

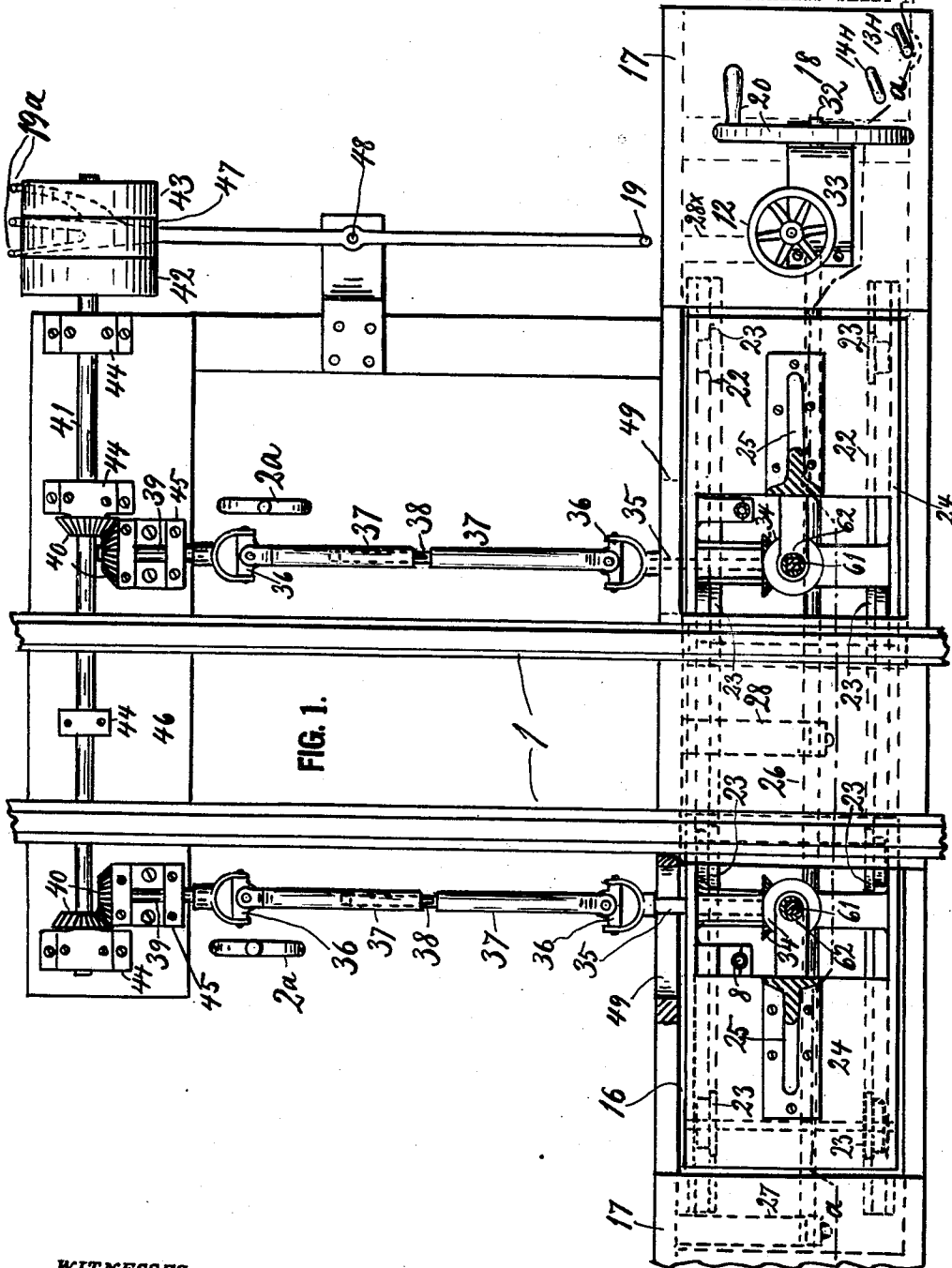
No. 848,188.

