J. Parodi, S.

Hydraulic Propeller.

No. 93,337 Patented Aug. 3, 1869.

Fig: 1.

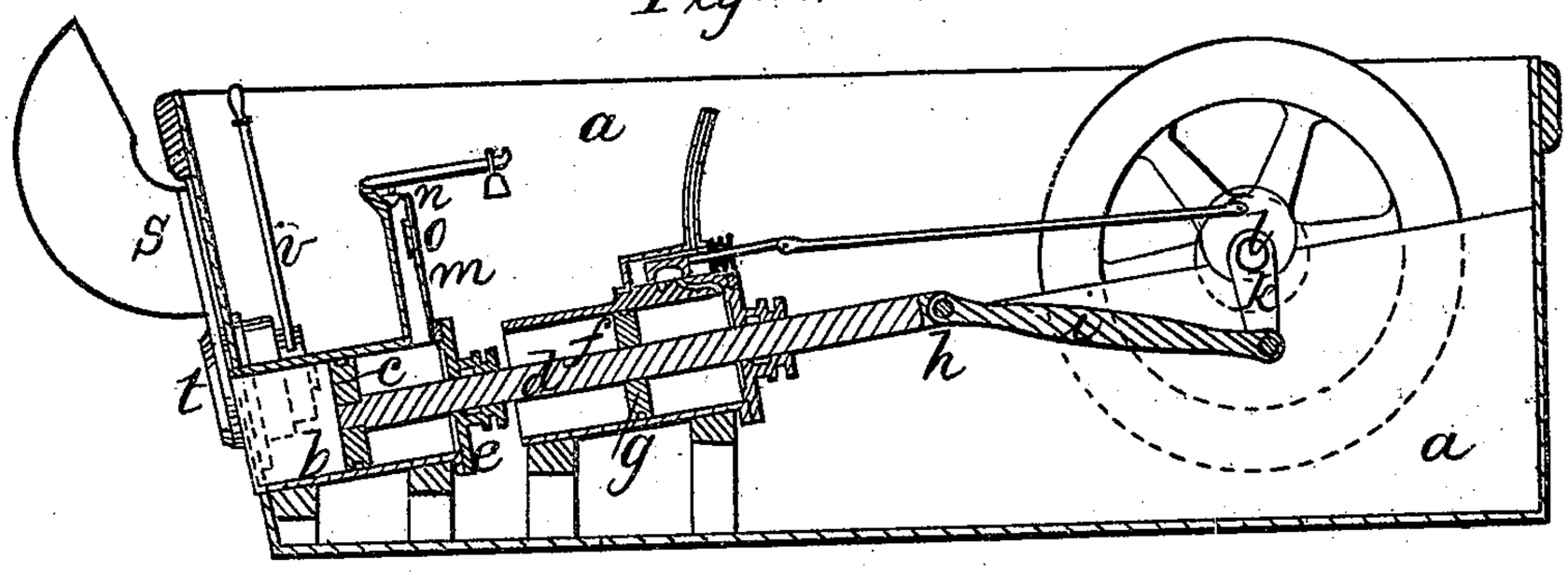
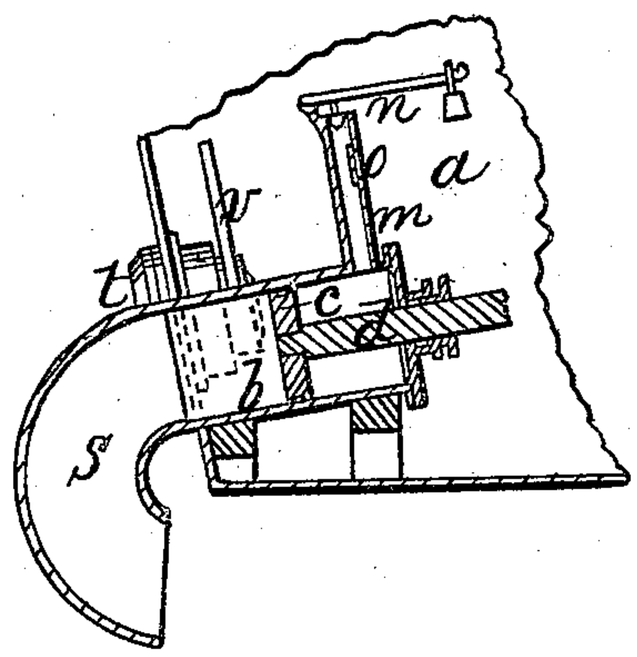


Fig: 2.



