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B. K. GILLESPIE

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APPARATUS FOR TREATING VEHICLE TOPS

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2 Sheets-Sheet 1

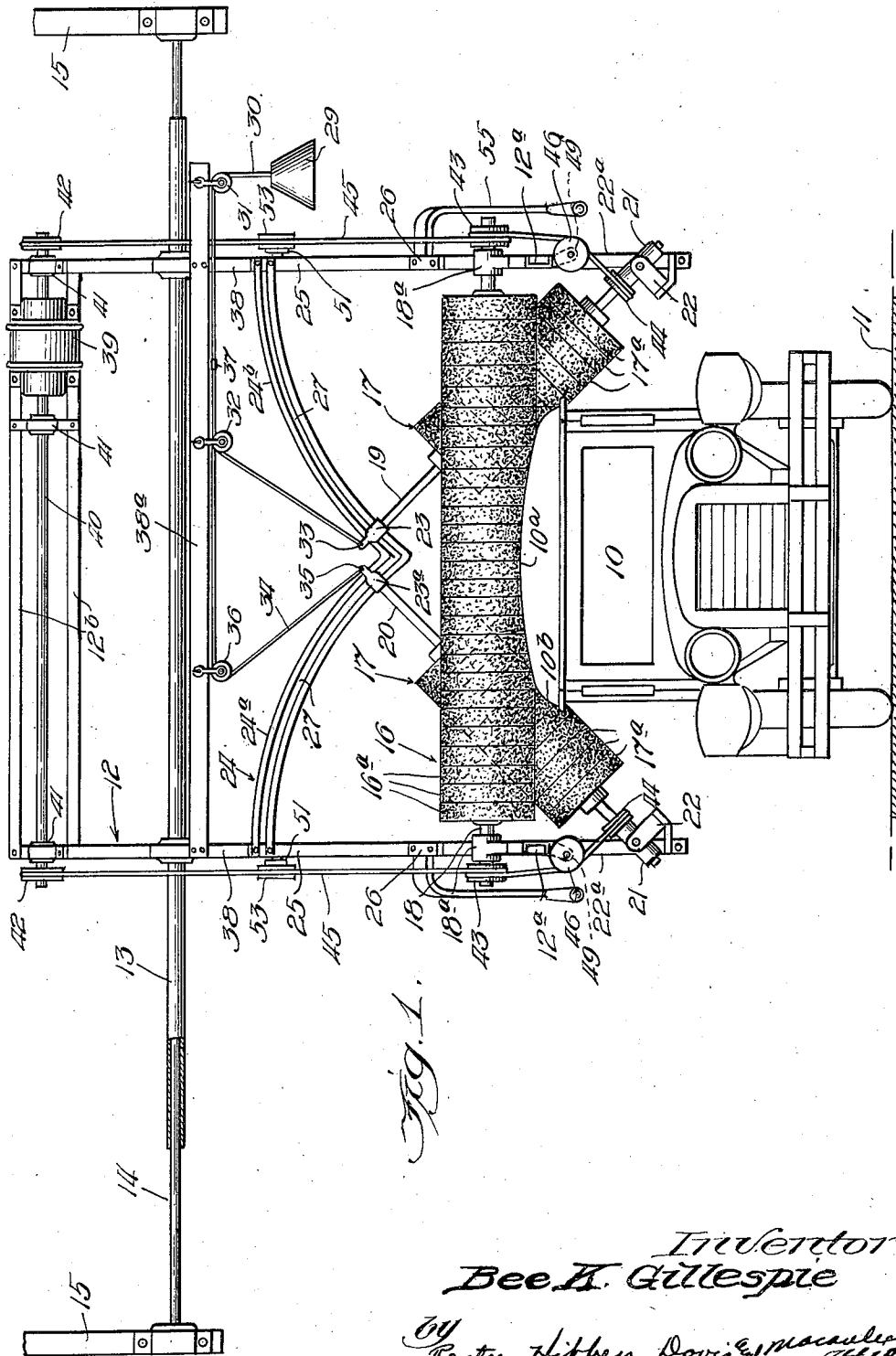


Fig. 1.

