Nov. 10, 1953 D. R. SHUSETT ET AL 2,658,216

AUTOMATIC CAR WASHER

Filed Sept. 17, 1949 3 Sheets-Sheet 1

Fig. 1.

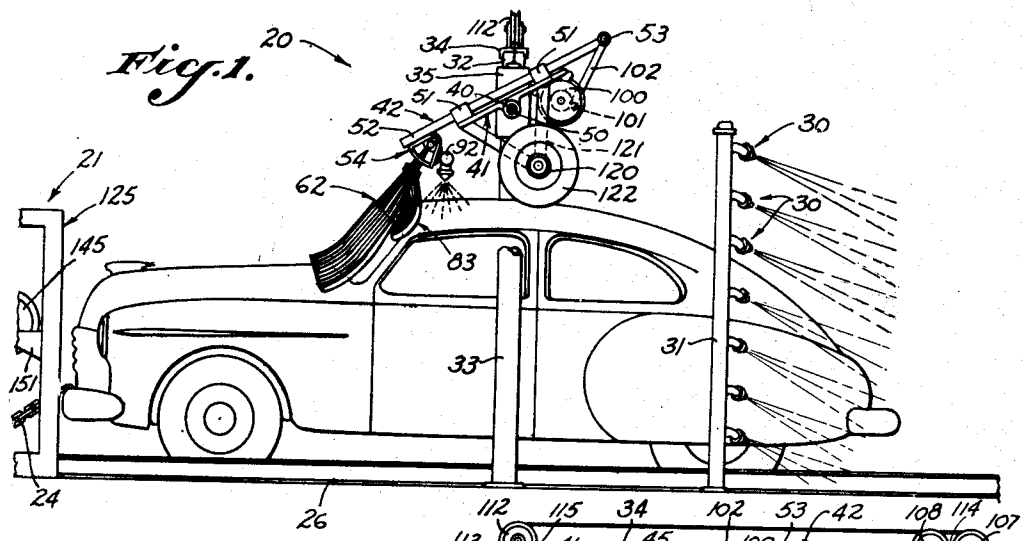


Fig. 2.

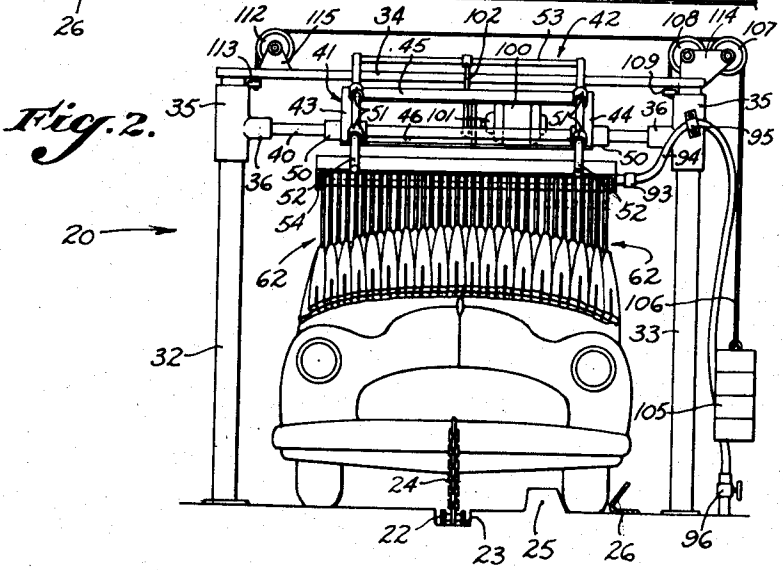
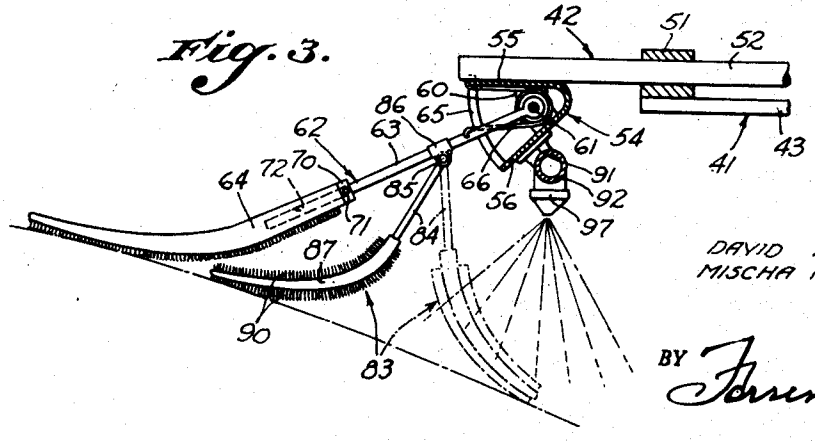


Fig. 3.



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Filed Sept. 17, 1949 3 Sheets-Sheet 2

Fig. 4.

