H. H. BLAKE.

Paddle-Wheel Mechanisms.

No. 149,091. Patented March 31, 1874.

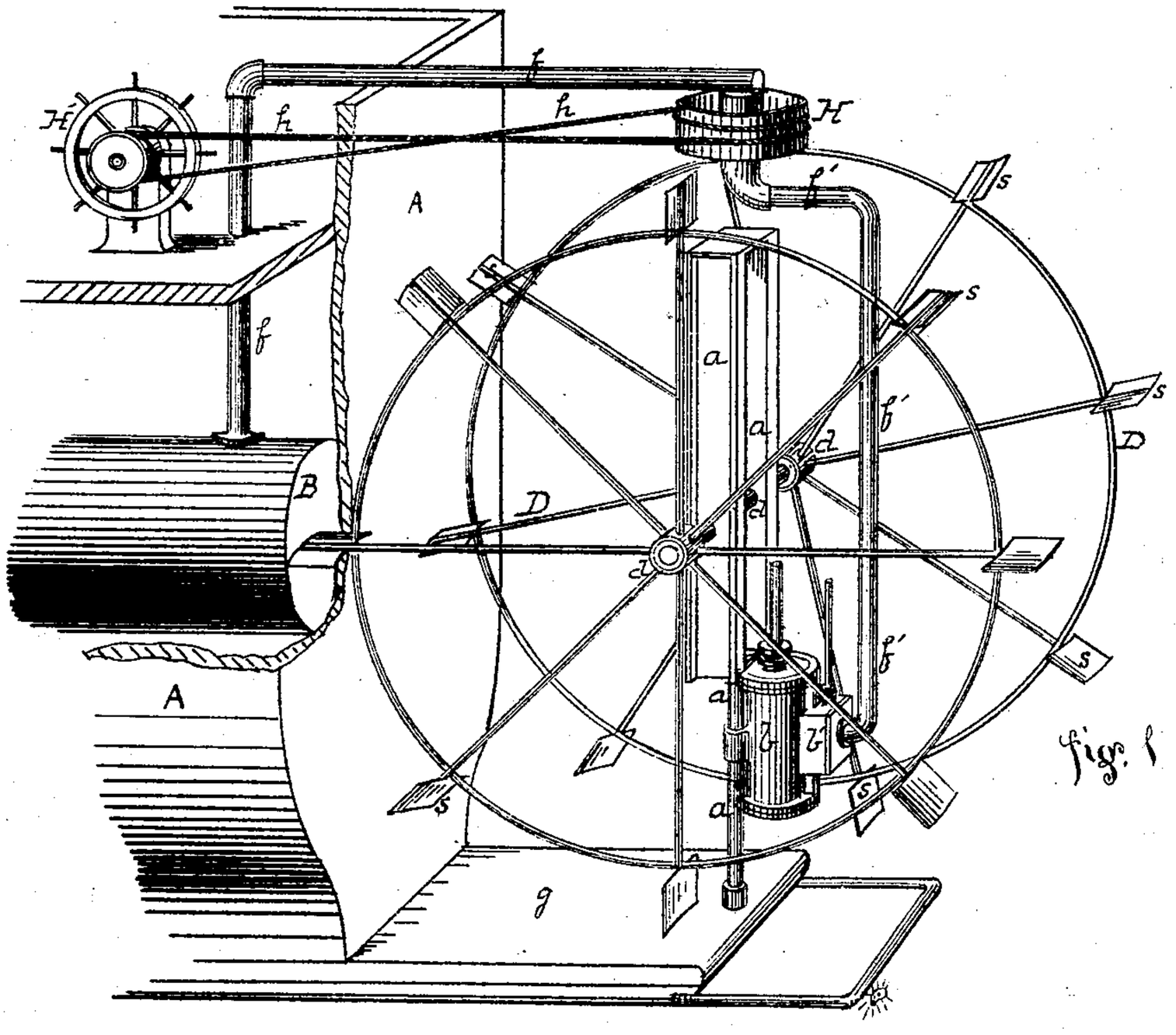

Fig. 1

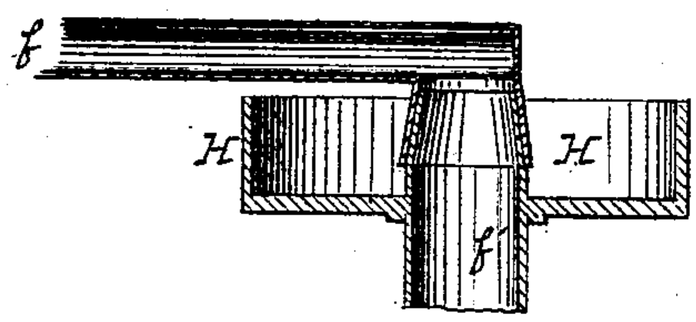

Fig. 2.

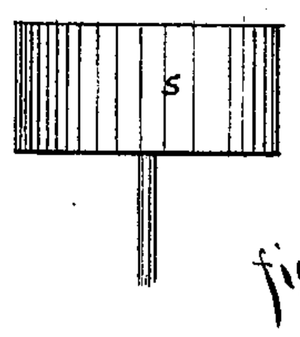

Fig. 3.

