

(No Model.)

2 Sheets—Sheet 1.

P. BEST.
COAL LOADING APPARATUS.

No. 488,304.

Patented Dec. 20, 1892.

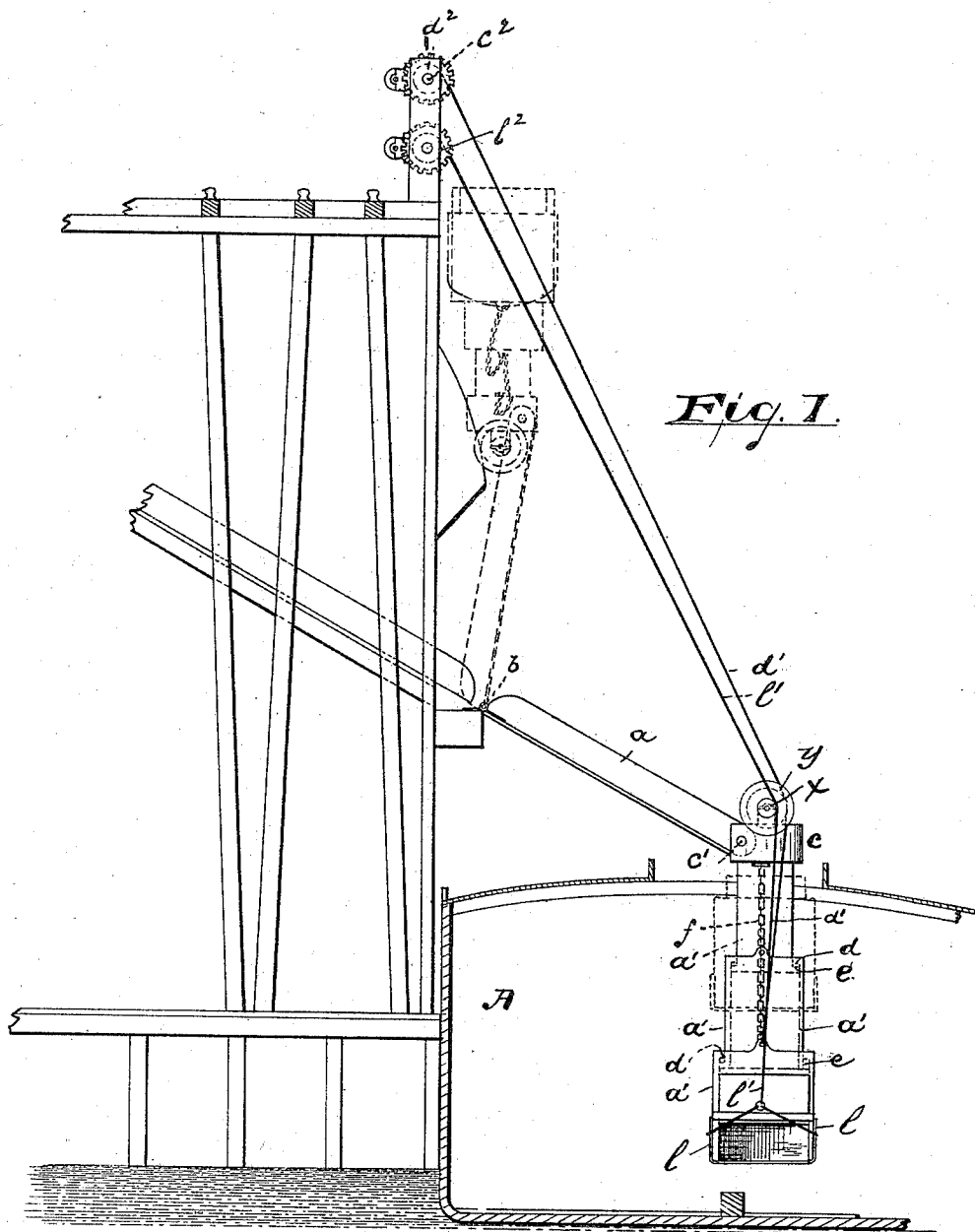


Fig. 1.

Witnesses

Inventor

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Chas. R. Michel

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By *Drake & Co.* Atty's.

