A. G. SHARP.

GARBAGE COLLECTING VEHICLE.

APPLICATION FILED APR. 3, 1912.

1,088,104.

Patented Feb. 24, 1914.

3 SHEETS—SHEET 1.

Fig. 1.

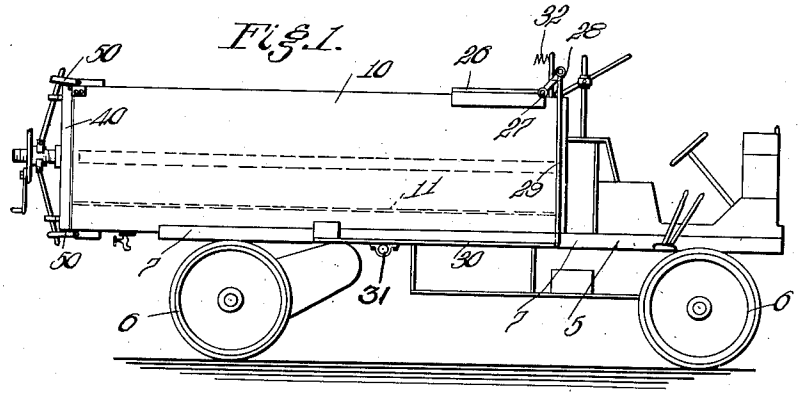


Fig. 2.

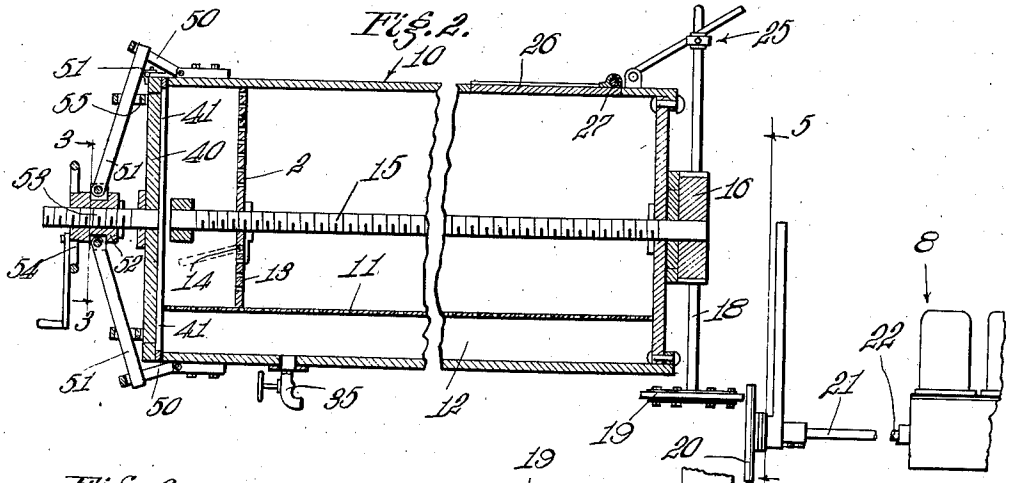


Fig. 3.

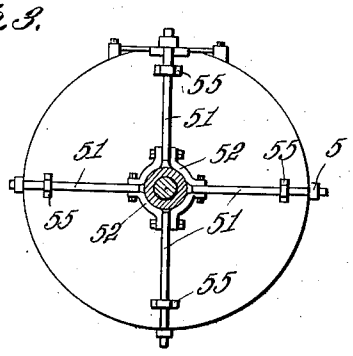
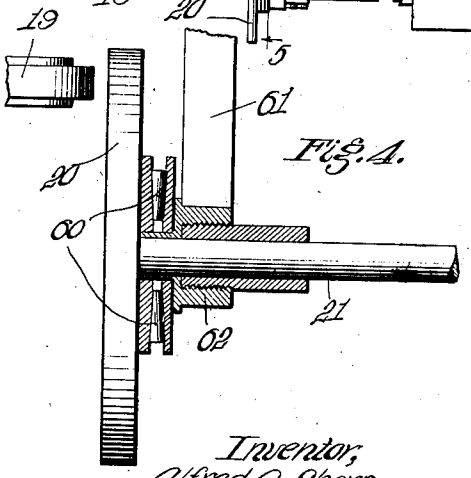


Fig. 4.



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3 SHEETS—SHEET 2.

Fig. 6.

