

*T. Byrne.*

*Dredging Machine.*

*N<sup>o</sup> 57,850.*

*Patented Sept. 11, 1866.*

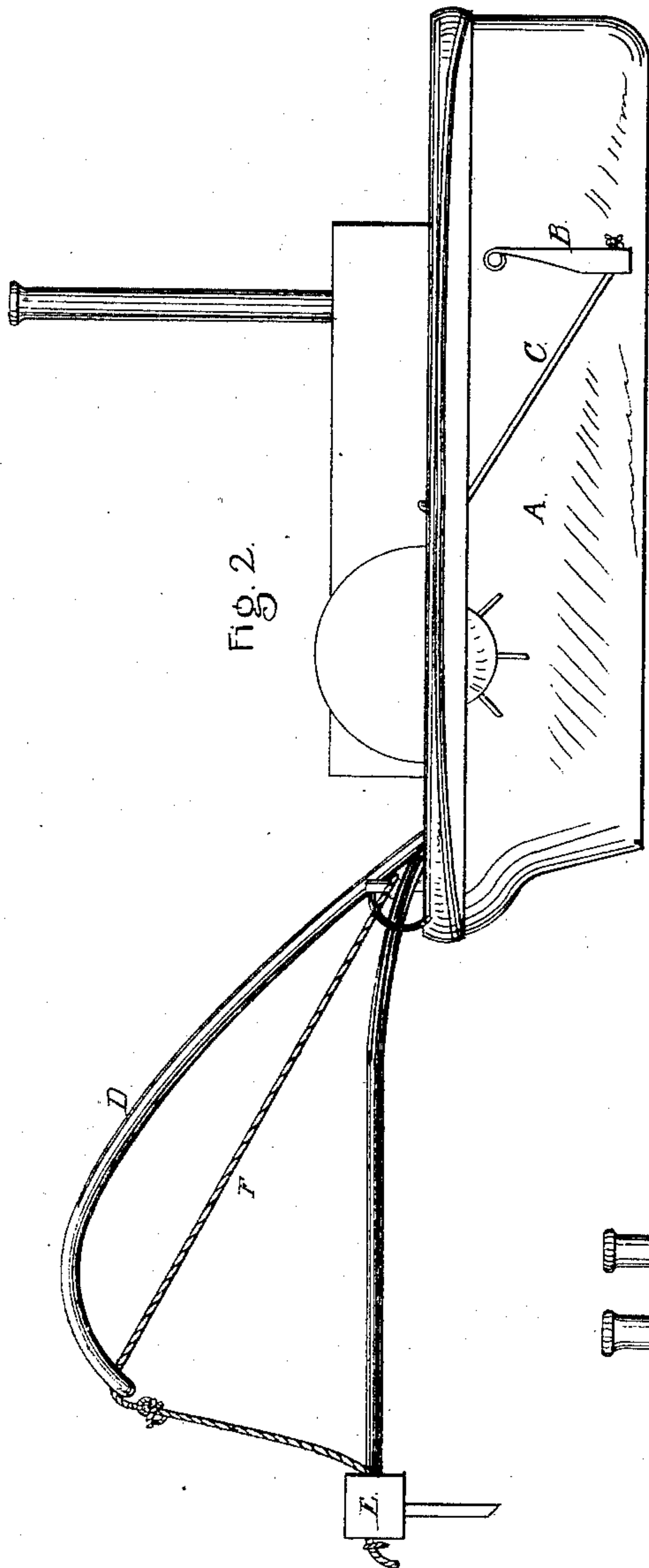


Fig. 2.

