

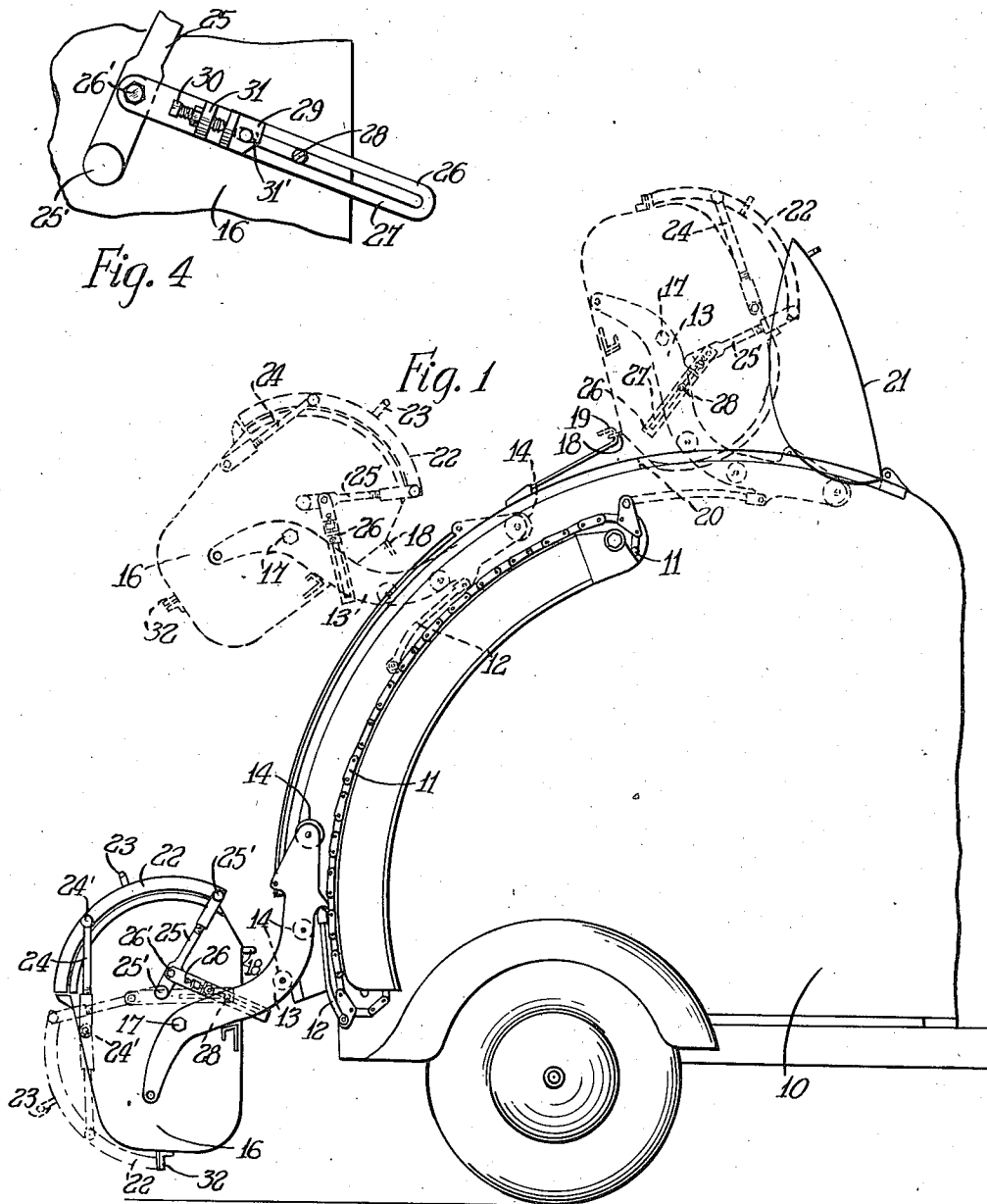
Dec. 14, 1948.

