DeW. STEARNS.

Towing Canal-Boats.

No. 211,602. Patented Jan. 21, 1879.

Fig. 1.

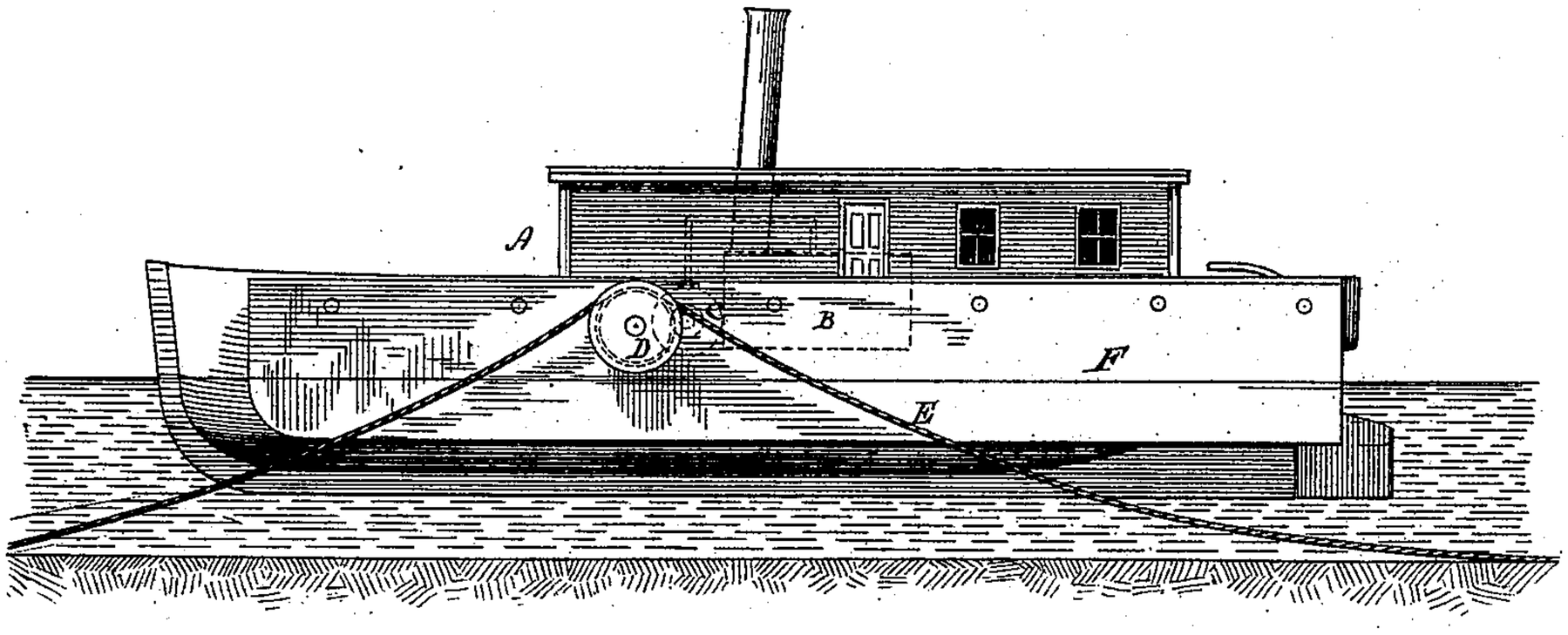
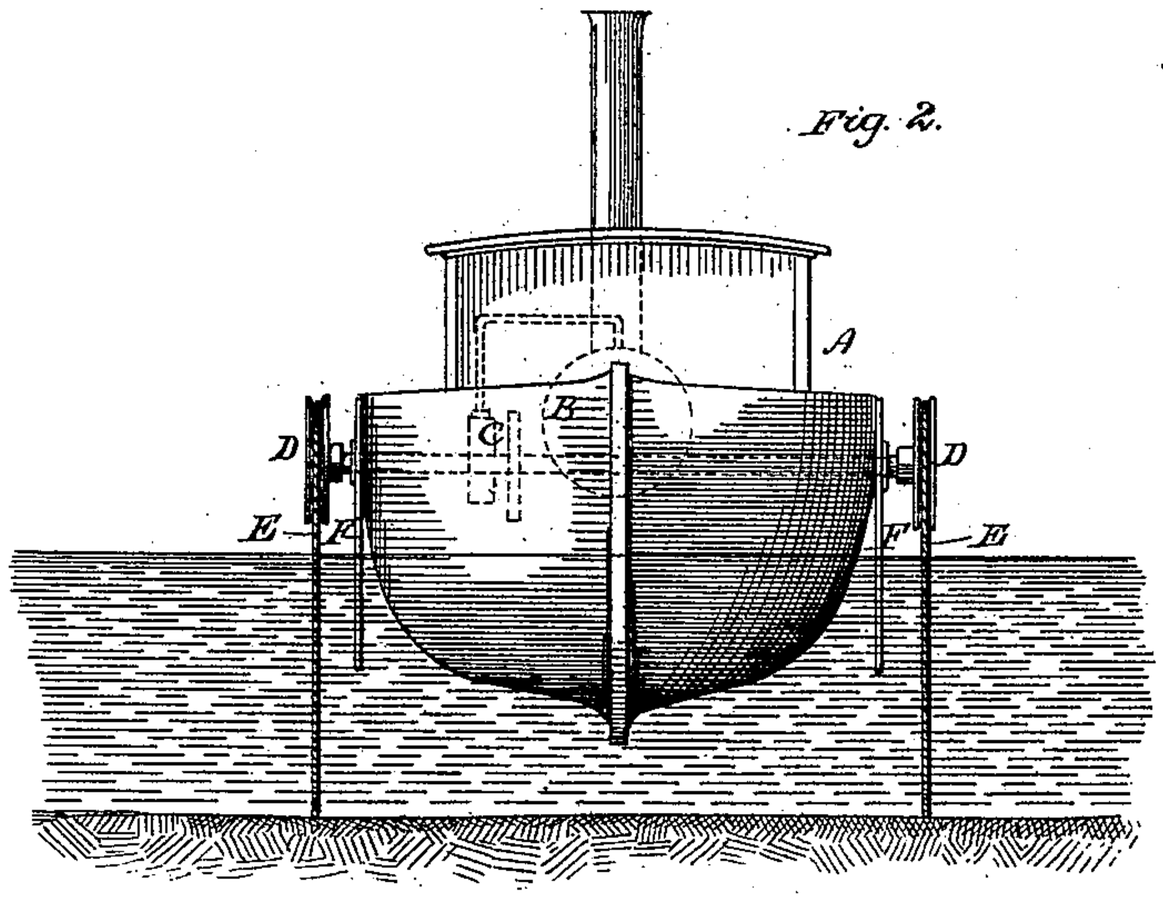


