

(No Model.)

T. R. SIMMONS.
Water and Steam Wheel.

No. 235,031.

Patented Nov. 30, 1880.

Fig. 1.

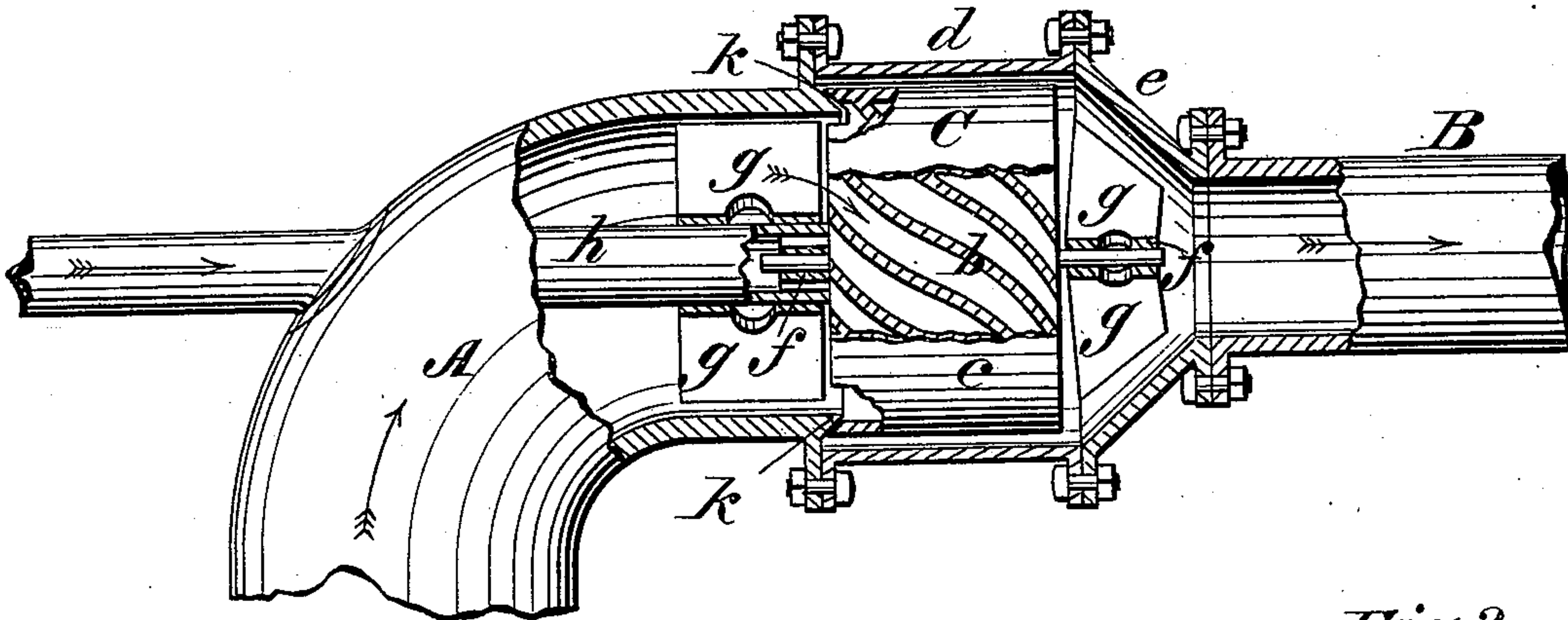


Fig. 3.