PATENTED MAR. 26, 1907.

H. & G. MILLER.
CAR AND COACH WASHING MACHINE.

APPLICATION FILED AUG. 24, 1906.

4 SHEETS—SHEET 1.



WITNESSES:

D. E. Carlsen.
E. C. Carlsen

INVENTORS:

Henry Miller & Gustaf Miller.
BY THEIR ATTORNEY:
A. M. Carlsen.

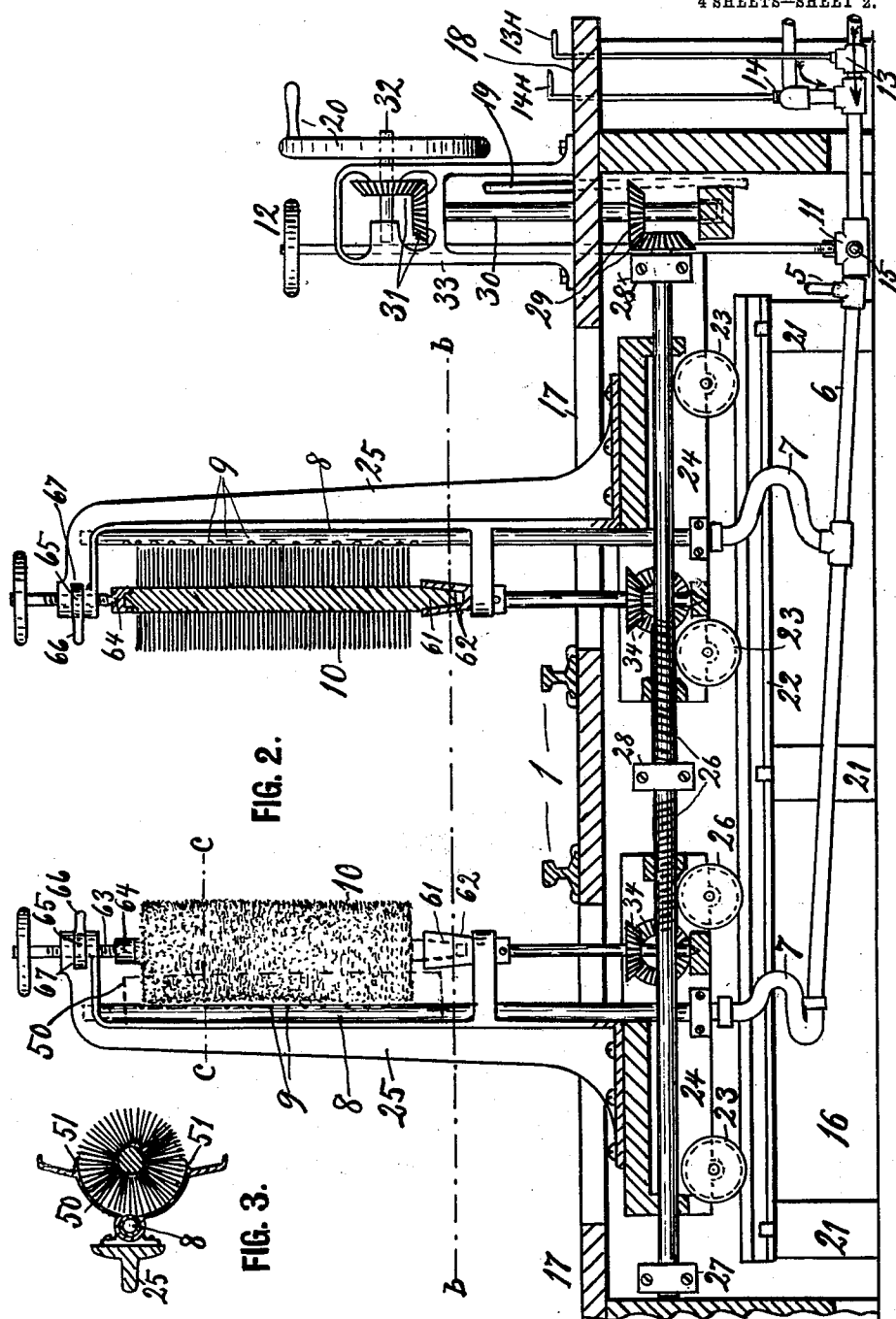
No. 848,188.