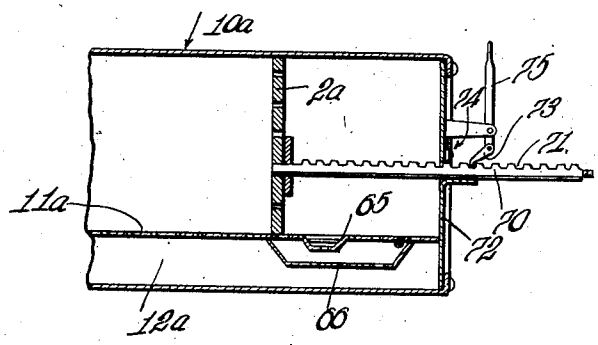


Fig. 5.

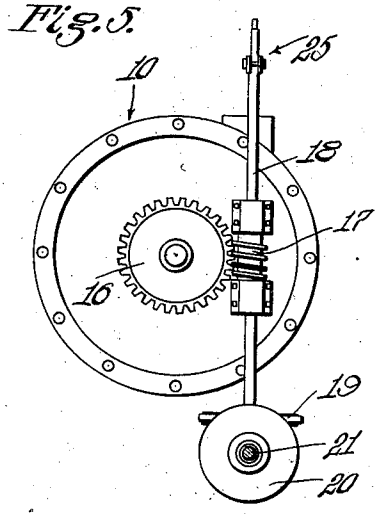
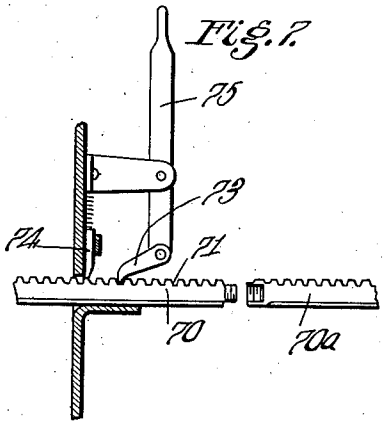


Fig. 7.



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3 SHEETS—SHEET 3.

Fig. 8.

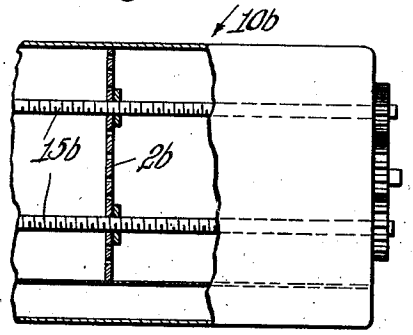


Fig. 9.

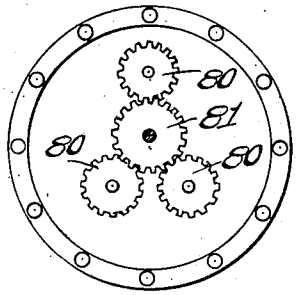


Fig. 10.

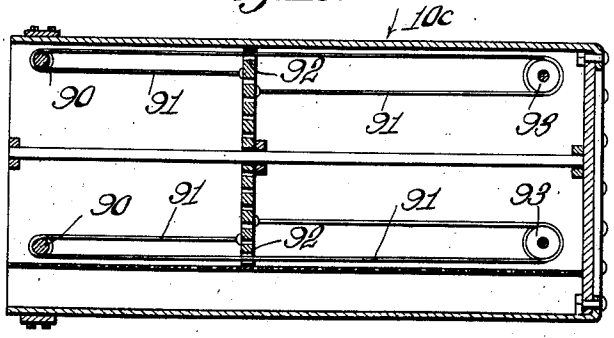
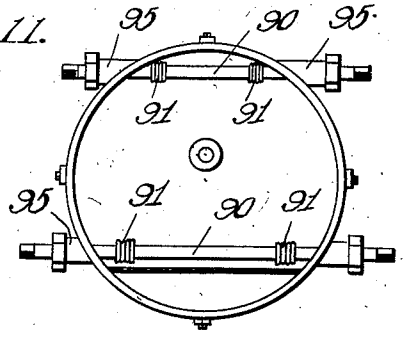


Fig. 11.



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UNITED STATES PATENT OFFICE.

ALFRED G. SHARP, OF LOS ANGELES, CALIFORNIA.

GARBAGE-COLLECTING VEHICLE.

1,088,104. Specification of Letters Patent. Patented Feb. 24, 1914.

Application filed April 3, 1912. Serial No. 688,339.

To all whom it may concern:

Be it known that I, ALFRED G. SHARP, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles, State of California, have invented new and useful Improvements in Garbage-Collecting Vehicles, of which the following is a specification.

