(No Model.)

J. R. McPHERSON.

UNLOADING AND HANDLING COAL.

No. 282,555. Patented Aug. 7, 1883.

Fig. 1.

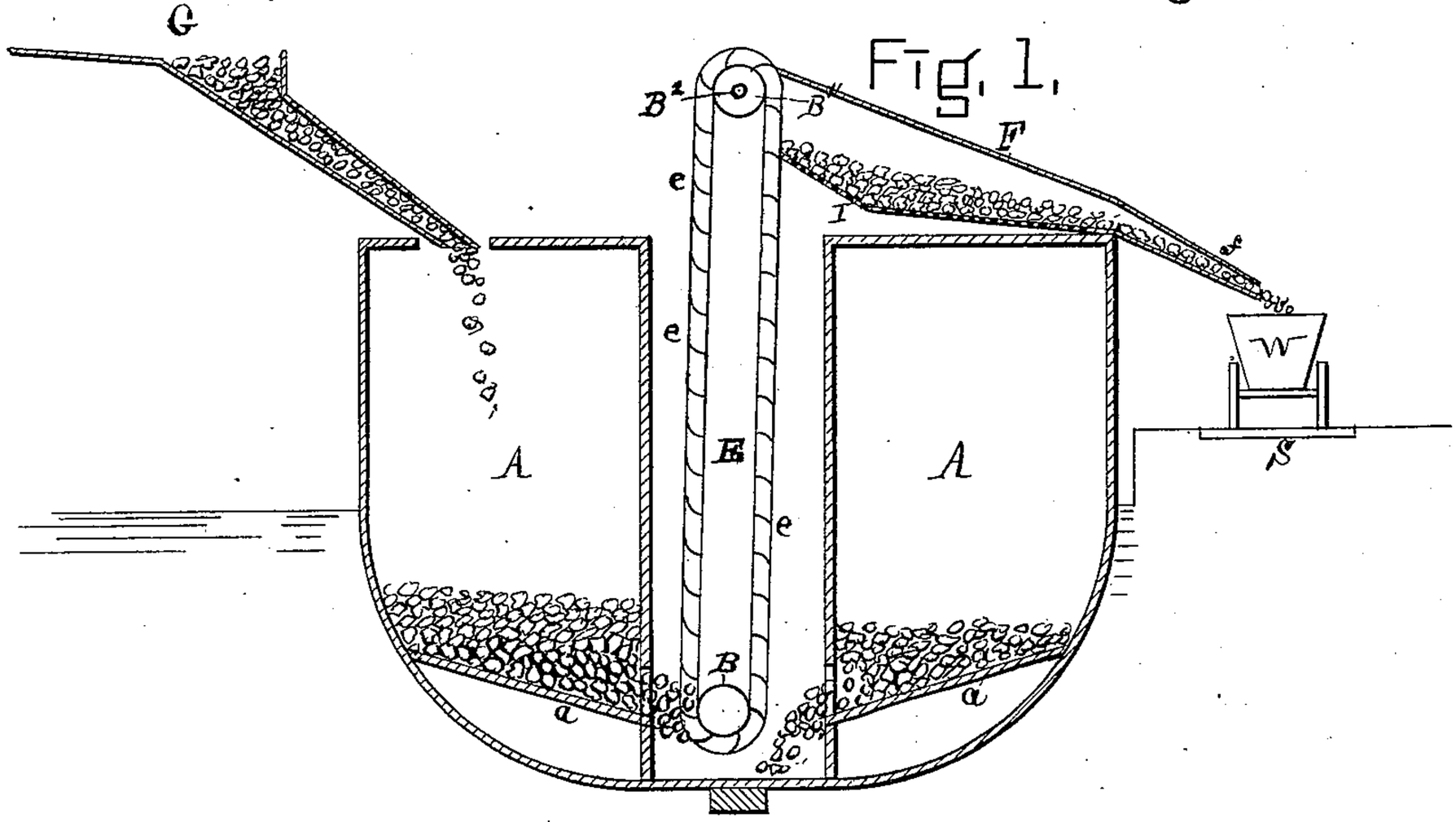


Fig 2.