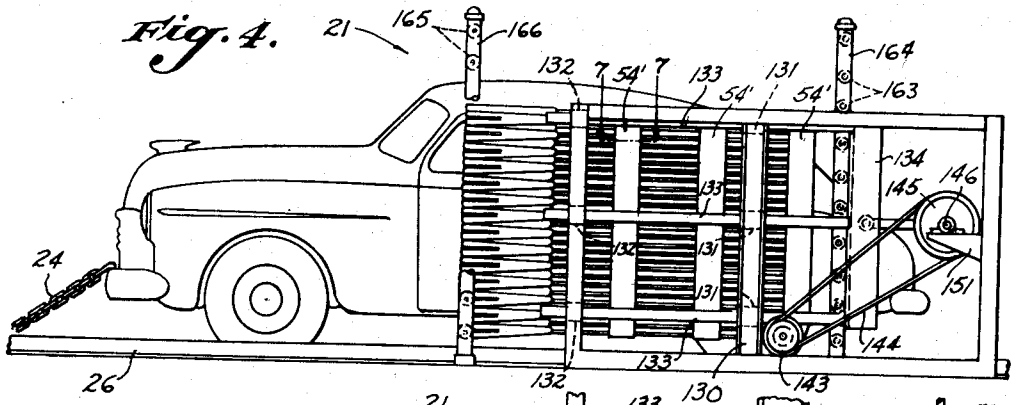


Fig. 5.

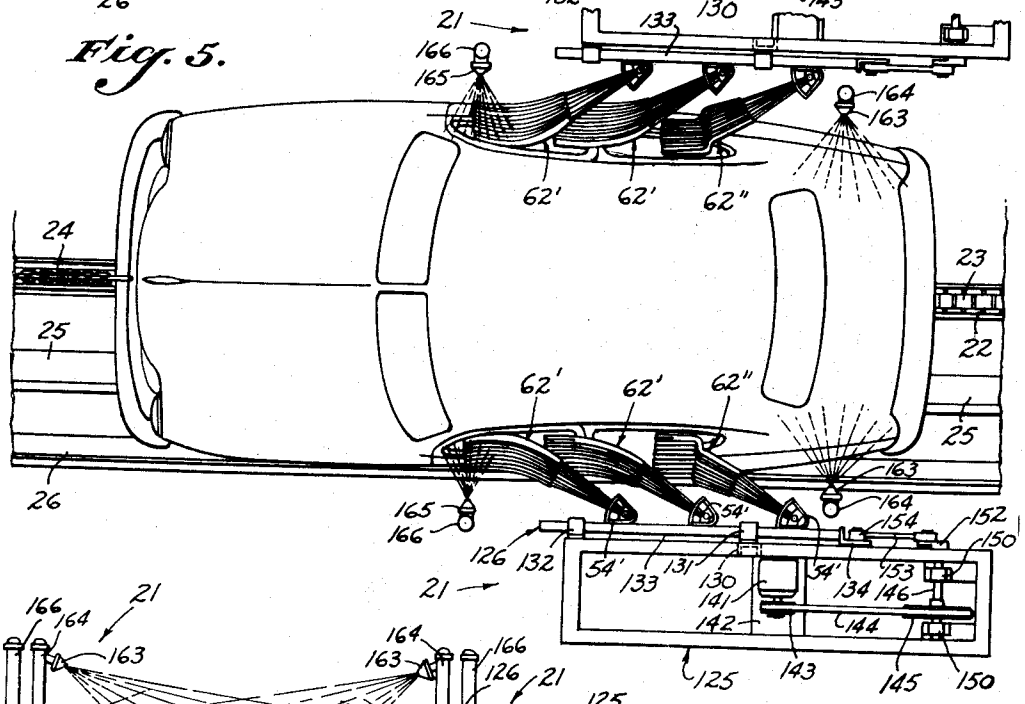
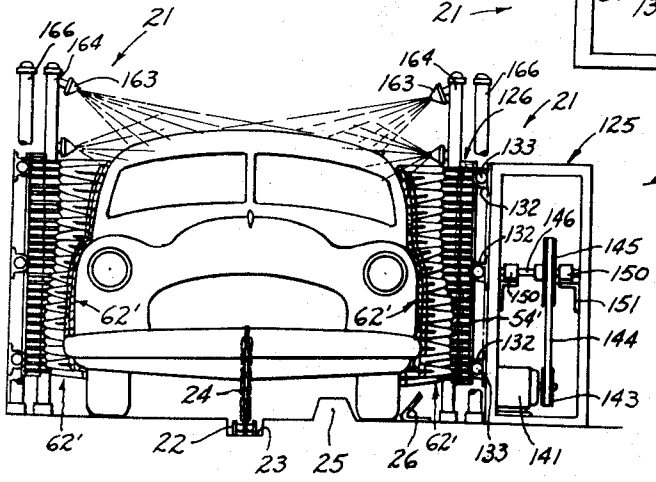


Fig. 6.



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AUTOMATIC CAR WASHER

Filed Sept. 17, 1949 3 Sheets-Sheet 3

Fig. 7.

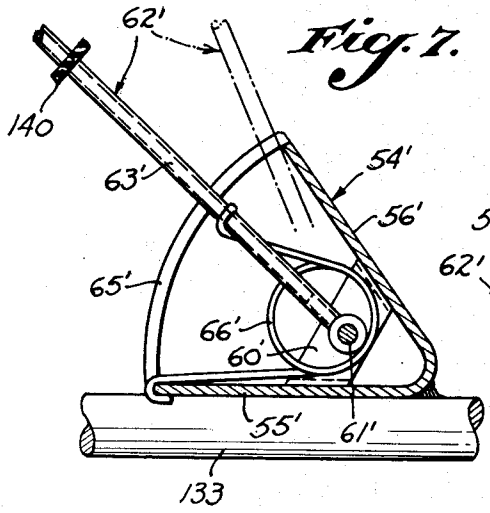


Fig. 8.

