

No. 866,203.

PATENTED SEPT. 17, 1907.

J. A. JOHNSON.
APPARATUS FOR LOADING COAL INTO VESSELS.

APPLICATION FILED JAN. 25, 1907.

2 SHEETS—SHEET 1.

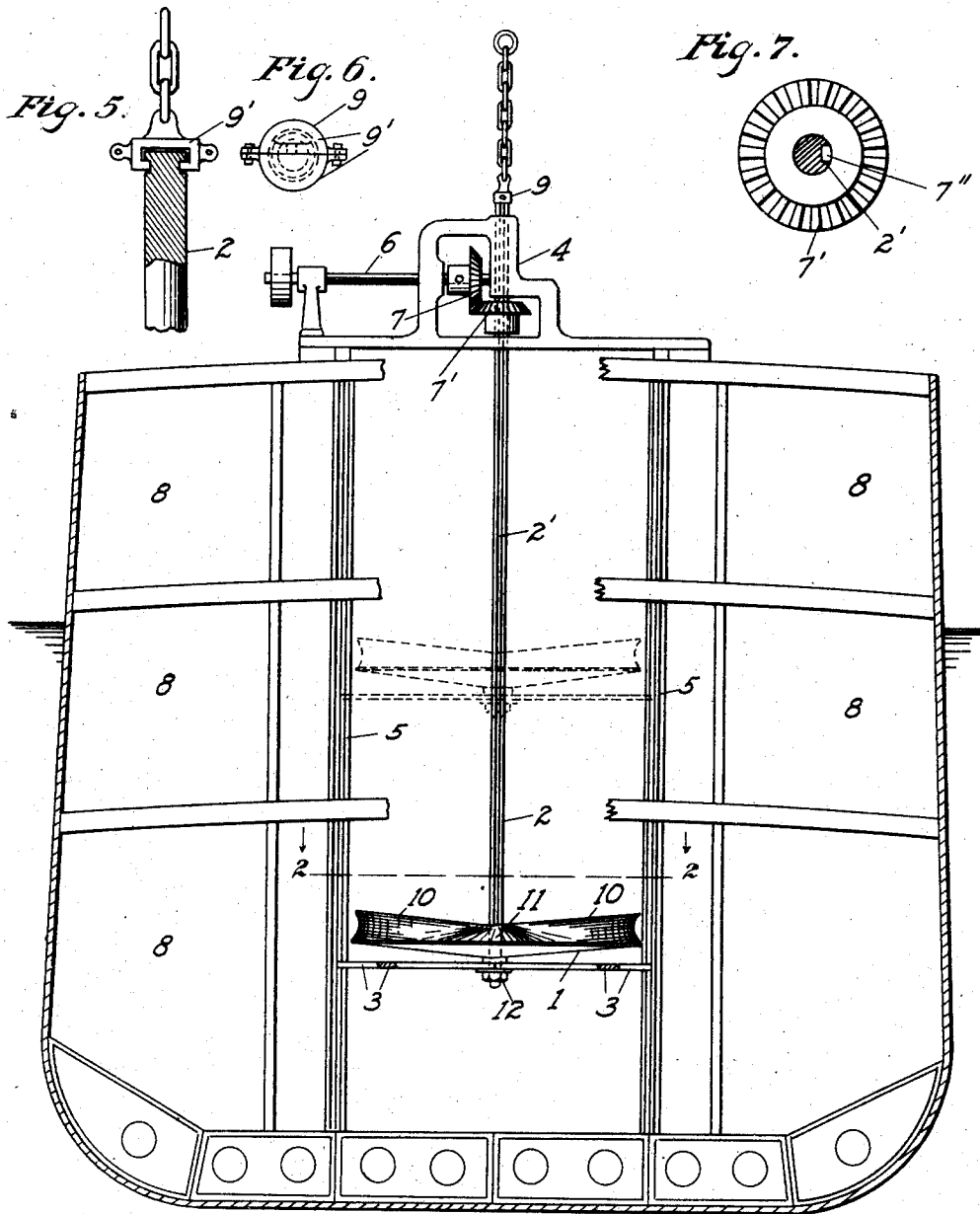


Fig.1.

