

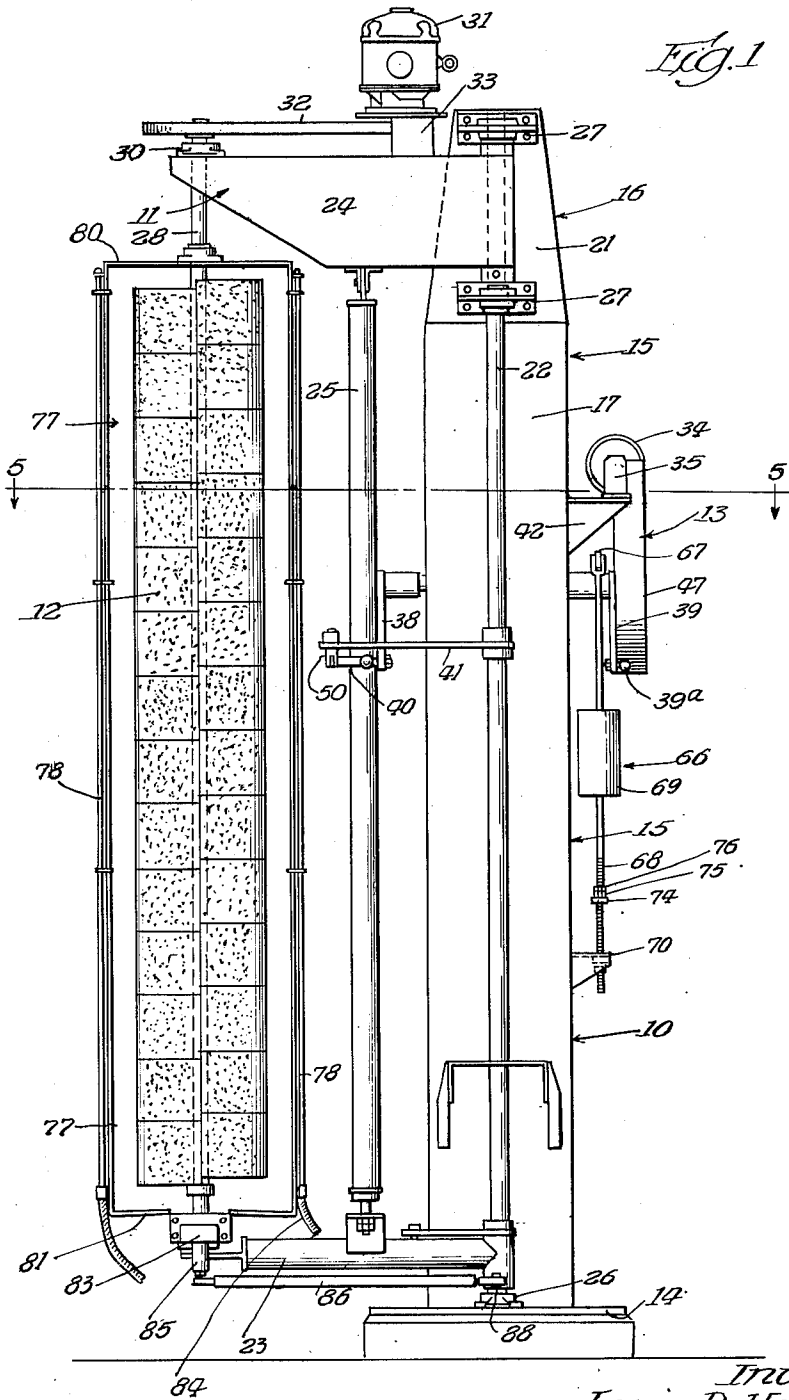
March 18, 1952

L. D. HOLMES
TWO-WAY CAR WASHER OF THE ROTARY
POWER-DRIVEN BRUSH TYPE.

2,589,255

Filed June 10, 1946

4 Sheets-Sheet 1



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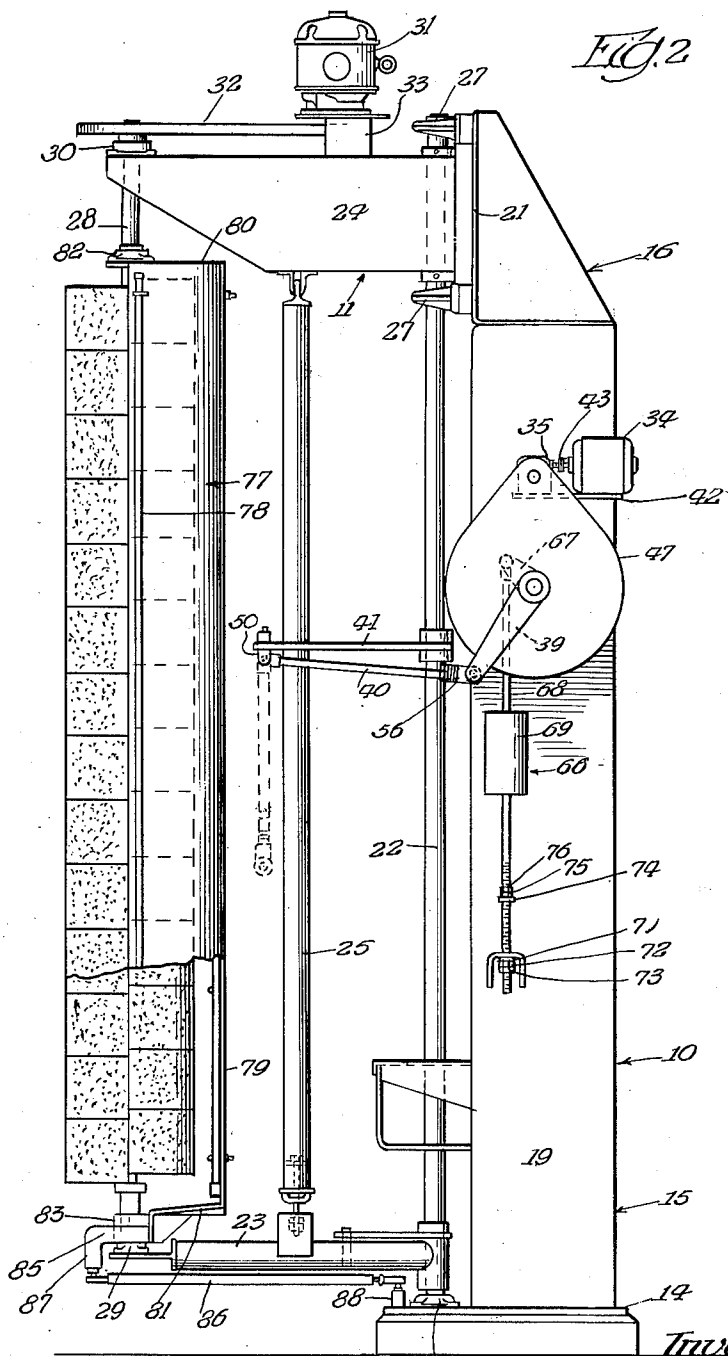
