

(No Model.)

3 Sheets—Sheet 1.

G. M. BRILL.
TRACK SWEEPER FOR RAILWAYS.

No. 513,230.

Patented Jan. 23, 1894.

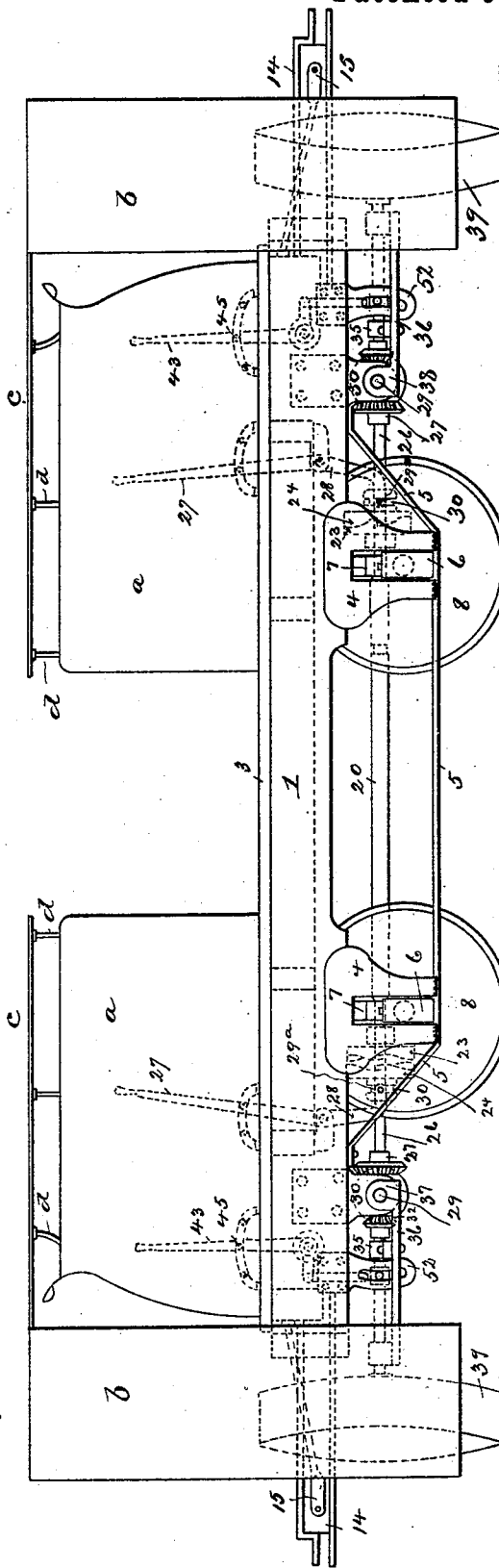


Fig. 1.

Attest;
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Inventor:
George M. Brill
By Joseph L. Levy
att'y.