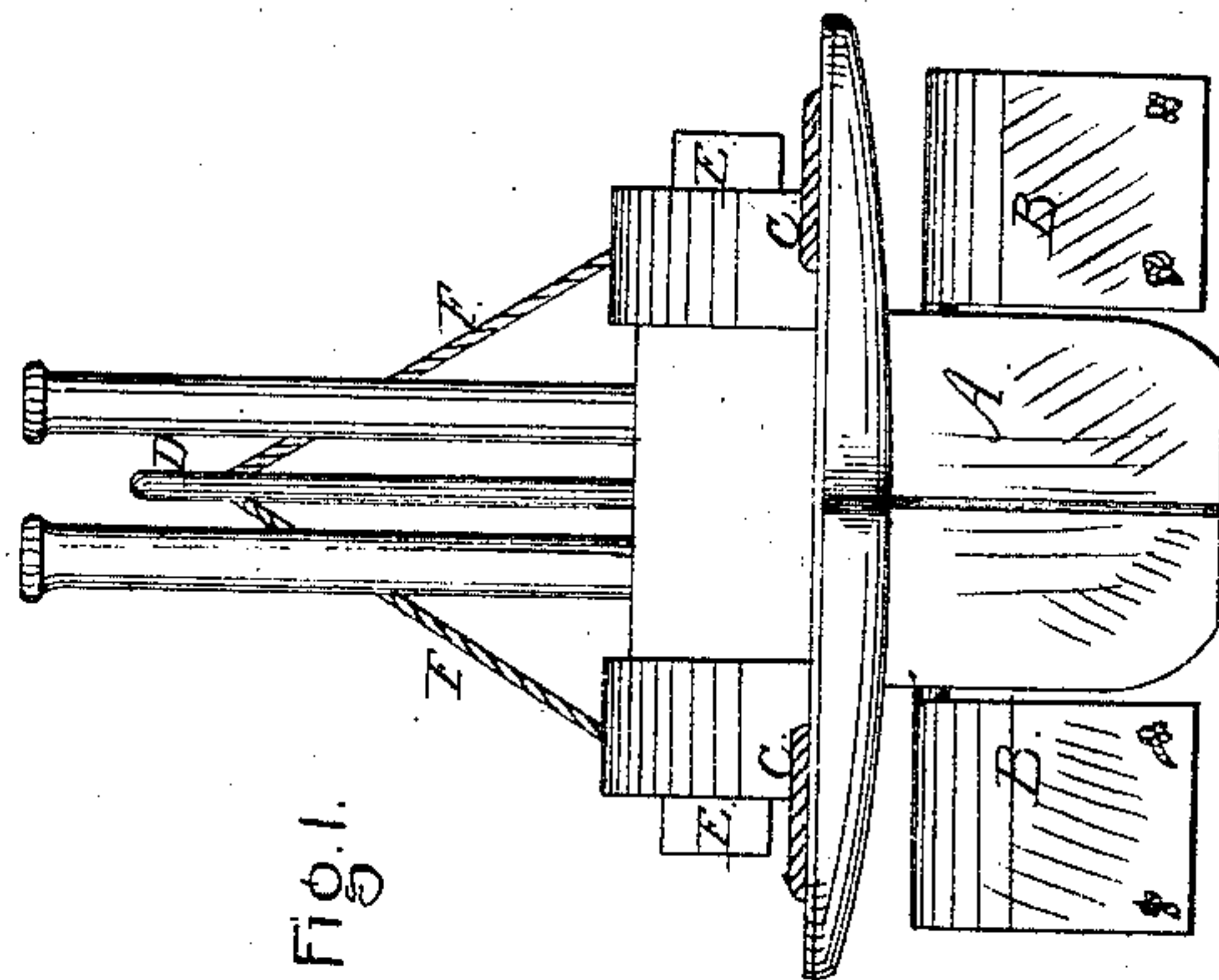


Fig. 1.