Witnesses;
Chas. H. Smith
Geo. D. Graeber

Inventor;
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United States Patent Office.

JOSEPH PARADIS, OF BROOKLYN, NEW YORK.

Letters Patent No. 93,337, *dated August* 3, 1869.

IMPROVEMENT IN PROPELLING-APPARATUS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOSEPH PARADIS, of Brooklyn, in the county of Kings, and State of New York, have invented an Improvement in Propellers for Vessels; and I do hereby declare the following to be a full, clear, and exact description of the said invention, and of the features distinguishing the same from previous devices.

This propeller is to act below the surface of the water, and is formed by the use of two or more water cylinders, containing pistons, located toward the stern, to give the vessel headway, or one or more may be located towards the front for backing.

I will proceed to describe one of them, reference being had to the annexed drawing, wherein—

Figure 1 is a vertical longitudinal section of the propeller, as ready for ordinary use.

Figure 2 is a section, with the nozzle for backing turned down.

Similar marks of reference denote the same parts.

a represents a portion of a vessel.

b is a cylinder, opening at the rear and through the vessel.

c is a piston, upon a rod, *d*, that passes through the head *e*, a stuffing-box being provided at this point.

The piston-rod *d* is prolonged into the steam-cylinder *f*, and fitted with a piston, *g*, and from the cross-head *h* a pitman, *i*, connects with a crank, *k*, shaft *l*, and fly-wheel, to regulate the movement.

The valve of the steam-engine is constructed and operated so that steam is supplied only on the forward end of the piston, to force that back, and also the piston *c*, and eject the water from the cylinder *b*, so that the same, acting upon the exterior water, shall cause a movement of the vessel in the reverse direction.

The steam is to be allowed to escape or led to a condenser, so that there will be nothing to hinder the free return of the steam and water-pistons by the agency of the fly-wheel, aided by the force of the water pressing, by its hydrostatic column upon the piston *c*, and refilling the cylinder *b*.

In consequence of the pressure of water and the momentum, the pistons might come back too rapidly and strain the crank-pin. I therefore make an air-chamber or cushion by the cylinder *b*, between the piston *c* and head *e*, and I provide an air-vessel or reservoir, *m*, into which the air is forced by the backward movement of the piston, and to this air-vessel a safety-valve, *n*, is fitted, to retain the pressure of air which may be necessary to counterbalance the pressure of the water upon the piston at the extreme backward movement, and hence to aid in starting the piston, when it is again moved to eject the water from the cylinder.

A valve, *o*, opening inwards, is to be used to admit air freely into the cylinder *b*, behind the piston *c*, as the same is moved to eject the water.

The vessel may be given stern-way or backed by the use of a return nozzle, *s*, that is made as a half circle, and fitted upon an axis at *t*, so that a lever, *v*, can be used for swinging the nozzle around, so as to coincide with the rear end of the cylinder *b*, in order that the water may be projected towards the front of the vessel.

The same effect may be produced by a standing pipe with a valve, to be turned up, and close the rear discharge-pipe or nozzle, and simultaneously open the forward discharge-nozzle. The discharge-nozzle *s* may be swung around by gearing, in place of the lever *v*.

I do not claim an air-cushion, nor the use of such a device in a separate cylinder, in connection with a propeller.

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

1. The air-vessel *m*, safety-valve *n*, and inlet-valve *o*, applied to the inner end of the propeller-cylinder *b*, and combined with the piston *c*, in the manner and for the purposes set forth.

2. In combination with the said air-vessel, valves, piston, and propeller-cylinder *b*, the steam-cylinder *f*, and steam-valve, arranged in the manner specified, so as only to admit steam to act in the same direction as the air of the air-cushion, for projecting the water from the cylinder *b*, as set forth.

3. The return nozzle *s*, fitted as specified, so as to be swung to coincide with the end of the cylinder *b*, as and for the purposes set forth.

In witness whereof, I have hereunto set my signature, this 11th day of February, A. D. 1869.

JOSEPH PARADIS.

Witnesses:

CHAS. H. SMITH,

GEO. T. PINCKNEY.