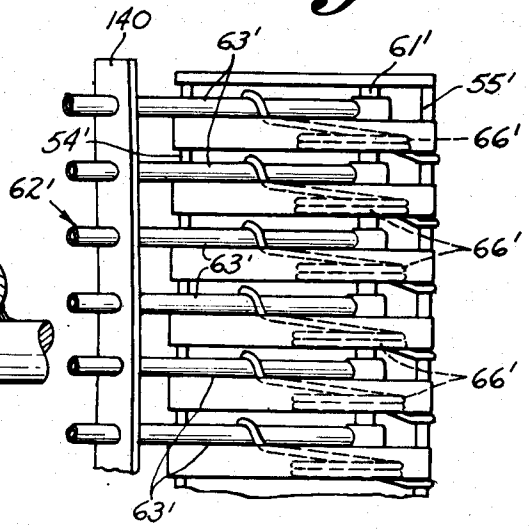


Fig. 9.

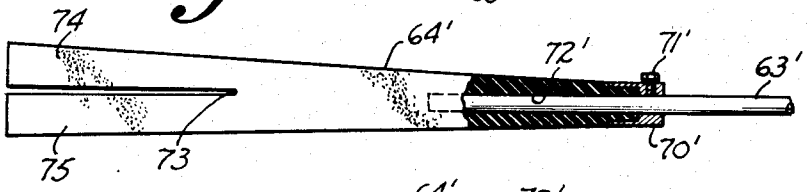


Fig. 10.

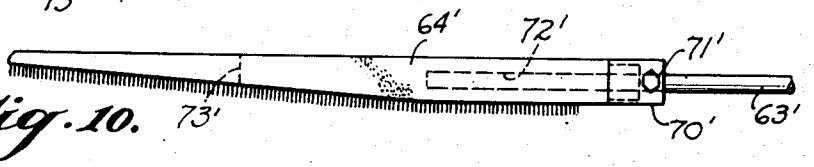


Fig. 13.

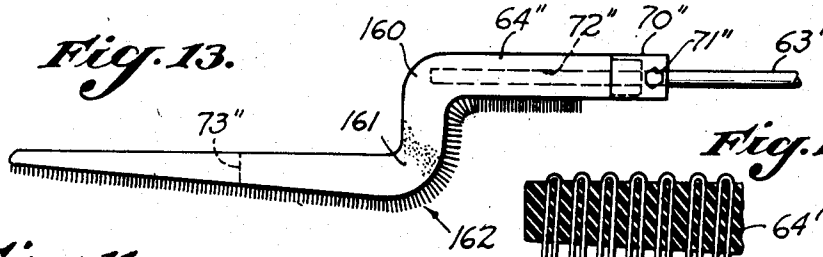
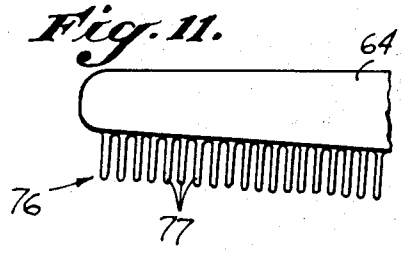


Fig. 12.

Fig. 11.



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2,658,216

UNITED STATES PATENT OFFICE

2,658,216

AUTOMATIC CAR WASHER

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Application September 17, 1949, Serial No. 116,234

11 Claims. (Cl. 15—21)

1

The present invention relates generally to automatic washers of the type used primarily to wash automobiles, although the broad concept of the invention is not limited solely to car washers, but might be embodied in an apparatus to wash any relatively flat surface such as the outside surfaces of railroad locomotives and cars, ships, buildings, and the like.

The automatic washer is a relatively new innovation in the car washing art, and has heretofore usually comprised a conveyer mechanism to which the front bumpers of the cars are attached by tow chains, and which advances the line of cars slowly past a series of spray nozzles and rotary brushes that wet down the cars and scrub the outsides thereof, then past other spray nozzles that rinse off the detergent solution and loosened soil, and finally past air blast nozzles that blow away any surplus water remaining on the cars. While this type of washer has been relatively successful in reducing the manual labor required per car and in speeding up the washing operation, it has been found that the rotary brushes have certain objectionable features, not the least of which is the high initial and replacement cost of the brushes, in view of the relatively short service life thereof.

