March 7, 1961 J. ROMANIUK 2,973,544

VACUUM TYPE ROAD SWEEPER

Filed March 30, 1959

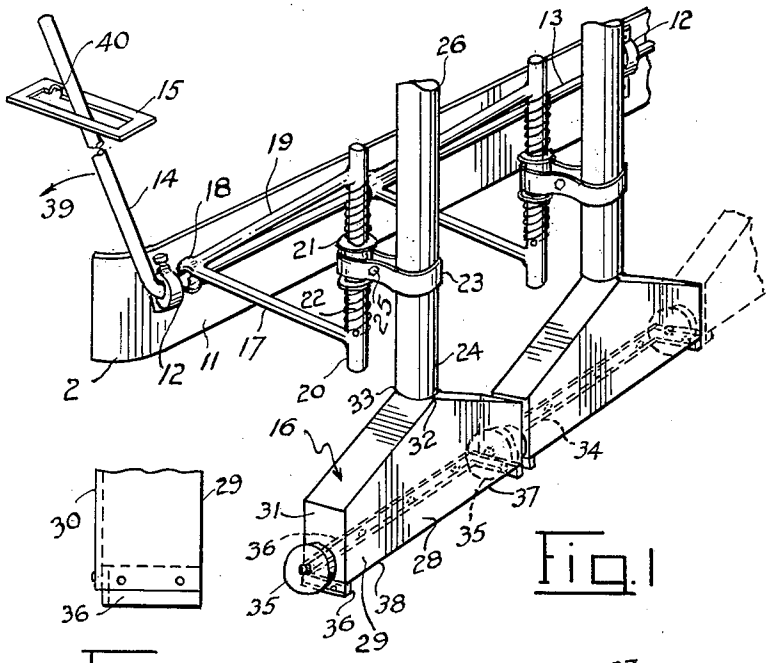


Fig. 1

Fig. 5

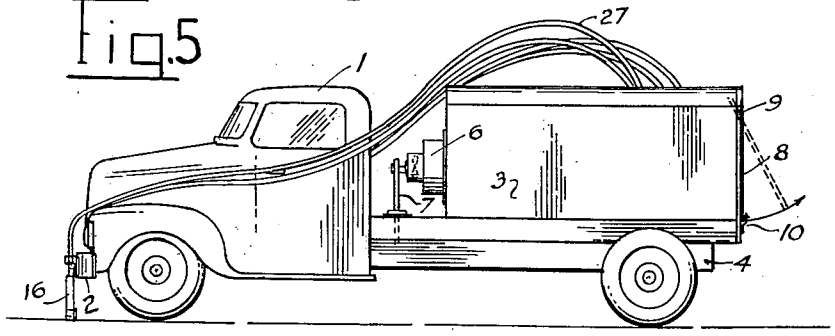


Fig. 2

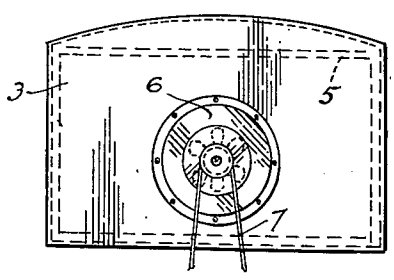


Fig. 3

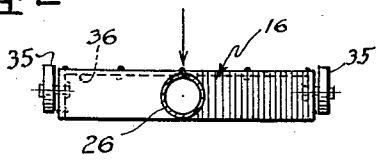


Fig. 4

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VACUUM TYPE ROAD SWEEPER

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2 Claims. (Cl. 15—340)

My invention relates to new and useful improvements in vacuum type road sweepers. The conventional ground sweeper normally consists of a rotating brush engaging the ground and suction means adjacent said brush in order to transfer the dust and the like, swept by said brush, into a collecting tank. This device suffers from many disadvantages, the principal one of which being that the suction unit is not effective to remove more than a fraction of the dust. Consequently, it is normal to see clouds of dust spreading from the machine during operation.

I have overcome these disadvantages by providing a plurality of suction units adapted to be suspended from the bumper of the unit and in ground engagement, each of said units being resiliently mounted for limited up and down movement and having seals surrounding the sides and rear of the open base unit, so that the air intakes face the front of the units thereby collecting the majority of the dust and debris met thereby.

The principal object and essence of my invention is therefore to provide a device of the character herewithin described which includes a plurality of independently resiliently mounted suction units suspended transversely across the bumper of the unit, said suction units communicating with the main collecting suction tank on the rear of the vehicle.

A yet further object of the invention is to provide a device of the character herewithin described which, although the individual units are resiliently mounted independently one of the other, nevertheless, includes means whereby all of the units may be lifted clear of the ground or moved into ground engaging position as desired.

A yet further object of the invention is to provide a device of the character herewithin described in which the main suction tank is operated by a simple power take-off from the source of power or vehicle.

A still further object of my invention is to provide a device of the character herewithin described which is extremely simple in construction, efficient in operation, and otherwise well suited to the purpose for which it is designed.