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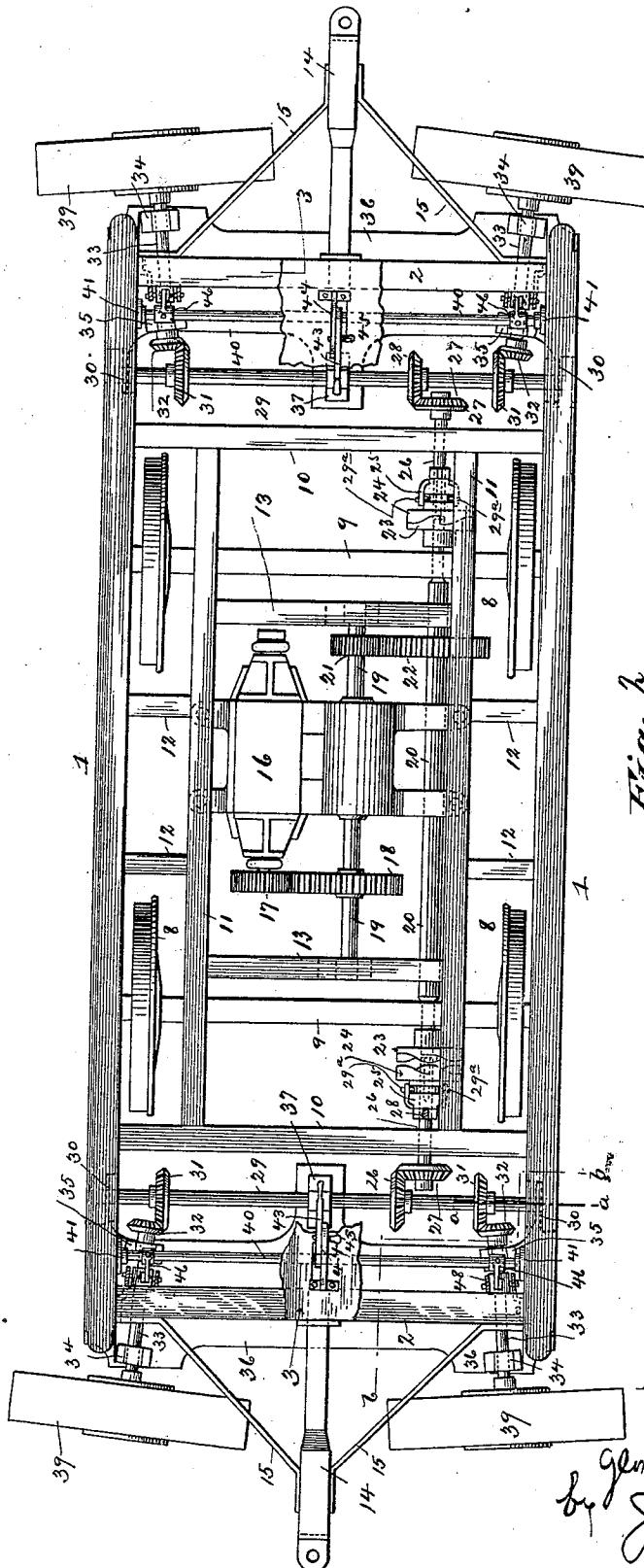


Fig. 2.

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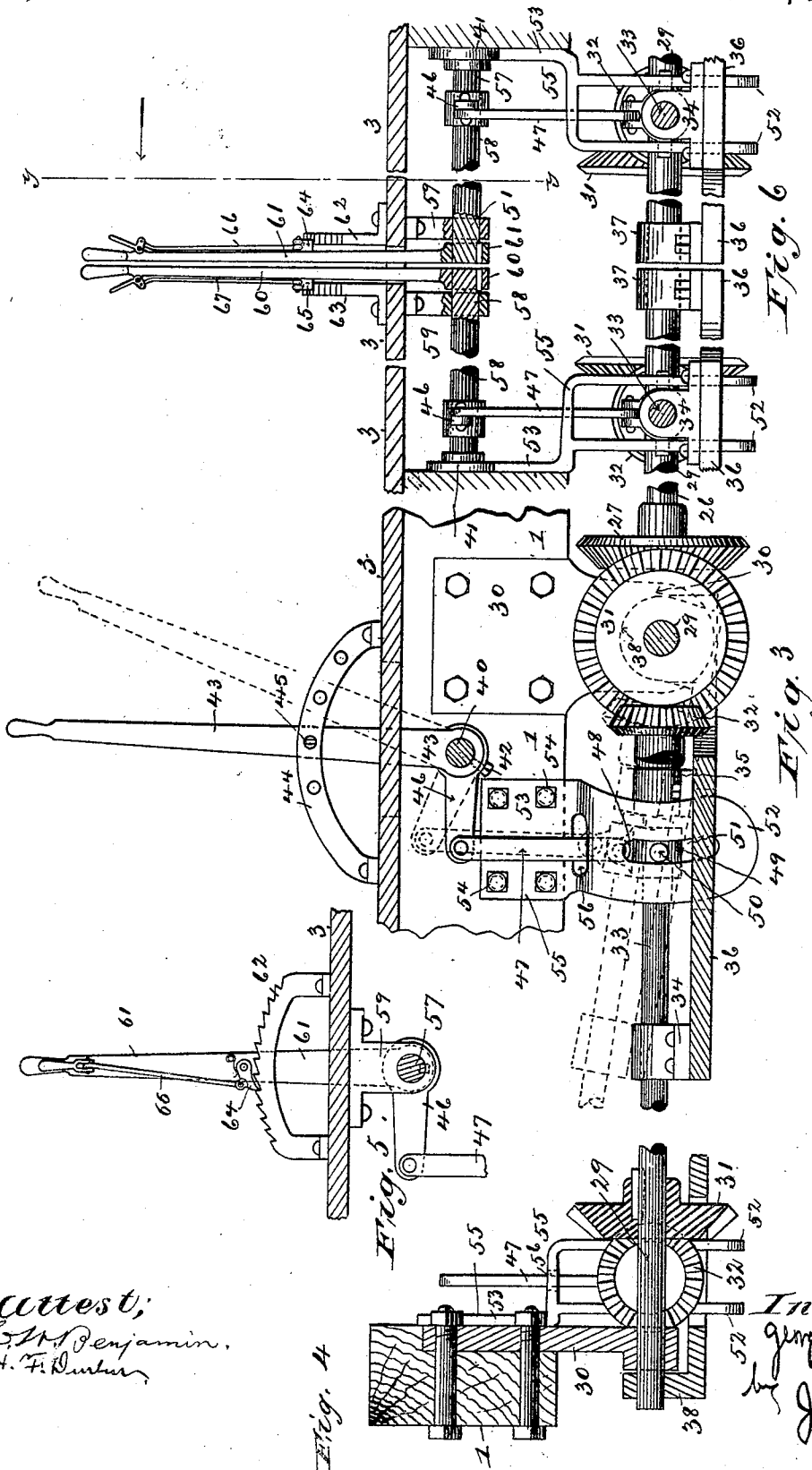
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G. M. BRILL.
TRACK SWEEPER FOR RAILWAYS.