PATENTED MAR. 26, 1907.

H. & G. MILLER.
CAR AND COACH WASHING MACHINE.

APPLICATION FILED AUG. 24, 1906.

4 SHEETS—SHEET 2.



WITNESSES:

D. C. Carlsen
C. C. Carlsen

INVENTORS:

Henry Miller & Gustaf Miller
BY THEIR ATTORNEY:
A. M. Carlsen.

No. 848,188.

PATENTED MAR. 26, 1907.

H. & G. MILLER.
CAR AND COACH WASHING MACHINE.

APPLICATION FILED AUG. 24, 1906.

4 SHEETS—SHEET 3.

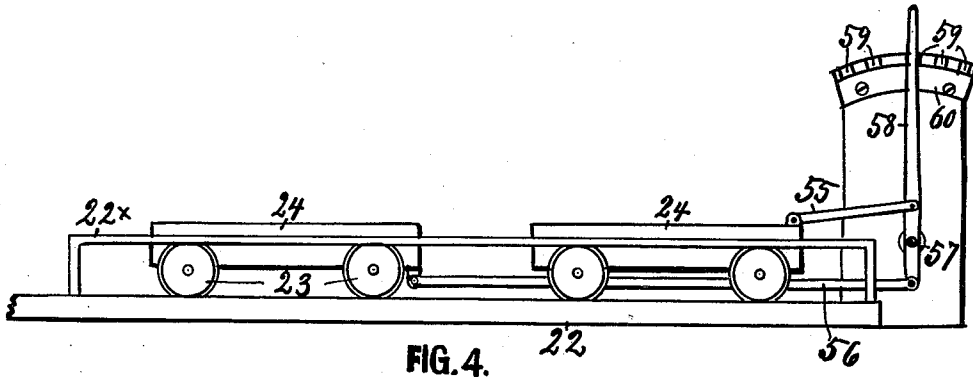


FIG. 4.