O. F. MANTHIE
SELF-LOADING VEHICLE

2,456,434

Filed Dec. 1, 1945

2 Sheets-Sheet 1



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Fig. 2

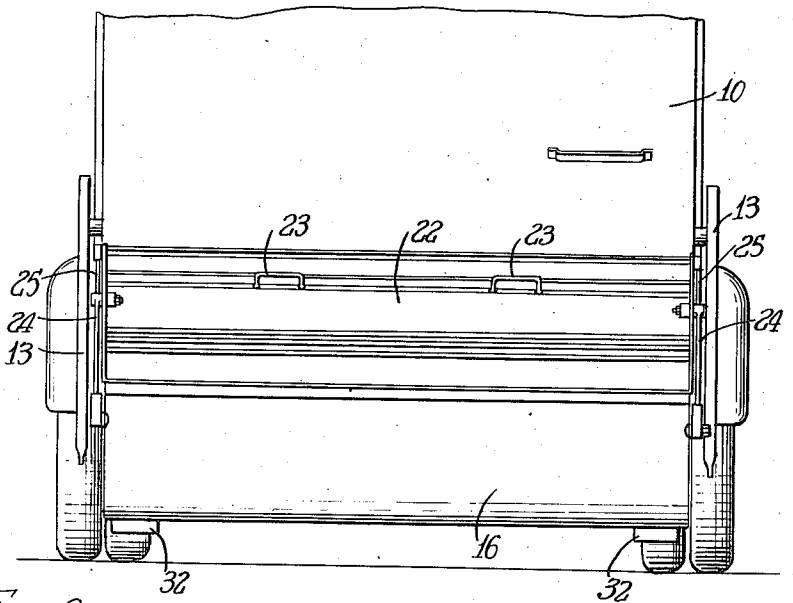
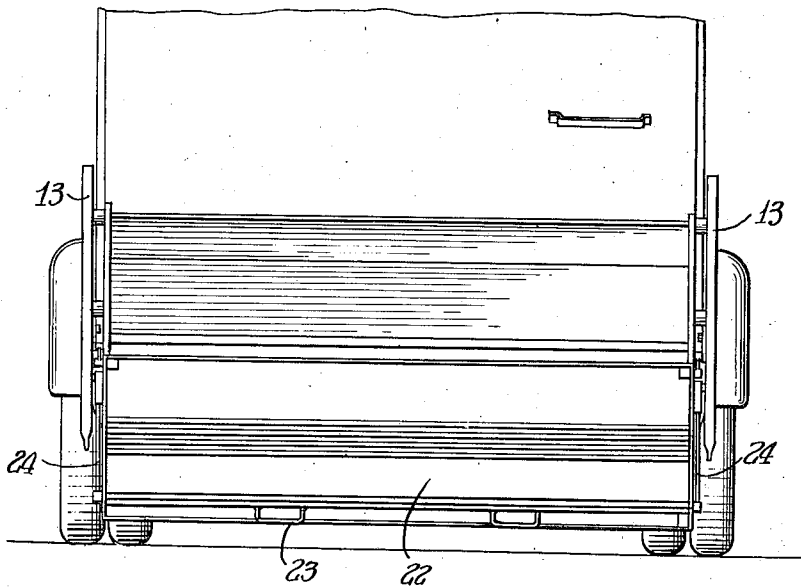


Fig. 3



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UNITED STATES PATENT OFFICE

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SELF-LOADING VEHICLE

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13 Claims. (Cl. 214-67)

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This invention relates to improvements in a self-loading vehicle of the type exemplified by U. S. patents to Leach et al., No. 2,087,348, dated July 20, 1937, No. 2,124,624, dated July 26, 1938, and No. 2,260,947, dated October 28, 1941.

It is an object of the invention to provide a self-loading vehicle of the type referred to incorporating a hollow body for the reception of refuse and the like and a loading bucket traversing said body from a loading to an unloading point and vice versa, with an automatically or manually operable cover or closure for said bucket effective during the travel thereof to prevent displacement of the contents of the bucket therefrom.

It is a further object to provide a vehicle loading bucket of the type referred to wherein the bucket has a cover or closure hingedly articulated thereto, in combination with means automatically responsive to the usual pivotal discharging movement of the bucket to swing the cover to an inoperative position.

The foregoing statements are indicative in a general way of the nature of the invention, but other and more specific objects will be apparent to those skilled in the art upon a full understanding of the construction and operation of the device.

