No. 881,446. PATENTED MAR. 10, 1908.

A. SCHWARTZ.

APPARATUS FOR UNLOADING VESSELS.

APPLICATION FILED JULY 27, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

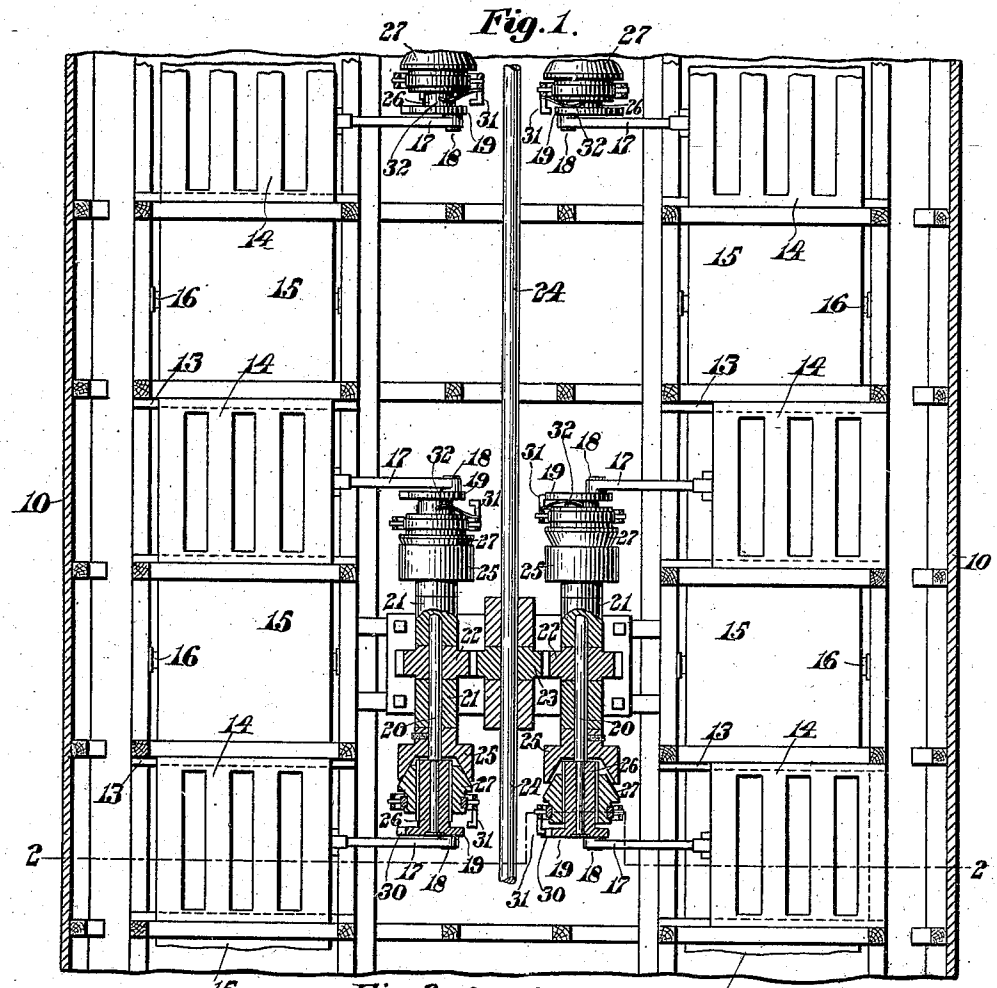
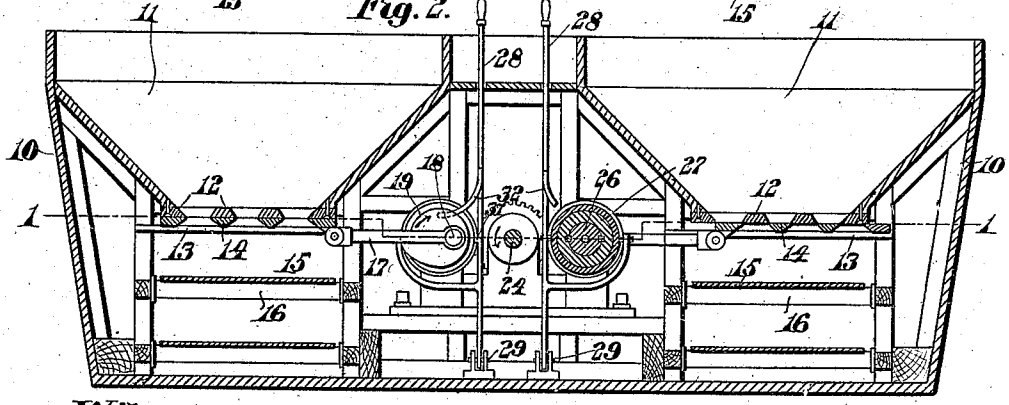


