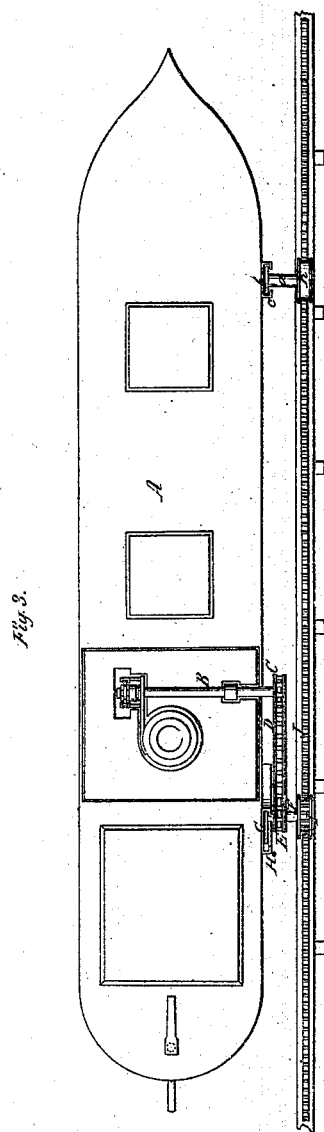
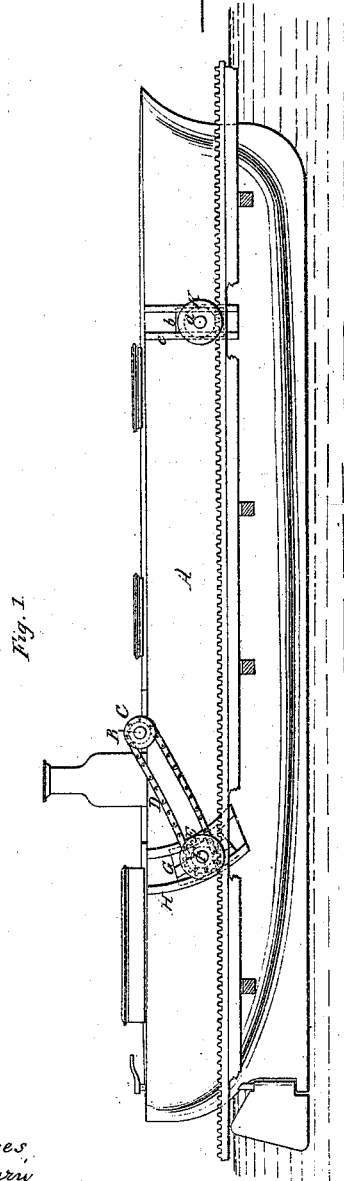
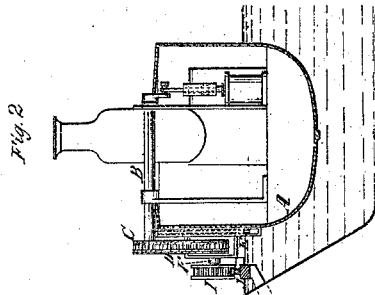


N. P. Otis.
Propelling Canal Boats.

Patented May 9, 1865.

No. 47,657.



Witnesses
Wm. Thurn
Ed. Topliff

Inventor
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Attorneys

UNITED STATES PATENT OFFICE.

N. P. OTIS, YONKERS, NEW YORK.

IMPROVED CANAL-PROPELLER.

Specification forming part of Letters Patent No. 47,657, dated May 9, 1865.

To all whom it may concern:

Be it known that I, N. P. OTIS, of Yonkers, in the county of Westchester and State of New York, have invented a new and useful Improvement in Propelling Canal-Boats; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a side elevation of this invention. Fig. 2 is a transverse vertical section of the same. Fig 3 is a plan or top view of the same.

Similar letters of reference indicate corresponding parts.

This invention consists in the application to a canal-boat of one or two wheels mounted on the end or ends of a shaft which has its bearings in rising and falling slides moving in segmental guideways, and to which a rotary motion is imparted by an engine in the interior of the boat, in combination with a track extending on the side of the canal throughout its entire length in such a manner that by the action of said wheel or wheels on the track the boat can be propelled with comparatively little power, and without any external power, such as usually employed. The driving wheel, being mounted on a shaft which has its bearings in rising and falling slides, is free to accommodate itself to the greater or smaller immersion of the boat, and a guide-wheel applied to the front parts or bows of the boats keeps the same in the proper course and prevents any undue side strain on the driving-wheel.

A represents a canal-boat of the usual construction and provided in its interior with a small steam or other engine capable to produce the power of three or four horses. By this engine motion is imparted to the shaft B, which extends transversely across the boat, and on which is mounted a chain-wheel, C. A chain, D, extending round this wheel, and around a similar chain-wheel, E, on the shaft F, serves to transmit the motion to this latter shaft, which has its bearings in slides G on the sides of the boat. Said slides rise and fall in segmental guides H, so that the shaft F can accommodate itself to the varying immersion of the boat without disturbing its connection with the shaft

B. Mounted on the end of the shaft is a cog-wheel, I, which gears in a toothed rack, J, that extends on the side of the canal throughout its whole length; or instead of the cog-wheel I a simple friction-wheel might be used with one or more V-shaped grooves or projections catching in corresponding grooves on the face of the rack, which is formed accordingly, and in some cases it may be desirable to extend the shaft F clear across the boat, so that two wheels I may be secured to it, one on each side of the boat.

In order to keep the boat in the proper position in relation to the track, and to prevent any undue strain on the wheel I, a guide-wheel, K, is applied. This wheel is mounted on a stud, a, projecting from a slide, b, which moves up and down in guides c. This wheel is smooth on its faces, and runs on the top of the cogs of the rack J, and it is provided with flanges catching over the edges of said rack.

By this arrangement a comparatively small engine is sufficient to propel a canal-boat with the usual speed, the engine occupies but little room in the boat, only a small quantity of fuel is needed, and the expense of working the engine is much less than that required to support the requisite number of horses and drivers usually employed to propel the boat. Both the driving and the guide wheels are free to accommodate themselves to the varying immersion of the boat, and the expense of maintaining the track and the machinery for propelling is trifling after the same has been once put in proper working-order.

I claim as new and desire to secure by Letters Patent—

1. The combination of the rack J, wheel I, pulleys C E, and chains D, operating substantially as and for the purposes set forth.

2. In combination with the above, mounting the shaft which carries the driving wheel or wheels in slides moving in segmental guideways, substantially as and for the purpose described.

3. The flanged guide-wheel K, in combination with the rising and falling slide b, rack J, and boat A, constructed and operating substantially as and for the purpose specified.

N. P. OTIS.

Witnesses:

ROBERT MORRISON,
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