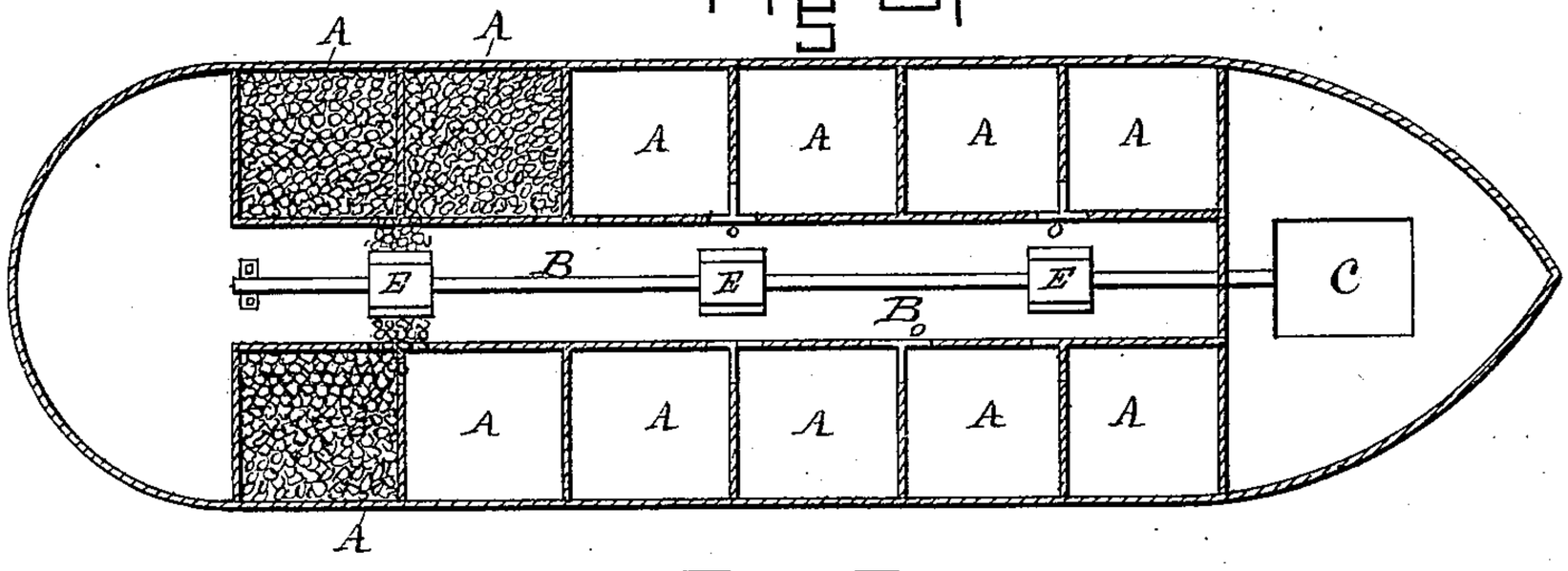