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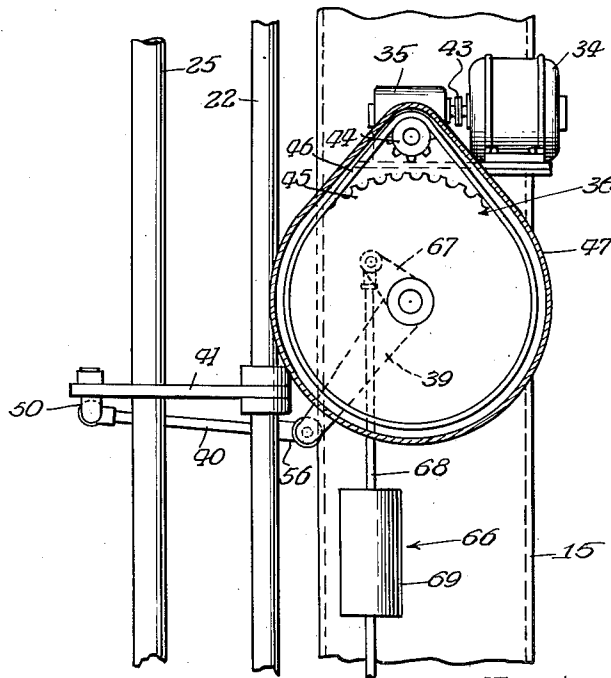
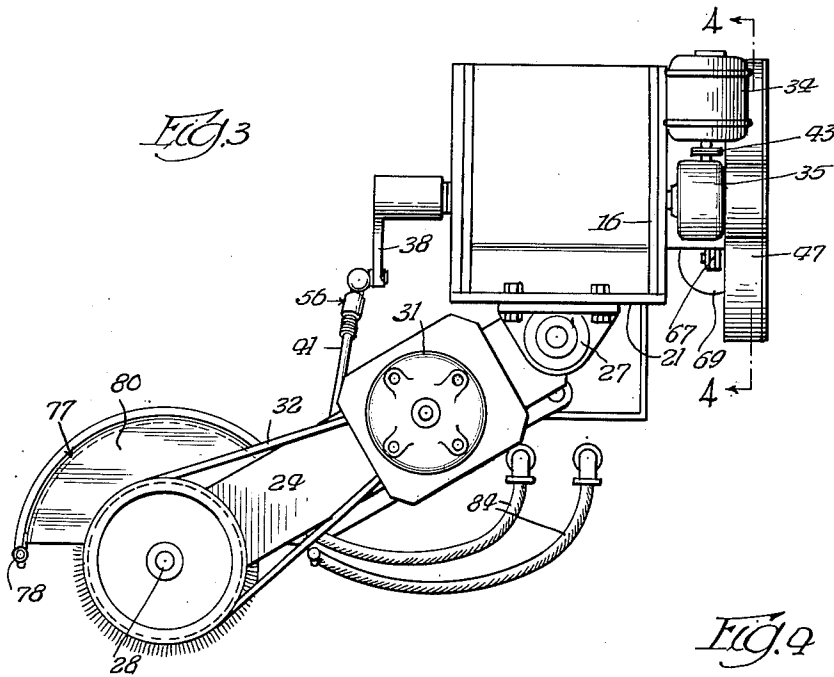
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4 Sheets-Sheet 3