Another and perhaps more important objection to the rotary brushes is the frequency with which they have been responsible for damage to projecting accessories on the cars, such as outside rear view mirrors, spot lights, radio antennas, sun visors, and the like; for which the operator of the car washer is liable and must make good. Still another shortcoming of the rotary brushes is the fact that, owing to the irregularity and complexity of the outer car surfaces, and to the lack of any uniformity between cars of different model or make, there are areas on practically every car going through the washer that are either missed entirely by the bristles of the rotary brush or are inadequately scrubbed. It has therefore been necessary in the past to maintain a sizeable crew of workers to check constantly on the work done by the rotary brushes and to scrub any skipped areas by hand. The cost of this manual labor is an important item in the operation of a car washer, and one of the primary objects of the present invention is to provide an automatic car washer which is so flexible and thorough in its operation that practically any passenger car on the road today can be quickly and thoroughly washed with only a minimum of hand labor, thereby greatly reducing the labor cost, and considerably increasing the earning capacity of the car washer. In addition to the above advantages, the present car washer is faster in operation than prior washers, and at the same time, so gentle in its action that damage to car accessories is completely eliminated.

2

More specifically, it is the principal object of the invention to provide a car washer having a novel scrubbing means capable of following and accommodating itself to every contour of the car as the latter moves past, so that no part of the car is missed or slighted; while at the same time, scrubbing the sides and top of the car vigorously yet gently, so that stubborn soil such as mud, oil, splattered insects, and the like, is quickly and completely removed without marring the finish.

In carrying out the present invention, a frame of any suitable construction is positioned along the path traveled by the car as the latter moves through the car washer, and is mounted for reciprocating movement generally parallel to the direction of travel of the car. Fastened to this frame and projecting outwardly therefrom is a plurality of closely spaced, relatively narrow scrubbing members that are resiliently urged toward the car so that their outer ends lie flat against the car surface and tend to follow the contours thereof. The car-contacting outer end portions of the scrubbing members are preferably formed of soft rubber or the like, and may be bristled or provided with other scouring means, so that the reciprocating movement of the members produces the desired scrubbing action. Motor-driven means is provided for reciprocating the frame with its attached scrubbing members as the car moves past, and an arrangement of nozzles sprays the car with a strong detergent solution just before it reaches the scrubbing members. Beyond the scrubbing members is another system of spray nozzles that spray the car with clear rinse water to rinse away the detergent solution and loosened soil, after which the surplus water may be driven off by air blasts or removed by suction means.

Another aspect of the invention has to do with the application of wax polish or glaze to the finish of a car after the same has been washed, and to this end means is provided for spraying a liquid wax onto the car surface, after which the was is rubbed to a high polish by reciprocating scrubbers of the kind just described, except that the members are preferably provided with soft bristles or lamb's wool covers.

A further object of the invention is to provide

a scrubbing device of the class described, in which each of the several scrubbing members is independently hinged to the supporting frame, and is individually spring-pressed against the side of the car.

Another object is to provide a scrubbing device in which the soft rubber scrubbing members are removable from their respective supporting rods, so that replacement of the worn members can be effected quickly and inexpensively, without dismantling the entire machine.

Still a further object of the invention is to provide a scrubbing mechanism for a car washer which is so constructed and arranged as to be practically incapable of damaging projecting accessories on the cars.

The foregoing and other objects and advantages of the present invention will become apparent to those skilled in the art upon consideration of the following detailed description of the preferred embodiment thereof, reference being had to the accompanying drawings, wherein:

Figure 1 is a side elevational view of one portion of a car washer, showing a top scrubber embodying the principles of the invention;

Figure 2 is a front elevational view of the same;

Figure 3 is an enlarged fragmentary sectional view, taken through the reciprocating scrubbing members;

Figure 4 is a side elevational view of another portion of the car washer, showing a side scrubber;

Figure 5 is a top plan view of the same;

Figure 6 is a front view of the mechanism shown in Figures 4 and 5;

Figure 7 is an enlarged sectional view taken at 7—7 in Figure 4, showing the attachment of the scrubbing members to the frame;

Figure 8 is an elevational view of the structure shown in Figure 7, as seen from the left-hand side thereof;

Figure 9 is an enlarged, partially cutaway plan view of the car-contacting outer end portions of the scrubbing member;

Figure 10 is a side elevational view of the same;

Figure 11 is an enlarged, fragmentary view of the tip end portion of one form of scrubbing member, showing rubber fingers molded integrally with the rubber backing;

Figure 12 is a similar view of another form of the scrubbing member, in which fiber bristles are embedded in the backing of rubber or other soft material; and

Figure 13 is a side elevational view of a bent form of scrubbing member, which is used to get down into certain sharp-cornered recesses, such as is found at the junction of the leading edge of the rear fender with the car body.

The automatic car washer of the present invention comprises a series of operating units which are preferably arranged in a straight line along the path traveled by the automobiles to be washed, so that the cars are successively acted upon by the said units as they progress slowly along their course. Inasmuch as the invention is primarily concerned with the scrubbing units for scrubbing the sides and top surfaces of the cars, we have omitted any illustration of the dryer from the drawings, and it will be understood that any conventional means may be employed to remove surplus water such as, for example, the commonly used high velocity air blast which is directed rearwardly against the outer surfaces of the cars through a series of nozzles.

While the scrubbing unit for the top surfaces and sides of the cars could just as well be combined into a single unit, we have elected, for the purpose of illustration, to show the scrubbers as two separate units; the top scrubber being illustrated in Figures 1 and 2, where it is designated in its entirety by the reference numeral **20**, and the two side scrubbers being illustrated in Figures 4, 5 and 6, where they are designated by the reference numeral **21**.

