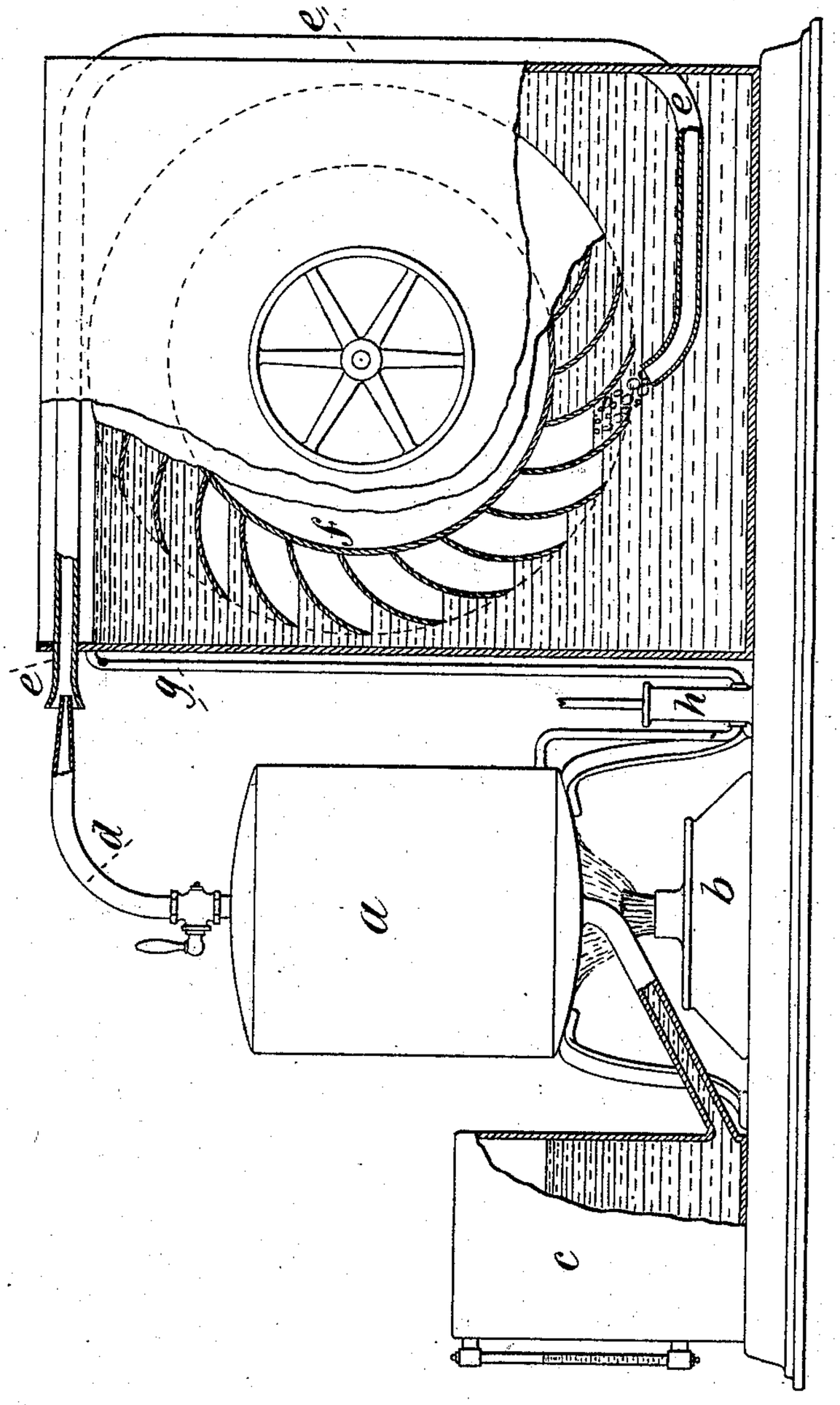
T. B. FOGARTY.

Steam-Motor.

No. 211,143. Patented Jan. 7, 1879.



WITNESSES:

Walter Pell

Wm. Lemuel Hall.

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UNITED STATES PATENT OFFICE.

THOMAS B. FOGARTY, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN STEAM-MOTORS.

Specification forming part of Letters Patent No. **211,143**, dated January 7, 1879; application filed January 24, 1878.

To all whom it may concern:

Be it known that I, THOMAS B. FOGARTY, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Steam and other Motors, of which the following is a specification:

The said invention relates chiefly to that class of small steam-motors that are suitable for running sewing-machines and other light work. It consists in combining with the boiler an air-chamber into which an excessive pressure of steam will force all the water from the boiler, so that no more steam can be made; and also in the application of the steam as an injector to revolve a suitable wheel, the water of condensation being returned to the boiler by any ordinary means.

The annexed drawing is a side elevation of a form of the apparatus, partly in section, in which the rotary motion is obtained through an induced current of air.

The boiler *a* is heated by the spirit-lamp *b*, and is connected at the bottom to the bottom of the air-tight tank or chamber *c*, the capacity of which, relatively to the amount of water supplied to the boiler, determines the limit of the pressure of the steam. If the tank, for instance, be of one thousand inches capacity, and five hundred cubic inches of water be supplied to the boiler, and then forced from the boiler into the tank *c*, its thousand cubic inches of air will be compressed to five hundred cubic inches, with a corresponding increase of its pressure to fifteen pounds per square inch. In the same way, if seven hundred and fifty inches of water be forced from the boiler to the tank, the one thousand inches of its air will be compressed to two hundred and fifty inches, and its pressure will be increased to four atmospheres, with variations due to temperature, or forty-five pounds above the pressure of the atmosphere.

This combination of a boiler and an air-tank or chamber may be used in connection with any kind of steam or gas engine or apparatus, and in all cases, as the pressure in the boiler equals that in the tank, the height of the fluid in the latter indicates the pressure in both, and neither a safety-valve nor try-cocks will be required.

The steam-pipe *d* is used as an injector to carry a current of air by induction through the pipe *e* to the buckets of the wheel *f*, from which it displaces the water in which the wheel is immersed, and the displacement of the water from the buckets of the air causes the wheel to revolve.

The pipe *e* is carried above the level of the water to prevent its discharge when the motor is at rest. The overflow-pipe *g* connects with the boiler-pump *h*, and receives all the water resulting from the condensation of the steam, thus returning to the boiler the water which leaves it in the form of steam.

In any form or arrangement of this motor, in which a jet of steam is used to produce the rotation of a wheel, little or no lubrication is required, there is no exhaust, the pressure in the boiler limits itself, and the feed from the condensation of the steam requires only the addition of a small quantity of water to compensate for the loss by leakage and evaporation.

I claim as my invention—

1. In combination with a steam-boiler, the air-chamber *c*, connected as shown, and made of sufficient size to receive all the water of the boiler, as and for the purpose set forth.

2. The combination of the boiler and the air-chamber, with a water-wheel and tank, substantially as described.

3. The tank, the steam-pipe *d*, and the overflow-pipe *g*, in combination with the boiler and the pump *h*, substantially as described.

THOS. B. FOGARTY.

Witnesses:

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