One embodiment of the invention is presented herein for the purpose of exemplification, but it will be appreciated that the invention is susceptible of incorporation in other modified forms coming equally within the scope of the appended claims.

In the drawings,

Fig. 1 is a fragmentary view in side elevation illustrating a self-loading vehicle having the improved covered bucket provisions of the present invention;

Fig. 2 is a rear view illustrating the vehicle and covered bucket thereof, with the closure of the latter shown in operative, bucket-closing position;

Fig. 3 is a view similar to Fig. 2 illustrating the bucket cover in removed or inoperative position; and

Fig. 4 is an enlarged fragmentary view more clearly illustrating certain details of the automatic cover actuating linkage.

The present invention provides a self-covering and uncovering bucket for self-loading refuse collection and like vehicles of the type shown in the patents referred to above, whereby the contents of the bucket are prevented from escaping therefrom during such time as the bucket trav-

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els upwardly and forwardly to its unloading position above and adjacent the front of the vehicle body; likewise recovering the bucket during its return movement back to the loading position, whereby the bucket remains covered until it is desired to reload the same. Provisions for said covering and uncovering operations, which are effected automatically during the operative cycle of the bucket, are yet such as to enable the bucket to be manually uncovered and covered by the operator at the loading station, as desired. It will be appreciated that certain, and in fact most, of the provisions to be described are duplicated on opposite sides of the vehicle, so that it will not be necessary to call attention to each instance of such duplication.

Referring to the drawings, the reference numeral 10 generally designates the body of a self-loading vehicle of the type shown in the above identified patents, being provided with actuating chains 11 and connected coupling links 12 to actuate the pair of spaced buckets supporting arms 13 in the arcuate travel thereof in opposite directions over the top of the body 10. These arms are guided by rollers 14 and suitable guide-ways on sides of the body, all in the manner illustrated and described in the above patents, to which reference may be had if a fuller description of the structure is desired.

The bucket 16 is pivoted between the support arms 13 at 17 and on its forward surface carries a loop or bight 18 which is engageable with a fixedly mounted hook 19 adjacent a loading opening 20 in the top of the body, to tilt and discharge the contents of the bucket when the same arrives at said loading opening 20. Said opening is normally covered by the swingable closure and shield 21.

The above structure is all well known, being illustrated in the patents above referred to. It will be appreciated that the bucket 16, when the chains 11 are actuated, travels from the lower loading position illustrated in solid line in Fig. 1, through the intermediate position illustrated in dotted line in Fig. 1 to the final discharging position at the top of the body, also illustrated in dotted line, in the conventional manner, after which it returns to original position.

The reference numeral 22 designates a cover or closure for the bucket 16 which is of curved arcuate outline in conformity with the marginal outline of the bucket mouth. The cover top is provided with hand hold loops 23 by which the cover may be swung manually rearwardly and downwardly to an inoperative bucket exposing

position for loading, as illustrated in broken line in Fig. 1, and also as illustrated in Figs. 2 and 3. In order to accomplish a quick opening of the cover to the inoperative position illustrated in said broken lines in Fig. 1, and replacement to closed position, the same is pivotally connected to the bucket 16 by non-parallel links 24, 25 at either side thereof, as illustrated in Fig. 1, each link being adjustable for length. The respective pivots of links 24, 25 to the cover and bucket are designated 24', 25', and it is evident that these links will permit manual opening and closing of the cover 22 when desired, the operator merely grasping hand holds 23 from a point rearward of the bucket.

The link 25 is pivotally connected, at a point 26' located between its pivots 25', and preferably closely adjacent its bucket pivot, to an actuating thrust link 26. Said thrust link is in turn pivotally articulated to the supporting arm 13, being provided with an elongated slot 27 extending longitudinally thereof, which slides on a fixed pivot and abutment pin 28 on said arm. This lost motion slot and pin connection enables the manual lifting of the cover 22 discussed above. The inner end of the slot has adjustable abutting engagement with said pin, being provided with a bevel-nose thrust or stop shoe 29 which is adjustably supported by an adjusting screw 30 threaded in a lateral bracket 31 on link 26. Shoe 29 may be guided for longitudinal adjustment relative to link 26, and held from displacement therefrom by a follower 31' of oblong shape receivable in slot 27. Screw 30 permits accurate and easy adjustment of the extent of opening of the cover 22, which is automatically opened at the discharge opening 20, in the manner to be described.