Inventor:
Bee K. Gillespie

By Rector, Hibben, Davis & Macaulay
Attorneys

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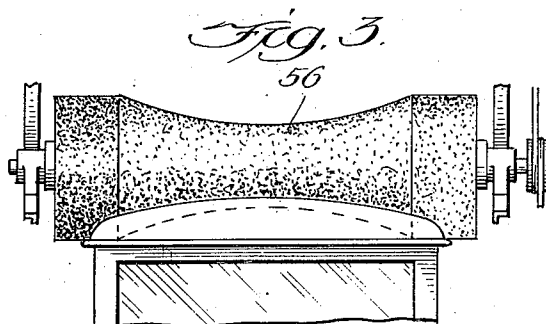
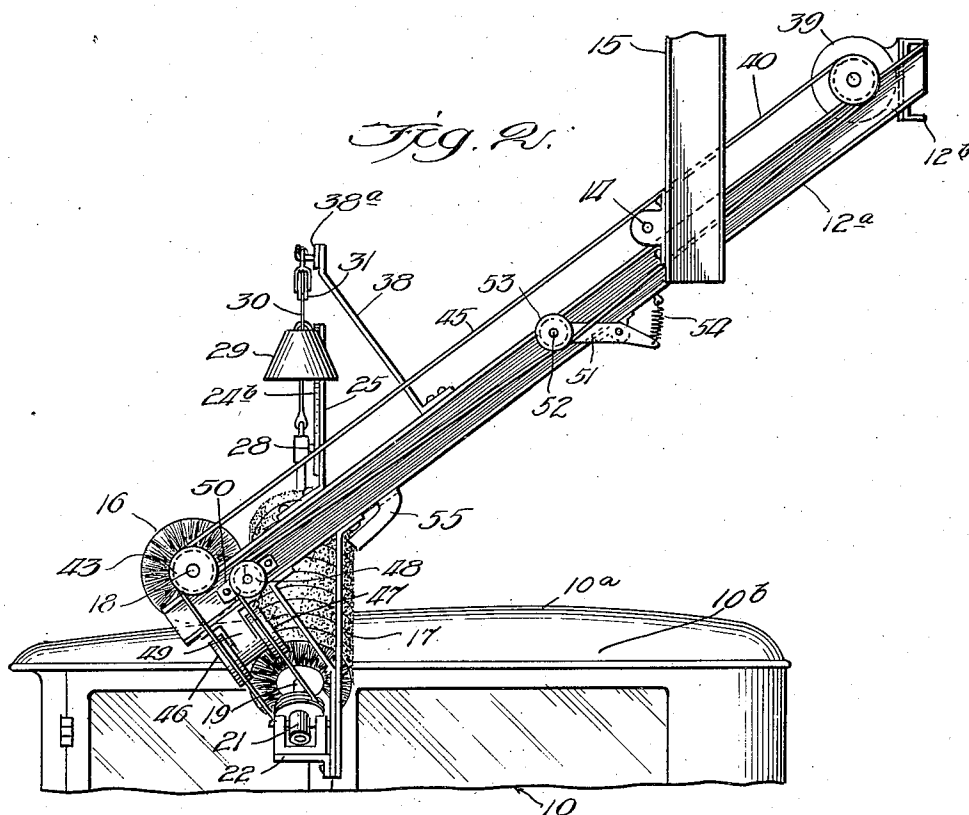
B. K. GILLESPIE

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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

BEE K. GILLESPIE, OF CHICAGO, ILLINOIS, ASSIGNOR TO GILLESPIE AUTO LAUNDRY SYSTEM, INC., OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE

APPARATUS FOR TREATING VEHICLE TOPS

Application filed December 27, 1927. Serial No. 242,754.

My invention relates to apparatus for treating vehicle tops, and has for one of its objects the provision of simple, inexpensive and highly efficient apparatus of this character which may be readily used in garages and in connection with automobile laundry systems, and similar places, for dusting, washing and/or polishing the tops of all kinds and sizes of motor vehicles.

Another object is to provide an apparatus of this character which embodies brush means adapted to engage both the side and top walls of the vehicle and which may be adjusted vertically as a whole to accommodate vehicles of varying heights.

A further object is to provide side brush devices which are adjustable to accommodate vehicles of varying widths.

Still another object is to provide means for shifting the brush structure laterally so as to properly align the same with the vehicle top.

Other objects and advantages will become apparent as this description progresses and by reference to the drawings wherein,—

Figure 1 is a rear elevation of apparatus embodying my invention and showing the same in operative relation to the vehicle top;

Fig. 2 is a side elevation of the structure shown in Fig. 1;

Fig. 3 is a rear elevation of the portion of an apparatus embodying another form of horizontal brush structure.

