

Oct. 20, 1925.

1,557,747

M. WAGNER

VACUUM STREET CLEANER

Filed July 2, 1921

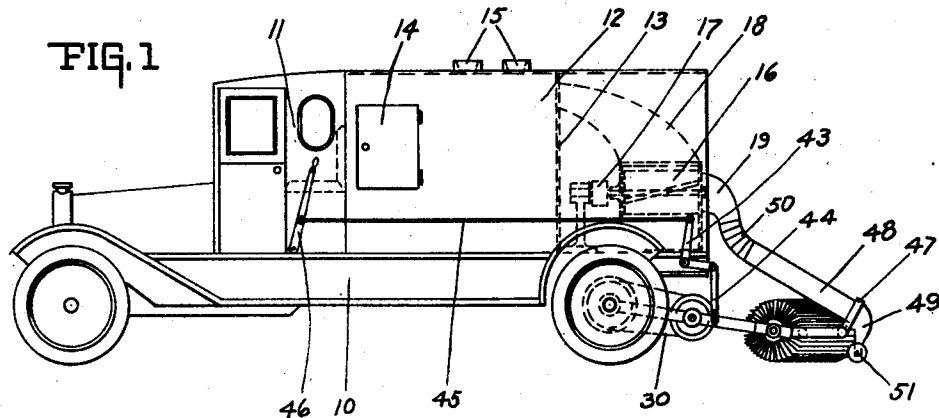
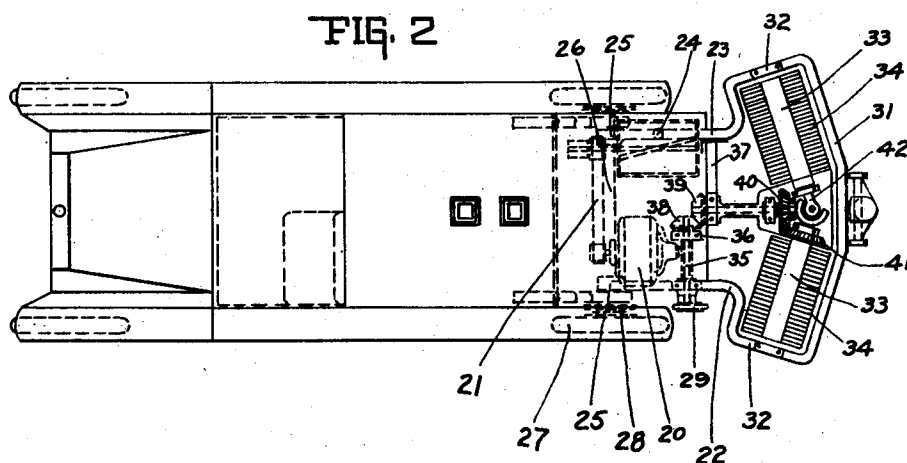
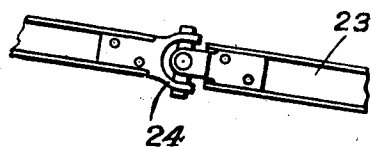


FIG. 3.



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VACUUM STREET CLEANER.

Application filed July 2, 1921. Serial No. 482,129.

To all whom it may concern:

Be it known that I, MATHIAS WAGNER, a citizen of the United States, and a resident of Kokomo, county of Howard, and State of Indiana, have invented a certain new and useful Vacuum Street Cleaner; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

This invention relates to a street sweeping and cleaning device and the chief object of the invention is to associate the street sweeping means with a self propelled vehicle such that the sweeping means will be operated by the power propelling means.

Another object of the invention is to so associate the sweeping means with the supporting vehicle that the same may be moved into and out of sweeping position by means operable from the driver's compartment of the self propelled vehicle.

The chief feature of the invention in addition to the accomplishing of the aforesaid objects consists in associating with the sweeping means suitable suction means for removing the sweepings collected by the sweeping device and for conveying said sweepings into a suitable container positioned upon the vehicle.

Other features of the invention consists in the flexibility of the connections both in the suction conduit and in the sweeping means support.

Another feature of the invention consists in the particular arrangement of the sweeping means with respect to each other and their association therewith of the suction means.

The full nature of this invention will be understood from the accompanying drawings and the following description and claims.

In the drawings Fig. 1 is a side elevational view of a self propelled vehicle and the sweeping and suction means positioned thereon, parts being shown dotted to illustrate the same in detail. Fig. 2 is a top plan view of the vehicle shown in Fig. 1 with the sweeping and suction means, some

parts again being shown dotted. Fig. 3 is an enlarged elevational view of the flexible connection or joint in the subsidiary frame.

In the drawings 10 indicates the chassis of a motor vehicle provided with a driver's compartment 11 and a suitable container or receptacle 12. The container 12 is provided with a partition 13 which divides said container into two chambers, one of which is provided with a door 14 which permits access to be had to the collecting chamber. Said chamber is also provided with suitable air relief and vent means 15. In the other chamber there is positioned a suction fan 16 provided with a pulley 17 for rotating the same. The suction fan is provided with a discharge conduit 18 and an intake conduit 19. The intake conduit 19 projects without the compartment 12 and is suitably connected to other means hereinafter to be described, while the discharge conduit 18 passes through the aforesaid suction chamber and discharges into the collecting chamber previously described. The air escapes through the air relief or vent means 15 and the dirt or sweepings is deposited in said chamber and is removable through the door 14, if desired, or in any other suitable or preferred manner. Herein an electric motor 20 and belt means 21 are associated with the driving pulley 17 of the suction fan and serve to drive the same. Any suitable means however may be provided for driving or rotating the suction fan and the same may be connected to the motor of the self propelled vehicle, if desired.

