# GEORGE H. CUSHMAN.

## Improvement in Paddle Wheels.

No. 125,381. Patented April 9, 1872.

*Fig 1*

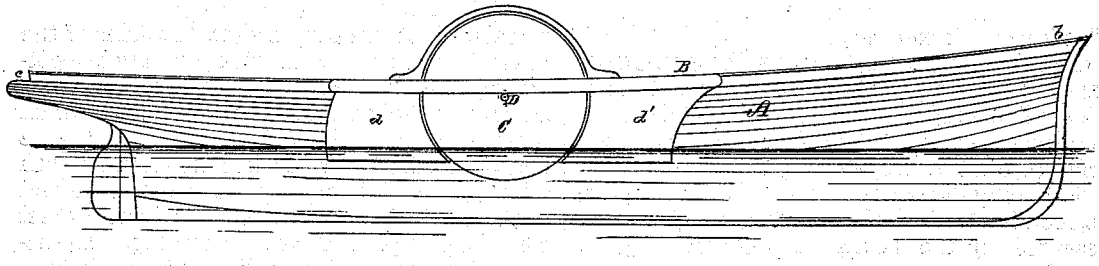



*Fig. 2.*

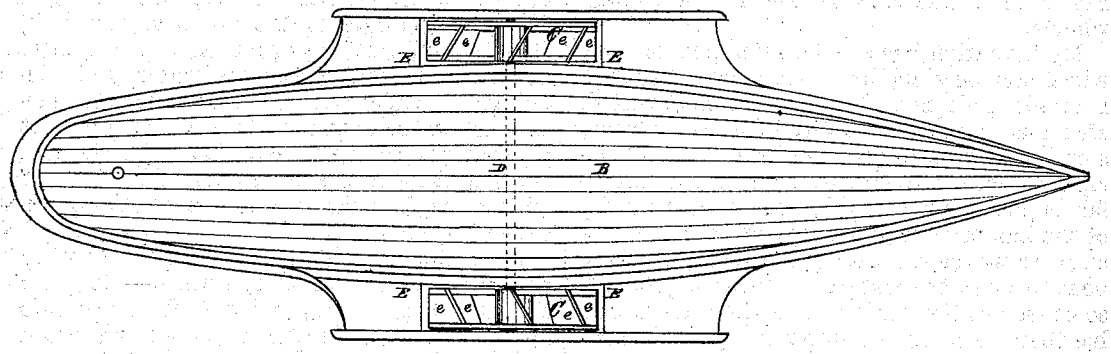
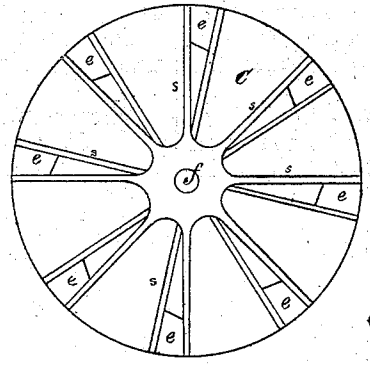



*Fig. 3.*




*Witnesses.*

*Jno Clark*

*F. C. Hale*

*George H. Cushman*

*by his attorney.*

*F. P. Hale*

# UNITED STATES PATENT OFFICE.

GEORGE H. CUSHMAN, OF PLYMOUTH COUNTY, MASSACHUSETTS.

## IMPROVEMENT IN PADDLE-WHEELS.

Specification forming part of Letters Patent No. 125,381, dated April 9, 1872.

*To all whom it may concern:*

Be it known that I, GEORGE HOMER CUSHMAN, of the county of Plymouth and State of Massachusetts, have made a new and useful Improvement in Paddle-Wheels for Steamers and other Boats propelled by side-wheels; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawing, in which—

Figure 1 denotes a side illustration of the hull of a steamer, as provided with my improvement. Fig. 2 is a top view of the same. Fig. 3 is a side view of one of the paddle-wheels.

My invention has special reference to side-wheel steamers employed on canals, although I do not limit myself to the employment of steam as a motive power, as horse or other suitable power may be employed. The principal object of my invention is to prevent as far as possible the washing and wearing away of the banks of a canal by the action of the swell or waves created by the passing of the boat through the water. Another object is to so construct the floats of the wheel as to enable them to enter the water easily, and thereby produce little or no vibration of the boat. My invention consists in the peculiar construction of the wheels, whereby the outflowing currents or waves produced by the displacing action of the prow and the wheels, as ordinarily constructed, are, in a great measure, counteracted by being deflected inward toward the stern of the vessel.

In the said drawing, A denotes the hull of the vessel, *b* being the prow and *c* the stern thereof. B is the deck, and C C′ the paddle-wheels, which are disposed on the sides of the vessel in the ordinary manner, and are respectively affixed to the ends of a shaft, D, extending transversely through the hull, and to which rotation is to be imparted from any suitable motor. Each of the said wheels is provided with a hub, *f*, which is rigidly secured to one end of the shaft D. The outer side of each wheel consists of a plain closed rim or disk. The series of floats, *e e*, &c., radiate from the hub, and are affixed at one of their edges to the inner face of the disk, as shown in Figs. 1 and 3; their opposite edges being affixed to a series of spokes, *s s*, &c. These floats are arranged at an acute angle to the plane of the disk, sloping backward toward their inner ends so as to more easily enter the water and discharge the same, and with less of that concussive action incident to floats when arranged at right angles to the wheel. Each of the said wheels, on its inner side, is open or unprovided with a rim, in order to allow of the ready escape of back water.

From the above it will be seen that by my peculiar construction of the wheel—viz., with the outer side closed, and with its inner side open—much of the water displaced and forced outward by the prow will be arrested by such closed end and deflected and discharged toward the stern.

Having described my invention, what I claim is—

The improved paddle-wheel, made substantially as shown and described.

GEORGE H. CUSHMAN.

Witnesses:

F. P. HALE,
F. C. HALE.