With the foregoing objects in view, and such other objects and advantages as will become apparent to those skilled in the art to which this invention relates as this specification proceeds, my invention consists essentially in the arrangement and construction of parts all as hereinafter more particularly described, reference being had to the accompanying drawings in which:

Figure 1 is a perspective view of part of the bumper of the source of power, showing two of the units mounted thereon.

Figure 2 is a side elevation of a truck showing the main vacuum tank and the hoses leading thereto.

Figure 3 is a front elevation of the tank per se.

Figure 4 is a top plan view of one of the ground engaging units per se.

Figure 5 is an enlarged fragmentary side elevation

of the base of one of the ground engaging units but with the wheel removed for clarity.

In the drawings like characters of reference indicate corresponding parts in the different figures.

Proceeding, therefore, to describe my invention in detail, reference should first be made to Figure 2 in which I show a source of power taking the form of a truck 1, having a front bumper 2 secured thereto and vacuum tank 3 mounted upon the main chassis 4 thereof.

This tank is provided with a screened interior 5 and includes a suction fan 6 upon the front end thereof communicating with the interior of the tank and discharging air therefrom. This suction fan is driven by means of belt 7 from a power take-off unit driven by the engine of the truck (none of which are illustrated). A rear lid or cover 8 is hinged at the upper end as at 9 to the rear of the tank and is detachably secured sealably to the rear of the tank by means of the clamp or catch 10 so that the contents of the tank can be dumped as desired.

Extending from the front surface 11 of the bumper 2 is a plurality of bearings 12 which support for powerful rotation a cross shaft 13. One end 14 of this cross shaft is angulated at right angles and forms an operating handle which passes through a quadrant plate 15, the purpose of which will hereinafter be described.

A plurality of ground engaging units collectively designated 16 are mounted to the cross shaft 13 in side by side relationship so that they span the width of the bumper 2. Each of these units is supported by means of a bracket 17 which is triangular in configuration when viewed in side elevation. These brackets are secured as by welding to the cross shaft as at 18 and the two arms 19 diverge outwardly and terminate in the support of a vertical post 20.

A sleeve 21 slidably engages the vertical post between the extremities of the portions 19 and shock absorbing means taking the form of resilient spring 22 are situated above and below sleeve 21 so that the sleeve is held normally substantially medially along the length of the post 20.

A clamp 23 surrounds the sleeve 21 and also surrounds a vertically situated suction tube 24, clamping engagement of the sleeve and suction tube being effected by nut and bolt means 25 as clearly shown.

The upper ends 26 of the vacuum tubes extend via flexible tubes 27 to the tank 3 as indicated in Figure 2.

A casing 28 forms the ground engaging unit and consists of a front side 29, a corresponding rear side 30 and ends 31. The upper edges of the sides 29 and 30 converge upwardly and inwardly to a common apex 32, to which the lower ends 33 of the suction tube 24 are connected and which communicates to the interior of the open base casing thus formed.

An axle 34 extends between the ends 31 and carries for rotation ground engaging wheels 35.

Flexible ground sealing means 36 are secured to and extend downwardly from the lower edges of the sides 32 and the lower edge of the rear side 30, thus leaving an elongated slot or opening 37 between the lower sides 38 of the front 29 and the ground (not illustrated) so that when the units are in contact with the ground, the suction tubes 24 act directly on this elongated slot 37 thus giving a good suction and pickup action at this point which facilitates the lifting of dust and debris from the ground, through the casing to the suction tube and thence to the tank 3.

Referring back to the handle portion 14 of the cross bar 13, when the portion 14 is in the position with relation to the sector plate 15 as illustrated in Figure 1, the units engage the ground by means of the wheels 35 and by means of the flexible seals 36 so that the device is in the operating position.

If any imperfections or irregularities are encountered on the ground surface, each unit is permitted to ride up and down by virtue of the shock absorbing action of the spring 22.

However, if it is desired to raise all of the units clear of the ground, the handle 14 is moved in the direction of arrow 39 until the handle engages the recess 40 in the sector plate which locks the handle in this position and locks the units in the raised position clear of the ground surface.

Since various modifications can be made in my invention as hereinabove described, and many apparently widely different embodiments of same made within the spirit and scope of the claims without departing from such spirit and scope, it is intended that all matter contained in the accompanying specification shall be interpreted as illustrative only and not in a limiting sense.

What I claim as my invention is:

1. A vacuum type road sweeper adapted to be mounted on the bumper of a source of power and including a vacuum tank and drive therefor; comprising in combination a plurality of suction, ground engaging units, means to suspend resiliently said units from said bumper, and means to raise and lower selectively said units out of

and into ground engaging relationship, said means to suspend said unit comprising a cross shaft journalled for rotation in bearings adapted to be secured across said bumper, a mounting bracket secured to and extending from said cross shaft for each of said units, said brackets including a vertical post, a sleeve reciprocable on said post and secured to said units, and shock absorbing means surrounding said post above and below said sleeve.

2. The device according to claim 1 in which each of said units comprises an open based nozzle-like casing, a suction tube connected to said casing at the upper side thereof and communicating therewithin, said suction tube extending to said vacuum tank, ground engaging wheels journalled for rotation on each end of said casing, and flexible ground sealing means secured to and extending downwardly from the side and rear bounding edges of said open base.

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