

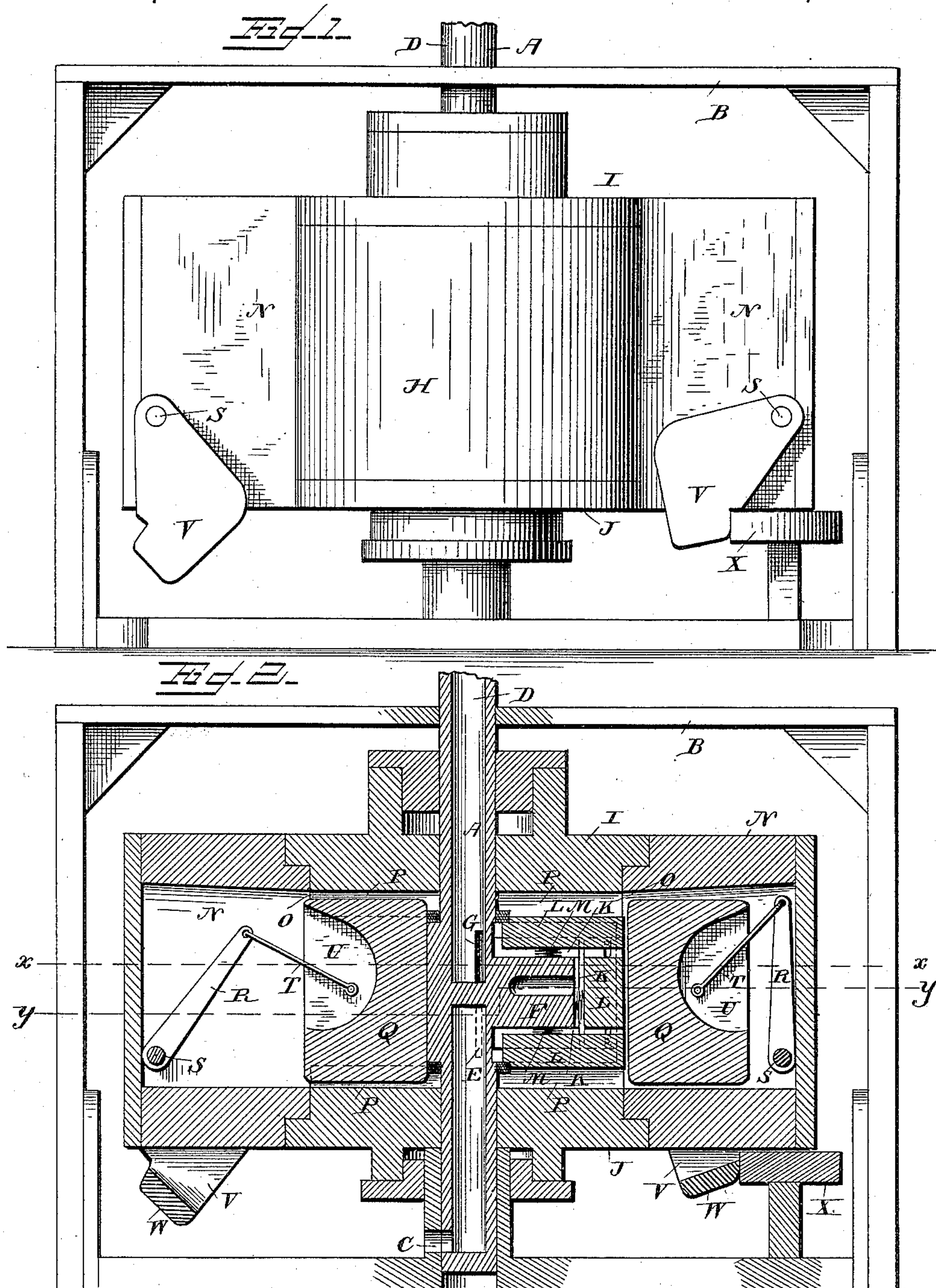
(No Model.)

2 Sheets—Sheet 1.

A. HEMSATH.  
ROTARY ENGINE.

No. 330,324.

Patented Nov. 10, 1885.



WITNESSES

*F. L. Ourand,*  
*Edward Stanton*

INVENTOR

*Augustus Hemsath,*  
*By Louis Bagger & Co.,*  
Attorneys



(No Model.)