The cars are propelled through the washer by any suitable means, the preferred form being a conveyer chain **22** running in a channel **23** in the floor. The cars are connected to the conveyer chain by means of short tow chains **24**, each of which has a hook at the outer ends thereof that is hooked over the front bumper of the automobile. Alternatively, means could be provided on the conveyer chain for engaging the rear bumper of the automobile to push the same through the washer. A low concrete curb **25** projects upwardly from the floor parallel to the conveyer chain **22** and engages the inside wall of the tires on one side of the car to guide the same through the washer. Fastened to the floor on the outside of the tire is an angle iron guide rail **26** which engages the outer wall of the tire to hold the front wheels in their course.

As the autodmobile enters the car washer, the first thing encountered in a needle spray of water issuing at high velocity from a series of rearwardly and downwardly directed nozzles **30** connected to two vertical water pipes **31** on opposite sides of the car. The purpose of this first water spray is to dislodge and rinse away any sand or other abrasive material that might scratch the finish when the car passes through the scrubbers **20** and **21**.

The top scrubber **20** comprises two laterally spaced, vertical guide posts **32** and **33** which are securely fastened to the floor on opposite sides of the car, and which are connected at their top ends by a transverse beam **34**. The guide posts **32**, **33** may have any desired cross-sectional shape, but are herein shown as cylindrical slidably mounted on the posts are sleeves **35** having laterally projecting bosses **36** on their inner sides, that receive the ends of a cross-shaft **40** which carries a supporting structure **41** and reciprocating frame **42** of the scrubber. The ends of the cross shaft **40** are preferably rigidly fixed in the bosses **36**, with the supporting structure pivoted on the shaft; although it will be understood that the shaft could just as well be journalled in the bosses and the supoprting structure fixedly mounted thereon.

The supporting structure **41** comprises two laterally spaced, fore and aft extending side members **43** and **44**, which are connected together at their ends by cross members **45** and **46**. Sleeve journals **50**, which are rotatably mounted on the cross shaft **40**, are fixed in any suitable manner to the under sides of the members **43**, **44** at the midpoints thereof, and the supporting structure **41** is thus pivoted for rocking movement about the shaft **40**. Mounted on top of the cross members **45**, **46** near the ends thereof are axially alined pairs of sleeve bushings **51** which receive two slide members **52**. The members **52** are slidable within the bushings **51**, and their rear ends are connected by a transversely extending rod **53** of circular cross section. Welded to the underneath side of the slide members **52** at the front ends thereof is a transversely extending angle

member 54, to which the scrubbing members are attached.

The flanges 55 and 56 of the angle member 54 are preferably, although not necessarily, set at an acute angle to one another, forming a V-shaped channel which opens forwardly and downwardly. Welded to the inside surfaces of the flanges 55, 56 at intervals along the lengths of the member 54 are brackets 60 which hold a longitudinally extending pivot rod 61. Attached to the rod 61 at closely spaced intervals along the length thereof is a plurality of scrubbing members 62, each of which is preferably comprised of a long, slender arm 63 having a relatively soft, flexible boot or pad 64 of rubber-like material attached to the outer end thereof. The arm 63 may be made either of tubing or solid rod, and its inner end is pivoted in any suitable manner on the rod 61 for vertical swinging movement. The arms are spaced apart from one another and are guided in their swinging movement by curved spacers 65 which are attached to the edges of flanges 55, 56. Each of the arms 63 is resiliently pressed downwardly against the car by means of an individual spring 66 having a loop which encircles the rod 61. One arm of the spring 66 is hooked over the edge of flange 55 on member 54, while the other end of the spring is hooked over the arm 63. Downward movement of the arms 63 is limited by the edge of the bottom flange 56.

Each of the boots 64 is detachably mounted on the outer end of its respective arm 63, and to this end is provided with a metal collar 70 having a set screw 71 that clamps tightly against the arm. The arm 63 is inserted into a hole 72 formed in the back end of the boot 64. The boot 64 is similar to another boot 64' shown in Figures 9 and 10 and is preferably, although not necessarily, tapered in thickness toward its outer end, while increasing in width. The outer end of the boot 64' may be slit down the center, as shown at 73, dividing the boot end into two narrow strips 74 and 75, which are adapted to pass on either side of any projection sticking out from the surface of the car.

The underneath sides of the boots 64 and 64' are provided with scouring surfaces of any suitable type, which provide a gentle scrubbing or scouring effect on the surface of the car as the scrubbing members are reciprocated, so that road film and other stubborn soil will be worked loose and removed without injury to the finish. One such scouring surface is shown at 76 in Figure 11, and is seen to comprise a plurality of relatively short, slender fingers 77 which are molded integrally with the rubber boot 64' and project downwardly therefrom. The fingers 77 are spaced closely together and are quite resilient, so that they function in the manner of bristles. Another type of scouring surface is shown at 80 in Figure 12, and comprises fiber bristles 81 of natural or synthetic fibers, which are either stitched through the rubber boot 64', as shown, or are otherwise embedded therein.

