

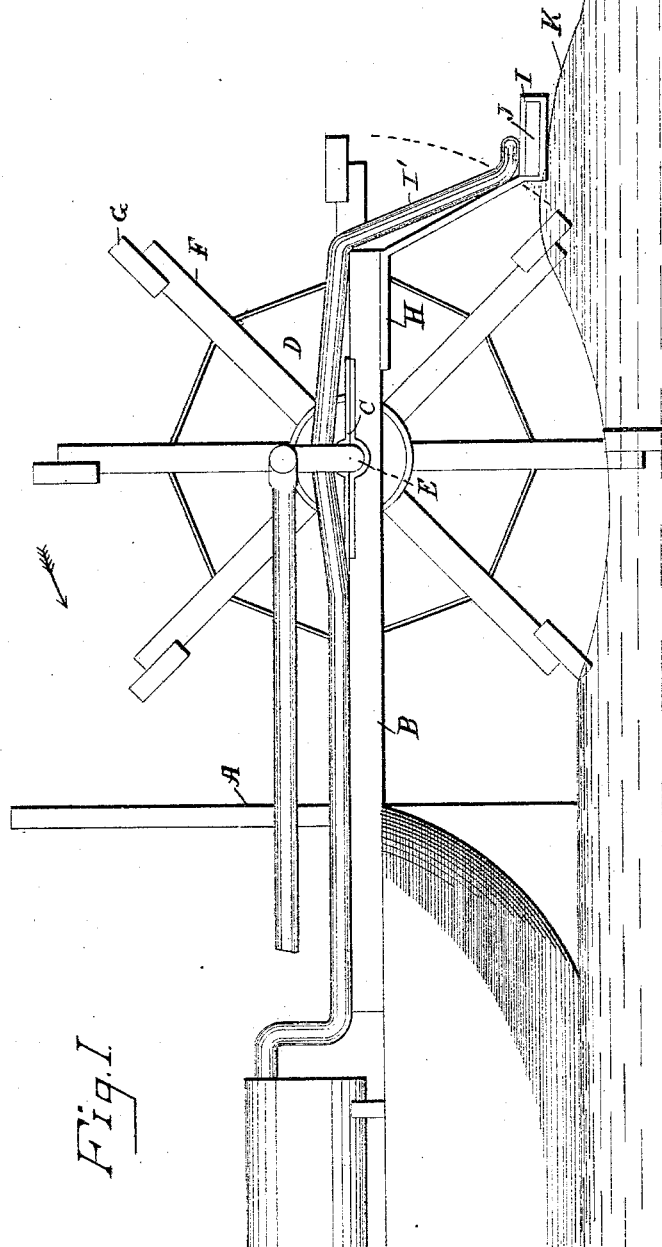
(No Model.)

2 Sheets—Sheet 1.

J. F. CUNNINGHAM.
BOAT WHEEL.

No. 303,819.

Patented Aug. 19, 1884.



WITNESSES

Edwin L. Bradford
L. O. Belknap

INVENTOR

John F. Cunningham
By Taubman & Semmes,
his Attorneys.

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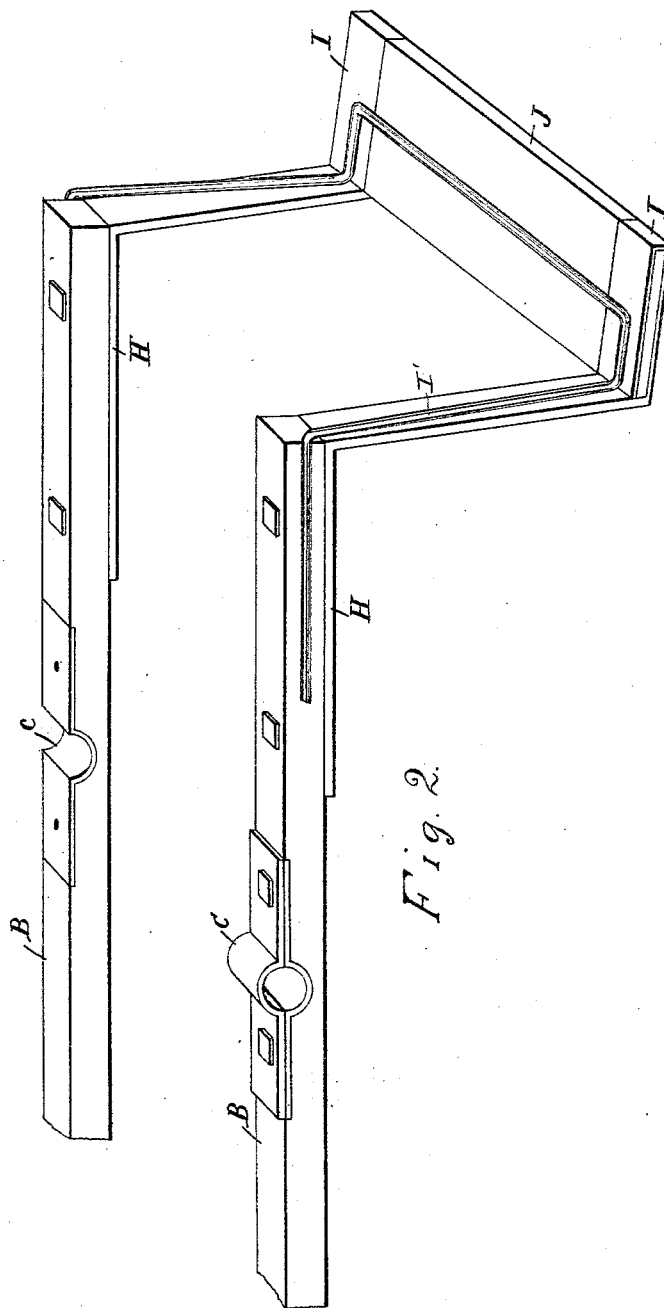
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[Signature]