With reference to the drawings, and particularly Figs. 1 and 2, the vehicle 10 is carried by a platform 11 which is located beneath the apparatus I employ for treating the top thereof. The vehicle top may take various forms, dependent upon the type of vehicle and the changing customs of the manufacturer, but I refer to the same herein generally as the roof or customary top covering portion of the vehicle body including the roof top and side walls illustrated (by way of example) at 10^a and 10^b, respectively (Fig. 1). However, it will be appreciated from the following description that my invention may have utility in treating both the roof and the adjacent side wall portions of the vehicle body. The platform 11 is,

preferably, a movable one such as may be used for bodily conveying the vehicle through a cleaning compartment, or the like, of a laundry system; but it may well be a stationary platform located in a garage, or elsewhere, and upon which the vehicle is driven.

My invention is adapted equally well to dusting, washing and/or polishing the vehicle top or roof over its entire surface. One form of apparatus which I may employ includes a rigid and preferably, but not necessarily, rectangularly-shaped frame 12 having strong channeled-side pieces 12^a. This frame is supported by a hollow shaft 13 rigidly connected to the side pieces 12^a and slidably and swingably mounted upon a fixed shaft 14 carried by side supports 15. These side supports may be rigid pieces extending downwardly from an upper wall, or may be a side wall, or any other convenient supporting arrangement may be used.

To effectively treat all exterior top surfaces, I provide a horizontal rotary brush device 16 which engages the upper wall 10^a of the top, and inwardly tilted and opposed rotary brush devices 17 which engages the side walls or quarter sections 10^b of the top. The brush device 16 is preferably comprised of a plurality of ordinary cylindrical brushes 16^a non-rotatably fixed side by side upon a shaft 18 journaled in bearings 18^a on the side frame pieces 12^a. The brush devices 17 also are composed of a plurality of cylindrical brushes 17^a non-rotatably mounted upon shafts 19 and 20. The lower ends of these shafts are journaled in bearings 21 swingably carried (for vertical swinging movement of the brush devices 17) by brackets 22 mounted on frame pieces 22^a carried at a projecting angle by the frame side pieces 12^a (Fig. 2) forwardly of the horizontal brush 16. The other ends of such shafts are journaled in bearings 23 and 23^a which are adjustable up and down in an arcuate path so as to swing these brush devices at a vertical path to compensate for vehicle tops of different widths. This adjustable support is accomplished by means of a frame 24 having side arms 25 carried by the side frame pieces

12^a as at 26 (Fig. 2), and a central V-shaped part carried by such side arms and including reversibly directed and arcuate side sections 24^a and 24^b. Each of these sections is provided with a guide slot 27 adapted to slidably receive the lugs or extensions 28 of the adjustable bearings 23 and 23^a. The frame 24 is carried at such an angle to the main frame 12 that the guide sections 24^a and 24^b are directly above the brush devices 17 so that the latter may swing up and down in a vertical line.

The adjustable brush devices 17 are balanced and partially supported by a weight-block 29 suspended at the end of a cord 30 which passes over pulleys 31 and 32 and has its other end attached to a ring 33 on the bearing 23. A similar cord 34 is attached to a ring 35 carried by the other bearing 23^a and passes over pulleys 36 and 32 and is secured to the cord 30 by clamp 37 (Fig. 1) whereby the balancing effect of the weight 29 will be equally effective upon both brush devices 17. Likewise, a movement of the cord 30 will simultaneously cause the same movement of both such brush devices. The pulleys 31, 32 and 36 are mounted upon the cross piece 38^a of a frame 38 which is carried by the main frame in such a manner that it is substantially in vertical alignment with the brush devices in operating position as indicated in Fig. 2.

These brush devices are, preferably, rotated by an electric motor 39 mounted on frame cross pieces 12^b. The motor shaft 40 extends across the frame 12 and is journaled in bearings 41 thereon. Rotary motion is transmitted to the brushes as follows: the projecting ends of the motor shaft are provided with pulleys 42. The projecting ends of horizontal brush shaft 18 also carry pulleys 43, and each of the tilted brush shafts 19 and 20 carry a pulley 44. At each side of the frame 12, a drive belt 45 is carried by the pulleys 42, 43 and 44 in such a manner that, upon rotation of the motor shaft 40, the brush shafts and brushes will also rotate. To accomplish this, in the particular form shown in the drawings, the belt 45 is wrapped around the horizontal brush shaft pulleys 43, and guide pulleys 46, 47, and 48 are mounted upon the main frame by brackets 49 and 50 which function in a well known manner.