No. 513,230.

Patented Jan. 23, 1894.



Attest;
G. H. Benjamin,
H. F. Barber,

Inventor;
G. M. Brill
Joseph L. Perry
Atty.

UNITED STATES PATENT OFFICE.

GEORGE MARTIN BRILL, OF PHILADELPHIA, PENNSYLVANIA.

TRACK-SWEEPER FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 513,230, dated January 23, 1894.

Application filed March 25, 1893. Serial No. 467,595. (No model.)

To all whom it may concern:

Be it known that I, GEORGE MARTIN BRILL, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have made certain new and useful Improvements in Track-Sweepers for Railways, of which the following is a specification.

My invention relates to track sweepers in which a dummy, which is adapted to be pulled or hauled along a railway, is provided with sweepers for clearing the snow and the like from tracks, and which are operated by a motor of any desired form.

My invention consists of certain arrangements whereby, when the sweeper is to be used, the motor may be kept running continuously, and the brushes at either end of the dummy may be thrown in or out of operation at will, without stopping the motor.

My invention also comprises means for raising the brushes at either end of the dummy in a vertical plane over the track, and means for enabling each individual brush at either end of the dummy to be raised in a vertical plane over the track independent of either of the other brushes, and in both cases, without arresting either the motion of the brush itself or that of the motor.

My invention further comprises the novel combination of elements, and the construction of the same, hereinafter set forth and pointed out in the claims.

In the accompanying drawings—Figure 1 is a side elevation of a dummy car furnished with my improved apparatus; Fig. 2, a plan view of the same, the flooring being removed to show the working parts thereof; Fig. 3, an enlarged detail view, being a longitudinal section taken on the line *b b*, Fig. 2, showing the manner in which the height of the brooms is adjusted, and the supporting and operating connections; Fig. 4, a sectional elevation taken on the line *a a*, Fig. 2; Fig. 5, a side elevation partly in section of the elevating mechanism of a modification; Fig. 6, a view, similar to Fig. 4, of a modified form of my invention, in which either brush can be adjusted independently of the other.

Similar letters and figures refer to similar parts throughout the several views.

