Sept. 7, 1926. 1,599,194

W. S. WILLIAMS

CAR CLEANING APPARATUS

Filed Dec. 11, 1924 3 Sheets-Sheet 1

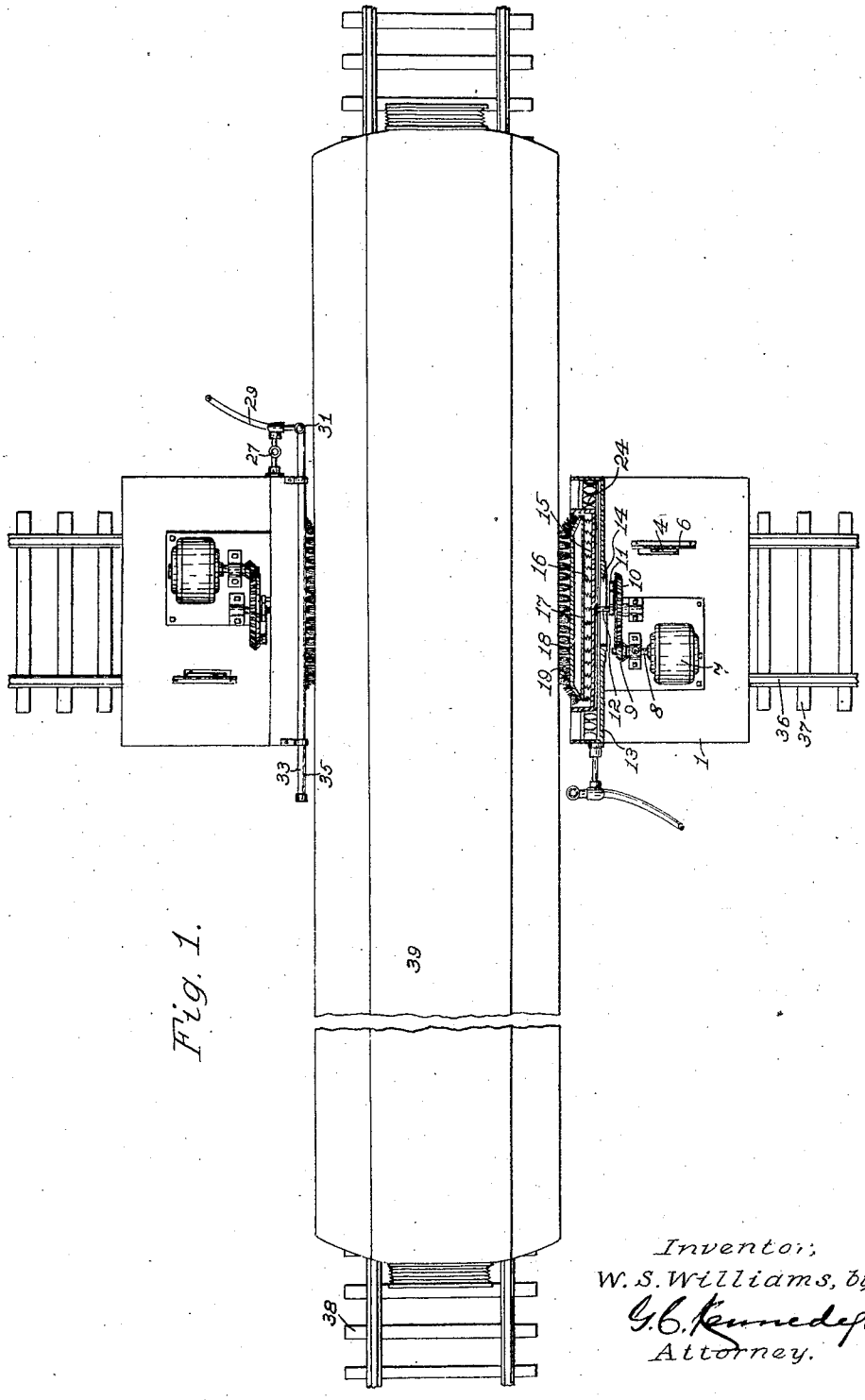


Fig. 1.