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

DE WITT STEARNS, OF DAVENPORT, IOWA.

IMPROVEMENT IN TOWING CANAL-BOATS.

Specification forming part of Letters Patent No. **211,602**, dated January 21, 1879; application filed August 19, 1878.

To all whom it may concern:

Be it known that I, DE WITT STEARNS, of Davenport, in the county of Scott and State of Iowa, have invented a new and useful System for the Propulsion of Boats in Canals; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object I have in view is a system for the propulsion of boats in canals, and an apparatus suitable for that purpose.

My system consists in extending two chains or wire ropes, or ropes or chains of sufficient strength and of such weight that they will sink to the bottom of the canal and lie extended upon the bottom, except in such parts as may be raised in use, as hereinafter explained, which chains or ropes are intended to rest upon suitable grooved drums upon each side of the canal-boat, hereinafter described, when such chains or ropes are used for the purpose of propulsion. These grooved drums are secured upon a transverse shaft, passing from side to side of the canal-boat, which shaft is rotated by steam-power, obtained from any of the ordinary types of steam-engines. To avoid the washing of the banks of the canal this boat has peculiar wash-boards on each side.

The novelty upon which I base my claim for Letters Patent consists in providing a canal-boat with vertical drums or pulleys at its sides, situated at or near the longitudinal center of the boat, in combination with two chains or cables extending along the bottom of the canal and passing over such pulleys, so as to be readily detachable therefrom, whereby the weight of the chains or cables, assisted by their anchorage on the bottom of the canal, will enable the boat to be propelled steadily and in the proper direction by the revolution of the pulleys; and, further, in providing a canal-boat with wash-boards, secured directly to the sides of the same, and with vertical drums or pulleys situated outside of the wash-boards, and revolved by power carried by the boat, all as fully hereinafter explained.

