K. BARTH.

SELF DISCHARGING CAR.

APPLICATION FILED JAN. 14, 1921.

1,428,131. Patented Sept. 5, 1922.

Fig. 1.

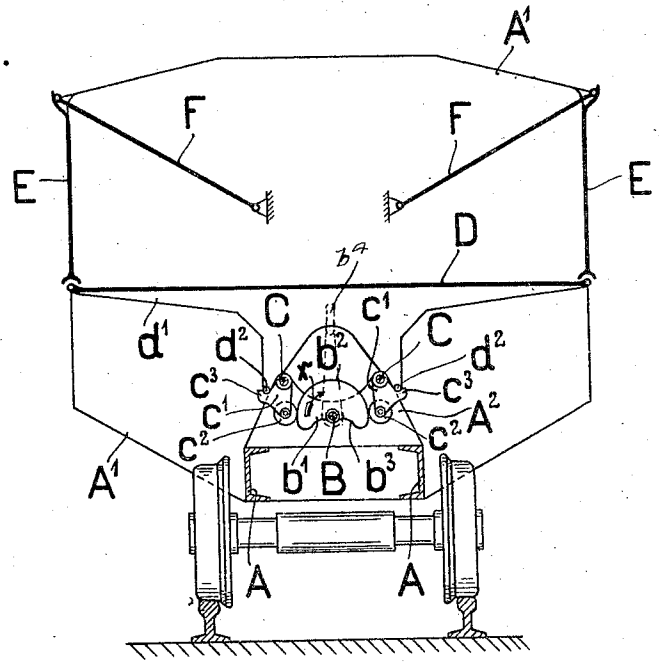
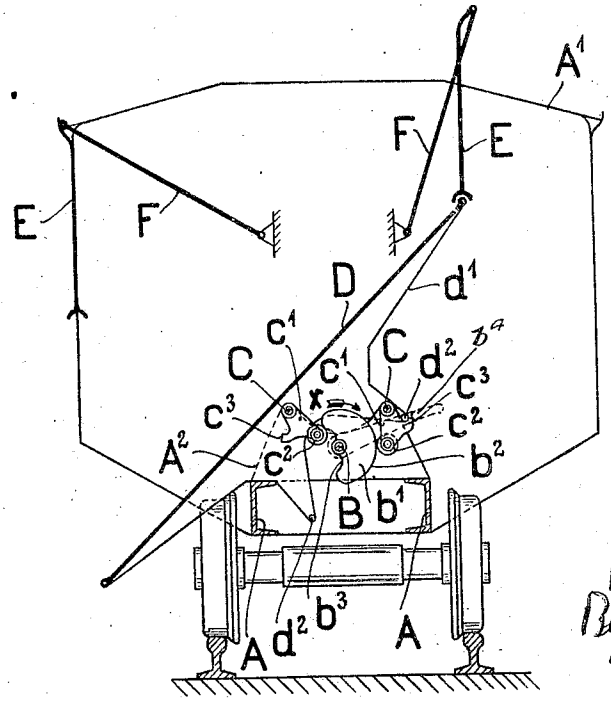


Fig. 2.



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UNITED STATES PATENT OFFICE.

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SELF-DISCHARGING CAR.

Application filed January 14, 1921. Serial No. 437,324.

To all whom it may concern:

Be it known that I, KARL BARTH, residing at Essen, Germany, a citizen of the German Republic, have invented a certain new and useful Improvement in Self-Discharging Cars, of which the following is a specification.

This invention relates to selfdischarging cars in the case of which there are arranged on different sides of the middle longitudinal plane movable supports for the tiltable bottom, a common, displaceable abutment member being always provided for two such supports. More particularly, it is the object of the invention to provide a simplified form of construction for cars of this kind.

The invention will be further described with reference to the accompanying drawing which illustrates diagrammatically one embodiment of the subject matter of the invention by way of example and in which:

Fig. 1 is a cross section of the selfdischarging car ready for charging, and

Fig. 2 is a like view of the car after effecting a discharge toward one side.

Referring to the drawing, the two end walls A^1 are rigidly fixed to the underframe A of the car. In addition, there is rigidly connected to the underframe, both on the front and rear end thereof, a pedestal A^2. In the middle of these pedestals A^2 is mounted a longitudinal shaft B traversing the front walls A^1 and adapted to be turned by means of a hand lever b^4 if need be fixed to each of its ends. Upon the pedestals A^2 there are furthermore mounted to either side of the middle longitudinal plane of the car, at an equal distance therefrom and at the same level above the shaft B, two crank shafts C. These two shafts C are each provided with a plurality of crank arms c^1 arranged in pairs along the same cross sectional planes and abutting by means of rollers c^2 lodged at their free ends, on abutment members b^1 rigidly fixed on the shaft B. The active surface of each of these abutment members comprises a semi-circular portion b^2 to which adjoin cam shaped portions b^3. On the crank arms c^1 there are provided supports c^3 shaped on the outside so as to constitute open sockets and adapted to support the bottom D, which latter, when the car is ready for loading, rests on said supports c^3 by means of pins d^2 fixed for their part to the re-inforced sheet metal supporting plates d^1 of the bottom. The abutment members b^1 are, in this position of the car, so adjusted that the semi-circular portion b^2 of them, the axis of curvature of which coincides with the axis of rotation of the shaft B, will be situated symmetrically to the middle longitudinal plane of the car above the shaft B (Fig. 1). In this contingency, the crank arms c^1 bear up by intervention of its rollers c^2, on the two ends of the semi-circular portion b^2 of the abutment members b^1 and are thus secured against rotation under the action of the forces transmitted by the pins d^2. The side walls E of the car are guided in their movements in the known manner along their upper ends by means of guide links F, lodged on the front walls A^1, and are articulated at their lower ends with the bottom D in a pin and socket connection in suchwise that this connection will be automatically released on the discharge side when the bottom executes a tipping motion (Fig. 2).

