

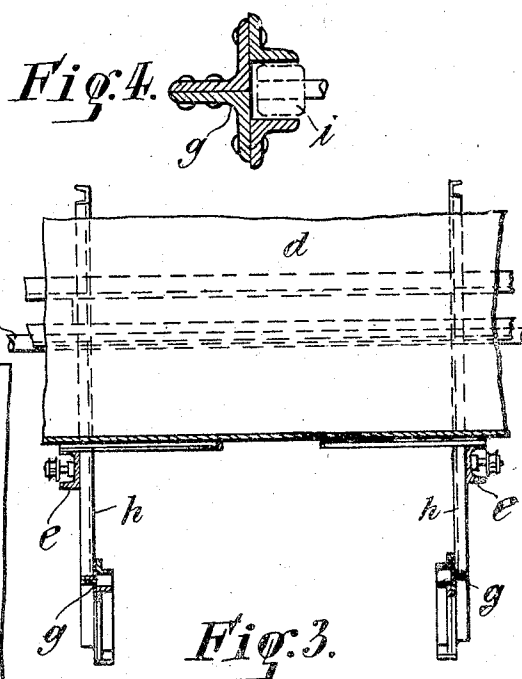
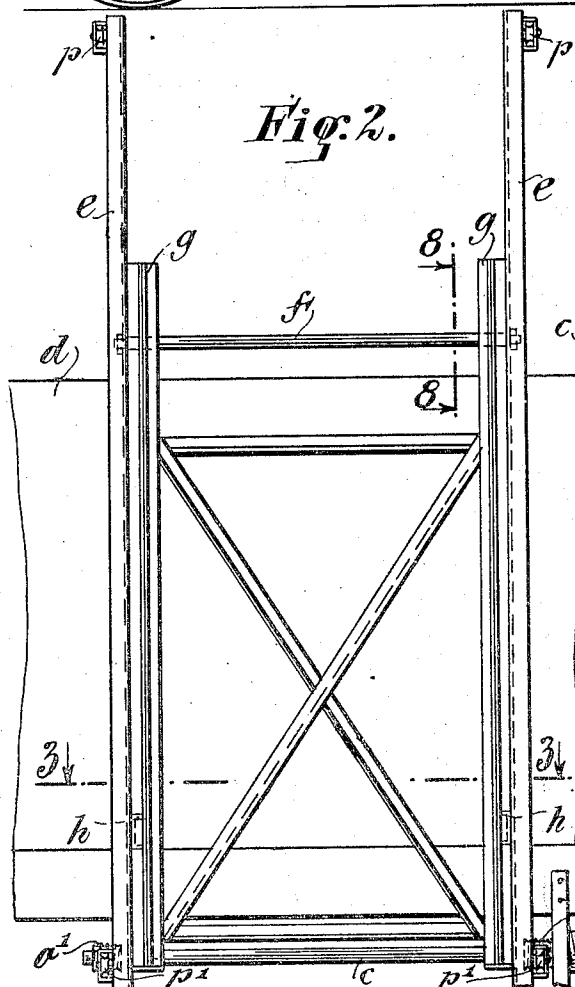
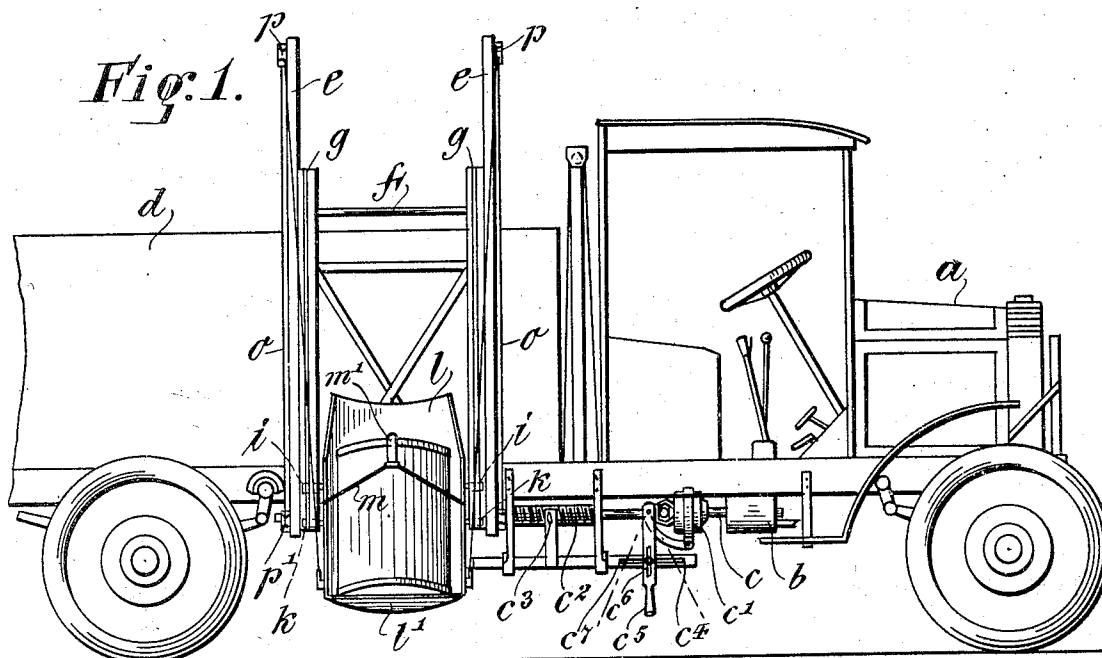
May 6, 1924.