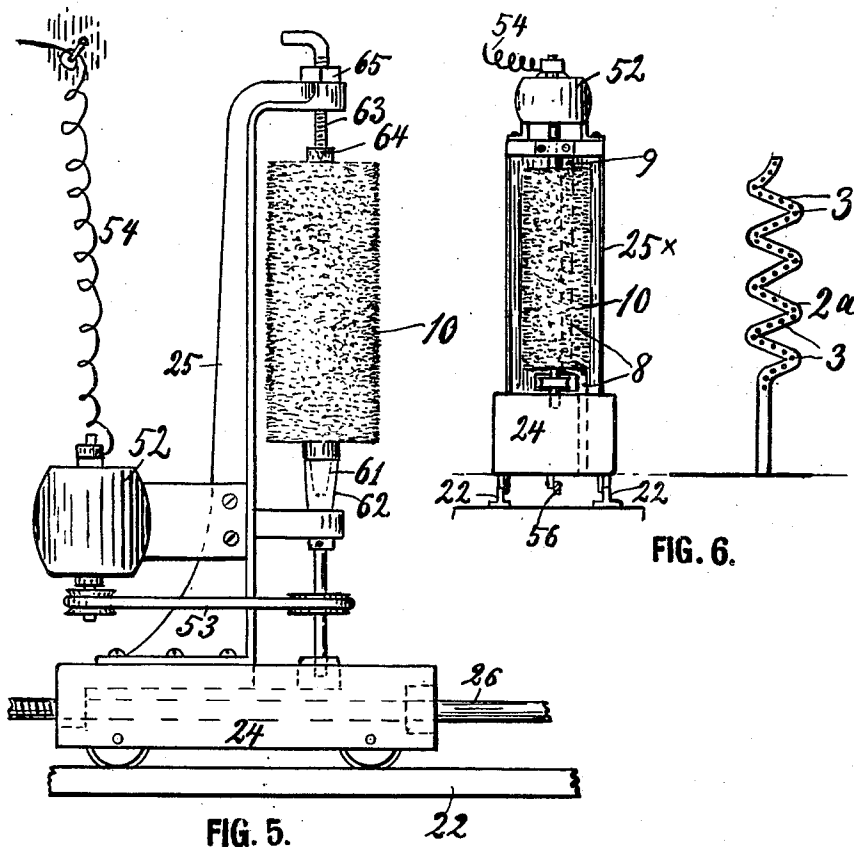


FIG. 5.

FIG. 6.

WITNESSES:

D. E. Carlsen
E. C. Carlsen.

INVENTOR:

Henry Miller & Gustaf Miller.
BY THEIR ATTORNEY:
A. M. Carlsen.

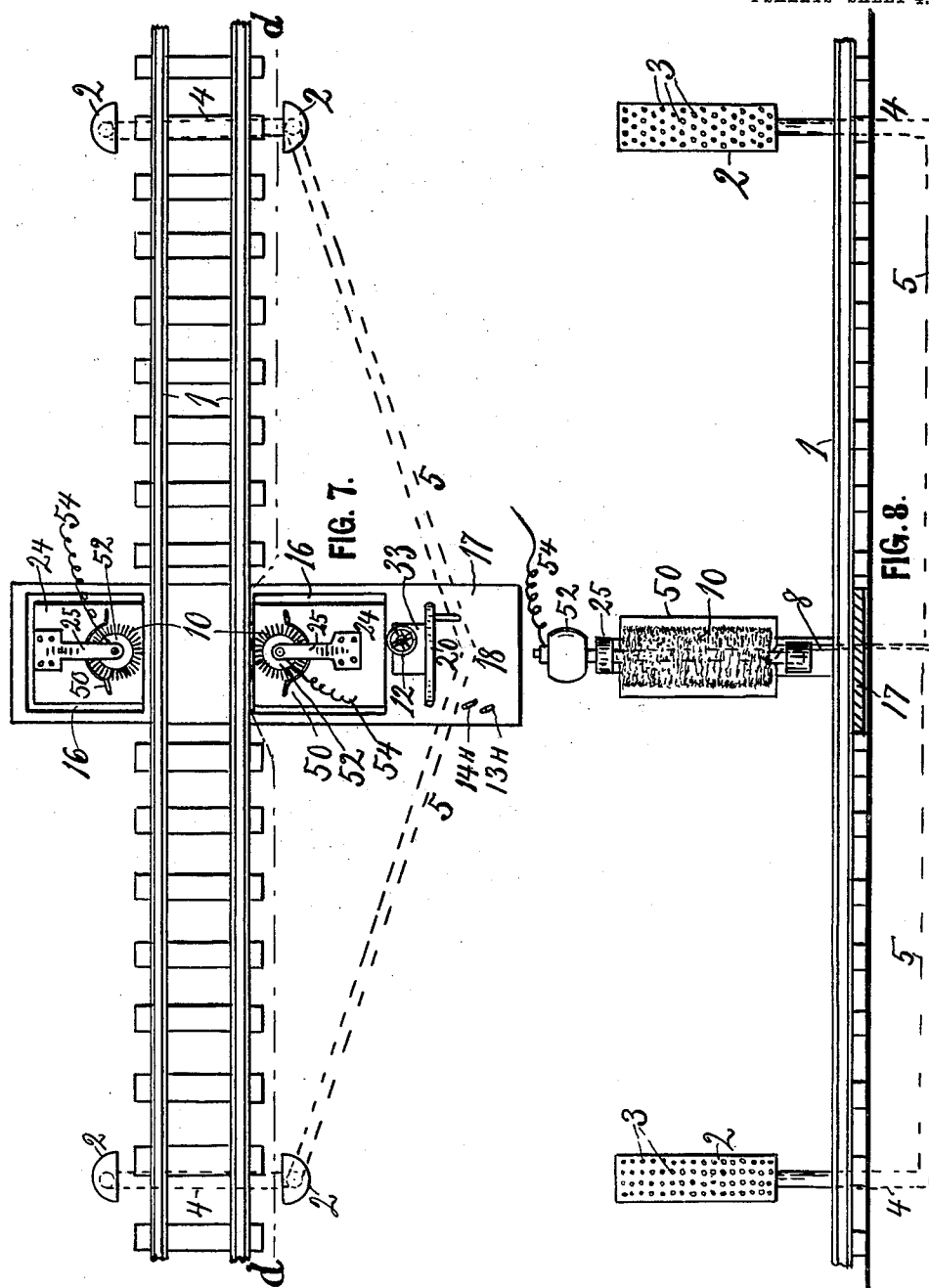
No. 848,188.