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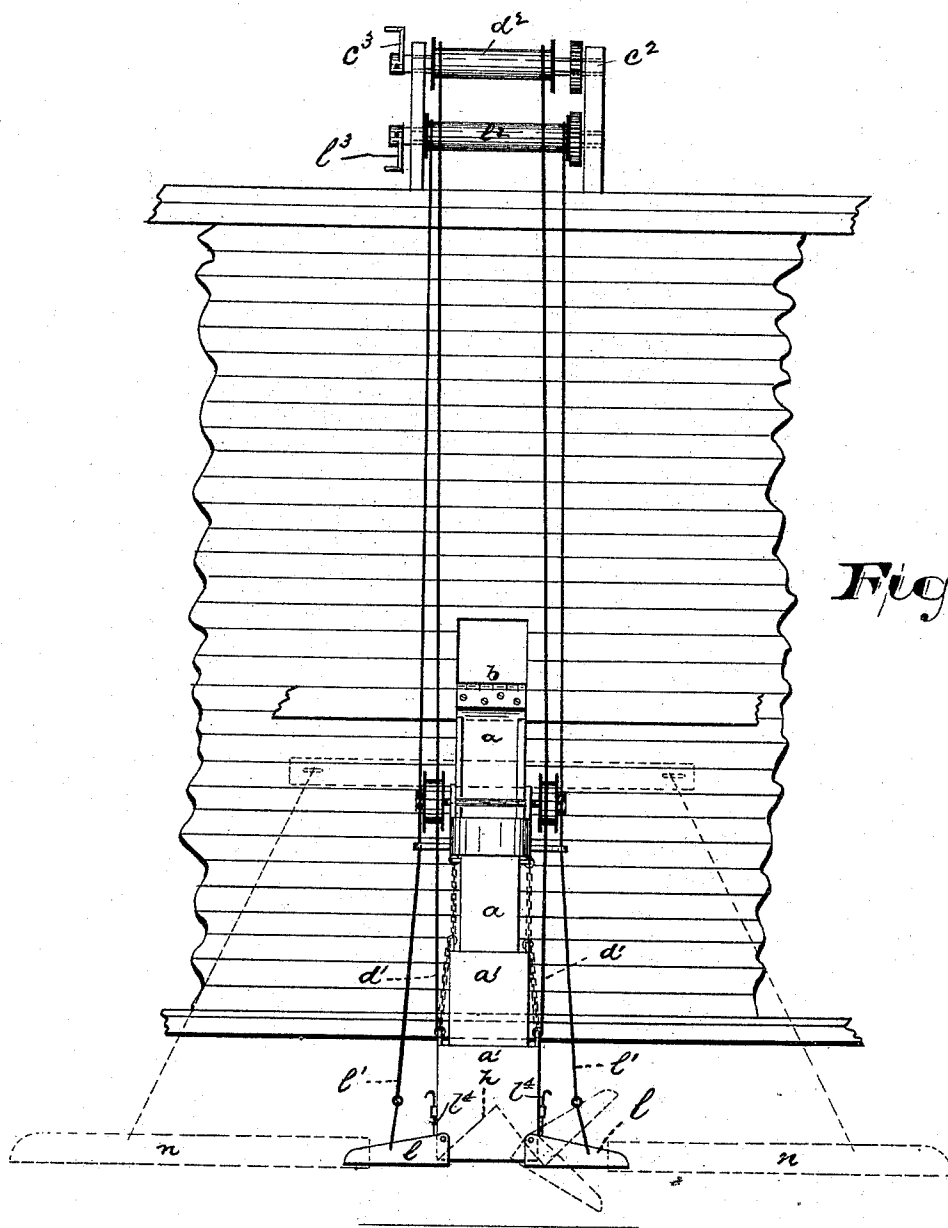


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

PETER BEST, OF NEWARK, NEW JERSEY.

COAL-LOADING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 488,304, dated December 20, 1892.

Application filed April 15, 1891. Serial No. 389,011. (No model.)

To all whom it may concern:

Be it known that I, PETER BEST, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Coal-Loading Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The objects of this invention are to facilitate the operation of loading sailing and other vessels with coal from elevated positions; to prevent the coal from being unduly broken by its fall from said elevated positions; to more perfectly control the disposition of the coal in said vessel; to prevent, to a great extent, the formation and diffusion of dust while loading, thereby relieving the workman from the inconvenience and injurious effects thereof and to secure other advantages and results which will be hereinafter more particularly referred to.

The invention consists in the improved coal loading apparatus and in the arrangements and combinations of parts thereof as hereinafter set forth and finally embodied in the clauses of the claim.

Referring to the accompanying drawings in which similar letters of reference indicate corresponding parts in each of the several views, Figure 1 is a side elevation of the improved coal loading apparatus in connection with a dock and a vessel lying thereat; Fig. 2 represents a front elevation of the same showing certain discharge-nozzles or spreaders open.