Also mounted on the arm 63 of each of the scrubbing members 62 is an auxiliary scrubbing member 83, the function of which is to get at certain areas of the car that might be missed by the scrubbing members 62. Each of the auxiliary scrubbing members 83 is generally similar to the scrubbing member 62, and comprises an arm 84 of tubing or solid rod which is pivotally connected at 85 to a bracket 86 mounted on the arm 63 a short distance out from the spacers 65. A relatively soft, resilient boot 87 of the same composition as boot 64 is attached to the outer end of arm 84, and is provided on both of its sides with scouring means 90, such as shown in Figures 11 or 12. Each of the auxiliary scrubbing members 83 hangs freely from its supporting bracket 86 and is somewhat shorter than its associated scrubbing member 62, so that as the scrubber passes over the back end of a car, the auxiliary scrubbing members 83 tend to drop back to the position shown in dot-dash lines in Figure 3, thereby providing a downward scrubbing action against a substantially vertical portion of the car at the extreme rear ends thereof. The auxiliary scrubbing members are also effective in getting at the horizontal shield directly behind the front bumper, as well as other relatively inaccessible places.

Mounted on the underneath side of flange 56 of member 54, are brackets 91 that support a transversely extending pipe 92. One end of the pipe 92 projects beyond the end of member 54 and is connected by a coupling 93 to a flexible hose 94. The hose 94 is supported on the right hand slide member 35 by means of a bracket 95, and extends downwardly therefrom to a valve 96, which supplies detergent solution under pressure. A plurality of nozzles 97 are connected into the pipe 92 at intervals along the length thereof, and these nozzles discharge a spray of the detergent solution on the surface of the car immediately ahead of the scrubbing members 52 and 83. The top surfaces of the car are thus thoroughly drenched with the detergent solution before being reached by the scrubbing members, and the detergent aids the scrubbing members in loosening and removing soil.

The frame 42 with its attached scrubbing members 62, 83 is reciprocated by suitable means, such as an electric motor 100 mounted on the underneath side of the supporting structure 41 adjacent the back edge thereof. The motor 100 is preferably provided with integral speed-reduction gears, which transmit the drive to a crank 101. A connecting rod 102 connects the crank 101 to the crossbar 53 of the frame 42, and as the crank rotates, the frame 42 is thus reciprocated. The speed and length of travel of the reciprocating frame can be varied over a wide range, although the best results are believed to be obtained with a speed in the neighborhood of 200–300 strokes per minute, and only a fraction of an inch of travel. This operating range produces a whipping, vibrating effect in the scrubbing members that seems to hold the latter flat against the surface of the car, with a minimum of flailing and bending of the scrubbing members. While the electric motor and crank arrangement shown and described are believed to be the preferred way of driving the reciprocating frame 42, it is also contemplated that other means might be used to drive the frame, such as, for example, a hydraulic or pneumatic motor, or electro-magnetic means.

The motor 100, being mounted on the supporting structure 41 to the rear of the pivot shaft 40, counterbalances a substantial portion of the weight of the angle member 54 and its attached scrubbing members, although the supporting structure should be overbalanced somewhat on the side of the scrubbing members, so that the latter tend to hang downwardly. This brings the scrubbing members down against the top surfaces on the engine hood and car body, and gives the springs 66 something to push against. The amount of overbalance in the supporting

structure 41 should not be so great, however, as to deflect the spring 66 until the arms 63 touch the edge of flange 55, as such a condition would bend the arm and possibly damage the scrubbing member or injure the finish of the car.

A substantial portion of the total weight of the supporting structure 41 and frame 42, as well as the shaft 40 and slide members 35, is counterbalanced by means of counterweights 105, which are suspended from the ends of cables 106. One of the cables 106 passes up over and around two pulleys 107 and 108 and then passes downwardly through a hole in member 34 to a point of attachment with an ear 109 projecting inwardly from the right hand sleeve member 35 (Figure 2). The other cable 106 passes over pulley 107 and then passes across the structure to the other side thereof, where it is trained around another pulley 112 and down through a hole in member 34 to attachment with an ear 113 projecting inwardly from the left hand slide member 35. The two pulleys 107, 108 are journalled on a bracket 114 on the top end of post 33, while pulley 112 is journalled on a bracket 115 that is mounted on the cross member 34 adjacent the post 32. The weight of the counterweight 105 is preferably such that the entire supporting structure 41 and frame 42 can be lifted with relatively little effort, so that the same can be easily elevated by the car as the latter passes thereunder.

The supporting structure 41 and frame 42 are raised and lowered as the car passes thereunder, and are maintained at a predetermined height above the top surface of the car by means comprising a pair of laterally spaced wheels 120, only one of which can be seen in the drawings. Each of the wheels 120 is journalled on the bottom end of a bracket structure 121 fixed to and extending downwardly from the underside of the supporting structure 41, and the said wheels are provided with soft rubber tires 122, which are adapted to run on the top surfaces of the car without damaging the finish thereof.

Normally, the supporting structure 41 and frame 42 tend to swing down to a near-vertical position, with the scrubbing members 62 and 83 hanging downwardly and pointing somewhat rearwardly. As the car approaches the apparatus, the vertically reciprocating scrubbing members first engage the front bumper and radiator grille, reaching into the spaces between the grille bars, around fog lights and bumper guards, and probing down behind the bumper to scrub the gravel guard. Continuing its advance, the car is engaged on its front end by the two wheels 120, which ride up onto the engine hood, lifting the supporting structure 41 and frame 42 with them as they climb, so that the scrubbing members are presented to the top of the engine hood. Again, as the wheels 120 climb up the windshield of the car, the supporting structure is lifted thereby and is held at the proper height and position to present the scrubbing members to the top surfaces of the car body. All of this time, the overbalance of the supporting structure 41 causes the scrubbing members 62 to be held downwardly against the car.