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 5.

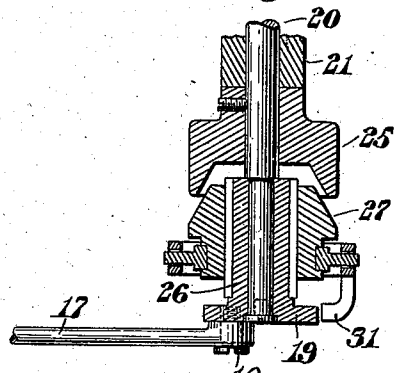


Fig. 3.

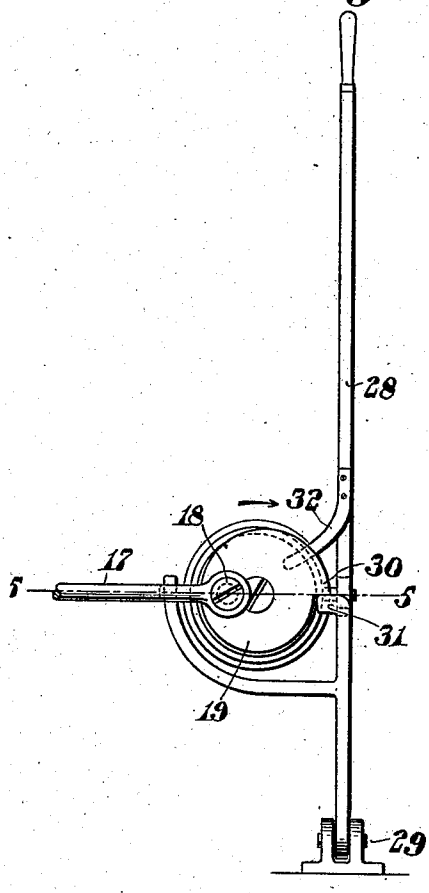
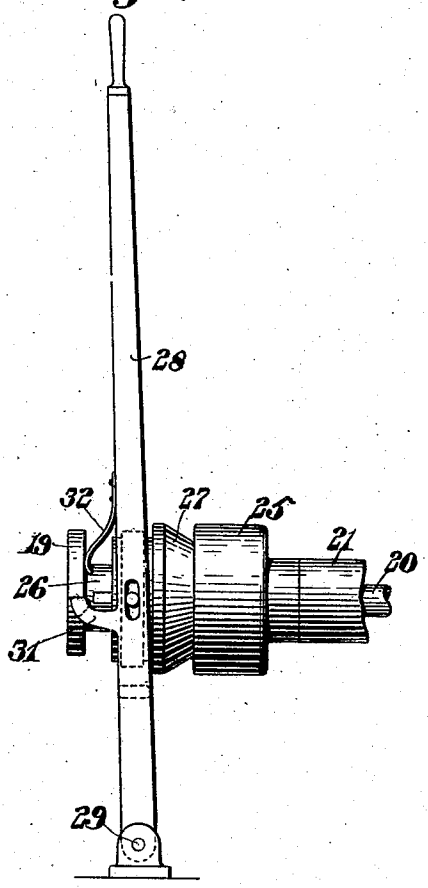


Fig. 4.