Assuming that the bucket 16 has been filled with refuse or other material, the cover 22 being manually shifted to inoperative position for this purpose, the cover is replaced and the chain 11 actuated to shift the bucket forwardly and upwardly over the body 10. As it approaches and reaches the loading opening 20 of the body, the bight 18 is engaged by hook 19 to swing the bucket clockwise about its pivot 17 on arms 13. This causes the thrust shoe 29 to engage the pivot abutment pin 28 as link 26 shifts relative to said pin, with the result that thrust is applied through link 26 to link 25. Hence, closure 22 is swung counterclockwise to fully opened position, being guided by the further link 24, as illustrated in Fig. 1. A pair of bumpers or cushioned stops 32 on the bucket bottom are engaged by the cover in said last named position.

The bucket will remain open in its return to loading position, ready to receive another charge at said position. If recharging is not desired, the cover may be replaced manually.

The foregoing structure provides a bucket cover which safeguards against undesired escape or loss of the bucket contents during its travel upwardly to the unloading point, which provisions are of extremely simple and inexpensive and highly effective character. They supplement substantially the purposes of the vehicle itself, among which are the complete enclosure of refuse, garbage and the like, so as to eliminate odor and unsightliness, and to that extent afford a self-loading vehicle of greatly increased practicality and desirability.

I claim:

1. In a self-loading vehicle of the type including a hollow body having a forwardly located re-

ceiving station, an open mouthed loading bucket adapted to traverse said body longitudinally between said station and a rearwardly spaced bucket-charging point, and supporting and actuating means to shift said bucket longitudinally of said body from said point to said station and to pivot the same so as to discharge the contents thereof at the station, a closure for said bucket operative to cover the mouth of the same during travel between said loading point and receiving station, means pivoting said closure on said bucket to permit shifting of the closure to inoperative withdrawn position, and means connected to said last named means and to said supporting and actuating means and operative upon arrival and pivoting of the bucket adjacent said receiving station to cause shifting of said closure to inoperative position.

2. In a self-loading vehicle of the type including a hollow body having a receiving station, an open mouthed loading bucket adapted to traverse said body between said station and a spaced bucket-charging point, and supporting and actuating means to shift said bucket from said point to said station and to pivot the same so as to discharge the contents thereof at the station, a closure for said bucket operative to cover the mouth of the same during travel between said loading point and receiving station, means shiftably pivoting said closure on said bucket, comprising a pair of links each pivoted at spaced points between said closure and bucket and swingable relative to the latter to shift the closure to inoperative withdrawn position, and a further link pivoted to one of said links, said last named link having pivotal connection to said supporting and actuating means and being operative upon pivoting of the bucket adjacent said receiving station to cause shifting of said closure to inoperative position.

3. In a self-loading vehicle of the type including a hollow body having a receiving station, an open mouthed loading bucket adapted to traverse said body between said station and a spaced bucket-charging point, and supporting and actuating means to shift said bucket from said point to said station and to pivot the same so as to discharge the contents thereof at the station, a closure for said bucket operative to cover the mouth of the same during travel between said loading point and receiving station, means shiftably pivoting said closure on said bucket, comprising a pair of links each pivoted at spaced points between said closure and bucket and swingable relative to the latter to permit shifting of the closure to inoperative withdrawn position, and a further link pivoted to one of said links, said last named link having a lost motion slidable and pivotal connection to said supporting and actuating means and being operative upon pivoting of the bucket adjacent said receiving station to cause shifting of said closure to inoperative position.

4. In a self-loading vehicle, a hollow body, a loading bucket mounted to traverse said body longitudinally between spaced rearward loading and forward discharge stations, means to shift said bucket longitudinally of said body from said loading to said discharge station and to discharge the contents thereof at the latter, comprising a support guided for translational movement on said body on which the bucket is pivotally mounted, and means to swing the bucket about the support pivot thereof adjacent said discharge station, a closure for said bucket operative to

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cover the same during travel between said stations, means shiftably mounting said closure on said bucket, and further means coacting with said last named means and support and effective upon arrival and pivoting of the bucket at the discharge station to shift the closure to inoperative position.