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B. F. CLARK ET AL

HOISTING AND DUMPING MECHANISM FOR CANS

Original Filed Feb. 23, 1922 2 Sheets-Sheet 1



INVENTORS
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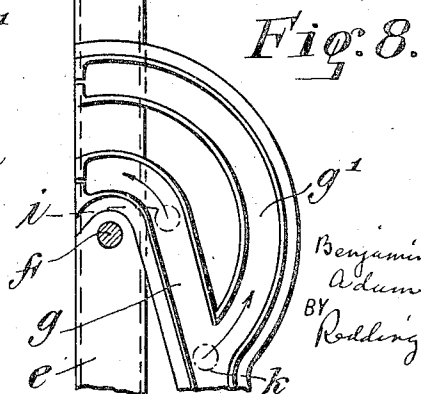
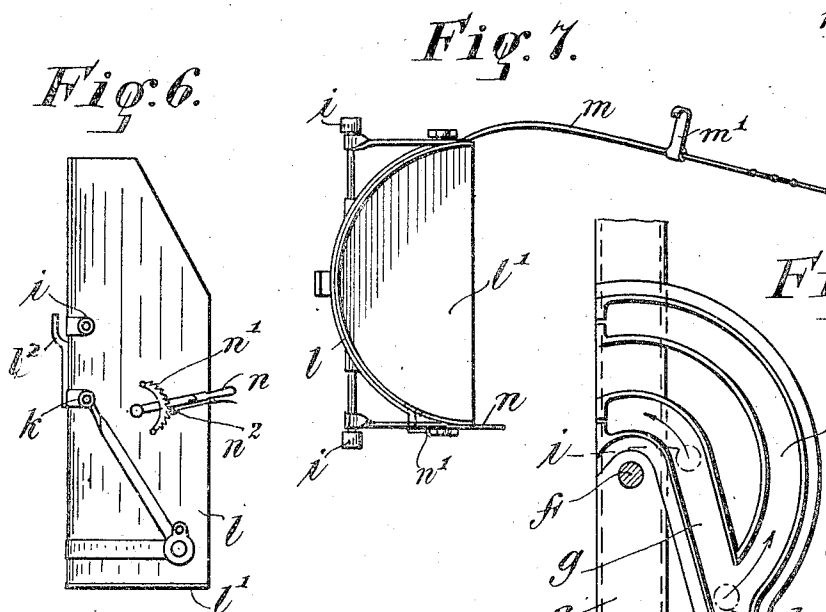
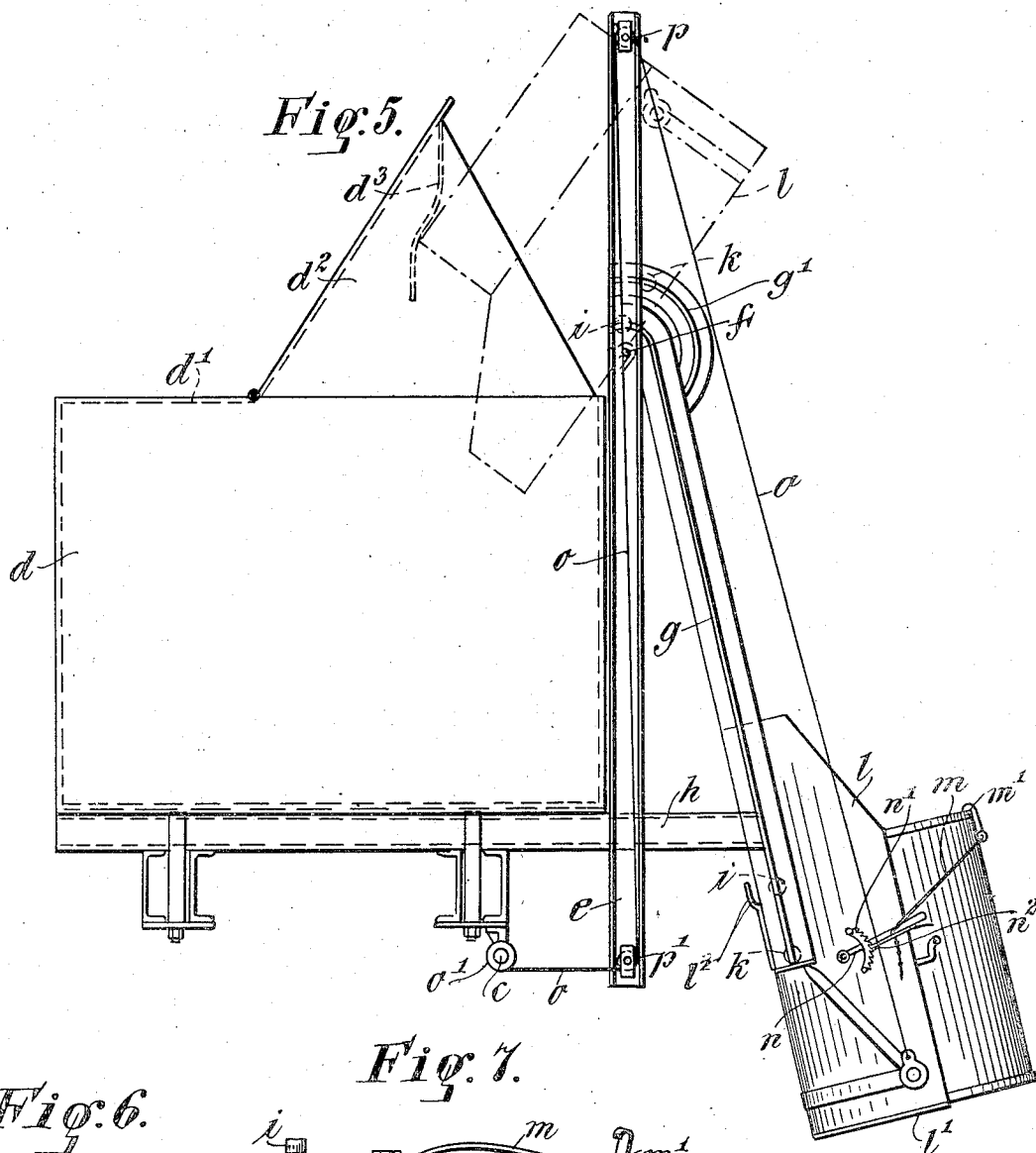
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HOISTING AND DUMPING MECHANISM FOR CANS

Original Filed Feb. 23, 1922

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

BENJAMIN F. CLARK, OF NEW YORK, AND ADAM ROSECRANS, OF BROOKLYN,
NEW YORK.

HOISTING AND DUMPING MECHANISM FOR CANS.

Application filed February 23, 1922, Serial No. 538,556, Renewed March 31, 1924.

To all whom it may concern:

Be it known that we, BENJAMIN F. CLARK and ADAM ROSECRANS, both citizens of the United States, whose respective residences are borough of Queens and borough of Brooklyn of the city of New York, in the State of New York, have invented certain new and useful Improvements in Hoisting and Dumping Mechanism for Cans, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to a hoisting and dumping mechanism for cans and is designed primarily with reference to its application to motor vehicles used in the service of collecting garbage, ashes or the like. It is still the common practice in cities to collect garbage and ashes by employing hand labor for lifting the cans over the sides of the vehicle. Automatic means for performing this work must, generally speaking, satisfy two important requirements, to wit, it must save many hours of labor and be sanitary. It is the principal object of the present invention to provide an automatic hoisting and dumping mechanism for cans which will satisfy these two principal requirements and, in addition, be of simple, inexpensive and rugged construction, invariable in operation and especially effective for use on motor vehicles where a source of power may be readily derived for elevating the cans. More particularly, the invention has for other objects to provide a carrier for a can which may be drawn up a track-way at the side of a motor vehicle and automatically tipped over the sides of the body for discharging the contents of the can. Still another object is to provide in association with the last-named means, an automatic power take-off which will insure the travel of the carrier for a predetermined distance only. Where the improved mechanism is adapted primarily for the hoisting and dumping of ash-cans, means will be provided on the body for receiving the mouth of the can at the time of dumping and confining the dust so that it may not escape to the street.