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Fig. 3.

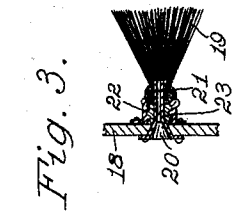


Fig. 2.

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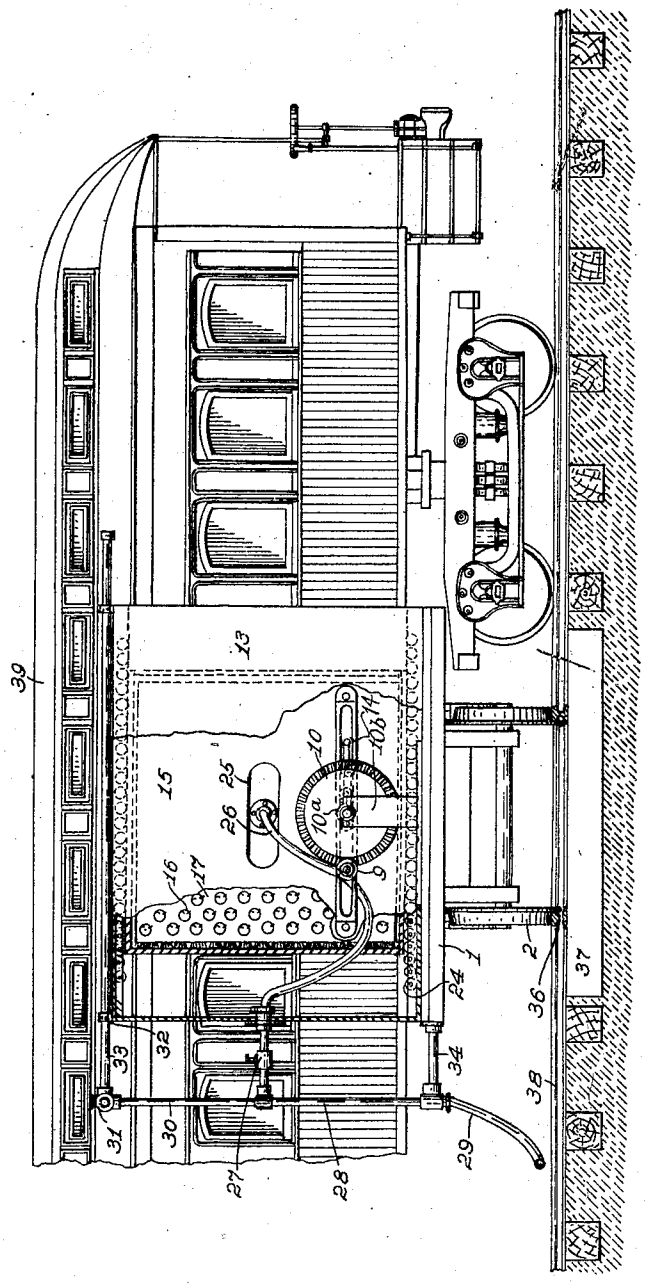


Fig. 4.

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Patented Sept. 7, 1926. 1,599,194

UNITED STATES PATENT OFFICE.

WALTER SCOTT WILLIAMS, OF WATERLOO, IOWA.

CAR-CLEANING APPARATUS.

Application filed December 11, 1924. Serial No. 755,343.

My invention relates to improvements in car cleaning apparatus, and the object of my improvement is to supply an apparatus particularly adapted for employment in quickly washing the outer side walls of railway cars or coaches, or other vehicles, and including elements for rinsing also, with reciprocating rubbing means for scrubbing said walls yieldingly in order to satisfactorily clean depressed parts of the vehicle.

This object I have accomplished by the means which are hereinafter described and claimed, and which are illustrated in the accompanying drawings, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention:

In said drawings:

Fig. 1 is a top plan of a pair of like but respectively reversed devices of my invention placed in operative relation to opposite side walls of a railway coach, parts of one of the devices being shown in horizontal section. Fig. 2 is an enlarged end elevation of said coach and pair of cleaning devices, one of the latter being shown in vertical medial section. Fig. 3 is a detail vertical medial section of one of the removable brushes and its inclosed liquid delivery device. Fig. 4 is a side elevation of a part of said coach and of one of said devices, parts of the latter being longitudinally sectioned or broken away.