In the drawings there is illustrated a substantially U-shaped framework which framework includes a pair of substantially parallel arms 22 and 23. The arm 23 includes a joint 24 of any suitable or preferred construction, whereby flexibility is provided in this arm. Each of the arms 22 and 23 is provided with bearing portions 25 which are suitably associated with the rear axle of the vehicle such that said U-shaped framework is pivotally supported with the rear axle axis 26 as a center. Associated with the propelling wheels 27 is a sprocket wheel 28 and rotatably supported upon the arm 22 is another sprocket wheel

29. The sprocket wheels 28 and 29 are connected together by a sprocket chain 30. Thus, power is transmitted to the sprocket wheel 29 by the driving wheels 28 or the mechanism for driving the same, so that as the vehicle moves the brushes will also be moved.

The rear portion 31 of the U-shaped supporting framework is connected at each end by the offset 32 to the arms 21 and 22 as shown. In said portion of the framework including 32 and 31 there is rotatably supported upon the shafts 33 suitable rotating means 34, which in the present invention is illustrated as brush means of any preferred or usual construction and of any preferred material. It will be noted that the axes of the shafts 33 extend angularly of each other and intersect. Therefore, the brush means 34 is adapted to sweep the dirt towards the center of the angle formed by the axis of the brush shafts and, therefore, the brushes. The means for rotating the brushes includes a shaft 35 rotatably supported in the arm 22 and connected with the sprocket gear 29. The other end of the shaft 35 is supported in a bracket 36 and cross bar 37 is shown supported by the arm 32. The shaft 35 carries a bevel gear 38 which meshes with another bevel gear 39 upon a shaft supported by a cross bar 37 and which terminates adjacent the central angle, carries a bevel gear 40 which meshes with another bevel gear 41 carried upon one of the shafts 33. The other shaft 33 is not provided with driving means but is connected to the previously mentioned shaft 33 by suitable universal joint means 42. From the foregoing it will be readily understood that the brushes 34, due to their weight and pivotal mounting of the U-shaped framework supporting the same, will follow the contour of the surface being swept and will also be driven by the power means hereinbefore described, since the power is transmitted through the pivotal center of the frame support. Since many roadways are crowned it is desirable that the right hand brush be permitted to drop slightly lower than the left hand brush and, therefore, the joint 24 is provided which permits the arm 23 and the brushes 34 to more efficiently sweep or clean the surface of an excessively crowned roadway.

From the foregoing it will be understood that the brushes 34 only rotate when the vehicle is moving. It may also be desirable to maintain said brushes out of engagement with the roadway at such times as the vehicle is being moved from one locality to another and means is provided to accomplish this purpose. Said means includes a bell crank 43 pivotally supported upon the frame or chassis 10 and one end of said bell crank is connected by a slotted link 44

to the U-shaped frame, while the other end of said bell crank is connected to a lifting rod 45 which in turn is associated with a lever 46, which lever is positioned adjacent the driver's compartment or may be positioned within the same, such that ready access may be had thereto by the driver of the self-propelled vehicle without necessitating that the driver leave his compartment. By the aforesaid means the brushes 34 may be removed from sweeping engagement with the surface to be cleaned whenever desired, and by the slotted link, vibration of the sub-frame is not transmitted to the lever 46. Preferably at the middle of the U-shaped framework and extending upwardly therefrom is a bracket 47 which supports a conduit 48 terminating in a suction nozzle 49. The suction conduit 48 is connected to the intake 19 by suitable flexible joint and conduit means 50. Also associated with the suction nozzle 49 are suitable supporting wheels 51 which support the suction nozzle and maintains the same at the desired distance from the surface to be cleaned. It will thus be noted that the suction means is supported upon the U-shaped framework and is elevated therewith when said rotary cleaning means is elevated into the non-cleaning position. It will also be noted that said suction means is positioned at the center of the angle formed by the intersection of the axes of the rotary cleaning means, such that the dirt and sweepings which is moved towards the center of said angle is removed from the surface to be cleaned by the suction means and is deposited in the dirt chamber by said suction means from which chamber the dirt can be removed when desired.

While the invention has been described in great detail in the foregoing specifications, the same is considered to be illustrative and not restrictive in character, and while the term brush has been used the same is to be considered as including all rotatable cleaning means.

The invention claimed is:

In a street cleaner, the combination of a vehicle framework, of a supporting framework pivotally supported at each end by said vehicle framework, a pair of elongated cleaning members positioned end to end angularly of each other and in spaced relation and pivotally supported at their outer ends by said supporting framework, a suction device terminating at the spacing between said cleaning members and rearwardly thereof and carried by the supporting framework, a universal joint connection between the adjacent ends of said cleaning members, a bevel gear between the members for driving said universal joint connection, a power operable bevel gear on said vehicle framework, a shaft having a bevel gear at

each end constantly meshing with the
aforesaid bevel gears, a source of suction on
the vehicle framework and connected to the
suction device through a flexible connection,
5 and means for simultaneously moving said
supporting framework, cleaning members
and suction device into cleaning or non-

cleaning position without disconnecting the
power drive to said cleaning members or
the suction device from the source of suc- 10
tion.

In witness whereof I have hereunto af-
fixed my signature.

MATHIAS WAGNER.