

S. G. HILL.

Means of Elevating and Depressing Propellers.

No. 141,558.

Patented August 5, 1873.

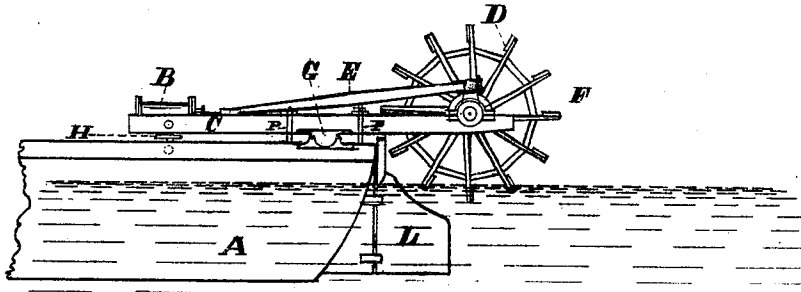


Fig. 1.

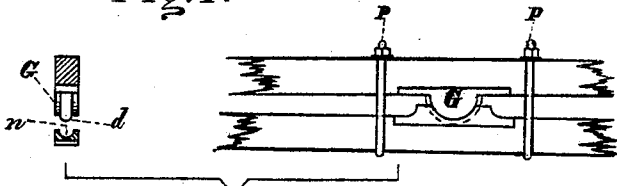


Fig. 2.

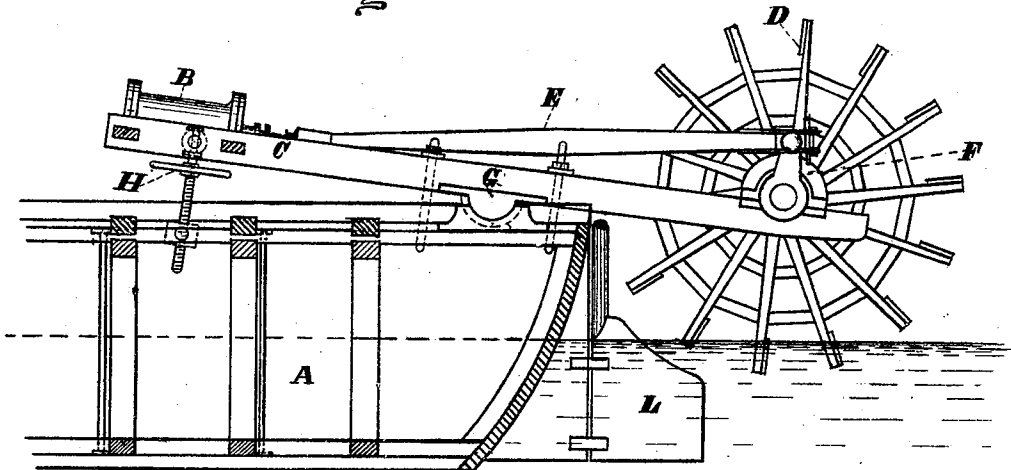


Fig. 3.

Witnesses.

J. V. DeLooper.

J. R. Beckwith.

Inventor.

Samuel G. Hill,
by Samuel Brock,
att'y.

UNITED STATES PATENT OFFICE

SAMUEL G. HILL, OF MUSCATINE, IOWA, ASSIGNOR OF ONE-HALF HIS
RIGHT TO PATRICK YORE, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN MEANS OF ELEVATING AND DEPRESSING PROPELLERS.

Specification forming part of Letters Patent No. **141,558**, dated August 5, 1873; application filed
March 18, 1873.

To all whom it may concern:

Be it known that I, SAMUEL G. HILL, of Muscatine, in the State of Iowa, have invented an Improvement in Operating Paddle-Wheels of Steamboats, of which the following is a specification:

The object of this invention is to provide a means whereby time and labor may be saved in operating to elevate or depress the paddle-wheel of a stern-wheel steamer.