Fig. 4.

Witnesses { E. S. Blake
G. N. Christy — Inventor
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UNITED STATES PATENT OFFICE.

HENRY H. BLAKE, OF SEWICKLEY, PENNSYLVANIA.

IMPROVEMENT IN PADDLE-WHEEL MECHANISMS.

Specification forming part of Letters Patent No. **149,091**, dated March 31, 1874; application filed September 9, 1873.

To all whom it may concern:

Be it known that I, HENRY H. BLAKE, of Sewickley, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Propelling-Wheels; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a perspective view of my improved wheel, and of the devices immediately connected therewith. Fig. 2 is an enlarged sectional view of the steam-pipe at the point of swiveling; and Figs. 3 and 4 are face and edge views of the concave or scoop shaped bucket which I employ.

Like letters of reference indicate like parts in each.

My invention consists in the construction of a swiveled propelling-wheel for the propulsion of vessels on water, such that, by turning the wheel on a vertical axis, it may be shifted, so as not only to propel the boat directly forward, but also so as to steer it in any desired direction, or to move it backward when so desired; and, also, in the construction of a platform or extension from the bottom or keel of the boat backward under the wheel to aid the buckets or paddles in acting more effectively on the water.

To enable others skilled in the art to make and use my improvement, I will proceed to describe its construction and mode of operation.

The stern of a boat of any desired construction is represented at A, and a steam-boiler at B. From the rear end of the boat, at or near the level of the keel, I extend a horizontal platform, *g*, back to a point nearly or exactly under, or, if so preferred, a little beyond a plumb-line dropped from the axis of the wheel, and make it about as wide or a little wider than the distance between the outer extremities of the buckets or paddles. On this rear extension *g*, or on a bracket extended out therefrom and in a suitable step, I mount the vertical frame-work *a*, which latter projects up far enough to carry the axle or shaft *d* of the wheel, and also to carry an auxiliary propelling-engine *b*. From the boiler B a steam-pipe, *f*, extends up and over to a point in the axial line of the post or frame-work *a*, where it is jointed, as indicated in Fig. 2, by a conical or tapering joint inside the drum H to the steam-pipe *f'*, which passes down and supplies steam to the steam-chest *b'* of the steam-engine *b*. The band or chain *h* extends from the pilot-wheel H' to the revolving drum H. The pipes *f* and *f'* are made of such strength or rigidity that they, in connection with the supporting-frame *a*, will hold the wheel D in the desired position, or, if so preferred, independent supports or braces in like position and of suitable strength may be substituted therefor or combined therewith. It will now be obvious that the pilot, by rotating his wheel, H', will communicate a like motion to the drum H, and through that to the pipe *f'*, and thus to the post or supporting-frame *a;* and as this post or frame *a* carries the main shaft or axle *d* of the wheel D, the wheel itself will be caused to revolve at the pleasure of the pilot in either direction, and to any desired extent. He may hold it in position with its main shaft *d* at right angles to the direction of the boat, if he wishes to go directly forward, or he may shift it either way sufficiently to steer in either direction, or may rotate it half-way round, so that the wheel still turning in the same direction will cause the boat to move backward instead of forward.

It will be observed that the engine *b*, being mounted on the same post or frame *a*, will rotate with it, and that the steam-supply pipe *f'*, turning readily by means of the joint shown in Fig. 2, will also revolve, so that the operation of the wheel will be wholly independent of its position, and that position may be varied, as already stated, at the pleasure of the pilot.

I have not shown any means of converting the reciprocating motion of the engine into a rotary motion in the wheel, since the means I have devised will form the subject-matter of a separate application; but any known means suitable for such purposes may be employed, and, if so desired, two engines, with their cranks working at right angles to each other, may be used. Also, any suitable known joint, steam-tight, and which will not interfere with the rotation of the steam-pipe *f'*, may be substituted for that shown in Fig. 2.

The object of the rear extension *g* is not only to afford a means of supporting or carrying the post or frame-work *a*, but also to confine the water from beneath, so that it will the less readily escape from the propelling action of the buckets thereon; and, as a suitable form of bucket, I make use of that shown in Figs. 1 and 3, the same being marked *s*, and which form is concave or scoop shaped on the forward or propelling face, so that the water shall less readily escape from the same in a lateral or vertical direction.

By swiveling the wheel in the manner described I am enabled to dispense with the rudder entirely, and also steer the boat more efficiently, or put it more completely under the control of the pilot than can be done by any separate steering apparatus in use.

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

1. A steamboat paddle-wheel hung in, and supported by, a rotating post or frame, substantially as described.

2. The rear extension *g*, underlying the rotating paddle-wheel, and in combination therewith and with the post or frame which carries said paddle-wheel, substantially as set forth.

In testimony whereof I, the said HENRY H. BLAKE, have hereunto set my hand.

HENRY H. BLAKE.

Witnesses:
T. B. KERR,
G. H. CHRISTY.