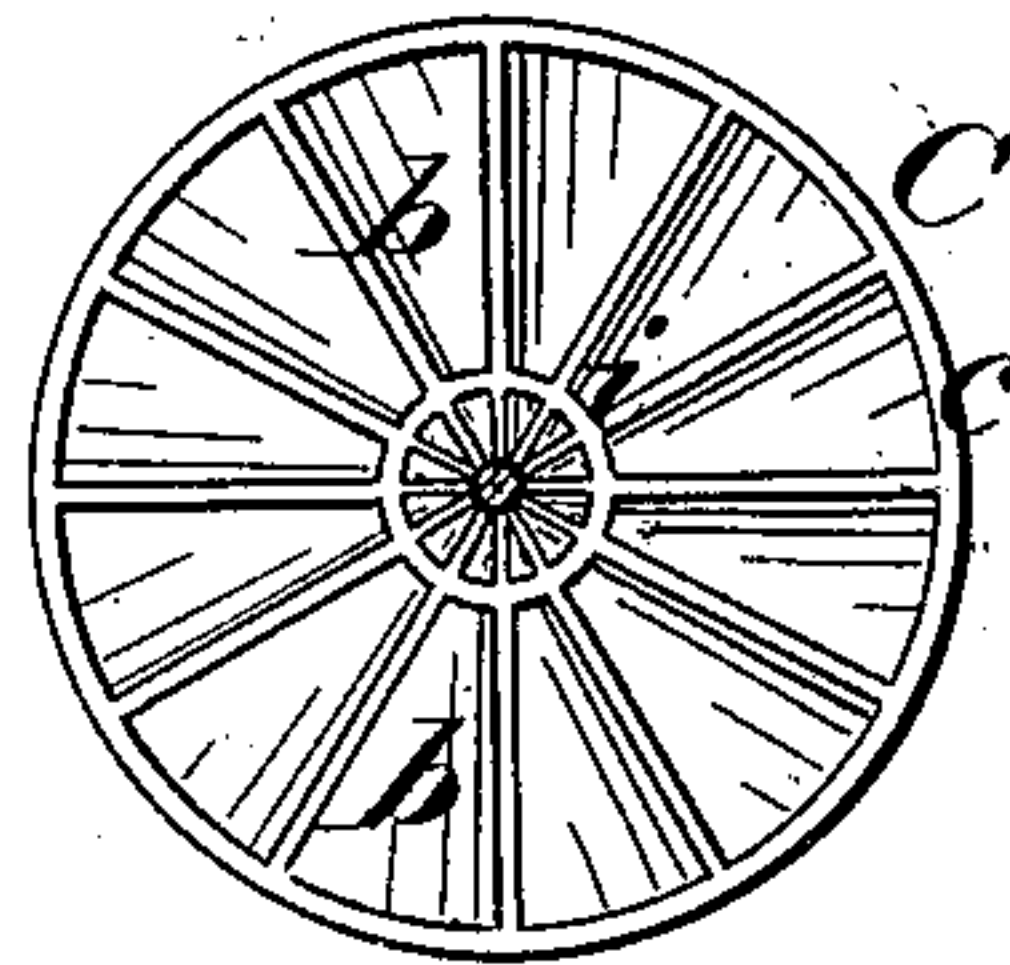
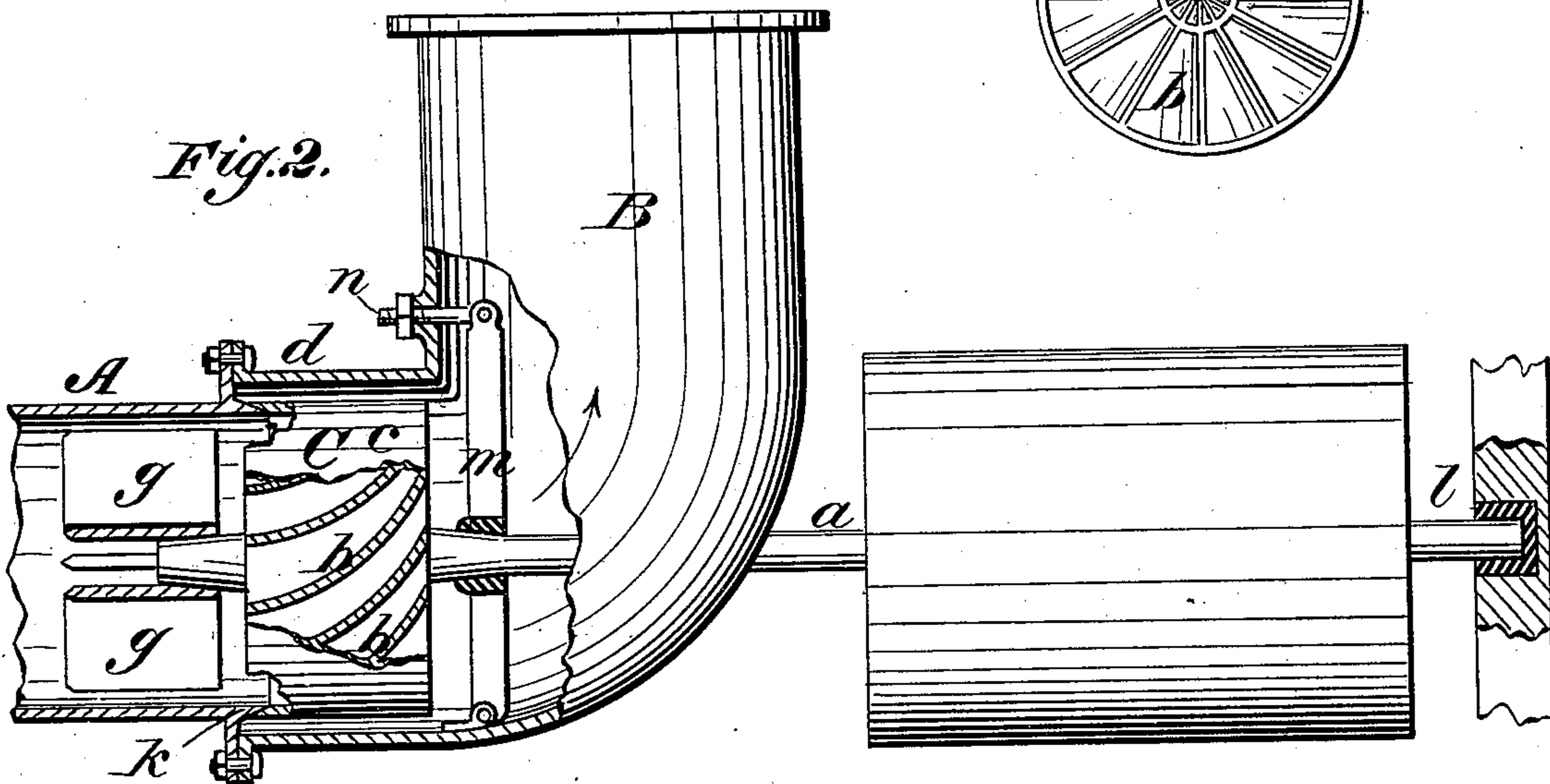


Fig. 2.