The drive belt 45 is of sufficient length to provide enough slack to take care of the entire range of adjustment of the tilted brushes, and to properly tension such belt in all brush positions, I may employ crank arms 51 pivoted to the side frame pieces 12^a as at 52 and carrying at one end an idle pulley 53. The other end of the crank arm is attached to a spring 54 which is also attached to the frame piece 12^a so that the pulley 53 is yieldably pressed outwardly against the adjacent belt surface to take up any slack.

In operation, the vehicle is positioned on the platform and the frame 12 is swung by

means of either or both of the handles 55 to a position wherein the brushes rest on the top and partially support the frame. These handles may take any desired form for swinging the frame or sliding it along the shaft 14. As the frame is lowered and the side brushes 17 are engaged, such brushes will automatically adjust themselves to the proper position for that particular top width. The swinging of the frame as a whole accommodates the structure to vehicles of different heights. If the vehicle is not positioned centrally beneath the frame 12, the latter may be slid laterally over the shaft 14 to the proper position. With the structure so adjusted, the rotating brushes will act upon the entire top surface including its side walls. The brushes may be suitable for dusting, or washing or polishing. In case of washing the top, the washing liquid may be applied by hand or by suitably arranged spray devices or in any other desired manner. This structure is very simple in construction and operation and is highly efficient as will be readily recognized.

In the preferred form, the horizontal brush 16 is so constructed that the brushing surface is substantially horizontal and does not exactly fit the arch or curvature of the top, this condition being adequately taken care of by the side tilted brushes. However, if desired, the form of this horizontal brush may be varied so that the brushing surface will take the form of the automobile top. Such a form is shown in Fig. 3. In that figure the frame construction, as well as the drive construction, is the same as that in the form of Figs. 1 and 2. In this modified form, the brush 56 is spool-shaped, that is, the brush bristles are so cut as to give the brushing surface this shape whereby they not only contact with the upper part of the top but also along the sides thereof. The side tilting brushes may be dispensed with, or they may be used with this form of brush as the conditions warrant.

While I have shown only two forms of my invention, it will be understood that various other changes in details and arrangements of parts may be made without departing from the spirit and scope of my invention as defined by the claims which follow:

1. In apparatus of the character described, a support, roof cleaning means swingably carried by said support above the path of travel of the vehicle, said means including a roof treating element adapted to engage the roof horizontally, and other roof treating elements having independent swinging supports on said first support and adapted to engage the roof at the edges thereof.

2. In apparatus for treating the upper and side walls of the top of a vehicle, a supporting member, and top brushing means carried by said supporting member for bodily swinging movements in the path of the

vehicle, said means including a horizontally-disposed upper wall brushing element and side wall brushing elements disposed at an angle to said upper wall brushing element and mounted for swinging movement independently of the top brushing means swinging movement, and means carried by said support for imparting motion to said elements upon the respective top surfaces.

3. In apparatus of the character described, a carrier member, a support for said carrier, means connecting said carrier to said support for adjustment of said carrier in vertical direction relative to said support and to the top of the vehicle, vehicle top treating means mounted on said carrier including a plurality of brushing elements arranged in angular relation to each other and mounted for adjusting movements on said carrier, and power means supported by said carrier for simultaneously imparting brushing motion to said treating means as a whole.

4. In apparatus of the character described, a carrier member, a support for said carrier, means connecting said carrier to said support for adjustment of said carrier in vertical and opposed horizontal directions relative to said support and to the top of the vehicle, vehicle top treating means mounted on said carrier including a plurality of brushing elements arranged in angular relation to each other and mounted for adjusting movements on said carrier, and power means supported by said carrier for simultaneously imparting brushing motion to said treating means as a whole.

5. In apparatus for treating the upper and side walls of the top portion of vehicles, a carrier member, a support for said carrier member disposed above the path of the vehicle, a swing connection device between said member and support permitting adjustment of said member down upon and upward away from the vehicle top portion, and means carried by said member for treating the vehicle top portion including a horizontally-disposed treating element adapted to engage the upper wall of said top portion, an independently adjustable element disposed at an angle to said treating element and supported to adjustably engage the side wall of said top portion, and means for imparting movement to all said elements.