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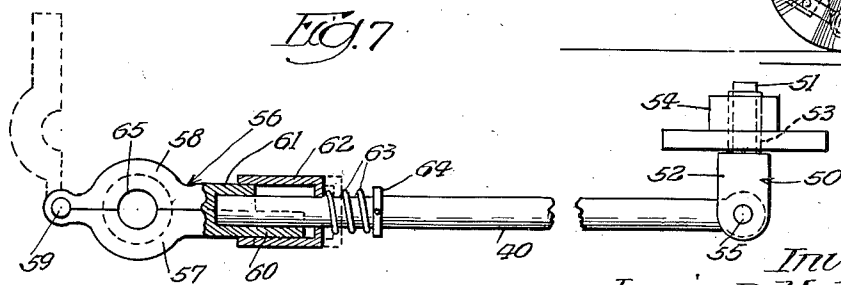
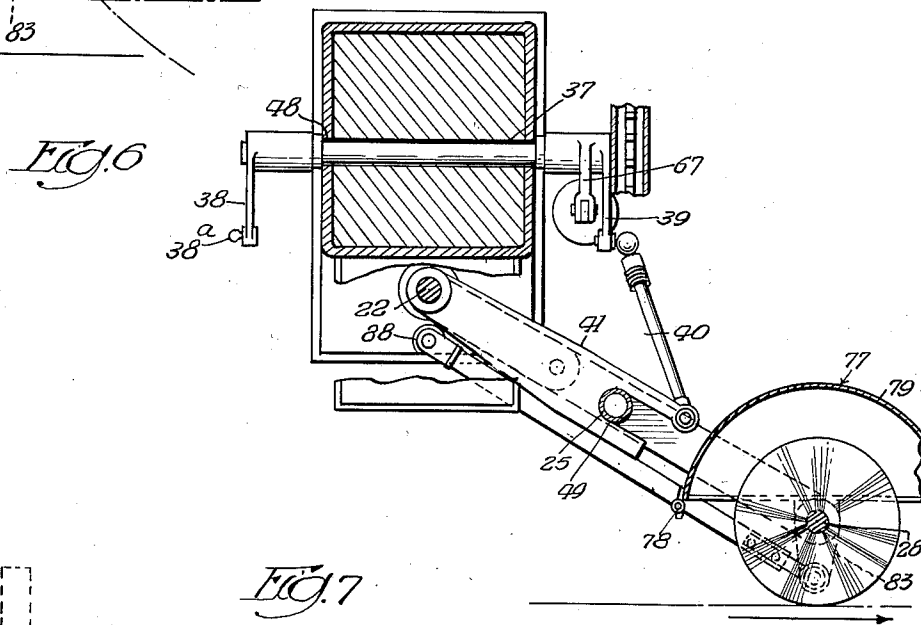
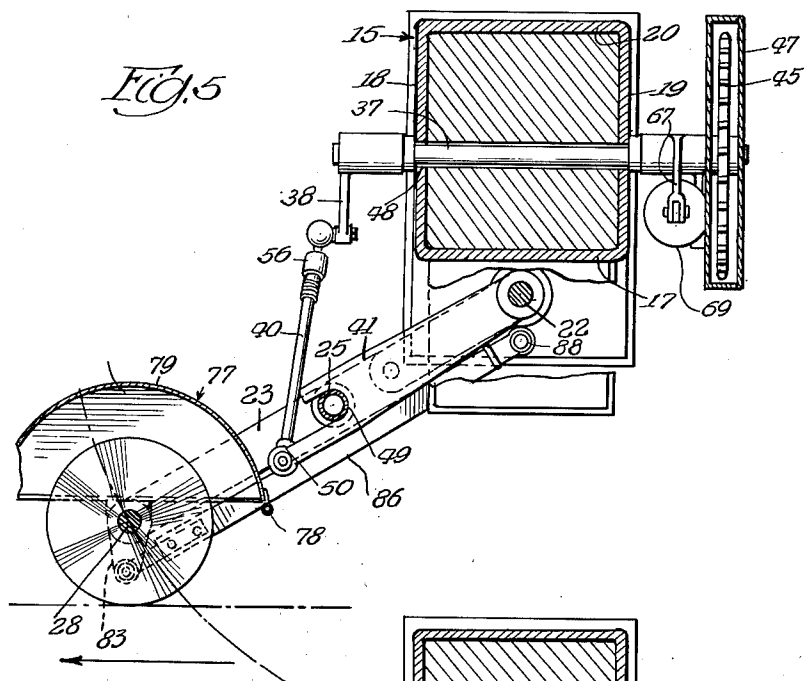
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UNITED STATES PATENT OFFICE

2,589,255

TWO-WAY CAR WASHER OF THE ROTARY
POWER-DRIVEN BRUSH TYPELouis D. Holmes, Blue Island, Ill., assignor to
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Application June 10, 1946, Serial No. 675,698

10 Claims. (Cl. 15—53)

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The present invention relates generally to apparatus for washing vehicles such, for example, as railroad cars. more particularly the invention relates to that type of car washing apparatus which is positioned at one side of the track for the car to be washed, serves to wash the adjacent side of the car as the car is propelled past it, and as its principal components or parts comprises (1) an upstanding supporting structure; (2) a rotary, vertically elongated, power driven brush; (3) a vertically elongated frame variety mounting which carries the brush and is pivotally connected to the supporting structure so that it is capable of being swung laterally back and forth between an operative or washing position wherein the brush is in engagement with the adjacent side of the car and an inoperative position wherein the brush is out of engagement with the car side; and (4) operating mechanism for swinging the mounting back and forth between its operative and inoperative positions.

One object of the invention is to provide a car washing apparatus of this type which is an improvement upon, and has certain advantages over, previously designed apparatus for the same purpose and is characterized by high efficiency and also simplicity of design.

Another object of the invention is to provide a car washing apparatus of the type and character under consideration in which the operating mechanism for swinging the brush mounting back and forth between its operative and inoperative positions is of novel design and construction and includes as a prime mover a reversible electric torque motor which serves, when actuated or energized to shift the brush mounting into its operative position, yieldingly to hold the mounting in such position.

Another object of the invention is to provide a car washing apparatus which is of the 2-way or direction variety and is characterized by the fact that the brush mounting when in its operative position extends in the direction of travel of the car being washed and the operating mechanism for the mounting is so designed and constructed that the mounting may be adapted to effect washing of the car regardless of the direction in which the car is propelled past the apparatus.

A further object of the invention is to provide a car washing apparatus of the last mentioned character in which the operating mechanism comprises in addition to a horizontal rock shaft on the supporting structure and a pair of crank arms at opposite ends of the shaft, a link which has one end thereof pivotally connected to the

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brush mounting, embodies at its other end a readily releasable coupling for connecting it to the distal end of either crank arm, and is adapted when the car being washed is propelled in one direction past the apparatus to have its coupling connected to the distal end of one of the crank arms and when the car is propelled in the opposite direction past the apparatus to have its coupling connected to the outer end of the other arm.

A still further object of the invention is to provide a car washing apparatus which effectively and efficiently fulfills its intended purpose, embodies a novel arrangement of parts and is capable of being produced and operated at a comparatively low cost.

Other objects of the invention and the various advantages and characteristics of the present car washing apparatus will be apparent from a consideration of the following detailed description.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by claims at the conclusion hereof.