The dummy comprises the longitudinal and

cross sills 1, 2; platform 3; the axle box pedestals 4, tied below by the pedestal tie bar 5, both being bolted to the side sills; the axle boxes 6 in the pedestals with cushions or springs 7 between them; the wheels 8 and axles 9 journaled in the axle box.

When referring to the dummy hereinafter I wish to be understood as meaning either the vehicle here shown or any other suitable form of conveyance.

For the purpose of supporting an electric motor I provide a carrying frame made up of the cross timbers 10, hanger timbers 11, stud-ding pieces 12, and journal pieces 13, all except the journal pieces being supported from the side sills. To both cross sills are secured the draw bars 14, braced thereto by the straps 15. The dummy may also have the body shields *a* within which the operator may stand. I also provide broom shields made up of the depending plate *b* which may be secured between its ends to the side sill 1 and supported above by the bar *c* supported on the arms *d* which are in turn secured to the body shield *a*. Both ends are fitted in the same way.

On the motor frame is suitably mounted an electric motor 16 of any approved construction, the armature of which is connected by gearing 17, 18 to a shaft 19 revolving in suitable bearings supported in the bearing pieces 13, the shaft 19 being geared to the shaft 20, journaled in bearings in the journal pieces 13 by gear wheels 21, 22, the shaft 20 being furnished at each end with a clutch face 23 adapted to engage the clutch face 24 carried by the collar 25, which by means of a groove therein and a feather (in the usual way) on the clutch shaft 26, is adapted to impart rotation to the shaft 26 while able to move longitudinally upon the shaft 20. For imparting this longitudinal movement to the collars so as to bring the clutch faces 23 and 24 into engagement, levers 27 are employed, carrying, at the ends of their short arms 28, studs 29^a which engage in the grooves 30 of the collars, so that by shifting the levers the collars are moved into or out of the position of engagement without interfering with the rotary movement of the collars. Each shaft 26 carries at its outer end a bevel gear wheel 27 meshing with a bevel gear wheel 28 on the

transverse shaft 29 supported in suitable bearings 30 on the truck frame, and carrying at each side bevel wheels 31 gearing with bevel wheels 32 at the end of shafts 33 which rotate in bearings 34, 35, secured to the vibrational platform or support 36 which is pivotally supported on the shaft 29 by a center bearing and extension 37, Fig. 2 and end bearings 38, Fig. 4. The shafts 33 carry at their outer ends circular brooms or sweepers 39, arranged to sweep the track adjacent to the rails thereof, said shafts having preferably a slight divergence for that purpose, as well as to more effectually sweep the tracks.

Thus far it will be seen that the brooms are directly connected with the motor by inflexible devices, whereby the motor can work directly upon them, instead of interposing in the connections between the motor and brooms such flexible devices as sprocket chains and the like.

By my arrangement it is possible to continuously operate the motor and throw the brooms at either end of the dummy in and out of operation. This enables me to back up the dummy to go over the same spot on the track several times and at each forward or backward movement to operate either the front or rear brooms. When backing up the rear brooms will lead and reach the desired portion of the track (which it is desired to re-sweep) without causing the dummy to move sufficiently for bringing the prior leading brooms to the desired spot.

By providing bevel gearing for the broom shafts 33, and supporting them so that the gears 32 can work upon the face of the bevel gear 31 from which the broom shafts derive their motion, I can raise or lower the brooms without disturbing the continuity of rotation, or checking or reversing the motion of the motor.

As the means for taking up the current for the motor and reversing or checking its motion are well known in the art, I have not shown them as any suitable form can be used.

For the purpose of raising the brooms from the track, there is provided near each end of the car, a transverse rock shaft 40, having end bearings 41 in the side sills 1, and secured to the rock shaft, by a set screw 42 or otherwise, is a lever 43 passing upward through the flooring 3 of the car, and furnished with the usual rack 44 and detent pin 45 for holding the lever in the desired position. To the rock shaft are also secured crank arms 46, whose ends are connected by rods 47 with lugs 48 upon the collars 49, which have guide studs 50 moving in slots 51 in the depending guide plates 52 of the hangers 53 secured to the side sills 1 by the bolts 54, the bend 55 of the hangers having a slot 56 through which the rod 47 passes. It will be seen that by this arrangement the platform 36, upon which the broom shafts rest, being pivoted upon the transverse shaft 29, may be raised to any angle and lowered without interfering

with the engagement of the bevel wheels 18 and 19.

