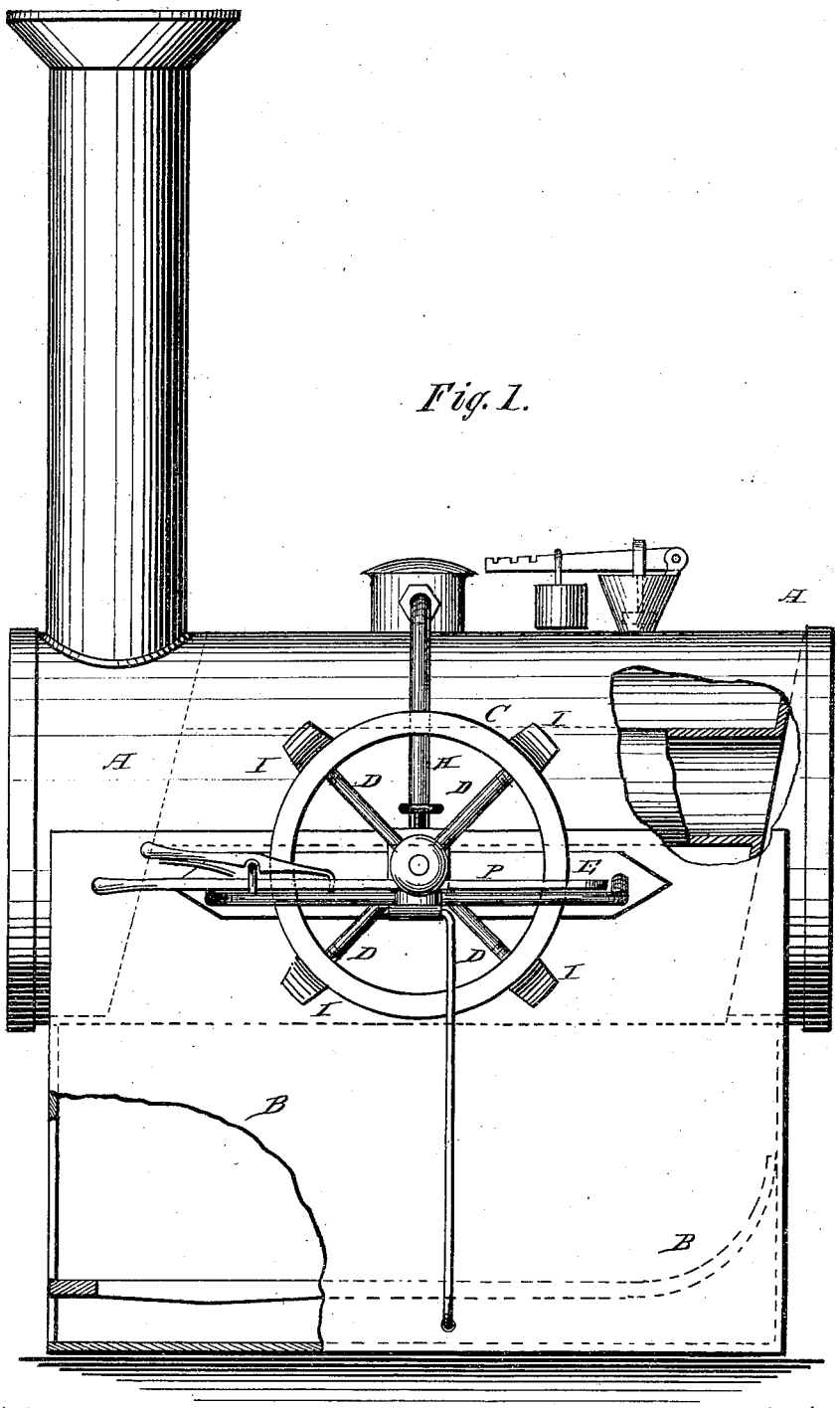
2 Sheets--Sheet 1.

A. STREAN & D. MILLER.

Rotary-Engine.

No. 167,803. Patented Sept. 14, 1875.

Fig. 1.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ALEXANDER STREAN AND DAVID MILLER, OF HARRODSBURG, INDIANA.

IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. **167,803**, dated September 14, 1875; application filed July 10, 1875.

To all whom it may concern:

Be it known that we, A. STREAN and D. MILLER, of Harrodsburg, in the county of Monroe and State of Indiana, have invented certain new and useful Improvements in Rotary Engines; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

The nature of our 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 our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a side elevation of a furnace and boiler with our rotary engine connected thereto. Fig. 2 is a plan view of the same. Fig. 3 is an enlarged section of the rotary wheel with attachments.

A represents a horizontal boiler arranged on a furnace, B, of any suitable construction. On one side of this furnace is a horizontal frame containing the rotary wheel. This wheel is composed of a rim, C, with four hollow spokes, D, radiating from an elongated hub or hollow shaft, G, which has suitable bearings in the frame, one of said bearings being hollow, and connected with the boiler A by a steam-pipe, H, so that the steam can pass from the boiler into the hollow shaft, and from thence through the hollow spokes D. The spokes D pass through the rim C, and on the outer end of each spoke is attached a bulb or cap, I, having exhaust-aperture *x* on one side. Within the hollow shaft G is a sliding tube, J, provided with two steam-ports, *a a*, on opposite sides. The tube J is connected with a sleeve, L, surrounding part of the shaft G, and said sleeve is operated by means of a lever, P. The steam from the boiler, passing through the pipe H into the hollow shaft G, is admitted through the ports *a a* into two of the hollow spokes D, opposite each other, causing the wheel to revolve, and as it revolves the steam is continually admitted into the same two spokes. The tube J is provided with two other ports, *a' a'*, corresponding with the other two spokes, and at such a distance from the ports *a* that by moving the tube the ports *a* will be closed and the ports *a'* opened, so as to admit steam into the other two spokes, and thereby reverse the engine, the exhaust-ports *x* in the caps I being for that purpose arranged alternately on opposite sides.

