(No Model.)

T. N. DENISON.

ROTARY ENGINE.

No. 256,131. Patented Apr. 11, 1882.

Fig. 1.

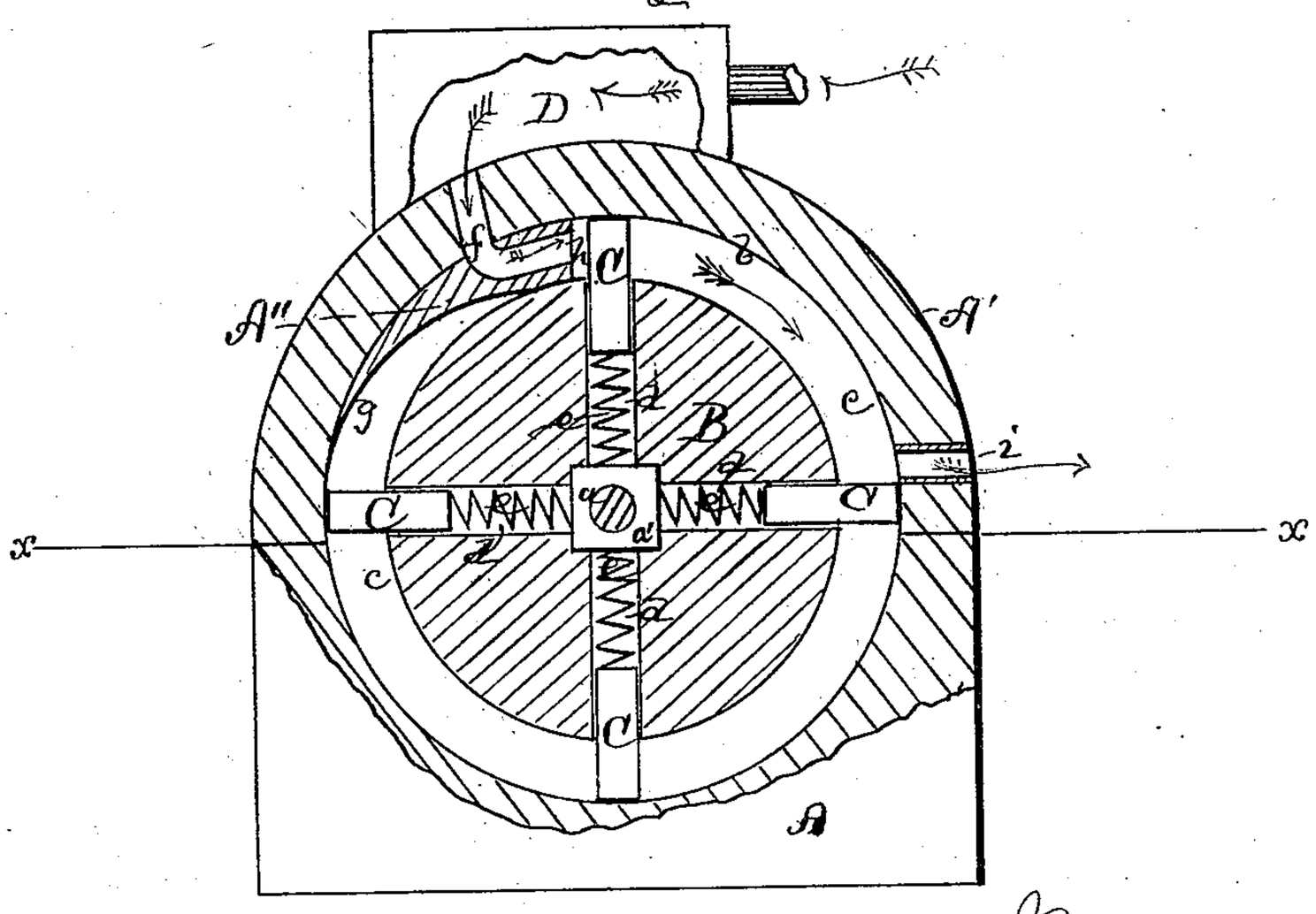


Fig. 2.

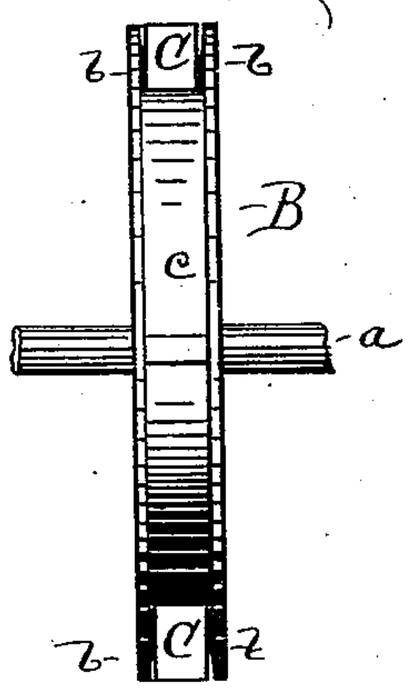
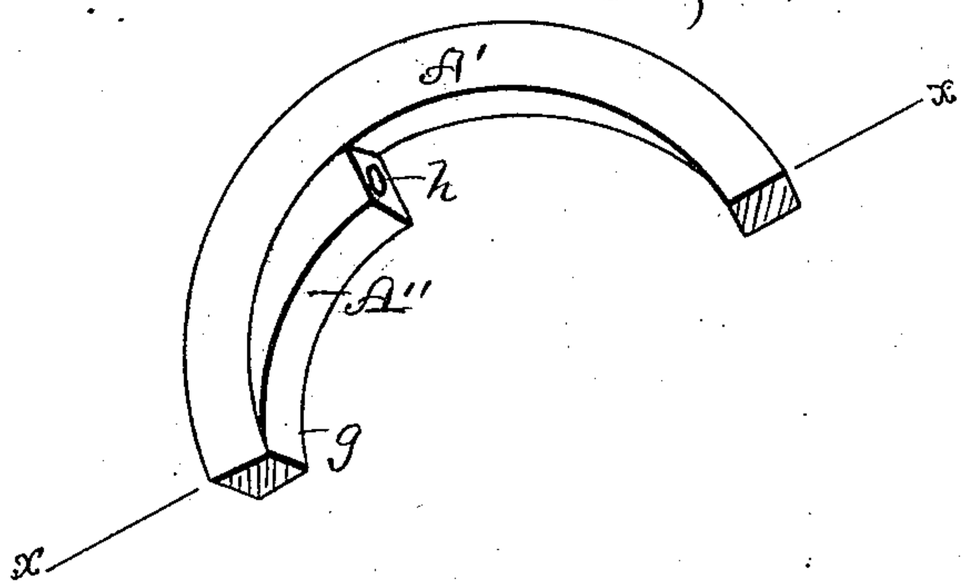