The manner of operation of the car is as follows:

If the car is to be discharged toward one side, say, for example, toward the left, then the shaft B is rotated in the direction indicated by the arrow x. In this contingency, the crank arms c^1 disposed to the right of the middle longitudinal plane along with the supports c^3, remain at rest, as the rollers c^2 of these crank arms continue to abut against the semi-circular portion b^2, disposed coaxially to the shaft B, of the active surface of the abutment members b^1. On the left-hand side, however, the rollers c^2 of the crank arms c^1 are deprived of their abutment on the semi-circular portion b^2, so that the bottom D, acting under the weight of the goods commences to rotate about the right-hand supports c^3. The left-hand supports c^3 are depressed, during this operation, by the pins d^2 fixed to the bottom, and the rollers c^2 of the appropriate crank arms, which are simultaneously turned toward the middle longitudinal plane, pass over on to the cam-shaped portions b^3 of the active surface of the abutment members b^1. As these crank arms rotate, and in consequence of which rotation each of the abutment members b^1 is turned by intervention of the rollers c^2 for about 90° in the direction of the arrow x (Fig. 2), the left-hand pins d^2 of the bottom depart from the open socket-

shaped supports c^3 and finally release the supporting bodies formed by the crank arms c^1 and the supports c^3. Hereupon the bottom continues to move until it attains the discharge position (Fig. 2), whereas the crank arms c^1, which have been released, are secured in the angular position they have attained by the friction existing between the respective shaft C and its bearings.

After the car has been discharged, the bottom, which is now balanced by the weight of the side wall E carried by its upraised end, is returned by hand into the loading position (Fig. 1), in which the bottom, when empty is secured by the weight of the side wall against any automatic rotation in the discharging direction. Hereupon the shaft B along with the abutment members b^1, is rotated back into its initial position (Fig. 1). Owing to the contact existing between the rollers c^2 and the surfaces b^3 of the abutment members, the left-hand crank arms c^1 are at the same time likewise returned into their original position, the supports c^3 of these crank arms again entering into engagement with the pins d^2, and being secured in this position after the rollers c^2 have passed over on to the semi-circular portion b^2 of the active surface of the abutment members b^1 (Fig. 1).

Whenever the discharge is to be effected toward the right, the shaft B is rotated in the direction counter to that indicated by the arrow x. The operations taking place in this case correspond exactly, with suitable variations, to those just described and therefore do not require any further explanation.

I claim:

1. A self-discharging receptacle, comprising a bottom member revolubly mounted with respect to a longitudinal axis of said receptacle, a plurality of supporting crank members cooperating with said bottom member, a central cam device selectively locking said bottom supporting crank members in place, said cam device automatically releasing one of said supporting cam members from supporting engagement with said bottom member on the discharging action of said receptacle on a predetermined motion of said cam, and means on said cam device for returning said released crank member to supporting engagement with said bottom member on the return of said bottom member to the filling position of said receptacle.

2. A self-discharging receptacle, comprising a bottom member revolubly mounted with respect to a longitudinal axis of said receptacle, a plurality of supporting crank members cooperating with said bottom member, a central cam device selectively locking said bottom supporting crank members in place, said cam device automatically releasing one of said supporting cam members from supporting engagement with said bottom member on the discharging action of said receptacle on a predetermined motion of said cam, and means on said cam device for returning said released crank member to supporting engagement with said bottom member on the return of said bottom member to the filling position of said receptacle, said cam device having a semi-circular portion which latter portion simultaneously locks said crank members in position when said receptacle is in loading position.

3. A self-discharging receptacle, comprising a bottom member revolubly mounted with respect to a longitudinal axis of said receptacle, a plurality of supporting crank members cooperating with said bottom member, a central cam device selectively locking said bottom supporting crank members in place, said cam device automatically releasing one of said supporting cam members from supporting engagement with said bottom member on the discharging action of said receptacle on a predetermined motion of said cam, and means on said cam device for returning said released crank member to supporting engagement with said bottom member on the return of said bottom member to the filling position of said receptacle, said cam device having a semi-circular portion which latter portion simultaneously locks said crank members in position when said receptacle is in loading position, said cam device having a cut-away portion for selectively releasing either of said crank members to permit said bottom member to rotate in any predetermined direction by virtue of the load.

The foregoing specification signed at Essen, Germany, this 15th day of November, 1920.

KARL BARTH.

In presence of—
HANS GOTTSMANN,
JOHANN DECKERS.