INVENTOR

John F. Cunningham
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his attorneys.

UNITED STATES PATENT OFFICE.

JOHN F. CUNNINGHAM, OF WHEELING, WEST VIRGINIA.

BOAT-WHEEL.

SPECIFICATION forming part of Letters Patent No. 303,819, dated August 19, 1884.

Application filed May 9, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. CUNNINGHAM, a citizen of the United States, residing at Wheeling, in the county of Ohio and State of West Virginia, have invented certain new and useful Improvements in Boat-Wheels, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in boat-wheels; and it has for its object to prevent the blades of propelling-wheels from lifting a body of water as they revolve.

In the accompanying drawings, forming a part of this specification, and on which like letters of reference indicate the same or corresponding features, Figure 1 represents a cross-sectional view of the propelling-wheel of a vessel with my improved attachment applied thereto, and Fig. 2 a detached perspective view of my attachment with the propelling-wheel removed.

The letter A designates the shield attached to the rear portion of a stern-wheel steamer, the same being of the usual construction, which is used to prevent the drippings from the wheel from wetting the rear portion of the vessel.

Secured rigidly to the aft portion of the vessel are the bolsters B, which are provided near their outward extremities with bearings C, for the reception of the shaft of the propelling-wheel.

The letter D refers to the propelling-wheel of a vessel, and it consists of a shaft, E, fitting in bearings C at each end, and having radiating arms F, provided with blades G.

To the ends of the bolsters B are securely fastened, in any suitable manner, the brackets H, preferably made of iron, and terminating at their free ends in the projections I, forming bearings for the reception of the water knife or board J, to which it is secured by bolts or otherwise. This knife is made of wood or any suitable material, and is sufficiently strong to withstand the constant strain of water forced against it, and it is somewhat longer than the blades of the propelling-wheel.

It will be observed that the brackets H are of such length as to allow the knife J to remain in a position slightly above the surface of the water, and to bring the knife just beyond the arc of a circle described by the rotation of the wheel, as indicated in dotted lines.

When the vessel is put in motion, the propelling-wheel travels in the direction indicated by the arrow, and the blades of the wheel in their passage through the water create a slight wave, as shown at K. The knife J is sufficiently above the water to just touch or clear this wave, and at the same time act as a means to cut off whatever water is lifted by the wheel, leaving the wheel during the rest of its rotation free of any dead weight, thus effecting a considerable saving of power, which may be utilized in the more rapid propulsion of the vessel, or rendering the vessel capable of traveling at the usual rate of speed with a diminution of power.

In order to overcome any difficulty which might arise by reason of the knife becoming clogged with ice during the winter season, I run steam-pipes I' along the brackets H and across the top of the knife, the heat from which serves to keep the knife clear from ice.

It is further to be observed that my invention is equally applicable to side-wheel steamers, the slight alterations necessary to the different relative arrangement of parts being easily made without departing from the spirit of my invention.

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

1. In a boat, the combination, with the propelling-wheel, of the knife situated in close proximity to the blades of the wheel and slightly above the level of the water, so as to cut off the water raised by the said wheel.

2. In a boat, the combination, with the propelling-wheel, of the brackets secured to the shaft-supports, and a blade attached thereto, situated in the rear of and in close proximity to the propelling-wheel and slightly above the surface of the water, and adapted to cut off the water raised by said wheel.

3. In a boat, the combination, with the propelling-wheel, of the brackets secured to the shaft-supports, a knife attached to said brackets, and pipes connected with a steam-generator and to the brackets and running near the knife for preventing ice from collecting thereon.
- 5 4. In a boat, the combination, with the blade for cutting off the water lifted by the boat-propelling wheel, of a pipe connected with a steam-generator and running along the knife, whereby said knife is kept clear of ice.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN F. CUNNINGHAM.

Witnesses:

A. KELLY,

L. T. BUSBEY.