Upon leaving the top scrubber, the car passes between the two side scrubbers 21 which are shown in Figures 4, 5 and 6. As in the case of the top scrubber, each of the side scrubbers comprises a supporting structure 125, on which is mounted a reciprocating frame 126 carrying scrubbing members 62' and 62''. The supporting structure 125 may take any desired form, but is herein shown as comprising a rectangular, box-like frame made up of angle irons welded together at their ends, as shown. A vertical channel member 130 is welded to the top and bottom frame members on the side adjacent the car, and mounted on the outer face of the channel member are three vertically spaced sleeve bushings 131. Also mounted on the vertical frame member at the inside corner on the left hand end of the structure are three more sleeve bushings 132, which are alined with their corresponding bushings 131. Horizontally extending shafts 133 are slidably supported in the bushings 131, 132, and the right hand ends of the shaft are welded to a vertically disposed angle iron 134.

Also welded to the three shafts 133 at longitudinally spaced points thereon are three vertically disposed angle irons 54' which support scrubbing members 62' and 62''. The scrubbing members 62' and their manner of attachment to the angle iron 54' are substantially identical to the scrubbing members 62 of the top scrubber, and therefore need not be described again.

It will be noted in Figures 7 and 8 that all of the arms 63' of the scrubbing members in each group are tied together by means of a rubber strip 140, which functions to hold the scrubbing members together when the tendency is for the members to spread apart; as when there is an abrupt change in direction of the surface over which the scrubbing members are traveling. Thus, when the scrubbing members are pulled over the top of the fender or any other part of the car tending to separate the members, the rubber strip 140 acts to tie the scrubbing members together, and prevent their separation beyond a certain point.

Each of the reciprocating frames 126 is driven by an electric motor 141 which is mounted on a platform 142 at the bottom of the supporting structure 125. A V-belt pulley 143 of small diameter is mounted on the shaft of motor 141, and trained around this pulley is a V-belt 144, which is also trained around another pulley 145 of larger diameter. The pulley 145 is mounted on a shaft 146, which is journalled in bearings 150 carried by bracket members 151. Mounted on the end of shaft 146 adjacent the car is a crank 152 which is connected by a connecting rod 153 to a pin 154 on the angle iron member 134. Thus, motor 141 drives the shaft 146, and the crank 152 on the shaft reciprocates the frame 126.

It will be noted that the rubber boots 64'' of the scrubbing members in the group at the right hand end of the frame 126 differ from the boots 64', in that there is a sharp, right angle bend at 160 and another sharp right angle bend at 161. The purpose of these bends is to provide a relatively sharp shoulder on the scrubbing members, which is adapted to get down into the corners formed at the junction of the leading edge of the rear fenders with the car body, as well as in other similar areas.

Before the car reaches the side scrubbers 21, it encounters a spray of detergent solution issuing from nozzles 163 on two vertical pipes 164 located at either side of the car. The pipes 164 are connected to a source of detergent solution under pressure, and the nozzles 163 are spaced apart vertically so as to drench the sides of the car just before the scrubbing members are reached.

Immediately beyond the last of the three groups of scrubbing members, another spray of water is encountered; this one being of clear rinse water issuing from nozzles 165 on pipes 166.

This clear water spray rinses off the detergent solution and loosened soil, and the car is now ready for drying.

One advantageous feature of our invention is that the same apparatus can be used to apply a wax polish to the car after the same has been washed and dried. In this case, the spray nozzles located just ahead of the scrubbing members would spray a fine mist of wax polish onto the car, which would then be rubbed to a high polish by scrubbing members covered with lamb's wool or the like.

While we have shown and described in considerable detail what we believe to be the preferred form of our invention, we wish to make it clear that these details are merely illustrative, and do not restrict the invention to the specific forms disclosed. For example, the shape of the scrubbing members, or the materials of which they are made, or the method of their attachment to the reciprocating frame might be widely varied from what we have shown without impairing the effectiveness of the invention. Also, the number and placement of the scrubbing members might be considerably changed without departing from the broad scope of the invention, nor is any particular significance to be attached to the specific shape of the supporting structure or of the reciprocating frame. These and other changes that will occur to those skilled in the art are encompassed within the broad claims appended hereto.

We claim:

1. In an automatic car washer having a path along which a car may be advanced, a top scrubber comprising a supporting structure disposed transversely across said path and mounted for vertical movement, means for raising and lowering said supporting structure as a car passes thereunder, whereby the structure is maintained at a predetermined height above the top surfaces of the car, a frame mounted on said supporting structure for reciprocating movement, a plurality of scrubbing members mounted on said frame and resiliently pressed against the top surfaces of the car, and means for reciprocating said frame.