In the drawings which accompany and form a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a front elevation of a car washing apparatus embodying the invention, showing in detail the manner in which the rotary power driven brush is supported so that it is capable of being swung laterally relatively to the supporting structure;

Figure 2 is a side elevation, illustrating the arrangement, design and construction of the operating mechanism for swinging the brush mounting back and forth between its operative and inoperative positions;

Figure 3 is a plan view of the apparatus;

Figure 4 is a section taken on the line 4—4 of Figure 3 and showing in detail the operating mechanism;

Figure 5 is an enlarged horizontal section taken on the line 5—5 of Figure 1 and showing the link of the operating mechanism connected to one of the crank arms of the rock shaft to the end that the brush mounting projects to one side of the supporting structure and is so positioned that the brush is capable of washing the adjacent car side in connection with propulsion of the car in one direction past the apparatus;

Figure 6 is a similar enlarged horizontal section showing the link of the operating mechanism connected to the other crank arm on the

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rock shaft to the end that the brush mounting projects to the other side of the supporting structure and the brush is capable of washing the adjacent side of the car in connection with reverse propulsion of the car; and

Figure 7 is an enlarged side view of the link of the operating mechanism, certain parts being broken away and other parts being shown in section in order to indicate the construction and design of the detachable coupling whereby the link may be selectively connected to either of the two crank arms of the mechanism.

The washing apparatus which is shown in the drawings constitutes the preferred form or embodiment of the invention. It is primarily adapted for use in washing a railroad car (not shown) while the latter is propelled in either direction past it. It is contemplated that the apparatus will be positioned on one side of the track for the car to be washed and also that the apparatus will be used in connection with a complementary apparatus on the other side of the track to the end that the two apparatuses in connection with use thereof will wash both sides of the car. As its principal components or parts the car washing apparatus comprises an upstanding supporting structure 10, a frame type mounting 11, a brush 12 on the mounting, and operating mechanism 13 for swinging the mounting together with the brush into and out of its operative position as described more in detail hereafter.

The supporting structure 10 rests on, and is anchored to, the foundation at one side of the track. It comprises a base plate 14, a vertically extending column 15 and a bracket 16. The base plate 14 extends horizontally and is bolted or otherwise fixedly secured to the subjacent portion of the foundation at the side of the car track. The column 15 is square in cross section and consists of a front wall 17, a pair of side walls 18 and 19 and a back wall 20. The lower end of the column rests on, and is preferably welded to, the rear portion of the base plate 14. The bracket 16 rests on, and is suitably fixedly secured to, the upper end of the column 15 and embodies a vertically extending front wall 21 which is in alignment with, and forms a continuation of, the front wall 17 of the column.

The brush mounting 11 is in the form of a frame and is positioned in front of the column 15 of the upstanding supporting structure 10. It is vertically elongated and consists of a vertically extending shaft 22, a horizontally extending lower arm 23, a horizontally extending upper arm 24, and a vertically extending tie rod 25. The shaft 22 is located directly in front of the central portion of the front wall 17 of the column 15 and has its lower end journaled in a bearing 26 on the front central portion of the base plate 14 of the supporting structure 10. The upper end of the shaft 22 is journaled in a pair of vertically spaced bearings 27 and these are mounted on, and project forwards from, the front wall 21 of the bracket 16. The bearings 26 and 27 permit the brush mounting 11 to swing laterally. The horizontally extending lower arm 23 of the mounting 11 is connected to, and projects radially from, the lower end of the vertically extending shaft 22. The horizontally extending upper arm 24 overlies, and is spaced an appreciable distance above, the lower arm 23 and is connected to, and projects radially from, the upper end of the shaft

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22. The tie rod 25 is disposed in parallel relation with the shaft 22 and has the lower end thereof connected to the central portion of the lower arm 23. The upper end of the tie rod 25 is connected to the central portion of the upper arm 24. The tie rod serves to connect the two arms of the brush mounting so that they swing together in connection with lateral swinging of the mounting.

The brush 12 is vertically elongated and comprises a vertically extending shaft 28 and a series of bristle equipped split hubs. The hubs surround and are clamped to the central portion of the shaft 28. The lower end of the shaft is journaled in a bearing 29 on the outer or distal end of the horizontally extending lower arm 23 of the mounting 11 and the upper end of the shaft extends through, and is journaled in, a bearing 30 on the outer or distal end of the upper arm 24. In connection with operation of the apparatus the brush is driven at a comparatively high speed by way of an electric motor 31 and a belt and pulley connection 32. The motor 31 is mounted on a bracket 33 on the central upper portion of the horizontally extending upper arm 24 of the brush mounting and is arranged so that the armature shaft thereof extends vertically. The belt and pulley connection 32 is in the form of a pair of pulleys and an endless belt. One of the pulleys is mounted on the lower end of the armature shaft of the motor 31 and the other pulley is mounted on the upper end of the brush shaft 28. The belt of the connection 32 extends around the two pulleys. When the motor 31 is in operation the belt and pulley connection serves to drive the brush 12. When the car being washed is propelled to the left, as shown by the arrow in Figure 5, the brush and mounting, when in their operative or washing position, are positioned as shown in such figure and when the car being washed is propelled in the opposite or reverse direction as shown by the arrow in Figure 6, the brush and mounting, when in their operative position, are positioned as shown in Figure 6. In other words, when the car being washed is propelled to the left as indicated by the arrow in Figure 5, the brush mounting extends in the direction of travel of the car and projects to the left of the column 15 of the supporting structure and when the car being washed is propelled in the opposite direction the brush mounting 11 extends in the direction of travel of the car and projects to the right of the column. The mounting for the brush permits the brush to swing inwards regardless of the direction of travel of the car being washed.