The numeral 39 denotes a railway passenger car mounted for transportation upon the usual railed trackway 38. The numeral 36 denotes pairs of short like rails mounted on cross-ties 37 on opposite sides of the trackway 38 at a right angle thereto. The numeral 1 denotes a truck platform mounted on flanged wheels 2 to be moved along the trackway 36—37 to and from a side wall of said coach 39, and having brake-heads 3 to engage one pair of its wheels 2, the brake-heads being operatively connected to and operated to lock said wheels in a given position by a hand-lever 4 having the usual spring-controlled detent 5 releasably engaging sockets in a rack-sector 6 fixed on the truck. Mounted upon the truck is a prime-motor which may be an electric motor 7 or of any other kind, and which drives a short shaft 8 terminating in a terminal pinion 9 meshed with a relatively large gear-wheel 10 which has on one face a crank-pin pivotally carrying one end of a pitman 11, the gear 10 being fixed on a projecting end of a rotatable shaft 10^a, mounted on a standard 10^b, and which does not project from the gear toward the coach, the pitman having its other end pivotally connected with a pin 12 fixed on the outer wall of a rimmed carrier 15 and said pin 12 projects through an elongated slot or slideway 14 in a casting fixed to the outer rimmed casing 13 which is fixed on the truck to open toward the coach 39. The inner carrier 15 also opens toward said coach. A number of short coiled springs 16 are mounted upon the inner wall of the carrier 15, and a hollow box or liquid container 17 is mounted upon the free ends of said springs 16 so as to be yieldable to and from the side wall of the coach. The opposite ends of the container or rubbing device 17 may be beveled at 17^a for a purpose to be described.

Brushes 19 are removably mounted upon the forward outer wall of the device 17 to project toward the coach and also upon the beveled ends of the device to ride easily over obstructions or projections on the coach. Referring to said Fig. 4, the numeral 26 denotes a flexible hose member which is in communication with the device 17 by way of an aperture in its wall, the hose being carried thence through a horizontally elongated opening 25 in the inner carrier 15 and along the rear thereof to and through one side rim of the fixed casing 13 to communicate with a pipe 28 leading to a main hose 29 and bracketed on the truck at 34. The said communication is controlled by a shut-off cock or valve-chamber at 27.

As shown in Fig. 2, another pipe 30, also in communication with the hose 29, projects vertically upward spaced from one side of the truck 1. The numeral 33 denotes an elongated tubular rose-head with closed ends, and having a row of small perforations 35 directed toward the coach 39, positioned immediately above the fixed casing 13 to project at both ends therefrom for a distance, and controlled by a shut-off cock or valve-chamber 31 independently of the other shut-off cock 27. The rose-head tube is mounted in ring-clamps 32 upon the casing 13.

The numeral 24 denotes a number of concave anti-friction rollers mounted along the upper and lower parts of the fixed casing 13, and the reciprocating inner carrier 15 has

convex strips fixed along its upper and lower rims to fit the concave rollers, whereby displacement of the casing 13 is prevented while it is riding thereover and therebetween.

Referring now to said Fig. 3, the forward wall of the brush-carrying device may have a number of small apertures within which are fixed conical liquid delivery devices 20 which have tubular terminals 21 which penetrate in each case a hollow provided centrally in a socket member 23 of the brush 19. The conduit part 23 has exterior threads or a thread which removably meshes with an interior thread in the conduit part 22 fixed on the forward outer wall 18 of the device 17. By this means water under pressure in the container device 17 is delivered into the brushes to wet their fibers and also against the coach wall in part to soften adherent dry or hardened grime or dirt.

The rose-head 33 may be used to deliver water under pressure in finely divided steams or jets downwardly upon the brushes 19 and upon the outer wall of the coach 39, in cooperation simultaneously with the delivery of water under pressure into and through the brushes 19 from the delivery devices 20—21, or they may be used independently of each other according to the need.