These and other objects will appear more particularly hereinafter in connection with the detailed description of the embodiment shown in the accompanying drawings, by way of example, as suitable means for practicing the invention. In the drawings:

Figure 1 is a view in side elevation of so much of a motor vehicle as is necessary for an understanding of the application of the improved mechanism thereto.

Figure 2 is a detailed view in side elevation of the track-way for the carrier and the power cut-off therefor.

Figure 3 is a fragmentary view in section through the track-way and body taken on the plan indicated by the line 3—3 of Figure 2 and looking in the direction of the arrows.

Figure 4 is a detailed view in section showing a suitable construction of one of the tracks with a guide roller for the carrier disposed therein.

Figure 5 is a view in end elevation of the vehicle body, track-way and carrier, the dumping position of the latter being indicated in dotted lines.

Figures 6 and 7 are views in end elevation and plan, respectively, of the carrier.

Figure 8 is a view in elevation of a fragment of the upper end of one of the track-ways showing how the dumping is effected.

The vehicle *a* which may be of any approved form or design is, in the preferred form of the invention self-propelled and includes a transmission *b* from which extends a lay shaft *c* for the convenient take-off of power. On the vehicle *a* is mounted a body *d* of such design as may best serve the purpose for which the vehicle is intended, the body illustrated being well adapted for the collection of ashes. To this end, it is preferred to close the top *d'* thereof and provide therein an upper extending housing *d²* having one side open to receive the can to be dumped as will more fully appear hereinafter. In the open side of the housing *d²* may be hung a flexible dust curtain *d³* which is engaged by the can at the time of dumping and serves to prevent the escape of dust.

At one side of the vehicle body may be secured two vertical beams *e* conveniently formed as channels. These beams are tied together by a dumping rod *f* and have secured, preferably to their inner faces, the upper ends of opposed track-ways *g*. These track-ways extend downwardly and outwardly from the side of the body the lower ends being supported by sills *h* which extend transversely of the body *d* and beyond one side thereof. The track-ways *g* may be built up of angle pieces riveted together in the manner indicated in Figure 4 thereby ex-

tending adjacent and longitudinally of the track-ways and providing opposed flanges between which are disposed the guide rollers *i*, *k*, at opposite sides of the can carrier *l*.
 5 This carrier *l* is of generally semi-circular form as shown in Figure 7 and has a bottom plate *l'* on which the can to be dumped may be placed by the attendant. When in its lowermost position in the track-ways *g*
 10 the carrier *l* is placed at a convenient height to permit the can to be dumped to be placed thereon quickly and with little effort by the attendant. If the can is placed on the carrier it is strapped thereto by any suitable
 15 securing means which will facilitate speed in fastening and unfastening. By way of example, as is illustrated in the drawings, a cord *m* which is anchored at one side of the carrier and has a free end which may be
 20 quickly engaged by the attendant with a tightening device at the other side shown as a pivoted lever *n* movable over a rack *n'* and adapted to be secured in adjusted position by the pawl *n²* carried with the lever
 25 and engaged releasably with teeth of the rack. On the cord *m* is the hook *m'* which is engaged with the edge of the can before the tightening lever *n* is moved to draw the cord taut.
 30 The can is elevated up the track-ways *g* by cables *o* engaged with the carrier at opposite sides near its bottom and extending upwardly over sheaves *p* supported near the
 35 upper ends of the beams *e* from whence they may be carried downwardly to hoisting drums *o'* respectively. These hoisting drums *o'* may be mounted under the frame of the vehicle and it may be convenient to lead the cables *o* down the channels *e*
 40 and over other sheaves *p'* mounted at the lower ends thereof before they are led on to the hoisting drums *o'*. The drums *o'* may be carried on the lay shaft *c* from which power is obtained from the transmission *b*.
 45 In order to limit the upward travel of the carrier *l* under the power of the lay shaft *c* the latter has therein a clutch *c'* by which the rotation of the drums *o'* may be discontinued when desired. In the preferred
 50 embodiment the clutch *c'* is preferably controlled automatically so that it will be thrown out after the carrier *l* has travelled a predetermined distance. Such automatic devices may include a worm *c²* carried on
 55 the lay shaft *c* and engaged by a travelling worm gear indicated conventionally at *c³* and connected with a slotted bar *c⁴* which travels with the worm gear when the worm *c²* is rotated. The operating handle *c⁵* carried a stud *c⁶* which rides in the slot *c⁷* in
 60 the bar *c⁴* so that the handle *c⁵* is moved in one direction or the other after the bar *c⁴* has moved a predetermined distance and the stud *c⁶* rests at one end of the slot or the
 65 other.

