G. G. WYLAND & T. M. RATHMELL.

Improvement in Propellers for Canal-Boats.

No. 114,382. Patented May 2, 1871.

Fig. 1.

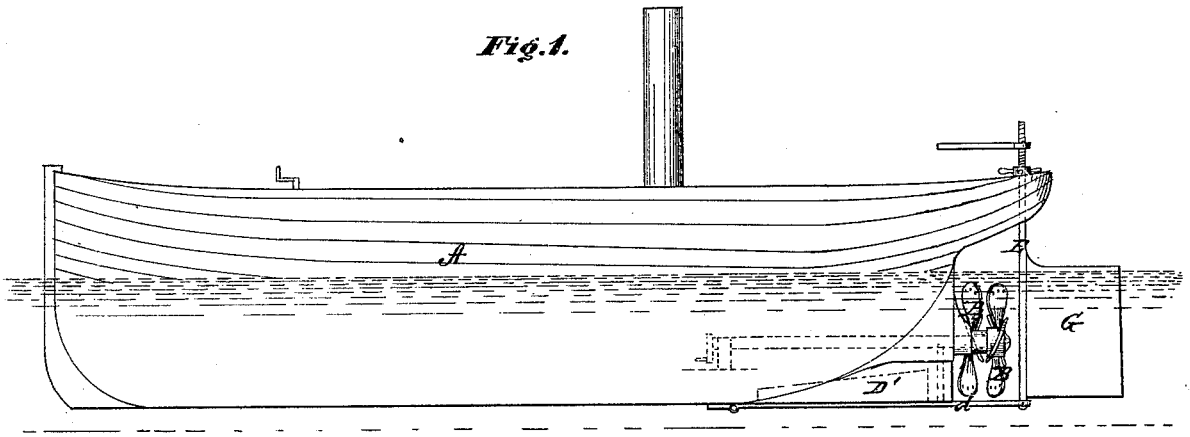


Fig. 2.

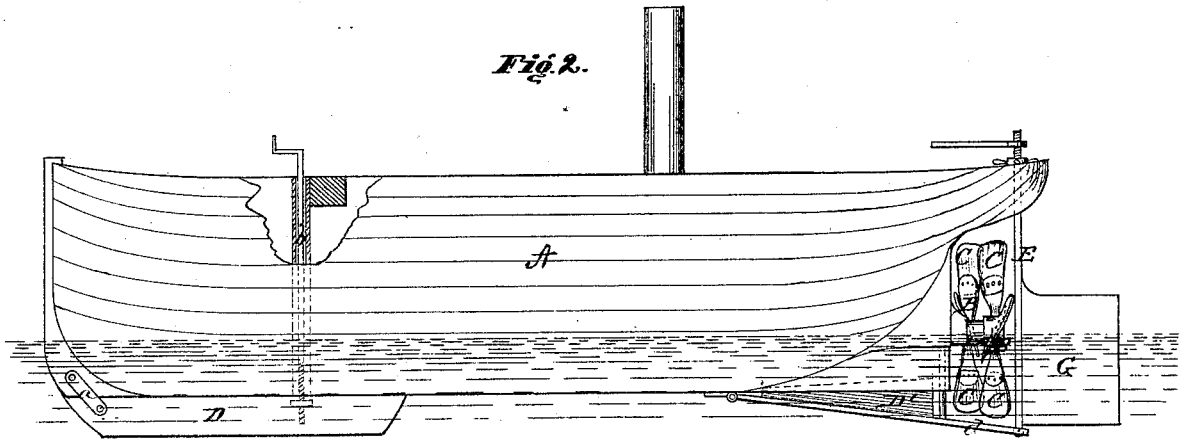
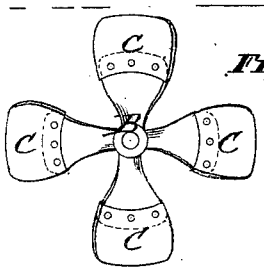


Fig. 3.



Witnesses.

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GEORGE G. WYLAND AND THOMAS M. RATHMELL, OF WILLIAMSPORT, PENNSYLVANIA.

Letters Patent No. 114,382, dated May 2, 1871.