It has heretofore been the practice to shift the position of the buckets on the arms of the wheel, involving the unscrewing and screwing up of a large number of screws whenever a change of dip is required, thus consuming considerable time and labor. Other means for overcoming this difficulty have been devised, such as a derrick erected on deck to elevate the wheel, the supporting-timbers of which latter were hinged or pivoted at the forward end; the machinery being required to raise a weight of about fifteen tons, must of necessity be very heavy, and absorb considerable power to operate it, and has therefore proved too cumbersome for practical use.

My invention consists in supporting the paddle-wheel of a stern-wheel steamer on a frame, the opposite end of which carries the cylinders of the steam-engine, and this frame is supported on pivots intermediately of its length, so as to be as nearly balanced thereon as possible, whereby the dip of the wheel may be adjusted with ease, and its full diameter made available at any draft of water to which the vessel may be loaded.

In reference to the drawing annexed and made part of this specification, Figure 1 is a side elevation of a stern-section of the hull of a stern-wheel steamboat, showing the paddle-wheel as elevated and the engines depressed when the boat is at deep load-line. Fig. 2 is a side view of the engine-bed and paddle-wheel timber with the fore and aft deck-stringer or supporting-timber and the fulcrum attached to them; also, a sectional view of the fulcrum and its seat. Fig. 3 is a longitudinal sectional view of the stern-section of the hull of a stern-wheel steamboat at light load-line, showing the paddle-wheel as depressed and the engines elevated.

Like letters indicate like parts in all of the figures.

A represents the stern-section of the hull of a stern-wheel steamboat. B represents the cylinder of the steam-engine. C represents the engine-bed and paddle-wheel timbers. D represents the paddle-wheel. E represents the pitman or connecting rod. F represents the crank on paddle-wheel shaft. G represents the fulcrum or pivot. H represents the elevating and depressing screw. L represents the rudder. *d* represents the tongue projection or guide on the face of the fulcrum or pivot. *n* represents the groove or recess in the fulcrum-seat. P P are clamp-bolts.

The construction and operation of the improvement are as follows: The engine-bed and paddle-wheel timbers may be constructed of wood or metal, and of a width sufficient to receive and support the engine. This width is maintained out to just abaft the fulcrum, then the timber is narrowed down to a width sufficient to receive and support the pillow-block for the main journal, as shown at C in Figs. 1 and 3. The fulcrum or its seat is attached to the under side of the engine-bed and paddle-wheel timbers, and of a height sufficient to allow of the free oscillation of the timbers in elevating and depressing the engine and paddle-wheel. This fulcrum has its face or bearing points in contact so shaped and fitted by tonguing and grooving as to prevent all lateral motion of the bed-timbers. The elevating and depressing screw can be made and attached similar to the elevating-screw used in elevating heavy cannon. I propose to use suitably-prepared blocks to ship under the inner ends of the bed-timbers to relieve the elevating-screw, in such a manner that when the holding-down bolts are screwed home the engine-bed and paddle-wheel timbers will be as rigid as if they had been put up from the solid material. The holding-down bolts will be of any suitable shape to suit the occasion; but I prefer swivel-bolts the same as are now in common use for such purposes, and clamp or stirrup bolts at the fulcrum, as shown at P P in Fig. 1. The engine and cross-head slides are placed on the bed-timbers the same as in the old way; but they are fastened only

to the bed-timbers, thus leaving the bed-timbers free to oscillate whenever the holding-down bolts that connect them to the hull are slackened off for that purpose.

It will be observed that when the paddle-wheel is depressed the engine is elevated, as is shown in Fig. 3, and a reverse movement of the elevating-screw causes the paddle to be elevated and the engine depressed, as shown in Fig. 1.

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

The arrangement of the steam cylinder or cylinders B and stern paddle-wheel D on opposite ends of the rocking beams C, which are pivoted intermediately of their length, so as to vibrate as described, for the purpose set forth.

SAMUEL G. HILL.

Witnesses:

SAMUEL BROCK,
I. R. BECKWITH.