For instance, the rose-head may be employed initially alone to wet and soften adherent grime on the coach before the rubbing brushes 19 are set in reciprocation by the mechanism described. In either single or combined use, the rose-head will deliver a spray of water upon the outer wall of the coach at both of its ends which project beyond the rubbing device, whereby when the coach is slowly moved lengthwise of the washing apparatus the one end part of the rose-head initially wets and softens grime upon the coach, while the other end of the rose-head rinses the coach wall as the latter is uncovered progressively because of its movement ahead. The rose-head may be independently turned on to spray the coach wall after rubbing by the brushes 19, in order to rinse said wall, as the truck may be shifted slightly away from the coach to take the brushes 19 out of contact with the wall.

The coaches may be thus quickly cleaned at terminal stations, or at other places where a short stop is made, and where my cleaning apparatus is installed, and the operation is facilitated and hastened by the employment of a pair of apparatus, on opposite sides of the coach, as illustrated.

It will be noted that the brushes 19 should be of a suitable length for needed flexibility, so that when in engagement with the wall of the coach 39 they will yieldably rub with some force thereover while reciprocating, and the freely swinging springs 16 will then press the brush tips into crevices or depressed places such as those presented by window panes between sashes and jambs, and the springs can yield to permit the brushes to pass over projections, the beveled end parts 17[a] of the rubbing device facilitating this. The resilient mounting of the rubber reciprocating device thus practically simulates the effective scrubbing action of a hand brush over an extensive surface at the same time, whereby the cleaning is perfected in a minimum time, and the brushes are not permanently bent over or injuriously changed in shape.

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

1. In combination, a reciprocably mounted body adapted to be positioned adjacent to a vehicle, a multiplicity of springs fixed at one end upon and distributed over a face of said body, and a brush-carrying body connected to the other ends of said springs to yield freely under lateral and inward stress.

2. In combination, a truck adapted to be positioned adjacent a vehicle, a rimmed carrier mounted for reciprocation upon said truck, a body having a front face and mounted to yield under lateral and inward pressure upon said carrier, and a plurality of brush units removably distributed over said front face projecting in the direction of the vehicle.

3. In combination, a truck, a rimmed casing thereon opening toward a vehicle, a carrier body reciprocably positioned within said rimmed casing, springs numerously distributed over and connected to said carrier body to yield under lateral and inward stress, and a brush-carrying element supported upon said springs.

4. In combination, a supporting device adapted to be shifted relatively to an adjacent vehicle, a hollow device mounted upon said supporting device and in communication with a supply of fluid under pressure, mechanism reciprocably mounted on said supporting device connected to and adapted to reciprocate said reciprocable device substantially parallel to the adjacent part of the vehicle, said reciprocable device having its wall opposite said vehicle numerously apertured, swabs mounted over said apertures, and tubular delivery devices traversing said apertures to deliver fluid under pressure into and through said swabs.

5. In combination, a movable support, a carrier mounted reciprocably upon said support, a hollow container in communication with a supply of fluid under pressure and supported yieldingly upon said carrier, said container having numerous apertures in one wall, terminally diminished delivery

devices mounted in said apertures, and brushes mounted on said delivery devices and container whereby the fluid is carried through the brushes under pressure.

6. An apparatus of the character described, comprising in combination, a truck, a rimmed carrier reciprocably mounted thereon, a hollow device supported within and upon said rimmed carrier and having a multiplicity of apertures directed toward a vehicle, said device being in communication with a supply of fluid under pressure, a brush mounted removably over each aperture of said device to receive fluid therefrom, and a prime motor mounted upon said truck and operatively connected to said rimmed carrier to reciprocate it parallel with the vehicle.

7. An apparatus of the character described, comprising in combination, a truck mounted to be moved toward and from a vehicle, a rimmed casing fixed on said truck, a rimmed carrier mounted within said casing to reciprocate alongside the vehicle, the carrier wall next said vehicle having a medial plane face between end faces inclined away from the vehicle, and a multiplicity of brushes mounted upon all said faces to project toward the vehicle.

In testimony whereof I affix my signature.

WALTER SCOTT WILLIAMS.