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APPARATUS FOR UNLOADING VESSELS.

No. 881,446. Specification of Letters Patent. Patented March 10, 1908.

Application filed July 27, 1907. Serial No. 385,786.

To all whom it may concern:

Be it known that I, AARON SCHWARTZ, a citizen of the United States of America, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Apparatus for Unloading Vessels, of which the following is a specification.

This invention relates to movable carriers for sand, coal, and similar material and especially to such carriers as barges, scows, etc.

The special object of the present invention is to provide a ready means of rapidly unloading the material from the barge or scow, dispensing as far as possible with manual labor and the laborious lifting usually attending the unloading.

The invention consists in providing a carrier with a plurality of bins or hoppers each of which has its discharge outlet provided with a valve such as a reciprocating plate provided with openings extending therethrough which is reciprocated by a revoluble member the operation of which is controlled by the operator through a suitable clutch mechanism, said revoluble member being provided with a means of stopping the reciprocation of said plate in a position to close the discharge outlet whenever said reciprocating mechanism is released from the action of the driving mechanism.

The invention further consists of certain novel features of construction and arrangement of parts which will be readily understood by reference to the description of the drawings and to the claims hereinafter given.

Of the drawings: Figure 1 represents a sectional plan of a portion of a scow embodying the features of this invention the cutting plane being on line 1—1 on Fig. 2. Fig. 2 represents a vertical section through the same on line 2—2 on Fig. 1. Fig. 3 represents an end view of the stopping mechanism. Fig. 4 represents a side view thereof, and Fig. 5 represents a horizontal section on line 5—5 on Fig. 3.

Similar characters designate like parts throughout the several figures of the drawings.

In the drawings, 10 represents a scow of any well-known construction provided with a plurality of bins or hoppers 11 preferably located in two parallel rows. At the discharge outlet of each of the hoppers is secured a slotted plate 12 the slots in which are of greater width at the top than at the bottom, as shown in Fig. 2. Between suitable guides 13 and said plate 12 is mounted a reciprocating slotted plate 14 the slots in which are of greater width at the bottom of said plate than at the top. This formation of the inclined walls of said slots causes a shearing action upon the material within the discharge outlet during the reciprocation of said plate 14 and the forcing downwardly by the inclined walls of the plate 14 of any material which is passed through the slots of the plate 12. This shearing action occurs during the reciprocation of the plate 14 in each direction, the material passing through the discharge outlet being collected upon the belt conveyer 15 mounted upon the rollers 16 by which the material is carried to any desired point. Pivoted to one end of the reciprocating plate 14 is a link 17 the opposite end of which is pivoted at 18 to the revoluble disk or member 19 which is freely revoluble upon the secondary shaft 20 mounted in bearings 21 and driven by a gear 22 meshing with a gear 23 mounted upon the driving shaft 24 interposed between a pair of said secondary shafts 20 and serving to drive a plurality of such shafts on either side thereof throughout its length as indicated in Fig. 1.

Secured to each end of each secondary shaft 20 is a clutch member 25 and mounted upon and slidably keyed to the hub 26 of the revoluble member 19 is a male clutch 27 which will transmit motion from the revoluble secondary shaft 20 to the revoluble member 19 when in engagement. The engagement and disengagement of the clutch members 25 and 27 is effected by means of the lever 28 pivoted at 29. It is obvious that as soon as either one of the levers 28 is operated to cause the engagement of a clutch mechanism 25 or 27 the operation of one of the shafts 20 will cause its revoluble member 19 to reciprocate its plate 14 beneath its hopper 11 and cause a continuous opening and closing of the discharge outlet permitting the material to pass freely therethrough when in the position shown at the left of Fig. 2, the reciprocation of said plate causing the material to be cut through by the inclined walls thereof and forced downwardly onto the conveyer belt. This reciprocation of the plate 14 continues as long as desired. Should

the operator, however, desire to discontinue to discharge from any particular hopper he operates its operating lever 28 to disconnect the clutch members 25 and 27 which will disconnect the transmission of power to its revoluble member 19. In order, however, to insure that when the power is thus shut off the reciprocating member 14 will stop in the closed position, as shown at the right of Fig. 2, the revoluble disk or member 19 is provided with a stop shoulder 30 which will engage with the projection 31 in the lever 28 when the plate 14 has reached the position shown at the right of Fig. 2 in which position the further discharge of the material will be prevented.