PATENTED MAR. 26, 1907.

H. & G. MILLER.
CAR AND COACH WASHING MACHINE.

APPLICATION FILED AUG. 24, 1906.

4 SHEETS—SHEET 4.



WITNESSES:

D. E. Carlson
C. C. Carlson

INVENTORS:

Henry Miller & Gustaf Miller.
BY THEIR ATTORNEY:
A. M. Carlson.

UNITED STATES PATENT OFFICE.

HENRY MILLER AND GUSTAF MILLER, OF ST. PAUL, MINNESOTA.

CAR AND COACH WASHING MACHINE.

No. 848,188.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed August 24, 1906. Serial No. 331,843.

To all whom it may concern:

Be it known that we, HENRY MILLER and GUSTAF MILLER, subjects of the King of Sweden, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Car and Coach Washing Machines; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

Our invention relates to devices for washing and cleaning railway-cars, especially passenger-coaches, which after long trips are often so covered upon the outsides with sand, dust, smoke, and soot that a regular crew is kept busy at certain yards to clean the coaches before they go out the next trip; and the object of our invention is to avoid as much as possible such slow and expensive method of cleaning the cars and to provide an improved and effective stationary machine having power-operated rotary brushes adjustable against the sides of a car, so that both sides of the car are cleaned as the car passes along between the brushes in about one minute. This and other objects we attain by the novel construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a top view of nearly our entire car-washing machine in its common mechanical form, only the parts above line *b b* in Fig. 2 being cut away. Fig. 2 is a vertical section on the line *a a* in Fig. 1 with one of the rotary brushes in central vertical section. Fig. 3 is a horizontal section on the line *c c* in Fig. 2. Fig. 4 is a side elevation of the brush-carrying trucks with modified means for moving them. Fig. 5 is a side elevation of one of the trucks and frames moving the brushes to and from the car to be washed, the truck being shown as mounted on rails and the brush being rotated by an electric motor. Fig. 6 is a right-hand end elevation of Fig. 5 considerably modified and showing to the right one of the pipes by which water is sprinkled on the car preparatory to scrubbing it with the brushes. Fig. 7 is a plan or top view of the entire washing-machine on a scale so reduced that some of the other views must be relied on for details. Fig. 8 is a ver-

tical section on the line *d d* in Fig. 7 except as to the underground water-pipes shown in dotted lines, which remain intact.