6. In apparatus for treating the roof of a vehicle body, means for treating the upper wall of said roof, means for treating the side walls of said roof, means for adjusting both said roof treating means vertically to accommodate vehicles of different heights, and means for adjusting the distance between said side wall treating means to accommodate roofs of different widths.

7. In apparatus for simultaneously treating the upper and side walls of the top portion of a vehicle body, a frame mounted for

pivotal and lateral sliding movement, a treating element mounted on said frame and adapted to engage the upper wall of said top portion, and other treating elements also mounted on said frame and adapted to engage the side walls of said top portion, and means for imparting movement to said elements relative to said top portion surfaces, all said elements and means being directly carried by said frame and operable independently of the sliding and pivotal movements of said frame.

8. In apparatus for treating vehicle tops having upper and side walls, a frame disposed above the support for the vehicle and adapted to project into the path of the vehicle, a support for said frame, a pivotal connection between said frame and support, a horizontally-disposed element carried by said frame for treating the upper wall of the top, and inclined element carried by said frame for treating the side wall of the top, and means carried by said frame for imparting movement simultaneously to all said elements upon said top surfaces.

9. In apparatus for treating vehicle tops having upper and side walls, a frame, a support for said frame, a swing and slide connection between said frame and support, a rotatable brush device carried by said frame for treating the upper wall of the top, a rotatable brush device carried by said frame for treating the side wall of the top, and means carried by said frame for simultaneously rotating said brush devices upon said top surfaces.

10. In apparatus for treating vehicle tops having upper and side walls, a frame, a support for said frame, a swivel connection between said frame and support, an element carried by said frame for treating the upper wall of the top, an element carried by said frame for treating the side wall of the top, a swivel connection between said side treating element and frame permitting adjustment of such element toward and from the top side wall, and means carried by said frame for imparting movement to said elements upon said top surfaces.

11. In apparatus for treating vehicle tops, a frame, a horizontal brush rotatably carried by said frame, other brushes inclined to said horizontal brush and rotatably supported upon said frame, means carried by said frame for rotating said brushes, a support for said frame, and means for adjusting said frame vertically relative to the vehicle top.

12. In apparatus for treating vehicle tops, a frame, a horizontal brush rotatably carried by said frame, other brushes inclined to said horizontal brush and rotatably supported upon said frame, means carried by said frame for rotating said brushes, a support for said frame, and a pivotal connection between said

support and frame to permit swinging of the frame to vary the vertical position of said brushes.

13. In apparatus for treating vehicle tops, a frame, a horizontal brush rotatably carried by said frame, other brushes inclined to said horizontal brush and rotatably supported upon said frame, means carried by said frame for rotating said brushes, a support for said frame, and a pivotal and slidable connection between said support and frame permitting lateral and vertical adjustment of said frame.

14. In apparatus for treating vehicle tops, a frame, a horizontal brush rotatably carried by said frame, other brushes rotatably supported upon said frame, means carried by said frame for rotating said brushes, a support for said frame, means for adjusting all said brushes vertically, and means for adjusting said other brushes toward and from each other.

15. An apparatus of the character described which comprises a horizontally-disposed brush, another brush disposed angularly to said first brush, means including a support member for simultaneously moving both said brushes toward and from the vehicle, and means including another support member and a swing connection between said other support member and said first support member for independently adjusting said other brush toward and from the vehicle body.

16. Apparatus for treating vehicle tops comprising a frame including a hollow shaft, a support including a shaft, the shaft being freely received within said frame shaft for swinging and lateral sliding movements of said frame, brushes carried by said frame for engagement with said top, and means carried by said frame for moving said brushes while engaged with the top.

17. Apparatus for treating vehicle tops comprising a frame including a hollow shaft, a support including a shaft, the shaft being freely received within said frame shaft for swinging and lateral sliding movements of said frame, brushes carried by said frame for engagement with said top, means for adjusting some of said brushes to accommodate vehicle tops of varying widths, and means carried by said frame for moving said brushes while engaged with the top and in all adjusted positions of said brushes.