2 Sheets—Sheet 2.

A. HEMSATH.  
ROTARY ENGINE.

No. 330,324.

Patented Nov. 10, 1885.

Fig. 3.

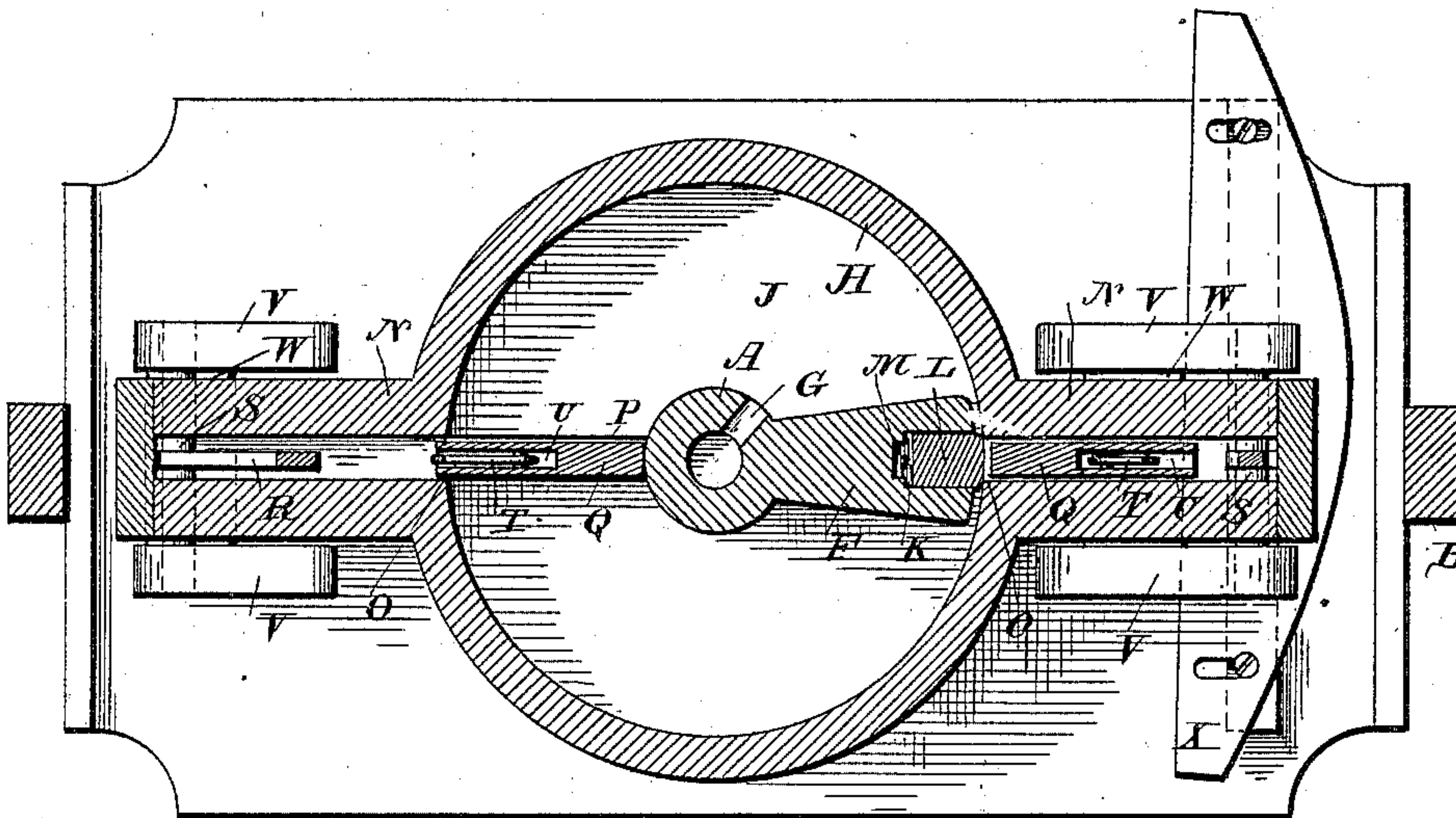
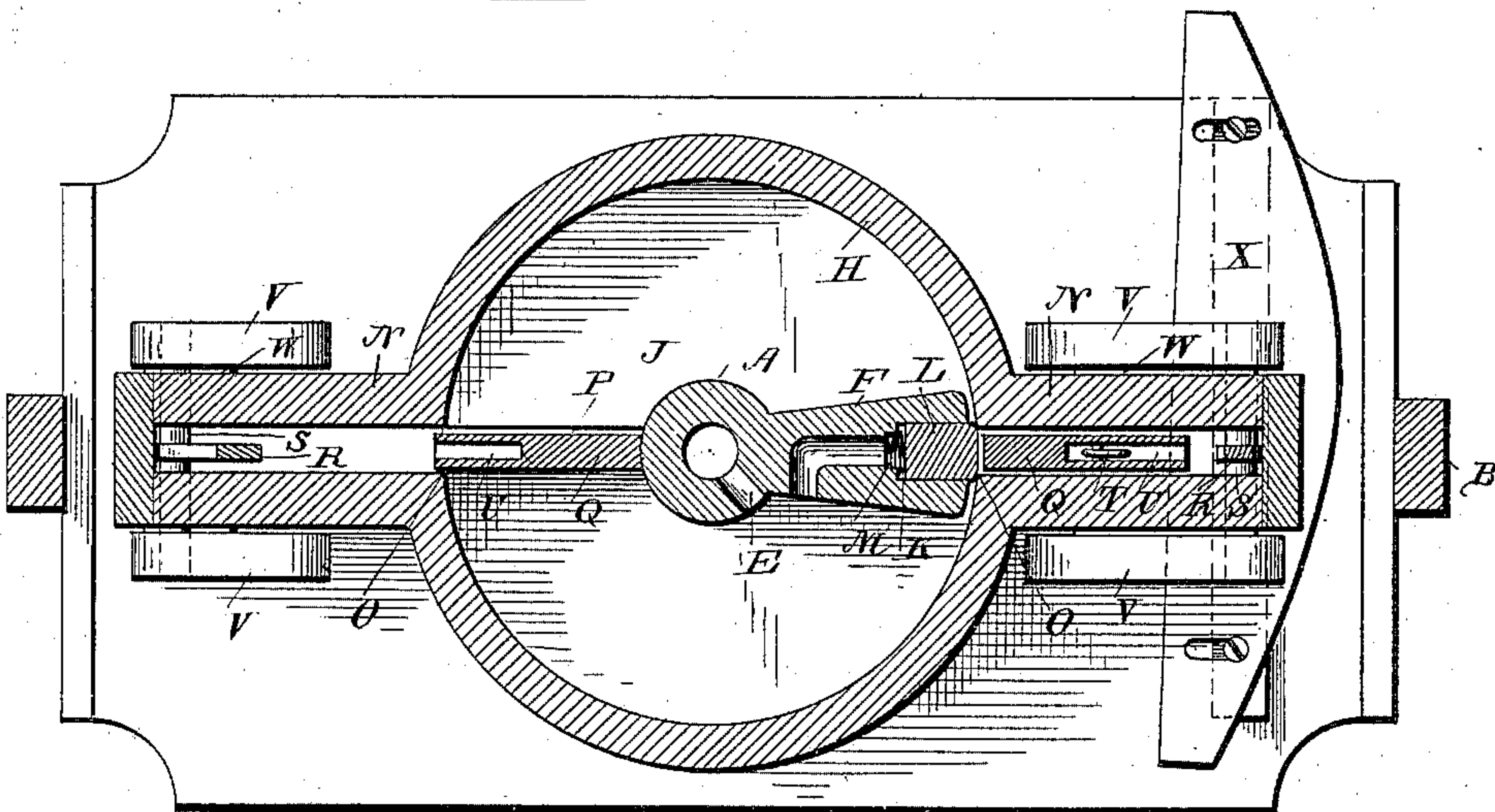