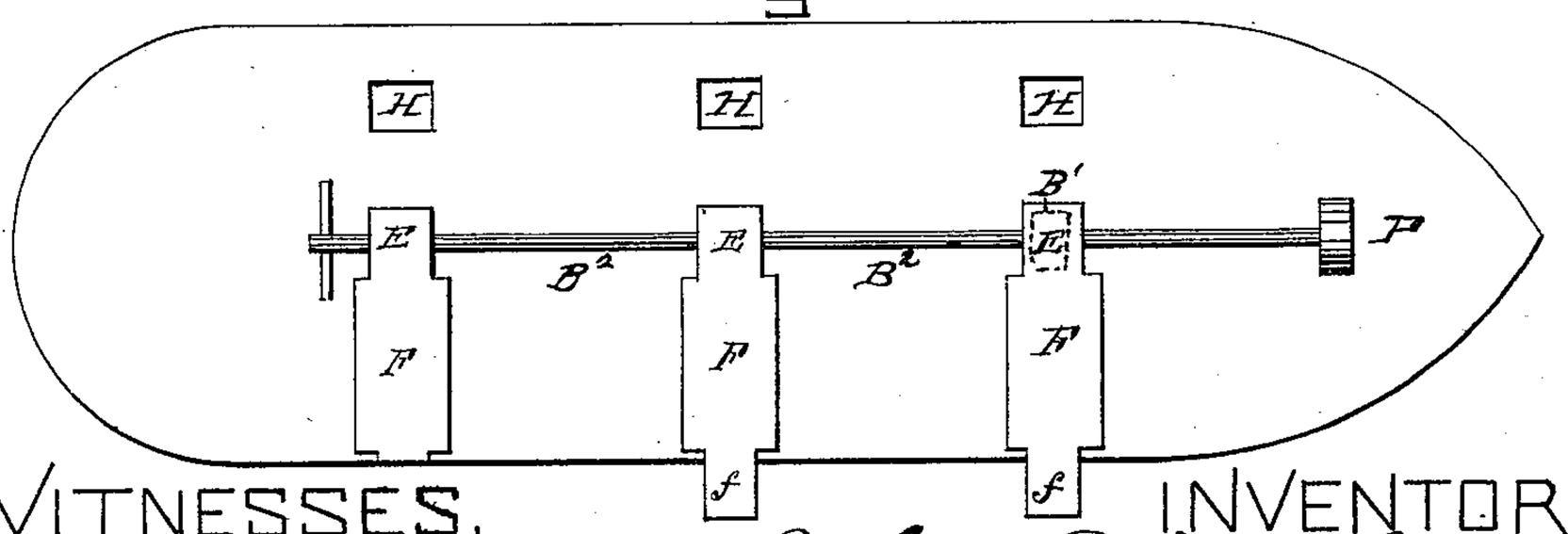