The operating mechanism 13 serves to swing the brush 12 into and out of its operative position regardless of whether the mounting 11 is positioned to the left of the column 15 as shown in Figure 5, or to the right of the column as shown in Figure 6. It operates, as hereinafter described more in detail, yielding to hold the brush in its operative or washing position and also to retract the brush when it is not in use. As its parts the mechanism 13 comprises an electric torque motor 34 of the reversible type or variety, a speed reducing unit 35, a chain and sprocket connection 36, a rock shaft 37, a pair of crank arms 38 and 39, a link 40 and an arm 41. The motor 34 is positioned exteriorly of the upper end of the column 15 of the supporting structure 10. It is mounted on a bracket 42 on the column

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side wall 19 and is arranged so that the armature shaft thereof extends horizontally and is in parallel relation with the side walls of the column 15. The speed reducing unit 35 is of the bevel gear variety in order that it is reversible. It is mounted on the front portion of the bracket 42 and has the drive shaft thereof connected by a coupling 43 to the front end of the armature shaft of the motor 34. The chain and sprocket connection 36 comprises a small sized sprocket wheel 44, a large sized sprocket wheel 45 and an endless chain 46. The sprocket wheel 44 is mounted on the driven shaft of the speed reducing unit 35 and is disposed outwards of, and in parallel relation with the side wall 19 of the column 15. The other sprocket wheel, i. e., the large sized sprocket wheel 45 is located beneath the sprocket wheel 44 and is keyed or otherwise fixedly secured to one end of the rock shaft 37. The chain 46, as best shown in Figure 4, extends around the two sprocket wheels. A housing 47 surrounds and serves to protect the chain and sprocket connection 36 and is connected to, and for the most part depends from, the bracket 42 on which are mounted the electric motor 34 and the speed reducing unit 35. The rock shaft 37 extends horizontally and is disposed in parallel relation with the front and back walls of the column 15. It extends through, and is journaled in, coaxial holes 48 in the column side walls 18 and 19 and is arranged so that its ends are disposed exteriorly of the column. The crank arm 38 of the operating mechanism 13 is fixedly connected to, and projects radially forwards and downwards from, the end of the shaft 37 that is adjacent the column side wall 18. As best shown in Figures 5 and 6, the outer end of the crank arm 38 is provided with a spherical head 38a. Such head is located outwards of the crank arm 38 and embodies a laterally extending shank which extends through, and is suitably secured to, the outer or distal end of said crank arm. The crank arm 39 is connected to, and extends radially forwards and downwards from, the end of the rock shaft that is disposed adjacent the column side wall 19. The outer end of the crank arm 39 is provided with a spherical head 39a and this is located outwards of said crank arm and is connected to the latter by way of a shank which extends through, and is suitably secured to, said outer end of the crank arm 39. As shown in the drawings the two crank arms are arranged or disposed in parallel relation. When the electric motor 34 is driven in one direction the two crank arms swing upwards and when the electric motor is reversely operated or driven the two crank arms swing downwards. The link 40 and the arm 41 serve operatively to connect either of the crank arms to the brush frame 11. The arm 41 extends horizontally and has one end thereof fixedly connected to the central portion of the shaft 22 of the brush mounting. The central portion of the arm 41 has an outwardly extending notch 49 in which the central portion of the tie rod 25 is seated. In view of the manner in which the arm 41 is mounted such arm serves, when swung horizontally, correspondingly to swing the brush mounting. The link 40 has one end thereof pivotally connected to the outer or distal end of the arm 41 by way of a clevis type swivel 50. The latter comprises a spindle part 51 and a yoke shape part 52. The spindle part 51 of the swivel extends through, and is rotatably mounted in, a vertical hole 53 in the outer or distal end

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of the arm 41. A collar 54 on the upper end of the spindle part 51 serves to hold the swivel 50 against axial displacement with respect to the arm 41. The yoke shaped part 52 of the swivel is connected to the lower end of, and depends from, the lower end of the spindle part 51 and embodies a crosspin 55 at its lower end. Said one end of the link 40 is disposed within the yoke shaped part of the swivel and has a horizontal hole through which the central portion of the pivot pin 55 extends. The swivel 50 serves so to connect the link 40 to the arm 41 that it is free to pivot or swing universally relatively to said arm. The other end of the link 40 is provided with a detachable coupling 56 whereby it may be selectively connected to the crank arm head 38a or the crank arm head 39a, depending upon whether the brush mounting 11 is located to the left of the column 15, as shown in Figure 5, or to the right of the column, as shown in Figure 6. The coupling 56 comprises a pair of elongated complementary socket forming members 57 and 58. Certain ends of these members are pivotally connected together by way of a pivot pin 59. The end of the member 57 that is opposite the pivoted end is provided with an extension 60 which is semi-circular in cross section and is welded or otherwise fixedly secured to the free end of the link 40. The end of the member 58 that is opposite the pivoted end embodies an extension 61 which is semi-circular in cross section and is adapted to receive said free end of the link 40. The pivot pin 59 permits the coupling member 56 to be swung into an open position as shown in dotted lines in Figure 7. When the member 56 is in its open position the coupling 56 may be applied to either of the heads 38a or 39a. In connection with application of the coupling 56 to the head 38a the coupling member 57 is shifted into engagement with the head 38a and then the coupling member 58 is swung into its closed position so as to confine the head within the socket that is formed by the two coupling members 57 and 58. The coupling is similarly applied to the head 39a on the outer end of the outer crank arm 39. The coupling member 58 is releasably secured in its closed position by way of a sleeve 62 which is slidably mounted on the free end of the link 40. When the coupling member 58 is in its closed position and the sleeve 62 is slid outwards the outer end of the sleeve extends around the extensions 60 and 61 and thus holds the coupling member 58 in its closed position. To release the coupling member 58 it is only necessary to slide the sleeve 62 in the opposite direction, i. e., away from the coupling members 57 and 58. The sleeve is urged into its locking position by means of a compression spring 63 which surrounds the free end of the link 40 and is interposed between a collar 64 and the inner end of the sleeve. In order to release the coupling member 58 so that it may be swung into its open position it is only necessary to shift the sleeve 62 inwards against the force of the compression spring 63. The central portion of the sides of the coupling members 57 and 58 are provided with notches 65 for accommodating the shanks of the heads 38a and 39a on the outer or distal ends of the crank arms 38 and 39. The coupling 56, as previously pointed out, permits the link 40 to be operatively connected to either of the crank arms 38 and 39. When the brush mounting is positioned, as shown in Figure 5, at the left hand side of the column 15 so that the brush is operative to wash the