Fig. 4.



WITNESSES

*F. L. Curand*  
*Edward Stanton*

INVENTOR

*Augustus Hemsath,*  
By *Louis Ragger & Co.*  
Attorneys



# UNITED STATES PATENT OFFICE.

AUGUSTUS HEMSATH, OF ZEHNER, PENNSYLVANIA.

## ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 330,324, dated November 10, 1885.

Application filed September 28, 1885. Serial No. 173,386. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUSTUS HEMSATH, a citizen of the United States, and a resident of Zehner, in the county of Luzerne and State of Pennsylvania, have invented certain new and useful Improvements in Rotary Engines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a side view of my improved rotary steam-engine. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a horizontal sectional view on line *xx*, Fig. 1; and Fig. 4 is a similar view on line *yy*, Fig. 1.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to rotary engines having a stationary tubular shaft, through which the steam is let into the cylinder, and having sliding wings in the cylinder, against which the steam acts, revolving the cylinder; and it consists in the improved construction and combination of parts of the same, as hereinafter more fully described and claimed.

In the accompanying drawings, the letter A indicates the central shaft, which is suitably secured in a frame, B, and which has the live-steam pipe C entering it at its lower end, and the exhaust-steam pipe D entering it at its top, the shaft being tubular and provided with two ports at its middle, the steam-port E opening from the lower tubular portion of the shaft, at the forward side of a radiating wing, F, upon the shaft, while the exhaust-port G opens from the lower end of the upper tubular part of the shaft to the rear of the wing. This wing bears with its outer edge against the inside of the cylinder H, which is journaled with its heads I and J upon the shaft.

For the purpose of producing a steam-tight packing for the edges of the wing, which bear against the inside of the cylinder and against its heads, the free edges of the wing are formed with recesses K, in which fit strips or long blocks L, which are forced outward by springs M, interposed between the bottoms of the recesses and the inner sides of the blocks. The

cylinder is provided with three, more or less, radiating vertical chambers, N, opening through vertical slots O in the sides of the cylinder, at equal distances from each other, and the heads of the cylinder have radiating grooves P, forming continuations of the chambers. Sliding plates Q fit in these chambers, and slide with their ends in the grooves, and the inner edges of these plates bear against the face of the axial shaft, being forced against the said shaft by means of an arm, R, projecting from a shaft, S, rocking in perforations at the lower outer corner of each chamber. This arm is provided with a headed pin, T, which slides in a groove, U, in the outer edge of the plate, and the shaft from which the arm projects has two arms, V, secured to its ends, which arms are weighted, and have their outer lower corners cut off obliquely, and connected by a flat bar or plate, W, the arms serving by their weight to force the inner end of the arm against the grooved edge of the plate, and thus force the plate against the shaft.

A plate or bar, X, is secured in a horizontal position upon the foundation of the engine, presenting its inner straight edge at a slightly-acute angle to the rear face of the wing upon the shaft, and at a sufficient height to engage the inclined plate, connecting the lower ends of the swinging arms V, so that the said arms may be raised by the plate as the cylinder is revolved and passes the plate X.

It will now be seen that as the steam is let into the cylinder through the live-steam port it will bear against one of the sliding plates, forcing it around and the cylinder with it, and the plate X will raise the rocking arms and draw the sliding plates back into their chambers as they pass the plate, so as to enable the said plates to pass the radiating wing upon the shaft, and as the compartment, which is formed between two sliding plates, and which is filled with steam, arrives at the exhaust-port, the steam will pass out through the upper end of the shaft, while the live steam is continually passing in at the live-steam port, bearing against the sliding plates as they consecutively are presented to the action of the steam.

A pulley may be secured to one of the heads of the engine, and the motion thus be transferred from the revolving cylinder to what-



ever machinery is desired to move, or any other suitable means of gearing may be employed.

It will be seen that, the upper and lower ends of the sliding plates bearing against the sides of the grooves in the heads of the cylinder, all leakage is prevented, even if the ends do not bear perfectly true against the bottoms of the grooves, and the sliding plates will be entirely surrounded by steam, so that there will only be the weight of the said plates, and the friction of their ends in the grooves to overcome by the weights, which may be replaced by springs, if desired.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

In a rotary engine, the combination of a stationary shaft provided with a laterally-projecting radiating wing, and with tubular portions opening with a live-steam port forward of the wing, and with an exhaust-port to the rear of the wing, a cylinder journaled with its heads upon the shaft, and having equidistant

radiating grooves in its heads and corresponding radiating vertical chambers in its sides, plates sliding in the chambers with their ends in the grooves, and having grooves in their outer edges, rocking shafts journaled in the lower outer corners of the chambers and having arms provided with heads sliding in the grooves of the plates, arms secured to the outer ends of the rocking shafts and having their lower ends weighted and cut off obliquely and connected by plates or bars, and a bar secured upon the stand of the engine, forming a slightly-acute angle with the rear side of the wing, and engaging and raising the inclined ends of the weighted arms, as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

AUGUSTUS HEMSATH.

Witnesses:

GEORGE B. KOONS,  
RANSOM CLYMER.