In order to prevent a too sudden shock by the contact between the stop shoulder 30 and the projection 31 the lever 28 is also provided with a spring finger 32 which normally is separated from the disk 19 but when the lever is moved into a position to separate the two parts 25 and 27 of the clutch mechanism the spring 32 will be brought into frictional contact with the disk and serve to retard the momentum thereof and permit its shoulder 30 to contact with the projection 31 without shock.

By such a construction as this by a single driving shaft a plurality of secondary shafts may be continually driven and by the operation of any particular lever the power may be transferred from this driving shaft to any desired revoluble member to effect a reciprocation of the slotted valve controlling the delivery of any particular hopper, the reciprocation of this plate or valve insuring an effective delivery while another advantage of the construction is that should it be desired to stop the flow of material from a hopper prior to the emptying thereof, the same movement of the lever that shuts off the power from the reciprocating mechanism will insure the stoppage of the same at a point to close the discharge outlet and prevent further delivery therefrom.

It is believed that from the foregoing description the operation and many advantages of a device of this kind will be fully apparent.

Having thus described my invention, I claim:

1. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a slide adapted to open and close said outlet and provided with openings therein having inclined walls; and means for reciprocating said slide.

2. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a slide provided with openings therein of greater width at the bottom than the top and adapted to open and close said outlet; and means for reciprocating said slide.

3. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; two slotted plates at said discharge outlet one fixed and the other slidable, the walls of the slots therein being so inclined that the material will be cut through by the reciprocation of said slidable plate to effect a delivery; and means for reciprocating said slide.

4. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a slide provided with openings therein adapted to open and close said outlet; means for reciprocating said slide; and means for effecting a closing of said discharge outlet upon the stopping of said reciprocating slide.

5. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a reciprocating device for opening and closing said outlet; means for causing the reciprocation of said device; and mechanism for insuring the stoppage of said reciprocating device in closed position.

6. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a reciprocating device for opening and closing said outlet; a revoluble member for causing the reciprocation of said device; and a clutch mechanism for operating said revoluble member.

7. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a reciprocating device for opening and closing said outlet; a revoluble member for causing the reciprocation of said device; a clutch mechanism for operating said revoluble member; and a pivoted lever for operating said clutch mechanism provided with a device secured thereto for creating a friction upon said revoluble member when said clutch is disengaged.

8. In a movable carrier for sand, coal, and similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a reciprocating device for opening and closing said outlet; and a revoluble member provided with a stop shoulder thereon; and a pivoted lever provided with a projection adapted to be thrown into position to engage with said shoulder to stop the revolution of said member.

9. In a movable carrier for sand, coal, and

similar material, the combination with a belt conveyer; of a hopper located with its discharge outlet above said conveyer; a reciprocating device for opening and closing said outlet; a revoluble member provided with a stop shoulder thereon; a clutch mechanism for operating said revoluble member; and a pivoted lever for operating said clutch mechanism provided with a device secured thereto for creating a friction upon said revoluble member when said clutch is disengaged.

10. In a movable carrier for sand, coal, and similar material, the combination with a plurality of belt conveyers; of a plurality of hoppers located with their discharge outlets above each of said belt conveyers; a reciprocating device for opening and closing each of said discharge outlets; mechanism for causing a reciprocation of said device; a driving shaft intermediate said belt conveyers; secondary shafts on either side thereof driven thereby; clutch mechanisms on each end of each of said secondary shafts; and means for operating each of said clutch mechanisms to throw into action one of said reciprocating members for controlling the delivery from a hopper.

Signed by me at Boston, Massachusetts, this 12th day of July, 1907.

AARON SCHWARTZ.

Witnesses:
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