adjacent car side during travel of the car in the direction indicated by the arrow in Figure 5, the coupling 56 is connected to the spherical head 38a on the distal end of the crank arm 38. In connection with upward swing of the crank arm 38 due to drive of the electric motor 34 in one direction the brush mounting is shifted outwards into its operative or washing position wherein the brush 12 engages the adjacent side of the car being washed. When the motor 34 is reversely driven the crank arm 38 is caused to swing downwards and operates through the medium of the link 40 and the arm 41 to swing the brush mounting rearwards into its inoperative position wherein the brush is out of engagement with the car being washed. When the brush mounting is positioned, as shown in Figure 6, at the right hand side of the column 15 so that the brush is operative to wash the adjacent car side during travel of the car in the direction indicated by the arrow in Figure 6, the coupling is connected to the spherical head 39a on the distal end of the crank arm 39. In connection with upward swing of the crank arm 39 due to drive of the electric motor 34 in one direction the brush mounting is shifted outwards into its operative or washing position wherein the brush 12 engages the adjacent side of the car being washed. When the motor 34 is reversely driven the crank arm 39 is caused to swing downwards and operates through the medium of the link 40 and the arm 41 to swing the brush mounting rearwards into its inoperative position wherein the brush is out of engagement with the car being washed. Because the motor 34 is a torque motor the motor serves yieldingly to hold the mounting and brush in their operative position regardless of whether the link 40 is operatively connected to the crank arm 38 or the crank arm 39. It is contemplated that in connection with a washing operation the motor 34 will be constantly supplied with current so that it will urge the mounting and brush against the adjacent side of the car being washed. It is further contemplated that the motor 34 will be reversely driven at the end of a car washing operation in order to retract the mounting and brush.

For purposes of limiting outward and inward swinging of the brush mounting 11 between its operative and inoperative positions and also urging the mounting into its retracted or inoperative position a unit 66 is provided. This unit is disposed directly outwards of the central portion of the side wall 19 of the column 15 and comprises an arm 67, a rod 68 and a counterweight 69. The arm 67 of the unit 66 is fixedly connected to the rock shaft 37. It is located directly inwards of the crank arm 39 and extends forwards and upwards (see Figure 2). The rod 68 extends vertically and depends from the arm 67. The upper end of the rod is pivotally connected to the outer or distal end of the arm 67 and the lower end of the rod extends slidably through a vertically extending bracket 70 which is welded or otherwise fixedly secured to, and project outwards from, the column side wall 19. A rubber washer 71 is mounted on the lower extremity of the rod 68 and rests on a nut 72 on a male screw thread on the lower extremity of the rod. When the brush mounting 11 is swung forwards into its operative position the rod 68 slides upwards until the rubber washer 71 is brought into engagement or abutment with the bracket 70. As soon as the washer 71 is in abutment with the bracket forward swinging of

the brush mounting is stopped or arrested. By adjusting the nut 72 the extent or degree of forward swinging of the brush mounting may be controlled. When the nut is adjusted downwards with respect to the rod 68 an increase in the amount of outward or forward swinging of the brush mounting is effected. When the nut 72 is upwardly adjusted with respect to the rod the amount of outward swing of the brush mounting is decreased. A lock nut 73 serves to hold the nut 72 in its various adjusted positions. The washer 71 together with the nut 72 and the lock nut 73 constitutes means for adjustably limiting forward swing of the brush mounting. A rubber washer 74 is mounted on the lower end of the rod 68 above the bracket 70 and underlies an adjusting nut 75. When the brush mounting 11 is swung inwards the rod 68 slides downwards until the washer 74 is brought into engagement or abutment with the bracket 70. As soon as the washer is in abutment with the bracket rearward swinging of the brush mounting is arrested or stopped. By adjusting the nut 75 the washer 74 may be axially shifted with respect to the rod 68 in order to control the amount of inward swing of the brush mounting. When the washer 74 is adjusted upwards the degree of rearward swing of the brush mounting is increased and when the washer 75 is downwardly adjusted with respect to the rod 68 the degree or amount of rearward swing of the brush mounting is decreased. A lock nut 76 overlies the nut 75 and serves to hold the latter in its various adjusted positions. The washer 74 together with the nut 75 and the lock nut 76 constitutes or exemplifies means for adjustably limiting rearward swinging of the brush mounting. The counterweight 69 is mounted on the central portion of the rod 68 and operates to urge the brush mounting into its inoperative or retracted position. Should the electric motor 34 fail the counterweight 68 will act or operate to effect automatic retraction of the brush mounting. The unit 66 functions regardless of whether the link 41 is connected to the crank arm 38 or the crank arm 39.

In addition to the parts heretofore mentioned the car washing apparatus comprises a splash shield 77 and a pair of spray pipes 78. The splash shield 77 is vertically elongated and surrounds the rear half of the bristle part of the brush 12. It comprises a semi-cylindrical side wall 79, a top wall 80 and a bottom wall 81. The top wall 80 embodies a bearing type collar 82 which surrounds the upper portion of the brush shaft 28. The bottom wall 81 is provided with a bearing type collar 83 which surrounds the lower end of the brush shaft and rests on the bearing 29. The spray pipes 78 are connected to, and extend lengthwise of, the side margins of the side wall 79 of the shield. They embody forwardly extending nozzles and are supplied with water or a washing fluid under pressure by way of flexible hoses 84. When the apparatus is in operation it is contemplated that the spray pipes 78 will spray water or washing fluid onto the adjacent side of the car being washed. In order automatically to maintain the splash shield so that its open side faces forwards at all times regardless of swinging movement of the brush mounting a lever 85 and a link 86 are provided. The lever 85 is rigidly connected to, and projects forwards from, the collar 83 on the bottom wall 81 of the splash shield and embodies at its front end a depending or downwardly extending extension 87. The link 86 extends horizontally and underlies the lower

arm 23 of the brush mounting 11 as shown in Figures 1 and 2. One end of the link 86 is pivotally connected to an upstanding pivot member 88 on the front portion of the base plate 14 of the supporting structure 10 and the other end of the link 86 is pivotally connected to the lower end of the lever extension 87. When the brush mounting 11 is swung laterally in either direction the lever 85 and the link 86 will so automatically control the splash shield 77 that it will at all times be positioned with the open side thereof facing forwards. The lever and link operate regardless of whether the brush mounting 11 is located at the left or right hand side of the column 15.