Inventor

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Witnesses

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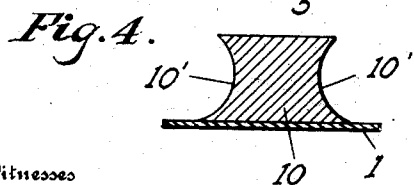
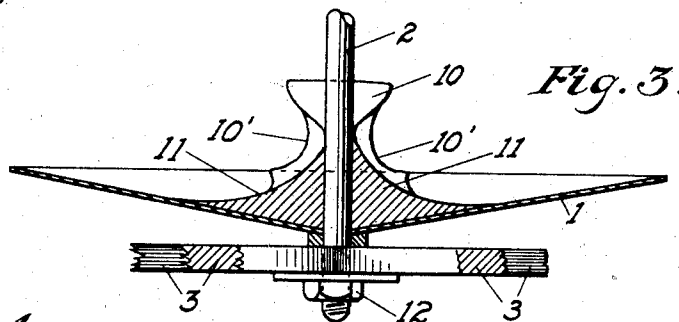
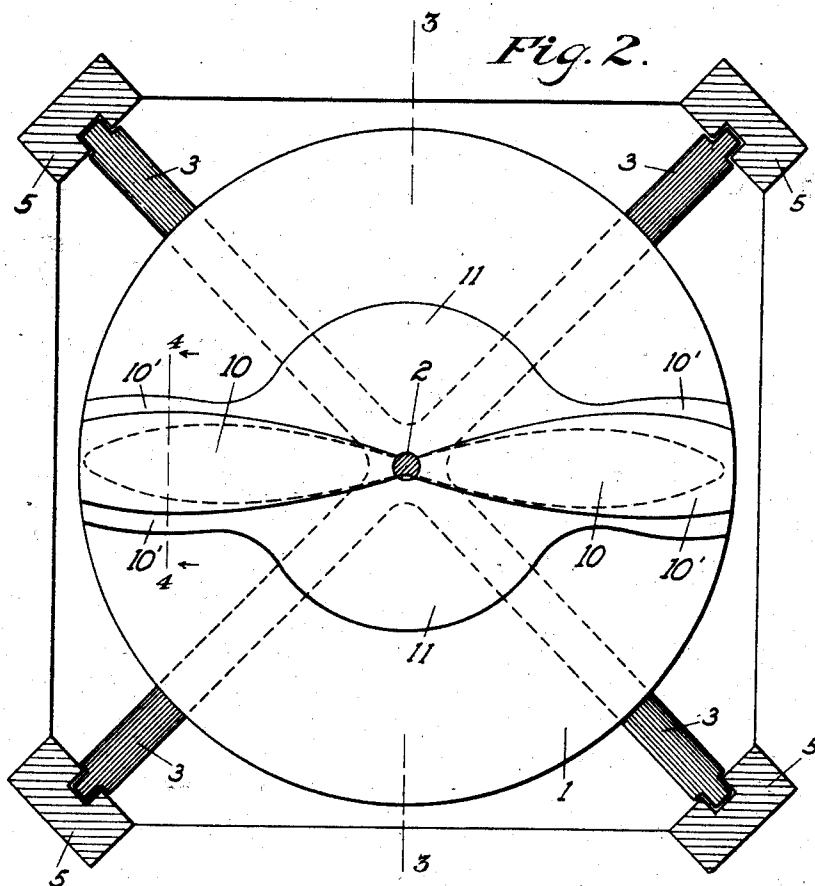
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN A. JOHNSON, OF TACOMA, WASHINGTON.

APPARATUS FOR LOADING COAL INTO VESSELS.

No. 866,203.

Specification of Letters Patent.

Patented Sept. 17, 1907.

Application filed January 25, 1907. Serial No. 354,132.

To all whom it may concern:

Be it known that I, JOHN A. JOHNSON, a citizen of the United States of America, and a resident of the city of Tacoma, county of Pierce, and State of Washington, have invented certain new and useful Improvements in Apparatus for Loading Coal into Vessels, of which the following is a specification.

My invention relates to improvements in apparatus particularly adapted for loading vessels with coal, and has for one of its objects the provision of an improvement of this nature which will be comparatively simple in construction yet very efficient in operation, particularly in completely filling the bunkers.

Other objects will be set forth as the description progresses, and those features of construction upon which I desire protection, succinctly defined in the appended claims.

In the accompanying drawings, in which like numerals of reference indicate like parts throughout the several views: Figure 1 is a vertical cross sectional view of a vessel of ordinary construction, having a plurality of bunkers arranged in vertical alinement. Fig. 2 is a section taken on line 2—2 of Fig. 1. Fig. 3 is a sectional view taken on line 3—3 of Fig. 2. Fig. 4 is a section taken on line 4—4 of Fig. 2. Fig. 5 is a fragmentary detail view showing more clearly the swivel connection on the upper end of the rotatable shaft which carries the rotary head, one section of said swivel being removed. Fig. 6 is a view in top plan of the swivel connection, and Fig. 7 is a detail view.