Referring to the drawings by reference-numerals, 1 designates the washing track or rails, upon which the cars to be cleaned are moved slowly by an engine or other means while they are being washed. Said track is long enough for the longest train of cars to be washed while connected. At a suitable point of the track is arranged the washing-machine, which comprises two pairs of sprinkling-posts 2, having perforations 3 for sprinkling water onto the car, each pair receiving water under pressure from a pipe 5, which is connected with the pipe 6, (see Fig. 2,) feeding water through the pipe-hose connections 7 into upright pipes 8, having perforations 9 for sprinkling water onto the rotary brushes 10. All of said piping is thus controlled by the valve 11 and hand-wheel 12, and the piping will deliver cold or hot water, as the season may require, according to which of the two valves 13 or 14 be opened by the handles 13^a or 14^a. 15 is an outlet for water to empty the pipes beyond the valve 11 when the machine is not in use and water might freeze in the pipes.

Intermediate of the two pairs of water-posts 2 is arranged below the track 1 an inclosure 16, partly covered by a platform 17, upon whose longest end the operator takes his position at 18, from which point he reaches and controls the valve-handles 12 13^a 14^a, the handle 19, by which the machine is started if run by the mechanism shown in Fig. 1, and the hand-wheel 20, by which the brushes 10 are pressed more or less against the sides of the car passing between them.

In the pit or inclosure 16 are mounted on ties 21 rails 22, on which move on wheels 23 transversely of the track 1 two small trucks 24, having each secured upon its top a brush-holding frame 25, in which is journaled the rotary brush 10. The two trucks are in Fig. 2 moved to and from each other by a screw 26, having right threads engaging one truck and left threads engaging the other. The screw is journaled in suitable bearings 27 28 and is turned by miter-gears 29, a vertical shaft 30, miter-gears 31, shaft 32, and wheel 20, most of which mechanism is mounted in the frame-stand 33, fixed upon the platform.

The brushes 10 are rotated by miter-gears 34 and shafts 35, universal joints 36, shafts

37, having shdable joints 38, short shafts 39, miter-gears 40, shaft 41, and a tight pulley 47. Said shaft 41 is journaled in bearings 44 and the shafts 39 in bearings 45, secured upon a suitable frame or platform 46. 42 43 are loose pulleys on which a straight and a cross-belt, (not shown,) driven by suitable means, remain when the machine is idle. When it is to be started, the operator takes 10 hold of the lever 19 and swings it on the fulcrum 48, so that either the crossed belt or the straight belt is moved by the belt-shifter 19^a onto the tight pulley and turns the brushes in the desired direction, according to the direction in which the train moves. 15

It will be observed in Fig. 1 that the inclosure 16 is provided with elongated apertures 49 for the shafts 35 to move in as the trucks 24 are closed and spread.

20 In the operation of the machine the train is moved slowly along the track 1 by any suitable means. When the first car reaches the water-post 2, the water from said post sprinkles fine but strong streams onto the car, thereby softening and loosening the sand and 25 other dirt, whereupon the brushes 10, soaked with water from the perforated pipes 8, scrub and wash the sides of the car, and thereupon the next pair of posts 2 sprinkle water on the car to rinse off any loose dirt left after the 30 brushes. If the dirt is old or of the most sticky character, the motion of the train and the brushes may be reversed and the operation repeated. The brushes should preferably run 35 against the motion of the cars.

Turning now to a consideration of the many variations or modifications to which the invention is susceptible, we will, as examples of many more, mention the following 40 few. The brushes may have shields 50 to cause the water and dirt to pass downward. In Fig. 3 is also shown scrapers 51, adapted to clean the dirt off from the brushes. In Fig. 6 is shown that such shields may be 45 made of the very brush-frame 25^x. In said view is also shown that the sprinkling-post 2 may be a zigzag bent pipe 2^a, while in Figs. 7 and 8 such post is of semicircular cross-section with the perforations in the flat side. 50 Instead of the driving-gear 34 to 48 in Fig. 1 each brush may be run by an electric motor 52, using a belt 53, as in Fig. 5, or being connected directly to the end of the brush-shaft, as in Figs. 6, 7, and 8, electric current being 55 conducted through wires 54, which when suspended, as in Fig. 5, allow the trucks 24 free motion. The latter motion may be produced by many other means than the screw 26. An illustration is shown in Fig. 4, where 60 the trucks 24, lacking the screw 26 for vertical guidance, have their wheels guided between the lower rail 22 and upper rails 22^x, and the trucks are closed and spread from each other by link-rods 55 56, connected 65 one above and the other below the fulcrum