In accordance with the invention a very simple means for automatically dumping the contents of the can are provided. The track-ways *g* are provided adjacent their upper ends with curved shunts *g'* although 70 track-ways *g* continue straight upward. The rollers *i*, *k*, are so mounted with respect to one another and to the center of gravity of the loaded carrier *l* and to the points of pull where the cables *o* are attached to the carrier that the upper rollers *i* tend to ride 75 along what may be termed the lower face of the track-ways *g* while the lower rollers *k* tend to ride along what may be termed the upper face of the track-ways. The result is as indicated by the arrows in Figure 8 that the rollers *i* will always follow the straight sections of the track-ways *g* when the carrier is elevated, whereas the lower rollers *k* will be drawn into the shunt portions *g'* of the track-ways when they reach 85 that elevation. Continued movement of the cables *o* on the carrier *l* at points below both of the rollers will serve to draw the lower rollers *k* to points above the upper rollers *i*. 90 A hook *l²* on the carrier engages the transverse dumping rod *f* when the can is in its elevated position and the rod serves as the fulcrum about which the carrier revolves, the rollers *i*, *k* moving about the fulcrum 95 in their respective track-ways. The dumping position is indicated in dotted lines in Figure 5. At the time of dumping the mouth of the can is moved into the open side of the housing *d²* on the body *d* and 100 presses aside the flexible dust curtain *d³* to an extent sufficient to permit the contents of the can to be discharged into the body while the dust is confined by the joint action of the can and the curtain. The travel of 105 the bar *c⁴* and relation of its slot *c⁷* to the stud *c⁶* are such that the lever *c⁵* will be thrown to unclutch the lay shaft *c* when the can has reached the position indicated in dotted lines in Figure 5. After the can 110 has discharged its contents the attendant will move the handle *c⁵* so as to throw the clutch *c'* into reverse thereby revolving the drums *o'* in the opposite direction while the carrier *l* drops down the ways *g* under the 115 influence of gravity, to loading position. The travel of the bar *c⁴* will again be so timed as to move the handle *c⁵* and throw the clutch *c'* into neutral when the carrier has reached this loading position. 120 It will be evident to one skilled in the art that many changes in details of design may be made without departing from the spirit of the invention. The drawings show, in 125 conventional form, suitable parts for performing the necessary functions in proper coordination to bring about the results sought, but other parts may be employed in somewhat different relations without changing the principles involved. 130

What we claim is:

1. A hoisting and dumping mechanism for
cans including in combination with the ve-
hicle body, track-ways mounted at one side
5 thereof and extending from points above the
side walls of the body downwardly and out-
wardly at one side of the body, a carrier for
the can having two spaced rollers at each
side thereof adapted to operate in said
10 track-ways, cables for elevating the carrier
secured thereto and extending upwardly
above the upper ends of said track-ways and
means carried with the track-ways and co-
operating with said rollers to effect dump-
15 ing of the can when the carrier is in its
raised position.

2. In combination with a vehicle body

hoisting and dumping mechanism for cans
including track-ways mounted at one side
of the vehicle body, spaced rollers mounted 20
movably in said track-ways, a can carrier
supported on said rollers, cables connected
with the lower portions of the carrier to
elevate it and shunt track-ways communi-
cating with said first-named track-ways ad- 25
jacent the upper ends thereof, said hoisting
cables serving to draw the lowermost of said
rollers in said shunt track-ways to invert
the carrier.

This specification signed this 14th day 30
of February, A. D. 1922.

BENJAMIN F. CLARK.
ADAM ROSECRANS.