This invention relates to improvements in garbage collecting vehicles; and more particularly to improvements in my garbage collecting vehicle for which Patent No. 902,115 was granted to me on October 27th, 1908. In that patent I have shown and claimed a garbage collecting vehicle provided with compression means. This is both for the purpose of compressing the garbage into smaller space and of squeezing out the contained water.

My present invention has to do with numerous improvements and additions to the older form; and particularly with the application of power to the compression means and to several improved arrangements and combinations which will be better understood from the following specification.

In the accompanying drawings I have shown some of my improvements and have shown various forms which may be taken by the same.

In these drawings: Figure 1 is a side elevation of my improved garbage collecting vehicle. Fig. 2 is an enlarged longitudinal section of the garbage receptacle and compression mechanism. Fig. 3 is a rear end view taken as indicated by line 3—3 of Fig. 2. Fig. 4 is an enlarged detail showing the means of connecting and disconnecting the power to and from the garbage compression means. Fig. 5 is an end view taken as indicated by line 5—5 of Fig. 2. Fig. 6 is a partial longitudinal section showing a modified form of device. Fig. 7 is a detail of the showing of Fig. 6. Fig. 8 is a partial longitudinal section of another modified form. Fig. 9 is an end view of the same. Fig. 10 is a longitudinal view of another modified form. Fig. 11 is a rear end view of the mechanism of Fig. 10.

In the drawings 5 designates a suitable automobile running gear having wheels 6 and frame 7, and 8 designates the propelling power mechanism, an internal combustion engine, for the vehicle. As I now prefer to make my device, power may be obtained either from this engine or from other source of motive power; the essential being that the device is driven by power rather than by hand.

On frame 7 of the vehicle I mount a horizontal cylindrical garbage receptacle 10 provided with a false bottom 11 inclosing a liquid compartment 12 below. False bottom 11 is preferably perforate; but not necessarily so. Above the false bottom a perforate piston 2 is adapted to move horizontally and to compress the garbage in the rear end of the receptacle. The lower portion 13 of the piston is pivoted at 14 to the body of the piston so that it may swing up to the position indicated in dotted lines to swing over any obstruction which might accumulate on false bottom 11 when the piston is moved toward the forward end of the receptacle. The piston is preferably moved by means of a longitudinal screw 15 having on its forward end a worm gear 16. Worm gear 16 is engaged by a worm 17 on shaft 18, the lower end of the shaft 18 carrying preferably a friction drive disk 19 adapted to engage with another disk 20 mounted on a shaft 21. Shaft 21 may be any power driven shaft of the automobile and may connect in any desired manner with shaft 22 of engine 8. Shaft 18 is preferably vertically slidable so as to move disk 19 vertically across the face of disk 20, thus providing for reversal and variation of speed of rotation of shaft 18. The movement of shaft 18 may be accomplished by any suitable device, such as illustrated at 25 in Fig. 2.

The upper side of the receptacle is provided with a charging opening and a door 26 for closing the same, the door being hinged at 27 and adapted to be operated by means of an arm 28 connected by a rod 29 to a suitable foot board 30. Foot board 30 is pivoted at 31; and the whole arrangement is made such that when the operator steps on foot board 30 the door 26 is raised and the charging opening opened. A suitable spring 32 is provided as a buffer against which the door 26 may strike to stop its opening movement. The lower part of the receptacle is provided with a liquid outlet 35 of any suitable character and dimensions for discharging the liquid accumulated in compartment or chamber 12.

The rear end of the receptacle is closed by a rear end cover 40 pressed against the receptacle body by a suitable mechanism, a gasket 41 being interposed between the cover and body. Mounted on the body of the receptacle is a plurality of links 50 in which the ends of arms 51 engage. Arms 51 are all pivoted to a yoke 52 which slides longitudinally on a screw threaded stud 53, being moved by means of a hand wheel 54. Hand wheel 54 may be screwed inwardly on stud 53 and press the inner ends of arms 51 to the right in Fig. 2. Intermediate their ends the arms bear in suitable bearings 55, and the arrangement is such that when the hand wheel 54 is screwed in, the cover plate 40 will be forced tightly against the end of the receptacle body. The construction thus affords means for very tightly engaging the cover with the body and is also of such nature as to be easily removed and leave the entire end completely open. When it is desired to discharge the garbage from the receptacle, this end is opened and the piston 2 is worked rearwardly, forcing the garbage out and cleaning the receptacle.