18. Apparatus for treating vehicle roofs having a top wall and side walls which comprises a frame, a brush device having a shaft rotatably carried by said frame and adapted to engage one of said walls of the top, opposed brush devices each having a shaft rotatably supported by said frame adapted to engage other of said walls of the top, bearings swingingly mounted on said frame for receiving one end of said latter shafts, bear-

ings at the other ends of said latter shafts, and a guideway for slidably and freely receiving said latter-named bearings to permit the brushes carried by said latter shafts to adjustably move upon said swing bearings to adjust the side brushes to different width roofs.

19. Apparatus for treating vehicle roofs having a top wall and side walls which comprises a frame, a brush device having a shaft rotatably carried by said frame adapted to engage one of said walls, opposed brush devices each having a shaft rotatably supported by said frame adapted to engage other of said walls, bearings swingingly mounted on said frame for receiving one end of said latter shafts, bearings at the other ends of said latter shafts, and a guideway for slidably and freely receiving said latter-named bearings to permit the brushes carried by said latter shafts to adjustably move upon said swing bearings to adjust said opposed brushes to different width roofs, a driven element mounted upon each of said shafts, power means, and a driving connection between said power means and driven elements for moving said brushes.

20. Apparatus for treating vehicle roofs having a top wall and side walls comprising a frame, a horizontal brush device for engaging one of said walls adapted and having a shaft rotatably supported by said frame, other brush devices adapted to engage other of said walls and each having a shaft rotatably associated with said frame, a swing bearing for supporting one end of each of said latter-mentioned brush shafts, and a slidably adjustable bearing for receiving the other end of each said latter-mentioned shafts, a guide frame carried by said first-named frame and having opposed arcuate slots therein, said slidable bearings having a part engaging said slots for adjustment of said latter-mentioned brushes toward and from each other, driven elements associated with said shafts, a driver carried by said frame, and connections between said driver and driven elements for rotating said brush devices.

21. Apparatus for treating vehicle roofs comprising a frame, a support for said frame, a swing and lateral slide connection between said support and frame for adjusting the frame vertically and laterally to the roof, a horizontal brush device having a shaft rotatably supported by said frame, other and tiltably mounted brush devices each having a shaft rotatably associated with said frame, a swing bearing for supporting one end of each said other brush shafts, and slidably adjustable bearings for receiving the other ends of each said other shafts, a guide frame carried by said first-named frame and having opposed arcuate slots therein, said slidable bearings having a part engaging said slots for adjustment of said other brushes vertically

and toward and from each other, driven elements associated with said shafts, a driver carried by said frame, and connections between said driver and driven elements for rotating said brush devices.

22. Apparatus for treating vehicle roofs having a top wall and side walls comprising a frame, a horizontal brush device adapted to engage the top wall of the roof and having a shaft rotatably supported by said frame, other brush devices adapted to engage the side walls of the roof each having a shaft rotatably associated with said frame, a swing bearing for supporting one end of each said side brush shafts, and a slidably adjustable bearing for receiving the other end of each said side-brush shafts, a guide frame carried by said first-named frame and having opposed arcuate slots therein, said slidable bearings having a part engaging said slots for adjustment of said side brushes toward and from each other, driven elements associated with said shafts, a driver carried by said frame, connections between said driver and driven elements for rotating said brush devices, and means associated with said slidable bearings for partially supporting said side brush devices and for permitting self-adjustment of the same.

23. Apparatus for treating vehicle roofs having a top wall and side walls comprising a frame, a horizontal brush device adapted to engage the top wall of the roof and having a shaft rotatably supported by said frame, other brush devices adapted to engage the side walls of the roof each having a shaft rotatably associated with said frame, a swing bearing for supporting one end of each said side brush shafts, and a slidably adjustable bearing for receiving the other end of each said side brush shafts, a guide frame carried by said first-named frame and having opposed arcuate slots therein, said slidable bearings having a part engaging said slots for adjustment of said side brushes toward and from each other, driven elements associated with said shafts, a driver carried by said frame, connections between said driver and driven elements for rotating said brush devices, means associated with said slidable bearings for partially supporting said side brush devices and for permitting self-adjustment of the same, said means comprising an auxiliary frame, roller supports carried by said auxiliary frame, a counterbalance weight, and a flexible element connected to said weight and to both said side brush device slidable bearings and which engages said roller supports.

In testimony whereof, I have subscribed my name.

BEE K. GILLESPIE.