When it is desired to use the apparatus in connection with washing of a car which is being propelled past the apparatus in the direction of the arrow in Figure 5 the brush mounting 11 is swung to the left hand side of the column 15 and the link 40 is operatively connected to the crank arm 38 of the operating mechanism 13 by applying the detachable coupling 56 to the spherical head 38a on the outer or distal end of the crank arm 38. In connection with a car washing operation the electric torque motor 34 is energized so as to cause it to swing upwards the crank arm 38. In connection with upward swing of the crank arm the brush mounting is shifted outwards into its operative or washing position wherein the brush 12 engages the adjacent side of the car being washed. As previously pointed out the motor 34, because it is a torque motor, serves yieldingly to hold the brush against the car. At the end of a car washing operation the motor 34 is reversely driven so that it operates to retract the brush mounting into its inoperative position wherein the brush is out of engagement with the adjacent car. When it is desired to wash a car which is being propelled past the apparatus in the opposite direction, i. e., in the direction indicated by the arrow in Figure 6, the coupling 56 is first detached from the crank arm 38. Thereafter the brush mounting is swung manually to the right hand side of the column 15 of the upstanding supporting structure 10. After such swinging of the brush mounting the detachable coupling 56 is applied to the spherical head 39a on the outer end of the crank arm 39. When the motor 34 is energized so as to swing the crank arm 39 upwards the brush mounting 11 is swung forwards or outwards into its operative position and the motor serves yieldingly to hold the brush against the adjacent side of the car being washed. After the car washing operation the motor 34 is reversely driven so as to retract the brush and mounting. Should the motor 34 fail for any reason whatsoever the counterweight 69 of the unit 66 operates automatically to retract the brush and mounting. It is contemplated that during a washing operation the brush 12 will be driven by the electric motor 31 and water or washing fluid will be supplied under pressure to the spray pipes 78.

The herein described washing apparatus effectively and efficiently fulfills its intended purpose and is characterized by the fact that the torque motor 34 constituting the prime mover of the operating mechanism 13 serves yieldingly to hold the brush and mounting in their operative or washing position. It is further characterized by the fact that it is essentially a 2-way or 2-direction washer in that it may be readily adapted to wash a car regardless of the direction of propulsion or travel of the car. Because of

the arrangement of parts and simplicity of design the apparatus may be produced and operated at a comparatively low cost.

Whereas the apparatus has been described in connection with the washing of a railroad car it is to be understood that it may also be used to wash other forms or types of vehicles. It is also to be understood that the invention is not to be restricted to the details set forth since these may be modified within the scope of the appended claims without departing from the spirit and scope of the invention.

Having thus described the invention what I claim as new and desire to secure by Letters Patent is:

1. An apparatus adapted to wash a vehicle as the latter moves by it and comprising a supporting structure adjacent the path of movement of the vehicle, an elongated rotary power driven brush, a mounting for the brush supported on the structure so that it together with the brush is capable of being swung laterally towards and away from the vehicle to be washed, and means for swinging the brush mounting back and forth, embodying a rock shaft journaled on the supporting structure, a crank arm connected fixedly to, and radiating from, the rock shaft, and a rigid link having one end thereof pivotally connected to the distal end of the crank arm and its other end pivotally connected to the mounting.

2. An apparatus adapted to wash a vehicle as the latter moves by it and comprising an upstanding supporting structure at one side of the path of movement of the vehicle, a vertically elongated rotary power driven brush, a mounting for the brush supported on the structure so that it together with the brush is capable of being swung laterally back and forth between a position wherein the brush is in engagement with the adjacent side of the vehicle and a position wherein the brush is out of engagement with the adjacent vehicle side, and means for swinging the brush mounting back and forth between said positions, embodying a horizontally extending rock shaft journaled on the supporting structure and adapted to be rocked throughout an arc of less than 180°, a crank arm connected fixedly to, and radiating from, the rock shaft, and a rigid link having one end thereof pivotally connected to the distal end of the crank arm and its other end operatively connected to the mounting.

3. An apparatus adapted to wash a vehicle as the latter moves by it and comprising an upstanding supporting structure at one side of the path of movement of the vehicle, a vertically elongated rotary power driven brush, a mounting for the brush supported on the structure so that it together with a brush is capable of being swung laterally back and forth between a position wherein the brush is in engagement with the adjacent side of the vehicle and a position wherein the brush is out of engagement with the adjacent vehicle side, and means for swinging the brush mounting back and forth between said positions embodying a reversible electric torque motor on the supporting structure, a horizontally extending rock shaft journaled on said supporting structure and operatively connected to, and adapted to be rocked in either direction by, said electric torque motor, a crank arm connected fixedly to, and extending radially from, the rock shaft, and a rigid link having one end thereof connected to the distal end of the crank arm and

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its other end pivotally connected to said brush mounting.

4. An apparatus adapted to wash a vehicle as the latter moves by it and comprising an upstanding supporting structure at one side of the path of movement of the vehicle, a vertically elongated rotary power driven brush, a mounting for the brush supported on the structure so that it together with the brush is capable of being swung laterally back and forth between a position wherein the brush is in engagement with the adjacent side of the vehicle and a position wherein the brush is out of engagement with the adjacent vehicle side, and means for swinging the brush mounting back and forth between said positions, embodying a horizontally extending rock shaft on the supporting structure, a crank arm connected to, and radiating from, the rock shaft, a link having one end thereof pivotally connected to the distal end of the crank arm and its other end operatively connected to the mounting, and means for urging the brush mounting into its inoperative position, consisting of an arm connected to, and extending radially upwards from, the rock shaft, and a counterweight connected to, and depending from, the distal end of said arm.