In said drawings, *a* indicates a chute secured to a dock or elevated structure by means of a hinge, *b*, or other pivotal connection, and adapted to be raised to a vertical position closely against the face of said structure when not in use, or be lowered to a downward inclined position when in use, as indicated in Fig. 1, to admit of the passage of coal there-through, from a railway car or other source of supply, and direct it to a hopper, *c*, pivotally connected to the lower end of said chute,

as at *c'*, in said Fig. 1. Beneath said hopper, and connected therewith, is arranged a tube composed of a series of sections, *a'*, telescopically arranged and working in relation to one another and adapted to extend to or nearly to the bottom of the vessel, *A*, being loaded as indicated in Fig. 1, said sections, *a'*, being provided with an inwardly projecting shoulder or ledge, *d*, at the top and an outwardly projecting shoulder, *e*, at the bottom which engage with each other as the sections are extended or drawn outward, and thereby limit their movement in such direction, as will be understood upon reference to Fig. 1. Said sections are so fitted to one another as that they will freely slide in and out and at the same time admit of a degree of lateral movement of the lower sections. Each succeeding section from the top to the bottom is of larger size circumferentially, than the one above it, as will be seen upon reference to Fig. 1. They are further secured and held to one another by a chain *f* or other similar connection to prevent separation. To the lower section, at opposite sides thereof, chains or cables, *d'*, are secured which extend upward about pulley *y* to and are secured upon a drum, *d²*, or sprocket wheels, arranged upon a shaft *c²* Fig. 1, having its bearings in a suitable frame at the top of the elevated structure, and operated by means of a crank, *c³*, Fig. 2, or other medium for transmitting power, to raise and lower the chute to a vertical or inclined position as before stated. When the chute has been raised to its upright position, the further rotation of the drum raises the sectional tube, (the sections of which have already been drawn together,) also to a vertical or upright position so as not to be struck or damaged by the spars of vessels as they pass along the front of the dock or structure. The lowest or bottom section of said tube is provided with a bottom, *h*, preferably of a pyramidal or conical form, as seen in Figs. 2 and 3, and with one or more outlets or openings, in the present case two, at the side or sides to admit the exit of the coal at right angles with the axial line of said conduit. These outlets are each provided with a door, *l*, hinged to the bottom of said section and arranged to be raised and lowered to close or open said outlets by means of cables, *l'*, attached thereto

running over pulleys S^x on the hopper and connecting with a suitable pulley or drum l^2 at the top of the structure operated by means of a crank l^3 or other means for transmitting
 5 power. Said doors are so constructed as to serve also as spouts or nozzles through which the coal is discharged from the tube or conduit and by means of which the rapidity of
 10 said discharge is also regulated and under the complete control of the operator or attendant, as he is enabled to close or open the said door or doors wholly or partially at any time as he may determine, and also spread or distribute the coal in any direction he chooses
 15 by properly adjusting the lateral position of the sections the joints permitting them to be turned to some extent so as to present the openings in different directions, and he may also, by means of connecting nozzles, n , indicated by dotted lines in Fig. 2, distribute the
 20 coal to any desired distance or extent, thus saving a vast amount of labor and expense, as will be obvious.

When the coal first enters the sectional tube
 25 at the beginning of the loading operation, the sections should be drawn together as close as possible and the doors or spouts be in the position shown by the full lines in Fig. 2. When the tube is filled it is then gradually length-
 30 ened until it reaches the bottom of the vessel or nearly so; the spouts are then lowered to a descending incline indicated by the dotted lines in the same figure, when the coal will rush through them into the vessel, the tube
 35 being kept full or supplied with coal as fast as the latter runs out.

If it is desired to lessen the discharge, the spouts or doors are raised accordingly, as indicated in Fig. 2. When the loading is com-
 40 pleted or thereabout the doors should be en-

tirely closed, as in Fig. 1. The coal, if any, remaining in the tube will flow out at the small openings at the bottom of the doors, as will be understood.

Having thus described the invention, what I claim as new is:—

1. In combination, the supporting structure, the inclined chute hinged thereto, a hopper pivoted to the end of the chute, a sectional tube, the lower section having a stationary
 50 inclined bottom and with a lateral outlet, the door having a fixed pivot in relation to the bottom section, an operating rope extending from the lower section, a second operating
 55 rope extending from the hinged door, both of said ropes being carried up along the sectional tube and around the pulleys on the hopper, and thence to the supporting structure.

2. In a loading apparatus, the combination with a structure, of the chute hinged thereto,
 60 the conductor communicating with said chute, and comprising a series of telescoping sections, the lower section having an inclined bottom and lateral discharge openings, doors
 65 for controlling said openings, a shaft carried by the conductor and having guide pulleys, chains connected to the doors and passing over the pulleys, chains connected to the lower
 70 section and passing over the pulleys for elevating the sections, and the frame carrying drums on which the chains are wound, all as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of April, 1891.

PETER BEST.

Witnesses:

OLIVER DRAKE,
 CHAS. R. MICHEL.