In order that the public and those skilled in the business may the better comprehend my improvement, I proceed to describe the same in detail, having reference to the accompanying drawings, and to the letters of reference marked thereon, the same letters denoting corresponding parts in each figure.

In the drawings, Figure 1 is an elevation of my canal-boat, with the chains in position for propulsion; and Fig. 2, a front elevation of the same, showing more particularly the position of the wash-boards.

A represents the canal-boat, of any ordinary construction, suitable for carrying an engine of sufficient power to tow other canal-boats, it being intended that the boat under description shall be used both for the carriage of freight and passengers, and for towing other boats, or for towing alone. Placed within or upon this boat is a suitable boiler, B, and engine C, which latter, in the drawings, is indicated as a rotary engine.

It is to be understood, however, that I do not wish to confine myself to any particular steam-engine, or even to a steam-engine, as various kinds of power may be used, under certain circumstances, to advantage.

This engine C is shown in the drawings as rotating a shaft, which passes transversely through the boat at a suitable distance above the water. Upon the ends of this shaft, and secured to it, are shown grooved drums D, one on each side of the boat, over which it is intended that the ropes or chains E shall pass. It is evident, however, that these grooved drums may be four, six, or more in number, and need not be secured upon a shaft, but may be rotated by any suitable connection with the engine. As it is understood that the propulsion of the boat shall be effected by the friction of the ropes or chains upon the drums, these latter may be roughened in any ordinary way, the better to effect their purpose.

The chains or ropes E may be of any ordinary construction, although it is belived that wire ropes suitably protected from injury, which might arise from their being so constantly immersed in water, are preferable, and are to be extended along the canal throughout its entire length, a suitable distance apart, and should, preferably, sink to the bottom by their own weight, and thus anchor themselves. If desired, two sets of these chains or ropes

may be employed; but ordinarily it is believed that one set would be sufficient.

To prevent the agitation of the water incident to the passage of a boat in a canal, and to avoid the injurious washing of the banks, I have provided the wash-boards F, which are preferably of iron, but may be made of any suitable material. These wash-boards extend the greater part of the length of the boat in parallel lines, and are secured to each side of the same, and dip vertically into the water. The effect of these wash-boards is to restrict the waves which are made by the passage of the bow through the water, and to reflect them inwardly on each side toward the keel, so that they do not roll toward the banks, but escape centrally behind the boat without injurious effect upon the banks.

In the use of this boat it is intended that a chain or rope shall be raised upon each side by peculiar manual or mechanical means or implements, and placed in the grooves of the drums D. Then, the engine being set in motion, and the drums rotated by the friction of the drums upon the chains or ropes, the boat will be drawn forward or backward, according to the direction of the rotation of the drums.

Where but a single set of ropes or chains is employed on a canal, and boats are passing each other, one or both boats may drop the chains or ropes and resume them afterward.

The advantage of employing two chains or ropes consists, principally, in the lightness and convenience of manipulation thus attained, and in the steadiness and directness of movement imparted thereby to the boat.

The advantages of the wash-boards have been already indicated.

The advantages of the system may be stated generally as a greater efficiency in moving freight upon canals at a cheaper rate than with other systems now in use.

I am aware that boats have been propelled by means of a chain extending along the bottom of the water-course and passing over a drum or pulley revolved by power carried by the boat, and also that boats have been propelled by passing two ropes over and around a number of pulleys carried by the boat, so that such ropes could not be dropped; and I am also aware that canal-boats have been provided with wash-boards adjustably supported off from each side of the boats, and therefore I do not pretend to be the inventor of such devices, broadly.

Having thus described my improvements, what I claim as new therein, and of my own invention, is—

1. A canal-boat having vertical pulleys at its sides, situated at or near the longitudinal center of the boat, in combination with two chains or cables extending along the bottom of the canal and passing over the said pulleys, so as to be readily detachable therefrom, whereby the weight of the chains or cables and their anchorage on the bottom of the canal will enable the boat to be propelled steadily by the revolution of the pulleys, and in the proper direction, substantially as described.

2. The canal-boat provided with the vertical wash-boards secured directly to the sides of the same, and having a vertical drum or drums outside of these wash-boards on each side, and revolved by power carried by the boat, substantially as described and shown.

This specification signed and witnessed this 19th day of August, 1878.

DE WITT STEARNS.

Witnesses:
WARREN SEELY,
JAMES A. PAYNE, Jr.