This engine is simple, cheap, and durable, and the wheel will revolve with the full effect of the steam.

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

The combination of hollow shaft G, hollow spokes D, having caps I, with parts *x*, and the interior sliding tube J, provided with ports *a a* and *a' a'*, the exterior sleeve L, and lever P, all constructed substantially as and for the purposes herein set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

ALEXANDER STREAN.
DAVID MILLER.

Witnesses:
N. K. MCFADDEN,
R. W. CARR.

H. H. TAYLOR & A. McCAMISH.

Steam Car-Brake.

No. 167,804. Patented Sept. 14, 1875.

Fig. 1.

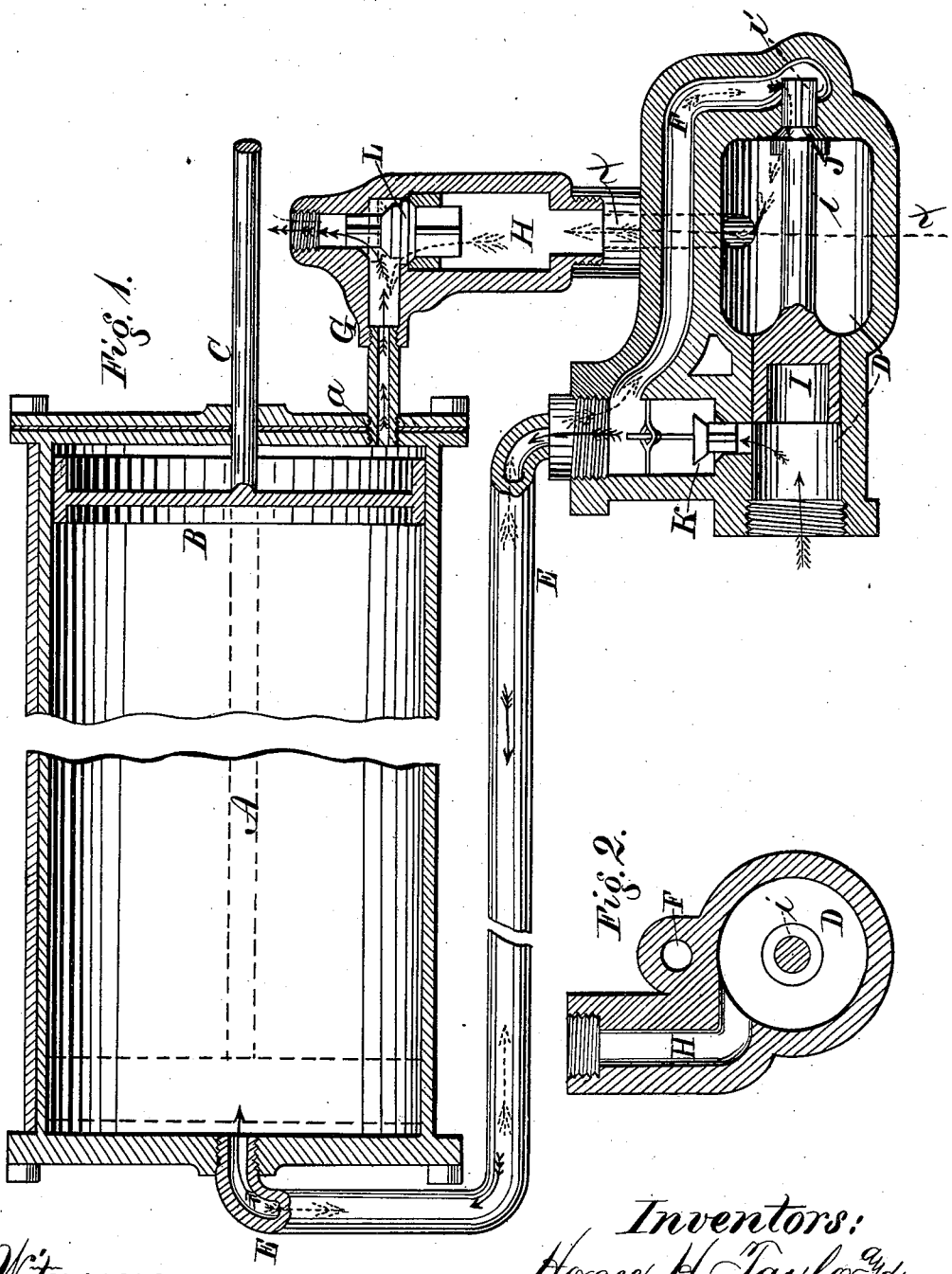

Fig. 2.

Witnesses:
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N. A. Pattee

Inventors:
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Albert McCamish
By W. B. Richards,
Atty.