W. G. READ.

APPARATUS FOR TRANSFERRING CARGO IN BULK.

APPLICATION FILED JUNE 7, 1913.

1,089,496.

Patented Mar. 10, 1914.

2 SHEETS—SHEET 1.

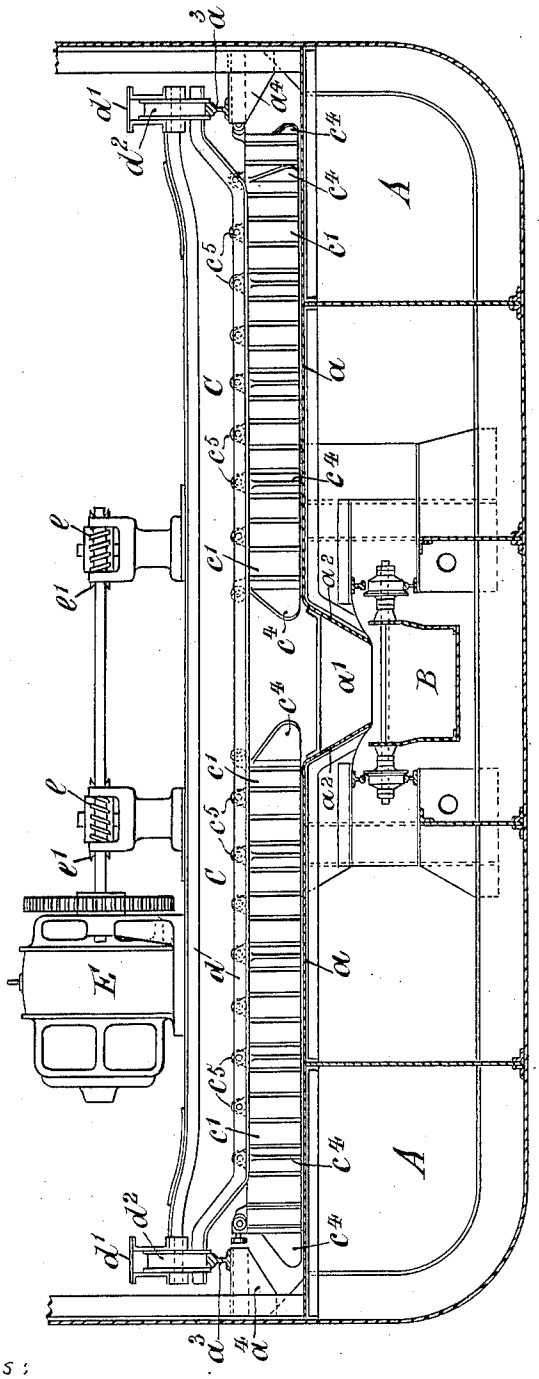

Fig. 1.

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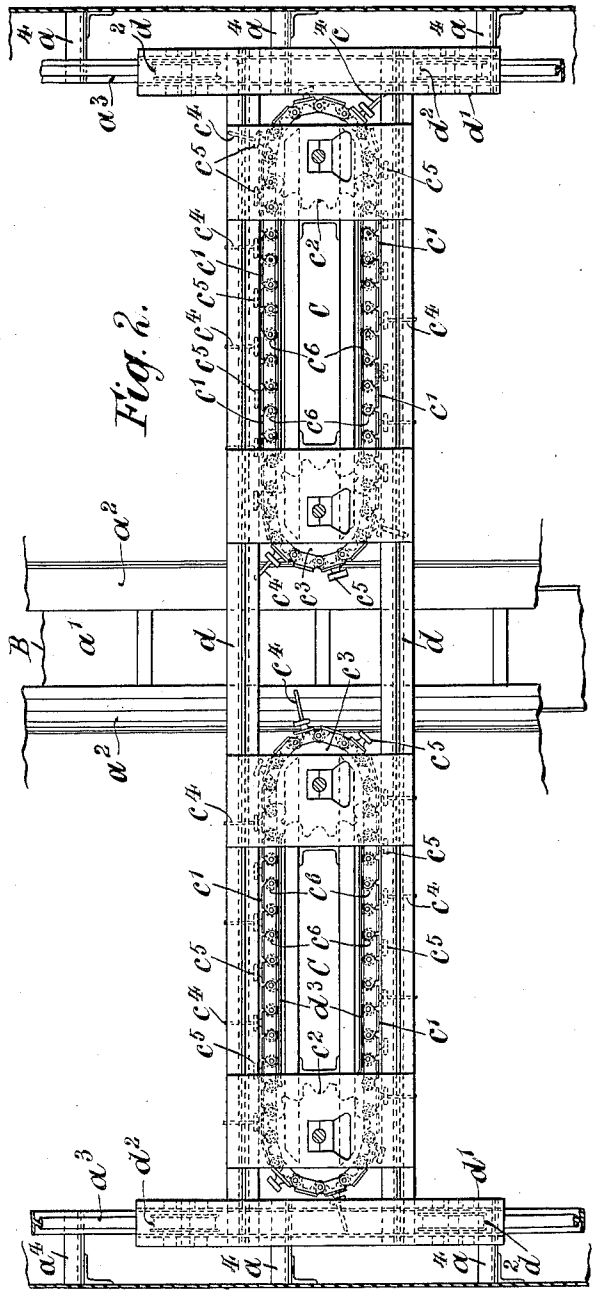

Fig. 2.

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UNITED STATES PATENT OFFICE.