In operation, the garbage is put into the receptacle through the charging door 26, the piston 2 being then at the forward end. Whenever the space immediately back of the piston becomes filled, the piston is moved rearwardly to compress the garbage into the rear end of the receptacle and to squeeze out the water therein. The water passes through the perforations in the piston and the perforations in the false bottom 11, flowing into compartment 12 from whence it may be withdrawn through outlet 35 and passed into a sewer or other convenient disposal means. If the liquids are valuable for any purpose, they may be carried until they can be deposited in a suitable receptacle. After each compression the piston 2 is moved back to the forward end and more garbage inserted through charging door 26 until the receptacle is completely filled. The garbage is then removed as hereinbefore explained. The speed and power with which the piston moves may be varied by moving the friction disk 19 across the face of friction disk 20. Friction disk 20 does not ordinarily engage disk 19, but stands at a small distance from it as shown in Figs. 2 and 4. Friction disk 20 with its shaft 21 is movable longitudinally, an end thrust bearing 60 being provided to take care of the pressure of disk 19 on disk 20. Disk 20 is moved toward disk 19 through the medium of an oscillating lever 61 which operates a nut 62, the nut screwing up against end thrust bearing 60 and forcing the disk 20 into engagement with disk 19. Disk 19 may thus be set in any proper position to attain the desired speed and power of movement, and disk 20 is then moved to connect or disconnect the compression mechanism with the power plant.

In Figs. 6 and 7 I have shown a modified form of device in which the garbage receptacle 10^a is provided with a false bottom 11^a which may or may not be perforated. At the forward end of this false bottom I have shown a trap door 65 with a strainer 66 below it. The liquids pass through the perforations in piston 2^a into the forward part of the receptacle and thence may be discharged into compartment 12^a through trap door 65. In this form of device, in order to obviate the necessity of the screw 15 passing through the garbage in the rear part of the receptacle, I have provided a piston rod 70 having a rack 71 on its upper face, the rod passing out through the forward head 72 of the garbage receptacle. A suitable ratchet mechanism 73 will suffice to move the rack rod rearwardly and a ratchet device 74 will hold the rod in its rearmost position. Ratchet device 73 may be operated through the medium of an oscillating arm 75 or any other device; and the arm may be operated manually or by power. The rack rod 70 is preferably only sufficiently long to carry the piston 2^a through about half of its movement; and I have shown an extension 70^a of the rod adapted to be screw threaded thereto so that the piston may be carried back to the rear end of the receptacle when it is desired to discharge the garbage therefrom.

In Figs. 8 and 9 I have shown a means of operating very similar to that shown in Fig. 2, the only difference being in the provision of a plurality of longitudinal screws 15^b instead of the single screw 15. These longitudinal screws 15^b engage with the piston 2^b and move it longitudinally in the manner described, the forward ends of the screws being each provided with a gear 80 meshing with a single central gear 81 which may be driven by power in the manner described in Fig. 2. The advantage of this system is that the piston is driven at three or more points instead of at a single central point.

In Figs. 10 and 11 I have shown another means of moving the piston. In this form horizontal rods 90 are placed across the end of the receptacle and cables 91 are adapted to be wound on the rods. There are two of these cables for each rod and the cables connect directly with the piston at one end and their other ends pass through openings 92 in the piston and pass over sheaves 93 at the forward end of the receptacle and thence rearwardly to be secured to the forward face of the piston. It will be seen that rotation of rods 90 in either direction will move the piston forwardly or rearwardly. The rods project out of the receptacle through stuffing boxes 95 and may be squared on their

ends for applications of hand cranks or other connection by suitable mechanism to the power plant.

Having described my invention, I claim:

1. A garbage handling apparatus, comprising a cylindrical body, a transverse perforated piston therein, a longitudinal screw shaft, heads for the cylinder body, a bearing for one end of the screw shaft in one of said heads and a bearing for the other end of the screw shaft supported on the body independent of the other head, charging means at the end of the body near the first mentioned head, and means whereby said second mentioned head may be removed from and replaced on the body.

2. A garbage handling apparatus, comprising a cylindrical body, heads for said body one permanently secured thereto, means for detachably securing the other head to the body, a perforated piston longitudinally movable in the body, and means independent of the removable head to move said piston.

3. A garbage handling apparatus, comprising a hollow body having a perforated bottom, a piston longitudinally movable therein, heads for the body one permanently secured thereto, means for detachably securing the other head to the body, and means independent of the removable head to move said piston within the body.

In witness that I claim the foregoing I have hereunto subscribed my name this 26th day of March 1912.

ALFRED G. SHARP.

Witnesses:
JAMES T. BARKELEW,
JAS. H. BALLAGH.