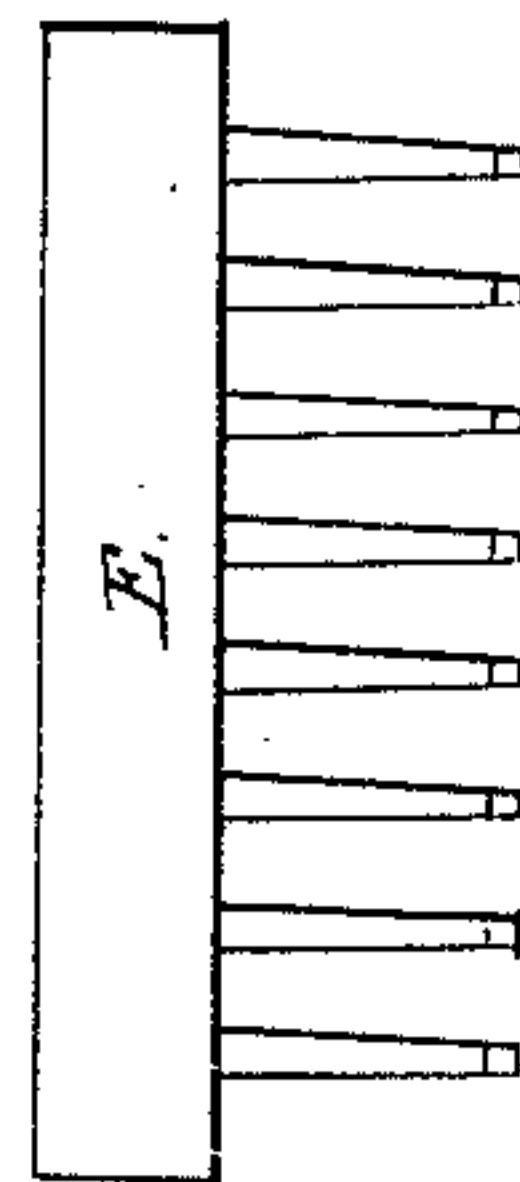


Fig. 3.

Witnesses:

*Chas. M. Say*  
*Geo. E. Allen*

Inventor:

*Thos. Byrne*

# UNITED STATES PATENT OFFICE.

THOMAS BYRNE, OF NEW YORK, N. Y.

## IMPROVEMENT IN DREDGING-MACHINES.

Specification forming part of Letters Patent No. 57,859, dated September 11, 1865.

*To all whom it may concern:*

Be it known that I, THOMAS BYRNE, of New York, county and State of New York, have invented a new and useful Method of Operating Dredging - Machines by the action of river currents; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

The nature of my invention and improvements consist in applying water gates or wings to the sides, ends, or other convenient parts of a steam or other vessel for the purpose of obtaining a cheap and efficient power to drag gang-plows, harrows, rakes, or other dredging-machines through sand-bars in rivers by the aid of the current acting on said water gates or wings.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the drawings, Figure 1 is a front elevation, Fig. 2 is a side elevation, and Fig. 3 is a detached view, of the rake.

There is nothing new in excavating with gang-plows or harrows attached to a steam-boat, as about twenty-five years ago some forty miles of new channel was dug out at Liverpool, and about sixteen years ago the southwest pass of the Mississippi river was deepened, in both cases in this way. To do such work, however, requires a steamer with engines of about six hundred horse-power, while with my invention a very small boat with about sixty horse-power engines is sufficient. A saving of ninety per cent. in first cost, as well as in the subsequent working of the apparatus, is thus effected.

A represents a steamer; B, the water gates or wings, which may be attached to the vessel in various ways. In the drawings they are represented hinged to an iron shaft running crosswise of the boat. Two or more chains, C, are fastened to their bottoms, and running thence up through the guards, are secured by proper fastenings at such lengths as will al-

low the water-gates to stand at right angles with the surface of the water, or at any other angle that may be required by the depth of water the boat has to pass through. It is intended that the gang plows or harrows E shall always operate when the vessel is passing down stream, and shall be elevated out of water by the action of the ropes F and derrick D when the vessel is passing up stream. In the former case the water-gates will be always carried forward by the current and their full action developed. They may be hinged horizontally upon the guard-beams, or upright upon the sides of the boat, like house-doors, as well as in the manner shown, or they may be passed out through the sides or other convenient parts of the vessel transversely, as center boards are passed through the bottom lengthwise. They may also be attached to heavy spars and used as oars.

The advantages of this invention may be proved by referring to the numerous modes of excavating and dredging known in England; for, while other methods are used in still water and harbors, a steamer dragging gang plows or harrows through sand-bars has been found most efficient and economical in excavating channels which have to be navigated at the same time, for the reason that all other excavators have to be held in the channel by at least four anchors, and thus prove a great nuisance to navigation, while the steamer dragging gang plows or harrows can always get out of the way of other vessels.

My invention has all the advantages of the steamer operating gang plows or harrows, besides effecting a saving of ninety per cent. in the first cost and in the working expenses, as before stated.

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

The obtaining of power for the purpose of dredging or excavating channels or sand-bars by means of water gates or wings attached to steam or other vessels, as herein described.

THOS. BYRNE.

Witnesses:

CHAS. M. FAY,  
GEO. E. BROWN.