T. B. PYRON.
Rotary-Engine.

No. 214,702. Patented April 22, 1879.

Fig. 1.

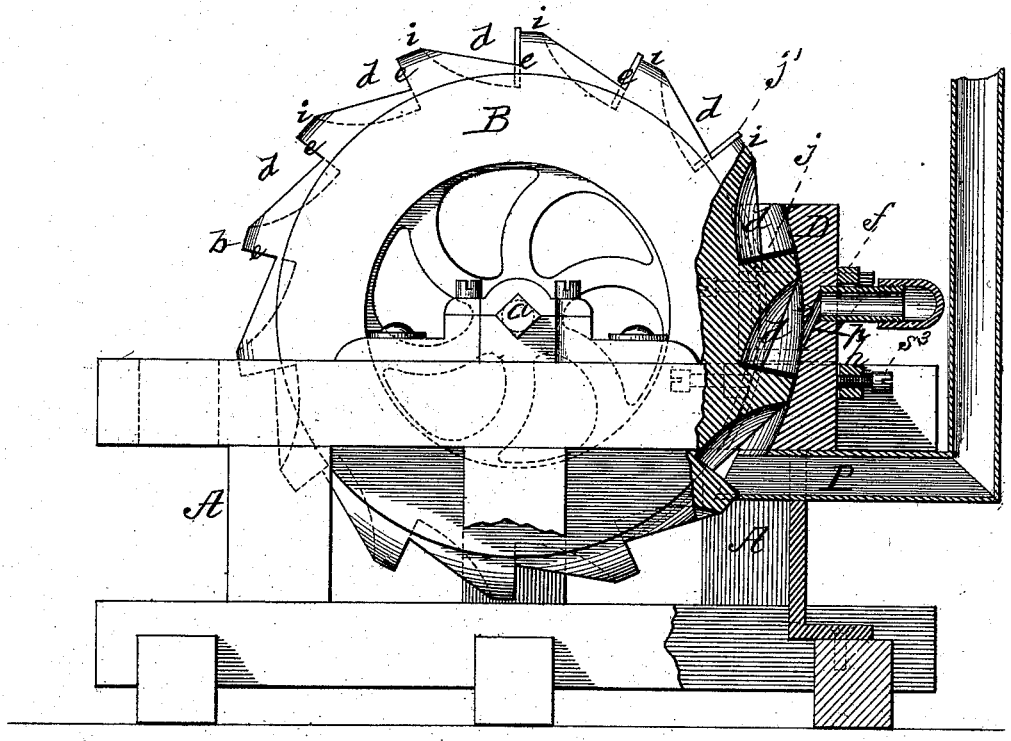


Fig. 2.

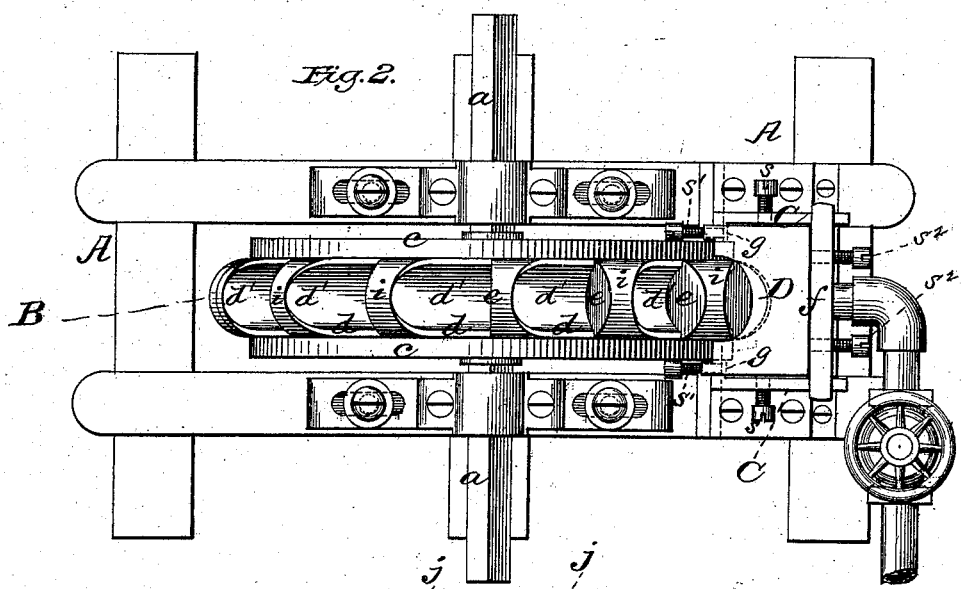
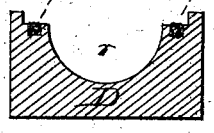


Fig. 3.



WITNESSES

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TAPLEY B. PYRON, OF SPRINGFIELD, MISSOURI.

IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. **214,702**, dated April 22, 1879; application filed March 21, 1879.

To all whom it may concern:

Be it known that I, TAPLEY B. PYRON, of Springfield, in the county of Greene and State of Missouri, have invented a new and valuable Improvement in 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 the 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 a side view of my rotary engine, partly in section. Fig. 2 is a top view of the same, and Fig. 3 is a sectional detail.

This invention has relation to improvements in rotary steam-engines, commonly known as the "breast-wheel engine;" and the nature of the invention consists in a breast-wheel having an annular half-round rabbet on its perimeter, provided with a succession of angular notches, one wall of the said notches being radial and the other recessed in semi-conoidal form, whereby the impinging surfaces of the floats are greatly increased.

It also consists in certain other improvements, whereby the working of this class of engines is greatly improved, as will be hereinafter more fully set forth.

In the drawings, the letter A designates the frame or support of my improved rotary engine, and B is a metallic wheel keyed or otherwise secured upon the engine-shaft *a*. This shaft has its bearings in the frame, and the rotation of the wheel by revolving the shaft conveys motion to the driven mechanism. The wheel B has in its face a raised rib or rabbet, *b*, that is of semicular form in cross-section. At each side of the rib is a narrow ledge, *c*.

d indicates pockets formed in the rabbet or rib *b*. These pockets are of angular shape, viewed from the side of the wheel, one wall thereof being radial. The other side or wall is recessed in semi-conoidal form, as shown at *d'*, the object being to increase the depth of the pocket without cutting too deep into the perimeter of wheel, and to increase the superficial area of the vertical wall *e*. The remaining wall, *d'*, of the pockets is separated from the wall *e* of the adjacent pockets by an interval, *i*, at which points the rib is intact, as shown.

C indicates strong metallic plates, secured in any suitable manner to the frame, as shown in Fig. 2. These plates extend inward beyond the perimeter of the wheel, and are connected together at their outer ends at top by a brace, *f*, preferably halved into the upper edges of the plates. The inner vertical edges of these plates are provided with flanges *g*, extending inward nearly against the sides of the wheel.

D indicates a metallic steam chest or box, fitting loosely between the plates C, and supported usually from below in any suitable manner. The face of this box or chest contiguous to the wheel corresponds exactly to the contour of the perimeter of the wheel, or as nearly as possible, and it covers accurately so much of the perimeter as is included between three of the intervals *i*—that is, two pockets. It is secured accurately in place by means of adjusting-screws *s*, extending through the plates C, similar screws s^1 extending through the flanges *g*, and like screws s^2 extending through the brace *f*. There is also a strong brace, *h*, extending across the frame A, and provided with adjusting-screws s^3, this brace being below the brace *f* aforesaid. The screws *s* bear against the sides of the box or chest, screws s^1 against its outer edges contiguous to the wheel, and the screws s^2 s^3 against its back. The box may be adjusted, therefore, sidewise, backward, or forward, in order to correct or stop any leak. At each side of the half-round groove *r* in the box, at that part corresponding to the ledges at each side of the rib or rabbet of the wheel, is formed a groove, *j*, in which is placed a suitable packing, to prevent escape of steam sidewise. This packing bears on the said ledges.

The packing for the pockets is secured in any suitable manner to the radial wall *e*, substantially as indicated at *j'*, Fig. 1, and the upper edge of the chest contiguous to the wheel is rounded off or beveled, to prevent the packing from catching. Steam is conducted into the space formed by the pocket and chest by a descending port, *p*, and impinges against the radial wall *e* of the pocket,

striking it exactly at its center. Being confined, it exercises its full force of expansion and imparts motion to the wheel, and the pressure of the steam being exercised in one pocket at a time, the wheel is turned until the said pocket is brought in line with an exhaust-pipe, P, when it escapes into the open air. At this moment the pocket next above is brought below the descending port, and the pressure acts as before. By this means the wheel is continuously rotated.

It will be clear that the intervals *i*, or that portion of the rib between the pockets, prevents all upward escape of steam, being snugly in contact with the groove in the box or chest.

Sometimes, if I so elect, I may use two or more of the steam-chests, each arranged at a different point of the periphery of the wheel, and each supplied with steam by an independent pipe.

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

1. In a breast-wheel engine, the wheel B, having a half-round rabbet or rib on its perimeter, and a ledge at each side of the said rabbet, the said rib having a succession of angular pockets, one wall of which is radial to the wheel, and the other concaved in conoidal form, substantially as specified.

2. The combination, with a breast-wheel, B, having a rabbeted rib on its perimeter, provided with spaced pockets *d*, and a ledge, *c*, at each side of said rib, of a steam-box, D, conforming to the shape of the perimeter, and provided with packing-grooves *j* at each side of its central groove, designed to receive a packing material, substantially as specified.

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

T. B. PYRON.

Witnesses:
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JOHN A. ELLIS.