By a modification shown in Figs. 5 and 6 the brooms can be raised and lowered singly or individually without imparting a like movement to the adjoining broom, thus making each broom independent in operation so far as raising or lowering is concerned and accommodating the position of each broom to the inequalities in the road bed.

In the modification shown in Figs. 5 and 6, instead of the single rock shaft 40, two such shafts 57, 58 are provided, each having a bearing in the journals 41 in the side sills of the truck frame and an inner bearing 59 supported from the flooring 3 of the car. Separate levers 60, 61, racks 62, 63, detents 64, 65 and lift rods 66, 67 are provided for the rock shafts, and the platform or support 36 and shaft 29 are divided and formed double as shown, so that each broom shaft can be separately and independently elevated to any desired extent and lowered, the rest of the details remaining the same as before described. Also by means of the friction clutches, either or all of the broom shafts as desired may be thrown into working engagement with the driving shaft.

The electric current for the motor may be derived either from a distant source as in the trolley system, or from storage batteries carried by the car.

Many changes and alterations can be made in the present invention without departing from the spirit of the same.

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

1. In a track sweeper, the combination with a car or truck, of track sweeping brooms rotatively supported at or near the opposing ends thereof and normally lying in operative contact with the track or rail, a unitary source of power for all the brooms, connections between the power and brooms, whereby all the brooms can be simultaneously operated from the same source of power, and means whereby the connections can be independently broken without disturbing the operative relationship of the brooms to the rail or track, substantially as described.

2. In a track sweeper, the combination of a car, brooms and geared inflexible broom shafts rotatively supported on the car and extending therefrom in opposite directions, a motor to operate the brooms to the exclusion of the car propulsion, connections between the motor and brooms whereby all the brooms can be simultaneously operated or their movement independently arrested, and means whereby either of the broom shafts can be independently raised or lowered about their geared connections without arresting their rotation, substantially as described.

3. The combination with a car, of a driving shaft mounted in bearings thereon, a working shaft at or near each end of the car operated

by the driving shaft, rotative broom shafts and brooms operatively connected with the working shafts, and means for raising or lowering either of the brooms from the track without arresting their rotation, substantially as described.

4. The combination with the car, of the motor thereon, a drive shaft driven thereby, a transversely extending working shaft in gear with the drive shaft, longitudinal broom shafts in gear with the working shaft extending from opposite corners of the car at the end thereof, brooms on the broom shafts, and means for raising or lowering either one or both of the brooms to or from the track without arresting the movement of the brooms, substantially as described.

5. In a track sweeper, the combination with a car, of a plurality of sweeping devices supported on the car in operative relationship with the track and extending in opposite directions therefrom, a motor other than the car itself carried by the car, a main or driving shaft operating all of the sweeping devices, an idler or supplemental shaft in gear with the main shaft, connections between the idler shaft and the sweepers, and means for independently manipulating any one of the sweepers to clean either rail of the track, substantially as described.

6. The combination, with a car truck, of a driving shaft mounted in bearings thereon, and means for actuating it independently of the car axles, a working shaft, a broom arranged to sweep the car track and operatively connected to the working shaft, and means for throwing the working shaft into engagement with the driving shaft, substantially as described.

7. The combination, with a car truck, of a driving shaft mounted in bearings thereon, a working shaft at each end, each of said working shafts being arranged to be actuated by said driving shaft, brooms at each end of the car operatively connected with the working shaft, and means for throwing either or both of the working shafts into engagement with the driving shaft, substantially as described.

8. The combination, with a car truck, of a driving shaft mounted in bearings thereon, and operated independently of the car axles, a working shaft, a clutch for throwing the shafts into engagement, and a broom arranged to sweep the car track and operatively connected to the working shaft, substantially as described.