Fig 3.



WITNESSES,

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UNLOADING AND HANDLING COAL.

SPECIFICATION forming part of Letters Patent No. 282,555, dated August 7, 1883.

Application filed May 21, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. MCPHERSON, a citizen of the United States, residing at Seabright, in the county of Monmouth and State of New Jersey, have invented a new and useful Improvement in Unloading and Handling Coal, of which the following is a specification.

My invention relates to a new and improved plan for unloading and handling coal.

The present method of handling coal is very wasteful and expensive. The coal must be first shoveled from the vessel into the buckets used to raise it, hoisted above the deck, swung out over the wharf, dumped into a cart, drawn to a coal-yard, dumped again, and shoveled into a cart for delivery to the consumer. These numerous handlings involve a great deal of labor and loss of coal by breakage and attrition, forming a great quantity of worse than useless dust. A large proportion of this handling is unnecessary, and my improved method of storing, transporting, and delivering coal is designed to avoid all unnecessary moving of the coal and obviate entirely the necessity of employing hand labor. By my improved method the coal is moved entirely by machinery from the time it is run into the hold of the vessel at the shipping-port until it is delivered to the carts at the place where it is to be used.

I propose to carry out my invention as follows: I make use of a large vessel—either flat-boat, sailing-vessel, or steamer—the hold of which I divide into a number of bins arranged upon each side of a central gangway running the greater part of the length of the vessel. These bins are arranged in pairs, with spouts or openings at the bottom, that may be opened or closed to regulate the flow of coal. In the central gangway are arranged a series of elevators, similar to those used for raising grain, but with suitable buckets. One of these elevators may serve two or four bins by placing it where the four corners approach each other and suitably disposing the spouts delivering the coal from the bins to the elevators; but these details are of minor importance, and do not affect the general plan. The chains or belts which form the support for the buckets of these elevators pass over a series of loose pulleys on a shaft running fore and aft through the gangway, and also over pulleys or chain-wheels on a shaft running at some distance above the main or upper deck. These pulleys or chain-wheels are made fast to the shaft, which is driven by belting or other suitable gearing from an engine located, preferably, in the fore or aft hold. The coal is allowed to flow from the bins by lifting gates which cover the openings, is caught by the elevator-buckets, raised above the main deck of the vessel and emptied into a series of sloping bins, which terminate in spouts that may be extended over the side of the vessel to deliver the coal to carts. These carts may stand upon scales, and thus the flow of coal stopped when the correct amount has been delivered. The bottoms of these deck-bins are perforated or made of wire-cloth, sifting the coal as it passes from them and delivering it to carts perfectly clean. At suitable places in the main deck of the vessel hatches are made to allow of the insertion of a spout from the elevators in the coal regions where the vessel receives its coal. These hatches may be so arranged as to feed two bins, either at once or separately. The bins may each be stored with a different size or quality of coal, and thus the vessel becomes a true floating coal-yard, receiving its load at the nearest navigable point to the coal-producing regions, transporting it without shifting or breaking bulk, and delivering its coal at the nearest wharf to the place of consumption, and with the fewest possible changes. The deck-bins are made sufficiently capacious to keep a small quantity of coal on hand for immediate delivery. It will not be necessary to run the elevators unless a considerable quantity is wanted at once.

In the drawings, Figure 1 is a vertical midship cross-section of a vessel fitted in accordance with my improvement. Fig. 2 is a horizontal section of the vessel, part of the bins being shown full. Fig. 3 is a deck plan of the vessel, showing deck-bins.

A A A, &c., are the bins in the hold. The bottoms *a a* slope downward toward the center of the vessel. The elevators E E are driven by chain-wheels or pulleys B′ B′, fast to the shaft B^2 B^2, which is geared by means of the

pulley P to an engine, C, in the hold. The lower ends of the elevators pass over pulleys running loose on a shaft, B, which extends fore and aft through the gangway previously referred to.

The elevators are composed of suitable sheet-iron or cast-iron buckets, attached to either a flexible belt, wire ropes, or chains, and deliver the coal raised into bins F upon deck, made with perforated bottoms I, and terminating at the outer extremity in spouts *f*, for delivering the coal to carts W, standing upon scales S, built into the dock or wharf. These deck-bins F may be on each side of the vessel, or may be moved from one side of the vessel to the other.

G is a spout from an elevator on the dock at a coal-shipping port, and H H are hatches in the deck of the vessel to allow of the bins being filled. Similar ones may be arranged upon the other side of the vessel, to permit the filling of the other bins.

The details of this plan may vary greatly, as occasion may require. I have shown the vessel without spars or funnel to avoid confusion in the drawings.

My plan is applicable to the loading of cars, which may be run on the dock alongside of the vessel and loaded the same as carts; or the coal may be dumped upon the dock, delivered to lighters, or the coal may be run directly into the bunkers of an ocean steamship.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. As a means for handling coal, the combination of the following elements, viz: a series of bins arranged on each side of the hold of a vessel, with a central gangway between, and one or more elevators operated by a central shaft near the bottom of the vessel with pulleys, and a similar shaft with pulleys fixed to it above the hold or upper hatchway, substantially as set forth.

2. The combination of the pulley-shafts B B^2, by means of the elevators E, with the bins A A and the chutes F, as described.

3. The combination of the bins A A, provided with gates at the corners arranged in pairs, as shown, with a system of elevators and central shafts, as described.

In witness whereof I have hereunto set my hand.

JOHN R. McPHERSON.

Witnesses:
JOHN M. O'BRIEN,
GEO. H. SONNEBORN.