2. In an automatic car washer having a path along which a car may be advanced, a top scrubber comprising a supporting structure disposed transversely across said path and mounted for vertical movement, counterbalancing means connected to said supporting structure and operable to carry a substantial portion of the weight thereof, means on said supporting structure engageable with and running over the top surfaces of the car as the latter moves forwardly, for raising and lowering the structure and maintaining the same at a predetermined height above the car, a frame mounted on said supporting structure for reciprocating movement, a plurality of scrubbing members mounted on said frame and resiliently pressed against the top surfaces of the car, and means for reciprocating said frame.

3. In an automatic car washer having a path along which a car may be advanced, a pair of vertical posts disposed on either side of said path, slide members movable up and down on said posts, a pivoted supporting structure disposed transversely across said path and carried by said slide members, means for raising and lowering said supporting structure as a car passes thereunder, whereby the structure is maintained at a predetermined height above the top surfaces of the car, a frame mounted on said supporting structure for reciprocating movement generally

parallel to the direction of travel of the car, a plurality of scrubbing members mounted on said frame and resiliently pressed against the top surfaces of the car, and means for reciprocating said frame.

4. In an automatic car washer having a path along which a car may be advanced, a pair of vertical posts disposed on either side of said path, slide members movable up and down on said posts, a pivoted supporting structure disposed transversely across said path and carried by said slide members, counterbalancing means connected to said supporting structure and operable to carry a substantial portion of the weight thereof, means on said supporting structure engageable with and running over the top surfaces of the car as the latter moves forwardly, for raising and lowering the structure and maintaining the same at a predetermined height above the car, a frame mounted on said supporting structure for reciprocating movement generally parallel to the direction of travel of the car, a plurality of scrubbing members attached to said frame along one transverse edge thereof, each of said scrubbing members having a relatively soft, flexible portion at the outer end thereof which is engageable with the top surfaces of the car to scour the same, spring means acting on said scrubbing members to urge the free ends thereof downwardly against the car, and means for reciprocating said frame.

5. In an automatic car washer having a path along which a car may be advanced, a top scrubber comprising a supporting structure disposed transversely across said path and mounted for vertical movement, means for raising and lowering said supporting structure as a car passes thereunder, whereby the structure is maintained at a predetermined height above the top surfaces of the car, a frame mounted on said supporting structure for reciprocating movement, a plurality of scrubbing members pivoted at one end on said frame for vertical swinging movement, spring means urging the free ends of said scrubbing members downwardly against the top surfaces of the car, each of said scrubbing members having an auxiliary scrubbing member pivotally attached thereto at a distance outwardly from its point of attachment, said auxiliary scrubbing member being free to hang downwardly from its point of attachment with said first-named scrubbing means, and means on said supporting structure for reciprocating said frame.

6. In an automatic car washer having a fixed path of travel along which a car may be advanced, a plurality of closely spaced scrubbing members arranged side by side opposite a surface of a car advancing along said path of travel, each of said scrubbing members comprising an arm having a relatively soft, flexible scrubbing pad attached at a free end thereof, mounting means supporting said arms from their rearward ends side by side in close spaced substantially parallel planes which longitudinally intersect a car on said path and which are longitudinally disposed with respect to said path, said mounting means including pivot means mounting the arms for independent pivotal action in said parallel longitudinal planes, spring means yieldingly urging said arms inward toward the surface of a car on said path, whereby said pads are engaged by said surface, and means for reciprocating the rearward ends of said arms along direction lines substantially longitudinal of said path of travel.

7. The subject matter of claim 6, wherein the mounting means for the arms support the arms so as to point generally in the direction of travel of a car on said path of travel.

8. The subject matter of claim 6, wherein the mounting means for the arms includes means supporting the arms for a range of variable and independent swinging action between an inactive position making a large angle with the direction of travel of a car on said path, and a plurality of operative positions, with the pads of the arms in engagement with the surfaces of a car on said path, in which operative positions said arms make lesser angles with said direction of travel.

9. In an automatic car washer having a path of travel along which a car may be advanced, a supporting frame disposed adjacent said path of travel, means mounting said frame for reciprocation with a component of movement parallel to said path of travel, means for so reciprocating said frame, a plurality of closely spaced scrubbing members mounted side by side on said frame, each of said scrubbing members comprising an arm having a relatively soft, flexible scrubbing pad attached at a free end thereof, mounting means supporting said arms from their rearward ends on said frame side by side in close spaced substantially parallel planes which longitudinally intersect a car on said path and which are longitudinally disposed with respect to said path, said mounting means including pivot means mounting the arms for independent pivotal action in said parallel longitudinal planes, and spring means yieldingly independently urging said arms toward the surface of a car on said path, and means for reciprocating said frame and scrubbing members mounted thereon, whereby said scrubbing pads are individually yieldingly pressed into engagement with said surface and are rubbed back and forth along said surface in a direction generally longitudinal of the car by virtue of the reciprocation of said frame.

10. The subject matter of claim 9, wherein the mounting means for the arms support the arms so as to point generally in the direction of travel of a car on said path of travel.

11. The subject matter of claim 9, wherein the mounting means for the arms includes means supporting the arms for a range of variable and independent swinging action between an inactive position making a large angle with the direction of travel of a car on said path, and a plurality of operative positions, with the pads of the arms in engagement with the surfaces of a car on said path, in which operative positions said arms make lesser angles with said direction of travel.

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