Fig. 3.



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ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 256,131, dated April 11, 1882.

Application filed July 11, 1881. (No model.)

To all whom it may concern:

Be it known that I, THOMAS N. DENISON, a citizen of the United States, residing at Newfane, in the county of Niagara and State of New York, have made certain Improvements in Rotary Engines, of which the following is a specification.

This invention consists in simplifying the construction, as hereinafter fully explained.

In the drawings, Figure 1 is a side elevation, showing the case partly in section and one half or side of the steam-wheel removed, also the steam-chest; Fig. 2, a front perspective of the steam-wheel removed from the case, and showing the buckets; Fig. 3, a detail in perspective of the upper half of the case removed, in line of *x*, so as to more clearly show the steam-eduction incline.

A represents the lower half of the circular case, and A′ the upper half of same, in which the power-wheel B revolves on the shaft *a* in suitable bearings. The upper and lower halves of the case A A′ will be suitably fastened together at the junction of the two. (Shown in line of *x x*.)

The power-wheel B has two outside vertical flanges, *b b*, of just the circumference to fit in and revolve closely in the case A A′. Between the flanges *b b* is a channel, *c*, all around the periphery of the wheel, the inner sides, *b b*, beveled somewhat, as shown in Fig. 2. At regular intervals rectangular openings *d* are made in the periphery, and in each is set a bucket or valve, C, with a spring, *e*, under it, as shown in Fig. 1. These springs keep the buckets C pressed up against the inside of the case A A′ as the wheel revolves, also shutting off the space between each bucket in the channel *c*. A square journal-block, *a′*, is inserted in the center of the wheel. This affords bearing for the spindle *a*, and also abutment for the ends of the springs *e*. At the same time it is held securely in place in the wheel. The springs have also another object, to be presently explained.

D is the steam-chest, situated at a convenient place in connection with the case A′, and which has a steam-channel, *f*, leading therefrom into a hollow inclined abutment, A″, through which the induction-port passes tangential to the power-wheel. This abutment is attached to or forms part of the upper half of case A′, (see Figs. 1 and 3,) the sides of the steam-chamber A″ being beveled to fit tightly into the channel *c* between the flanges *b* of the wheel B, the steam coming from the steam-chest through the passage *f h* into the abutment A″ and into the channel *c*, striking against each bucket C as it passes, forcing the wheel around, the steam exiting through escape channel or pipe *i*. This steam-chamber A″ is tapered off at and from the rear end, *g*, and widens gradually to its eduction end *h*, the object being to present a gradual incline to the top of each bucket C as it comes around and press it gradually down into its own opening *d* by compressing its spring *e*. As soon as the bucket reaches the eduction end *h* the spring under each bucket throws it up, filling the space across the channel *c*, and against which the full force of the steam strikes, through opening *f h*, carrying the wheel forward until the exit-steam opening *i* is reached, when the steam escapes. Meanwhile the steam has acted against the next bucket, and so on. The exit-pipe *i* is placed in the upper half of the housing A′, at a point so located as that it shall begin to emit the steam from behind one bucket C immediately after the steam is introduced behind the next succeeding bucket. This keeps up a constant movement of the wheel, by which power is transmitted to any machinery desired.

Rotary engines have heretofore been made with spring-valves sliding in grooves formed in side pieces which extend into flanges, and in which the central portion is formed distinct from the flanges. In these engines pins are interposed between the springs and the valves and the openings made in the power-wheel are irregular. In my engine the central portion, *a′*, is put in the core of the wheel B, and a single opening, *d*, is cut from the periphery of the wheel down to the central portion, *a′*, and the spring put in and the valves placed directly on the springs. The flanges *b* are made directly upon the wheel, and the entire device is much simpler than any heretofore known.

I claim—

In a rotary engine, the power-wheel B, having a central square portion, *a'*, and flanges *b*, formed on its periphery, and provided with the openings *d*, extending from the periphery between the flanges down to the central portion, *a'*, for the reception of the springs *e* and valves C, in combination with said valves and with the casing A A', provided with the abutment A'', having the channel *f h*, as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

T. N. DENISON

Witnesses:
J. R. DRAKE,
REEVES CORWIN.