch the inside of the casing. At this point is, by means of a spring, *a*, securely fastened by screws, attached a follower, *b*, which forms the abutment against which the steam works. Under the spring *a* is placed suitable packing, so that the follower will bulge out and form a joint with the casing. The part *x y* of the eccentric C is provided with packing-rings *d d*, pressed outward against the sides of the casing A by means of springs, and held by a band, *e*. In the center of the eccentric C is a recess, as shown in Fig. 3, for the reception of the valve G, which is placed on the end of the stationary steam-inlet pipe E. This valve and pipe are constructed as shown, respectively,

in Figs. 4 and 5, and can be turned so as to let on and cut off steam at any point, by the pipe passing through a collar, H, and held by a set-screw, *f*, at any point desired. *i* is the steam-inlet from the center to the circumference of the revolving eccentric C. On opposite sides of the casing A are two sliding abutments, I, which pass into the casing and work against the circumference of the eccentric C, the rods of said valves being operated upon by springs *h h*, or they may be worked by an eccentric from the main shaft D, upon which is a fly-wheel, J. The steam-passage *i* reaches the circumference of the eccentric C immediately in front of the follower *b*, and suitable passages are made in the eccentric to allow the exhaust steam to enter behind said follower, if desired, to force the same out against the casing. As the steam passes in and through the passage *i*, it operates against the follower *b* and the nearest valve I, and revolves the eccentric C. The part *x z* of this eccentric then pushes the next valve I open until the follower *b* has passed the same, when the steam will work against this valve, and the steam left in the casing will be exhausted through suitable ports made in the casing immediately beyond each valve I. The steam is cut off at the proper times by the valve G, and let on again.

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

1. The eccentric C, constructed in the form shown, and provided with rings *d d* and follower *b*, and used in connection with casing A, sliding abutments I I, and springs *h h*, all substantially as and for the purpose specified.

2. The combination, with the eccentric C, of the valve G, pipe E, and collar and set-screw, constructed as shown and described, and for the purposes set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 1st day of April, 1873.

SAMUEL B. FRANK.

Witnesses:

SYLVESTER LINK,  
N. BLACKSTOCK.