57 of a hand-lever 58, which may be sprung into either of the notches 59 in a fixed segment 60. As the brushes have much work to do and are thus apt to wear out and need replacing, we have shown in Figs. 1, 2, and 5 70 how the real shaft of the brush may have an angular shank 61, set in a socket 62, out of which it may be lifted and removed by releasing the screw 63, whose point 64 forms the upper journal for the brush-shaft, said screw being held in its adjusted position by a jam-nut 75 65, which in Fig. 2 has a handle 66 and is inserted in a gap 67 in the frame, so that it will jam when turned in either direction.

Having thus described the invention, what 80 we claim, and desire to secure by Letters Patent, is—

1. A car-washing machine adapted to wash cars while they move on a track, the same comprising vertically-disposed rotary 85 brushes adapted to rub against opposite sides of the car, wheeled frames or trucks carrying said brushes, tracks supporting said trucks, and means for moving said trucks simultaneously to or from both sides of the 90 car by a single operator stationed at one side of the moving car.

2. A car or coach washing machine adapted to wash a car while it moves on a track, the same having vertically-disposed rotary 95 brushes adapted to rub against the sides of the moving car the entire height of the sides in one operation; wheeled trucks carrying said brushes, tracks supporting the trucks, means carried by the trucks for sprinkling 100 water on the car and the brushes, and means for adjusting the trucks simultaneously toward both sides of the car while operated only from one side thereof, and means for 105 readily detaching the brushes, for the purpose set forth.

3. In a machine adapted to wash cars while they move upon a main track, the combination with cross-tracks arranged transversely to and lower than the main track, 110 wheeled trucks standing on the cross-tracks, means extending under the main track for moving the trucks to and from the sides of the car; hand-operated means at one side of the main track for thus moving the trucks at 115 both sides thereof, rotary brushes and perforated water-pipes carried by said trucks for cleaning the sides of the cars, and means for rotating the brushes.

4. In a machine adapted to wash cars 120 while they move upon a main track, the combination with cross-tracks arranged transversely to and lower than the main track, wheeled trucks standing on the cross-tracks, means extending under the main track for 125 moving the trucks to and from the sides of the cars; hand-operated means at one side of the main track for thus moving the trucks at both sides thereof, rotary brushes and perforated water-sprinklers carried by the trucks 130

for cleaning the sides of the cars, and means for rotating the brushes; the latter means comprising two shafts, each of which drives with one end the brush or brushes carried by
5 one truck, extends normally about parallel to the main track, has universal joints, a slidable joint, and a bevel-gear fixed at the other end; a main drive-shaft journaled in transverse position to and below the main track,
10 bevel-gears fixed on said shaft and driving the bevel-gears on the shafts with the universal joints.

5. In a car-washing machine, the combination with a frame or bracket having two
15 arms pointing toward the car to be washed, a rotary brush having its shaft journaled to

said arms; a rotating angular socket in one of the arms and a journal-pointed screw in the other arm, and a jam-nut holding said screw against accidental turning, said brush- 20 shaft having at one end an angular taper stem adapted to be detachably set into the socket, and at the other end a piece forming a journal-joint with the end of the said screw.

25 In testimony whereof we affix our signatures in presence of two witnesses.

HENRY MILLER,
GUSTAF MILLER.

Witnesses:

A. M. CARLSEN,
JOHN BLOMQUIST.