My invention includes a head 1, fixed to a shaft 2 which is mounted for rotation in suitable cross arms 3, and a stand 4, the latter being removably supported in any desired manner on the deck of the vessel, as shown. Cross arms 3 have their end portions slidably engaged in vertical guides 5, one of which is secured in each corner of the vessel's hatch-way, by which construction said cross arms by being raised or lowered will support the lower end of shaft 2 at various elevations, as will be more fully set forth hereinafter.

Reference numeral 6 indicates a shaft, journaled in suitable bearings on the deck of the vessel, to which power is transmitted from a suitable source (not shown), and the movement of shaft 6 is imparted to shaft 2 by bevel gears 7, 7'.

Shaft 2, in operation, is raised so as to bring head 1 from its lowest position, indicated in Fig. 1, successively, midway the upper and lower walls of the respective bunkers, indicated by numeral 8, and to enable shaft 2 sliding longitudinally within the hub of bevel gear 7' and yet insure its rotation with said gear, said shaft is formed with a longitudinal groove 2' for reception of a spline 7'', secured in the hub of the bevel gear. Shaft 2 has its upper end portion provided with a swivel 9, formed in sections 9' to which connection is made with a suitable means (not shown) for raising and low-

ering said shaft and the head 1 and cross arms 3 affixed thereto.

Head 1 is of novel construction, the same having a concave upper face provided with ribs 10 which extend outwardly from the central portion of the head and serve to hold the material, as for example, coal, in place on the upper surface of head 1.

Extending from the inner end portion of ribs 10 outwardly at an angle thereto are opposite inclined surfaces 11, intended to have the coal or the like dumped thereon and by their formation cause said material to travel well onto the outer portion of the head.

By inclining the upper face of head 1 upwardly in an outward direction the coal when thrown from the head by centrifugal action will be directed upwardly, thereby enabling me to fill the more remote portions of the bunkers, relatively to head 1, and the upper portions thereof or those portions lying immediately under their top walls.

The sides of the ribs 10 are curved at 10', as indicated in Figs. 2 and 4 to provide inclined surfaces up which material lying in proximity thereto will ride before being discharged into the bunkers.

In operation, shaft 2, with head 1, and guide arms 3, is lowered and maintained opposite a bunker at a position where it will operate to the best advantage, as for example, illustrated in full lines Fig. 1, then shaft 2 is rotated rapidly and the material through the medium of suitable chutes or the like directed for discharge onto the inclined surfaces. Head 1 is then raised as required until the lowest bunkers are filled, then moved to the dotted position. Fig. 1, then opposite the upper bunkers, as is obvious. Head 1 and arms 3 are preferably removably secured to shaft 2 by a nut 12.

While I have herein disclosed a preferred embodiment of my invention, I reserve the right to make alterations and changes in the details of construction, as fall within the scope of the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States of America, is:—

1. An apparatus of the character described comprising a head having a concaved upper face adapted to have the fuel deposited thereon, said head being supported for rotation and vertical adjustment, for the purpose specified.

2. An apparatus of the character described comprising a head having a concaved upper face, and a shaft to which said head is secured, said shaft being supported for rotation and vertical adjustment, for the purpose specified.

3. An apparatus of the character described comprising a head, having a concaved upper face and a shaft supported for rotation to which said head is secured, said head having surfaces on opposite sides of said shaft which are inclined outwardly in a downward direction and adapted to have the fuel deposited thereon for the purpose specified.

4. An apparatus of the character described comprising a head, and a shaft supported for rotation to which said head is secured, said head having ribs on its upper sur-

face extending outwardly from said shaft, the sides of said ribs being curved inwardly, for the purpose specified.

5 An apparatus of the character described comprising a head, having a concave upper face and a shaft supported for rotation to which said head is secured, said head having ribs on its upper surface and opposite surfaces inclined outwardly from said shaft in a downward direction.

10 6. In an apparatus of the character described, vertical guides, means slidably engaged with said guides, a shaft rotatably supported in said means and secured thereto, and a head secured to said shaft above said means adapted to have the fuel deposited thereon for the purpose specified.

7. In an apparatus for loading boats with coal, vertical guides in the boat, means slidably engaged with said guides, a shaft rotatably supported in said means, a head on said shaft adapted to have the coal deposited thereon, and means on the deck of the boat to transmit power to said shaft to rotate the same for the purpose specified. 15

Signed at Seattle, Washington this 4th day of January 20 1906.

JOHN A. JOHNSON.

Witnesses:

STEPHEN A. BROOKS,
ARLITA ADAMS.