IMPROVEMENT IN PROPELLERS FOR CANAL-BOATS.

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

To all whom it may concern:

Be it known that we, GEORGE G. WYLAND and THOMAS M. RATHMELL, of Williamsport, in the county of Lycoming and in the State of Pennsylvania, have invented certain new and useful Improvements in Propelling and Guiding Steam Canal-Boats; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon making a part of this specification.

The nature of our invention consists in the construction of a propeller-wheel with detachable blades, and also in an adjustable keel and an adjustable rudder for canal-boats, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side elevation of a canal-boat, showing the position of the wheel, keel, and rudder when the boat is loaded;

Figure 2 is a similar view, showing the position of said parts when the boat is empty; and

Figure 3 is an enlarged view of the propeller-wheel.

The first part of our invention is intended to remedy the difficulty heretofore experienced by canal-boatmen in getting the boat back again through the canal after unloading.

When the boat is loaded the paddle-wheels are totally submerged in the water, and, as the depth of the water is generally only about forty-eight inches, the boat drawing forty-six inches, wheels of more than about forty-four inches in diameter cannot be used.

When the boat is unloaded there will only be about ten inches of the wheels submerged in the water, which is entirely insufficient to give power required to propel the boat.

To remedy this we attach to the blades of the propeller-wheel or wheels additional blades or extensions, so as to get a large enough surface submerged in water to give the necessary power.

A represents a canal-boat, of any suitable construction, provided with propeller-wheels B B.

To the outer edges of the blades of these wheels are attached additional blades or extensions, C C, by means of bolts or any other suitable means, so that they can be readily attached and detached.

In fig. 1 the boat is represented as being loaded when the wheels are not provided with these extensions, as they are totally submerged in the water; but when unloaded, as shown in fig. 2, it becomes necessary to attach these extensions to obtain sufficient power to propel the boat.

The keel of the boat is made in two sections, D and D′.

The forward section D is entirely removed when the boat is loaded, but when unloaded it is attached to the bow of the boat by means of a pivoted connecting-bar, *a*, on each side, and its rear end is held by a screw, *b*, as shown in fig. 2.

The rear section D′ of the keel is hinged at its front end to the bottom of the boat, or rather this section is attached at its lower edge to a bar, *d*, and this bar is hinged at its front end to the bottom of the boat, the section D′ itself extending upward in a recess formed in the bottom of the boat.

The bar *d* extends a suitable distance beyond the rear end of the keel, and the shaft E is attached to its rear end.

This shaft, to which the rudder G is attached, passes up through the stern of the boat, and is allowed to turn in the bar *d*, but not come out of the same.

When the boat is loaded the section D′ of the keel is drawn up so that the entire bottom of the boat will present an unbroken flat surface; but when the boat is empty and the additional blades C C are attached to the wheels, then the keel D′ is lowered and the front section D attached, as already mentioned.

The object of the front section is to act as a guide and prevent the boat from drifting to the banks or sides of the canal, which is frequently the case with unloaded boats having no keel; and the object of the rear section D′ is to protect the wheels and rudder from the tow-line, which otherwise could not be protected, and also to allow the rudder to drop and give a firmer hold in the water.

Having thus fully described our invention,

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

1. The combination, with a propeller-wheel, of the detachable auxiliary blades or extensions of blades, substantially for the purposes herein set forth.

2. The combination, with a canal-boat, of the forward keel D, constructed to be readily attached and detached in the manner and for the purposes herein set forth.

3. The adjustable rear keel D′, with its bar, *d*, con-

structed and arranged substantially as and for the purposes herein set forth.

4. The combination, with a canal-boat, of a removable keel or section of keel forward, and a vertically-adjustable keel or section of keel at the stern, constructed and arranged substantially as and for the purposes herein set forth.

5. The combination, with propellers C C and keel D′, of an adjustable rudder for canal-boats, made so that it can be raised and lowered at will, for the purposes herein set forth.

6. The combination of the keel D′, bar *d*, shaft E, and rudder G, all constructed and arranged substantially as and for the purposes herein set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 3d day of April, 1871.

GEORGE G. WYLAND.
THOMAS M. RATHMELL.

Witnesses:
A. CASSIDY,
ABRAM DOUGHERTY.