W. P. FEST.

CANAL-BOAT.

No. 193,402. Patented July 24, 1877.

Fig: 1.

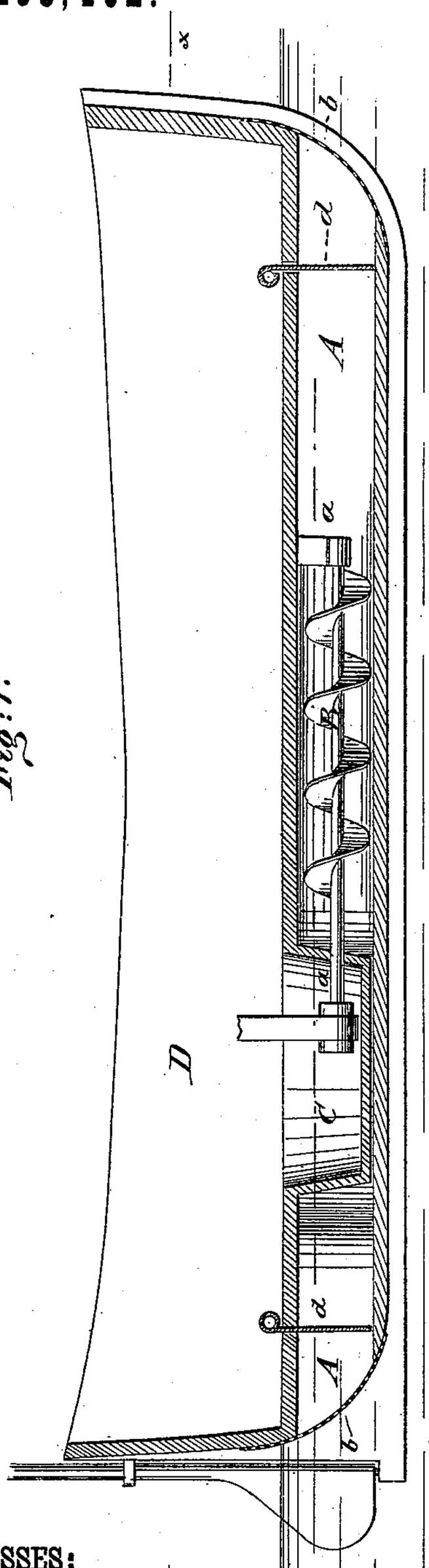
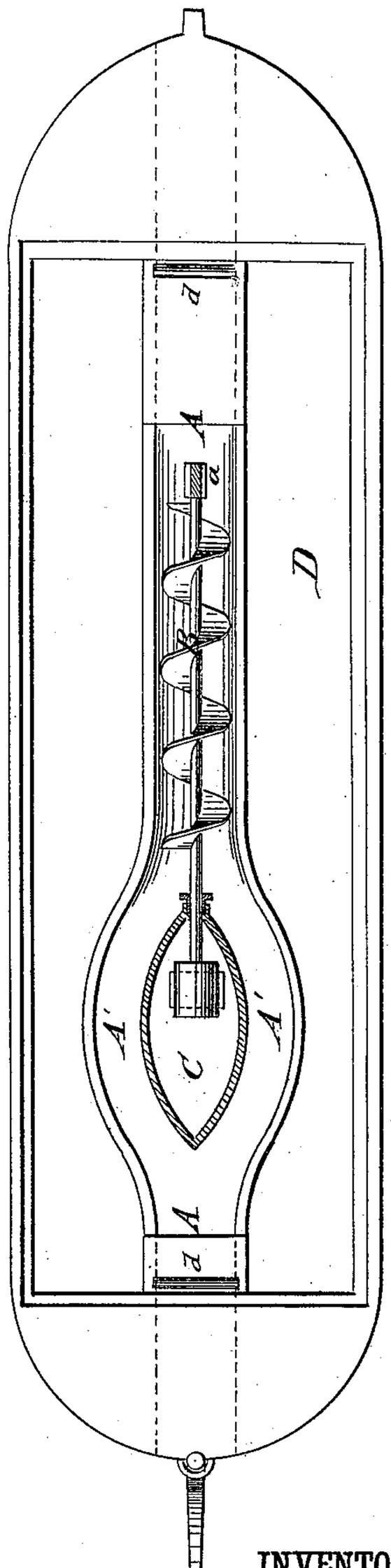



Fig: 2.




WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM P. FEST, OF CHICAGO, ILLINOIS.

## IMPROVEMENT IN CANAL-BOATS.

Specification forming part of Letters Patent No. **193,402**, dated July 24, 1877; application filed June 30, 1877.

*To all whom it may concern:*

Be it known that I, WILLIAM P. FEST, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Canal-Boat, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of my improved canal-boat; and Fig. 2, a plan view of the same, partly in horizontal section.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish a new construction of canal-boat, and improved system of propelling the same, by which the water is not agitated in the least, and the washing of the banks prevented, the propelling mechanism being arranged with equal facility in new or old boats, so as to enable them to travel at considerable speed and in either direction.

The invention consists of a canal-boat having a central water-channel extending at the bottom of the boat from the bow to the stern, and admitting and discharging the water through apertures of equal size in the hull of the vessel.

A spiral propelling-screw is arranged inside of the water-channel at the center of the boat, and the channel divided into arms or branches back of the same, that unite to a single channel before the water leaves the boat.

In the drawing, A represents the center channel, that extends along the bottom of the boat; and B, the spiral propelling-screw, that is placed inside of the channel at the middle of the boat, the channel being preferably made of cylindrical shape around the screw, to allow it to act with full force on the water.

The center shaft of the spiral B revolves in front and rear bearings *a a* of the channel A, which is divided back of the screw into two curved branches or arms, A′, for the purpose of producing a diversion of the body of water, and allowing it to return to a condition of rest before leaving the boat, and also for providing a center cavity or space, C, in which the driving mechanism for the revolving screw may be placed.

A steam or other motor may be used for propelling the boat, the power being transmitted to the screw-shaft by belting, gearing, or other mechanism.

The branch channels or arms A′ of the central channel or flume A are united again before the water is discharged through the exit-aperture at the stern of the boat, where the water flows out without being in the least agitated, so as to exert not the slightest washing or other injurious influence upon the banks of the canal.

The entrance and exit openings of the central channel may be provided with coarse screens of wire-gauze, to prevent the entrance of twigs or other bodies floating in the water into the channel, and form an obstruction to the screw.

Vertically-sliding end gates *d* may be used for shutting out the water when it is desired to make repairs of any kind.

The channel and screw may be arranged on the bottom of any old boat, or constructed directly when building new boats, the channel requiring to be perfectly water-tight, whether made of wood or metal.

The boat may be propelled with considerable speed in forward direction, and also reversed, as the screw works equally well in either direction; but when the boat is required to be regularly propelled in both directions, a second set of branch channels has to be arranged at the front part of the boat, in connection with side and lateral gates, for establishing either communication with the center channel or with the branch channels.

The entire propelling apparatus of the boat takes up but a small space at the bottom of the boat, and may be built at comparatively small cost, furnishing thereby a canal-boat that may be run as a tow-boat or as a regular canal-steamer, which, by the perfectly still state of the water at the discharge-opening of the stern, has not the least injurious influence on the canal-banks.

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

1. A canal-boat having a central water-channel extending from bow to stern, an interior spiral revolving screw at the middle part of the boat, and branch channels or arms

back of the screw, that unite again before the water leaves the boat, to divide the water and discharge it at the stern without agitation, substantially as specified.

2. A canal-boat having a central water-channel extending from bow to stern, and branch channels or arms that divide back of the propelling-screw, and unite before passing out of the boat, so as to form a space or cavity between the branches, for connecting the propelling mechanism with the screw-shaft, substantially as set forth.

WILLIAM P. FEST.

Witnesses:
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