5. In a self-loading vehicle, a hollow body, a loading bucket mounted to traverse said body longitudinally between spaced rearward loading and forward discharge stations, means to shift said bucket longitudinally of said body from said loading to said discharge station and to discharge the contents thereof at the latter, comprising a support guided for translational movement on said body on which the bucket is pivotally mounted, and means to swing the bucket about the support pivot thereof adjacent said discharge station, a closure for said bucket operative to cover the same during travel between said stations, means shiftably mounting said closure on said bucket comprising a link pivoted between said closure and bucket and swingable relative to the latter to withdraw the closure to inoperative position, and a further link pivoted to said link, said last named link having a connection to said support and being effective upon arrival and pivoting of the bucket at the discharge station to shift the closure to inoperative position.

6. In a self-loading vehicle, a hollow body, a loading bucket mounted to traverse said body between spaced loading and discharge stations, means to shift said bucket from said loading to said discharge station and to discharge the contents thereof at the latter, comprising a support guided for movement on said body on which the bucket is pivotally mounted, and means to swing the bucket about the support pivot thereof adjacent said discharge station, a closure for said bucket operative to cover the same during travel between said stations, means shiftably mounting said closure on said bucket comprising a link pivoted between said said closure and bucket and swingable relative to the latter to withdraw the closure to inoperative position, and a further link pivoted to said link intermediate its bucket and closure pivot points, said last named link having a lost motion connection to said support and being effective upon pivoting of the bucket at the discharge station to shift the closure to inoperative position.

7. In combination with a self-loading vehicle having a loading bucket translationally movable thereon, a removable closure for said bucket operative to cover the same during at least a portion of the translational movement thereof on the vehicle, means mounting said closure for removal relative to said bucket, and means operative in response to movement of the bucket on the vehicle and following a substantial translational travel on the latter to remove the closure.

8. In combination with a self-loading vehicle having a loading bucket movable thereon, a removable closure for said bucket operative to cover the same during at least a portion of the movement thereof on the vehicle, plural non-parallel link means pivotally mounting said closure for removal relative to said bucket, and means responsive to movement of the bucket on the vehicle and operative in conjunction with said link means to remove the closure.

9. The improvement in a self-loading vehicle having a receiving body, a loading bucket adapt-

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ed to travel linearly and translationally on said body from a loading to an unloading station thereon, and a traveling support for the bucket, comprising a cover for said bucket and means mounting said cover for removal from and replacement on said bucket at opposite ends of its path of travel.

10. The improvement in a self-loading vehicle having a receiving body, a loading bucket adapted to travel on said body from a loading to an unloading station thereon, and a traveling support for the bucket, comprising a cover for said bucket and means mounting said cover for removal from and replacement on said bucket, said last named means comprising a linkage connection between the bucket and support to impart a combined pivotal and translational motion to the cover in its removal and replacement.

11. In combination with a self-loading vehicle having a support which is linearly translatable a substantial distance over the vehicle, a loading bucket pivotally mounted on said support for movement thereby to a discharge station on the vehicle and for pivotal discharge at said station, and means for pivotally actuating said bucket to discharge the same at the station, a closure operative to cover said bucket substantially throughout the period of translation thereof, and means pivotally mounting said closure on the bucket for automatic uncovering of the latter upon pivotal discharge at said discharge station.

12. In a self-loading vehicle of the type having a receiving body, a loading bucket adapted to travel linearly and translationally on said body from a loading to an unloading station thereon, and a traveling support for the bucket, the improvement comprising a cover for said bucket, and means mounting said cover for removal from and replacement on said bucket at opposite ends of its path of travel, said last named means including means acting automatically on said cover to remove the same at said unloading station.

13. In a self-loading vehicle of the type having a receiving body, a loading bucket adapted to travel linearly and translationally on said body from a loading to an unloading station thereon, and a traveling support for the bucket, the improvement comprising a cover for said bucket, and means mounting said cover for removal from and replacement on said bucket at opposite ends of its path of travel, said last named means including means operatively connected to said cover and traveling support and acting automatically on said cover to remove the same at said unloading station.

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