WILLIAM GEORGE READ, OF WHISTON, PRESCOT, ENGLAND.

APPARATUS FOR TRANSFERRING CARGO IN BULK.

1,089,496. Specification of Letters Patent. Patented Mar. 10, 1914.

Application filed June 7, 1913. Serial No. 722,265.

To all whom it may concern:

Be it known that I, WILLIAM GEORGE READ, subject of the King of Great Britain, residing at Whiston, Prescot, Lancashire, England, have invented new and useful Improvements in Apparatus for Transferring Cargo in Bulk, of which the following is a specification.

This invention relates to improvements in power-driven mechanical apparatus of the type whereby a mass of material in bulk in the condition of loose fragments or particles, such as coal or grain for example, which is supported on the floor of the hold of a vessel can be delivered on to a transporter carried within a trough formed in the said floor.

The object of the present invention is to avoid the requirement of floors which slope downward toward the transporting conveyer which have hitherto been found necessary.

The chief feature of the invention resides in the provision of a lateral feeder which is arranged to convey the material, which rests on the floor, in the direction transverse to that of the trough, the said lateral feeder traversing the floor area in the direction of the line of the trough.

Figure 1 is an elevational view of the device and Fig. 2 is a plan view thereof.

A is a specially constructed collier-vessel along the center of the extensive horizontal floor a of the hold of which is provided a longitudinal aperture a^1, formed with sloping sides a^2 a^2 adapted to direct material swept laterally from the floor toward the center thereof. Below this aperture a transporter is provided which is adapted to receive the material thrust laterally from the floor and convey it in the longitudinal direction. The transporter may consist of a chain of buckets B, which are adapted to convey their contents to be deposited where desired. The longitudinal aperture a^1 is normally closed by a plurality of sliding door-plates, any one of which, as desired, can be opened.

On each side of the longitudinal aperture is provided an endless chain of vertical plates c^1 so mounted and operated, that the plates travel around a wheel c^2, whose axis of revolution is vertical, and move from the side of the ship's hold toward the middle line, the plates returning around another wheel c^3 back to the side of the ship's hold, and so on continuously. At intervals, from the above described chain of plates c^1, other plates c^4 project at right angles thereto, and operate as sweeps or paddles, the sweep-plates c^4 being supported by the aid of rollers c^5, with their lower borders just clear of the floor a of the hold. The sweep-plates c^4 project horizontally farther at their lower borders than at their upper, in order to undermine the material and feed it laterally with a minimum of resistance. The material, on reaching the central longitudinal aperture a^1, will drop out of contact with the sweep-plates and allow them to return on the rear-side of the feeder C without conveying any material in a backward direction.

The pair of sweep-plate conveyers above described are mounted on a single traveler composed of girders d d which extend across the width of the hold and are secured to carriages d^1 d^1 at each end, which carriages are adapted to convey the traveler along the length of the hold at a regulated speed. For this purpose the carriage d^1 at each end of the traveler is mounted on wheels d^2 d^2, which run on rails a^3, supported by brackets a^4, secured to the lower portion of the longitudinal wall of the hold.

One or both of the carriages d^1 are arranged to be driven electrically or otherwise, at a speed capable of being regulated. The details of the driving mechanism are of ordinary character and are not illustrated on the accompanying drawings.

One of the wheels, namely c^3, around which the chain of plates c^1 c^4 is carried, serves as a driver, the driving wheels of the two conveyers being operated in common by an electric motor E through the medium of suitable gearing comprising, for example, worms e e of opposite pitch-angle, and worm-wheels e^1 e^1. The wheels c^2 c^2 are so mounted as to permit of the adjustment of the tightness of the chain of plates. The plates c^1 are so united by vertical spindles that in the straight portions they constitute a complete wall without apertures, the spindles being furnished with horizontally mounted rollers c^6, which run on rails d^3 and sustain the chains of plates c^1 c^4 against the pressure of the coal or other material on the advancing surface of the plates and permit them to be operated with a minimum of effort.

It will follow that a transverse feeder as

has been above described will enable material to be gathered even from a floor which slopes upward toward the trough which carries the transporter.

In the transverse-feeding arrangement above described, the traveling contrivance is, until requisitioned for use, housed at one end of the hold, beneath a shield which shelters it from the superincumbent and adjacent cargo of coal during the reception thereof.

In conclusion, it may be added that when the material to be gathered is of a light and loose character such as grain for example, the borders of the plates which sweep in proximity to the floor may be furnished with brushes.

I claim:

1. In the hold of a vessel for carrying loose material in bulk, a floor having a longitudinal trough, a conveyer in said trough, a traveler extending across said trough, a wheeled carriage at each end of said traveler supported on said floor, horizontal wheels journaled on said traveler at each end thereof and adjacent to said trough, endless chains of vertical plates led around said wheels, vertical sweep-plates protruding from said plate-chains, means for suspending said plate-chains from said traveler and means for rotating said wheels.

2. In the hold of a vessel for carrying loose material in bulk, a floor having a longitudinal trough, a conveyer in said trough, a traveler extending across said trough, a wheeled carriage at each end of said traveler supported on said floor, horizontal wheels journaled on said traveler at each end thereof and adjacent to said trough, endless chains of vertical plates led around said wheels, vertical sweep plates protruding from said plate-chains, rollers on said plate-chains running on said traveler and means for rotating said wheels.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM GEORGE READ.

Witnesses:
ALFRED READ,
H. WILLIAMS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."