WITNESSES:

Donn P. Twitchell,
B. G. Underwood

INVENTOR:

T. R. Simmons.
BY *Mum & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

THOMAS R. SIMMONS, OF HOUMA, LOUISIANA.

WATER AND STEAM WHEEL.

SPECIFICATION forming part of Letters Patent No. 235,031, dated November 30, 1880.

Application filed August 24, 1880. (No model.)

To all whom it may concern:

Be it known that I, THOMAS R. SIMMONS, of Houma, in the parish of Terre Bonne and State of Louisiana, have invented a new and Improved Water and Steam Wheel, of which the following is a specification.

My improvements relate to wheels for use as motors with fluids under pressure.

I make use of a wheel that consists of a hub provided with wings that extend to an outer inclosing-cylinder, which wheel is fitted on a shaft contained within a chamber through which the fluid passes.

My invention consists in novel features of construction, all of which will be described hereinafter with reference to the accompanying drawings, wherein—

Figure 1 is a sectional elevation of my improved wheel as fitted for use in pumping water. Fig. 2 is a similar view of the water-wheel, and Fig. 3 is a face view of the wheel shown in Fig. 1.

Similar letters of reference indicate corresponding parts.

A is the inlet; B, the outlet-pipe, and C the wheel.

In case the wheel is intended for a water-wheel, as in Fig. 2, the inlet-chamber A will be connected with or form part of the forebay. For steam or air the outlet-pipe will be the larger to insure free vent.

The wheel C is formed of a hub upon a shaft, *a*, from which hub project inclined blades *b* to an outer ring or band, *c*.

The blades may have a single curve, as shown in Fig. 2, or they may be formed with a compound curve, as in Fig. 1.

In Fig. 1, wherein the wheel is fitted for pumping, it is shown as placed within a short cylinder or section, *d*, of pipe, that is formed with flanges for connection by bolts to similar flanges on pipe A, and between the section *d* and outlet-pipe B is connected a tapering ring, *e*.

The shaft *a* is sustained in boxes *f*, that are held in place by radial plates *g*, which are fixed in the inlet and outlet pipes. These plates *g* are three or more in number, and serve to divide the inlet and outlet space into compartments, and act to give proper direction to the fluid before it enters and after it leaves the wheel.

The plates at the inlet side may curve in the direction the wheel runs, so that the fluid shall be thrown more directly upon the blades.

In Fig. 1 the inlet-pipe A, which serves as the suction-pipe, is formed with a quarter-bend, through which a steam-pipe, *h*, passes to and terminates at the center of wheel C. The inner end of pipe *h* is sustained by plates *g*, and the box *f* is sustained in pipe *h* by similar plates.

The blades of wheel C, as shown in Fig. 3, are divided by an inner band, *i*, which corresponds in diameter with pipe *h*. The wheel is thus double, and receives steam from pipe *h* for its rotation, while the outer portion draws water from pipe A, the steam and water both escaping by outlet B.

To make a tight joint between wheel C and the end of pipe A the latter is beveled at its end *k*, and the band *c* of the wheel is formed with a bevel to set over the beveled end of pipe A, so that water is prevented from passing to the outside of band *c*.

In Fig. 2 the outlet-pipe B is formed with a quarter-bend, through which passes the shaft of the wheel, and the outer end of the shaft is sustained by a fixed or adjustable bearing, *l*. The shaft *a* is shown as also sustained by a box at the discharge side of the wheel, carried by a post or lever, *m*. This post *m* is pivoted at the lower end to pipe B, and to its upper end is connected a rod, *n*, that passes through the side of the pipe and is provided with a nut.

The spindles of the wheel are formed tapering, so that by adjustment of post *m* the bearing may be tightened to compensate for wear.

The above-described construction furnishes a motor for use with water, steam, air, or gas which is of simple, inexpensive, and durable construction, and which will give economical results.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combined pump and fluid motor consisting of wheel C, provided with wings *b* and dividing-band *i*, combined with inlet-pipes A and outlet-pipe B, substantially as shown and described.

2. In steam or water wheels, the inclosing-band *c*, formed with a beveled edge at the inlet side, combined with the inlet-pipe having beveled end *k*, substantially as and for the purposes set forth.

Witnesses:

F. W. GRAY,
D. F. GRAY.

THOMAS R. SIMMONS,