5. An apparatus adapted to wash a vehicle as the latter moves by it and comprising an upstanding supporting structure at one side of the path of movement of the vehicle, a vertically elongated rotary power driven brush, a vertically elongated mounting for the brush supported on the structure so that it together with the brush is capable of being swung laterally towards and away from the vehicle to be washed, means for swinging the brush mounting towards and away from said vehicle, embodying a horizontal rock shaft on the supporting structure, a crank arm connected to, and radiating from, the rock shaft and a link having one end connected to the distal end of the crank arm, and its other end operatively connected to the brush mounting, and means for limiting swinging of said brush mounting towards and away from the vehicle consisting of an apertured element on the supporting structure, an arm connected to, and radiating from the rock shaft, and a rod having one end thereof pivotally connected to the outer end of said arm and its other end extending slidably through the aperture in the element and provided with axially adjustable stop members in straddled relation with said element.

6. An apparatus adapted to wash a vehicle as the latter moves in either direction past it and comprising an upstanding column type supporting structure at one side of the path of movement of the vehicle, a vertically elongated rotary power driven brush, a vertically elongated mounting connected to the supporting structure to swing laterally, having means at the distal portion thereof for rotatably supporting the brush and adapted in connection with movement of the vehicle in one direction to be positioned at one side of the supporting structure and so that it extends substantially in said one direction while at the same time it is capable of swinging towards and away from the vehicle and in connection with movement of the vehicle in the opposite direction to be positioned at the other side of the supporting structure and so that it extends substantially in said opposite direction while at the same time it is capable of swinging towards and away from the vehicle, and means mounted for the most part on the supporting structure, op-

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erative to swing the mounting towards and away from the vehicle regardless of whether it is positioned as first mentioned or as second mentioned, and comprising a reversible prime mover, mechanism connected to the prime mover for drive in one direction or the other and provided with two spaced apart points of attachment, and an operating connection adapted selectively to be connected so as to extend either between one point of attachment and the brush mounting or the other point of attachment and the brush mounting, depending upon positioning of said mounting.

7. An apparatus adapted to wash a vehicle as the latter moves in either direction past it and comprising an upstanding column type supporting structure at one side of the path of movement of the vehicle, a vertically elongated rotary power driven brush, a vertically elongated mounting connected to the supporting structure to swing laterally, having means at the distal portion thereof for rotatably supporting the brush and adapted in connection with movement of the vehicle in one direction to be positioned at one side of the supporting structure and so that it extends substantially in said one direction while at the same time it is capable of swinging towards and away from the vehicle and in connection with movement of the vehicle in the opposite direction to be positioned at the other side of the supporting structure and so that it extends substantially in said opposite direction while at the same time it is capable of swinging towards and away from the vehicle, and means operative to swing the mounting towards and away from the vehicle regardless of whether it is positioned as first mentioned or as second mentioned, and comprising a reversible electric torque motor, mechanism connected to the motor for drive in one direction or the other and provided with two spaced apart points of attachment, and an operating connection adapted selectively to be connected so as to extend either between one point of attachment and the brush mounting or the other point of attachment and the brush mounting, depending upon positioning of said mounting.

8. An apparatus adapted to wash a vehicle as the latter moves in either direction past it and comprising an upstanding column type supporting structure at one side of the path of movement of the vehicle, a vertically elongated rotary power driven brush, a vertically elongated mounting connected to the supporting structure to swing laterally, having means at the distal portion thereof for rotatably supporting the brush, and adapted in connection with movement of the vehicle in one direction to be positioned at one side of the supporting structure and so that it extends substantially in said one direction while at the same time it is capable of swinging towards and away from the vehicle and in connection with movement of the vehicle in the opposite direction to be positioned at the other side of the supporting structure and so that it extends substantially in said opposite direction while at the same time it is capable of swinging towards and away from the vehicle, and power means for swinging the mounting towards and away from the vehicle regardless of whether positioned as first mentioned or as second mentioned, including a horizontal rock shaft mounted on the supporting structure and disposed in substantially parallel relation with the path of movement of the vehicle, a pair of crank arms

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connected to opposite ends of the rock shaft and a link having one end thereof operatively connected to the mounting and its other end provided with a detachable coupling whereby it may be selectively connected to one or the other of the crank arms, depending upon positioning of the mounting.

9. An apparatus adapted to wash a vehicle as the latter moves past it and comprising a supporting member adjacent the path of movement of the vehicle, an elongated rotary power driven brush, a mounting member for the brush pivotally supported on the supporting member so that it together with the brush is capable of swinging laterally into and out of a washing position wherein the brush engages the vehicle, and means for swinging the mounting member into its washing position embodying an electric torque motor on one of the members and an operating connection between the motor and the other member, the motor being adapted during a vehicle washing operation to be energized continuously, the operating connection being so designed and constructed that the motor while energized after swinging of the mounting member into its washing position serves yieldingly to hold said mounting member in such position.

10. An apparatus adapted to wash a vehicle as the latter moves past it and comprising an upstanding supporting member adjacent the path of movement of the vehicle, an elongated rotary power driven brush, a mounting member for the brush pivotally supported on the supporting member so that it together with the brush is capable of swinging laterally towards and away from the vehicle to be washed, adjustable stop

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means for limiting swinging of the mounting member towards and away from the vehicle, and means for swinging the mounting member towards and away from the vehicle to the extent determined by said adjustable stop means embodying a reversible electric torque motor on one of the members and an operating connection between the motor and the other member, the motor being adapted during a vehicle washing operation to be energized continuously, the operating connection being so designed and constructed that the motor while energized after swinging of the mounting member towards the vehicle serves yieldingly to hold said mounting member towards the vehicle.

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