9. In a track sweeper, the combination with a suitable vehicle, of a rotative broom or brooms supported in operative relationship to a track by an inflexible shaft carried upon said vehicle, a motor on said vehicle adapted to operate the broom independent of the movement of the vehicle, operative connections between the broom shaft and motor, and means for raising or lowering the broom shaft about said connections without arresting the movement of either, substantially as described.

10. In a track sweeper, the combination with a car, of a longitudinal and inflexible rotative broom shaft, journal bearings on the car for the said shaft, a motor, a main shaft, an idler shaft, gearing between the idler and broom shafts, and means for raising or lowering the broom, whereby the brooms can be supported in operative connection with the track and raised or lowered from or into such position bodily about said gearing without arresting the rotation of the broom, substantially as described.

11. In a track sweeper, the combination with a car, the transversely rotative and positively connected broom or brooms supported on the car over each rail by an inflexible shaft, a motor, and connections between it and the broom shaft, means for raising or lowering the broom, the broom shaft connections permitting said shaft to be moved in the arc of a circle, without arresting its movement, substantially as described.

12. In a track sweeper, the combination of the car or the like, of a motor, a transversely extending work shaft in gear with the motor, outwardly diverging broom shafts, connections between the work and broom shafts, and the transversely rotative brooms on the broom shafts, substantially as described.

13. The combination, with a car truck, of a driving shaft mounted thereon, and extending longitudinally thereof, means for rotating the same, rotary brooms at the ends of the truck arranged to sweep the car track, means for operatively connecting the brooms at either end with the driving shaft, and means for raising said brooms while so connected, substantially as described.

14. The combination, with a car truck, of a driving shaft mounted thereon, and means for rotating the same, brooms at each end of the truck, operative connections between the brooms and the opposite ends of said driving shaft, and means for raising either broom without disturbing said connections, substantially as described.

15. The combination of a car truck, a driving shaft carried in bearings thereon, a working shaft geared to the driving shaft, a vibrational platform hung on said working shaft, a broom actuating shaft journaled in bearings on said platform and geared to the working shaft, a broom or brush, and means for raising said platform, substantially as described.

16. The combination of a car truck, a driving shaft carried in bearings thereon, working shafts at each end of the car and geared to the driving shaft, vibrational platforms hung on said working shafts, broom actuating shafts journaled in bearings on said platforms, brooms or brushes, and means for raising said platforms independently, substantially as described.

17. The combination of a car truck, a driving shaft, carried in bearings thereon, an independent shaft also journaled in bearings

on said truck, a clutch between said shafts, a working shaft geared to the shaft 26, and a broom actuating shaft geared to the working shaft, and means for raising said broom actuating shaft, substantially as described.

18. The combination of a car truck, a driving shaft, a working shaft geared thereto, gears on said working shaft, a vibrational platform journaled on the working shaft, a broom actuating shaft journaled in bearings on said platform, gears on said broom shaft meshing with said gears on the working shaft, a broom or brush, and means for raising said platform, whereby as it turns on the working shaft the gears will remain in mesh, substantially as described.

19. The combination of a car truck, a driving shaft, a working shaft geared thereto, a vibrational platform hung on the working shaft, a broom actuating shaft journaled in bearings on said platform, and geared to the working shaft, a collar on the broom shaft, an actuating lever connecting with said collar, guide hangers for the broom shafts, and a broom or brush, substantially as described.

20. The combination of a car truck, a driving shaft, a working shaft geared thereto, a vibrational platform hung on the working shaft, a broom actuating shaft journaled in bearings on said platform, a collar on said shaft, a lever connected with said collar, a guide hanger having a slot, a pin on said collar entering said slot, and a broom or brush, substantially as described.

21. The combination of a car truck, a motor carried thereby, a shaft 19 geared thereto, a driving shaft geared to the shaft 19, said shafts being journaled in bearings on the car truck, a working shaft geared to the driving shaft, a broom actuating shaft geared to the working shaft, and a broom or brush, substantially as described.

Signed at Philadelphia, in the county of Philadelphia and State of Pennsylvania, this 13th day of March, 1893.

GEORGE MARTIN BRILL.

Witnesses:

HENRY C. ESLING.

WM. H. HEULINGS, Jr.