

(No Model.)

2 Sheets—Sheet 1.

A. J. SMITH.
TRACK CLEANER.

No. 535,302.

Patented Mar. 5, 1895.

Fig. 1.

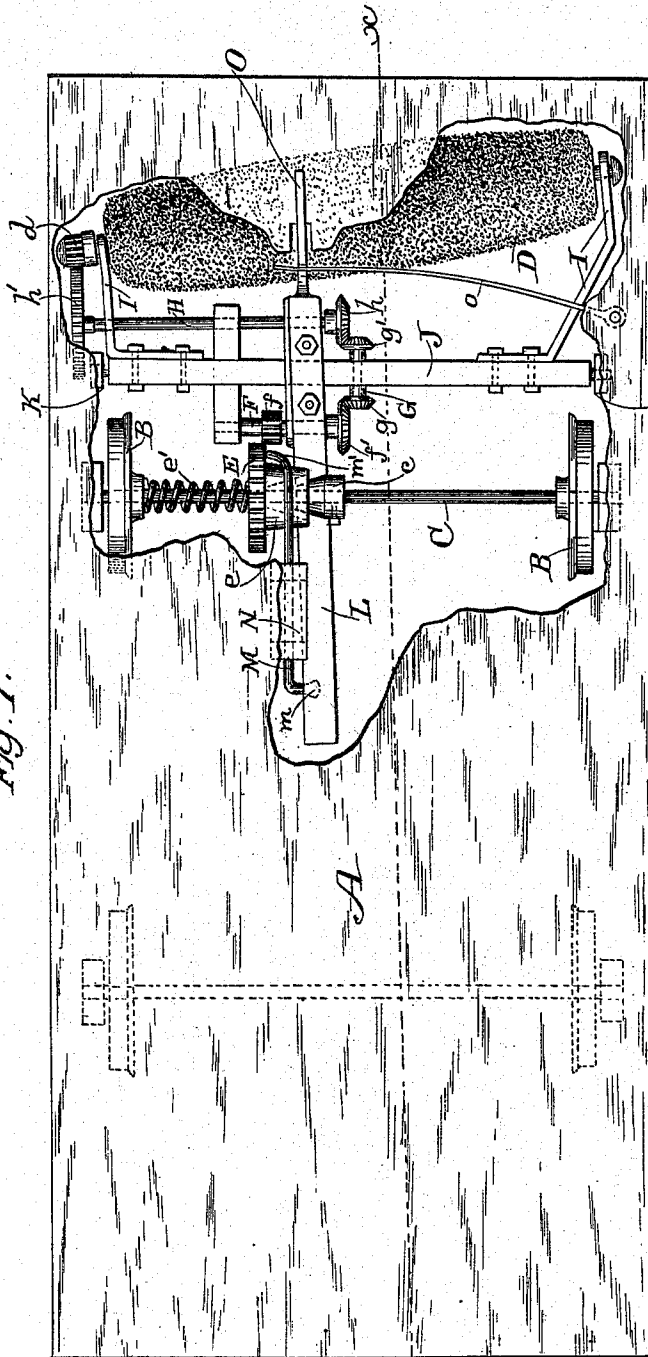
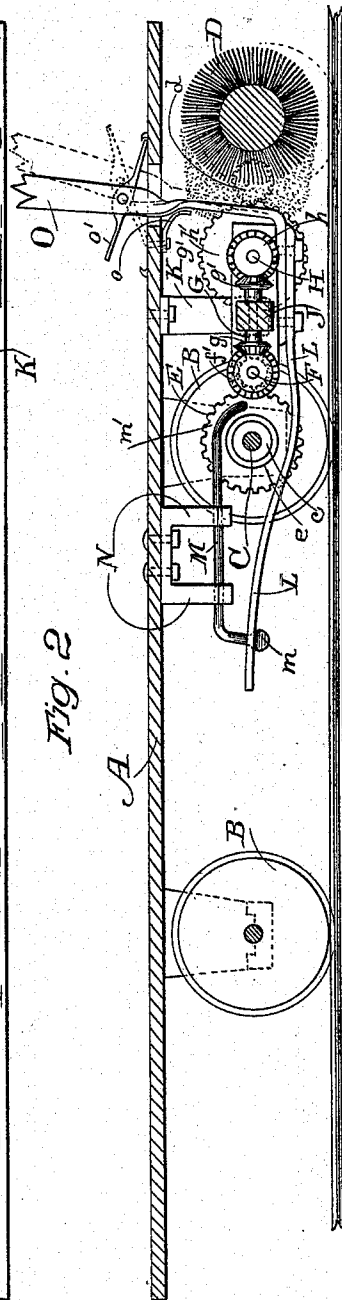


Fig. 2.



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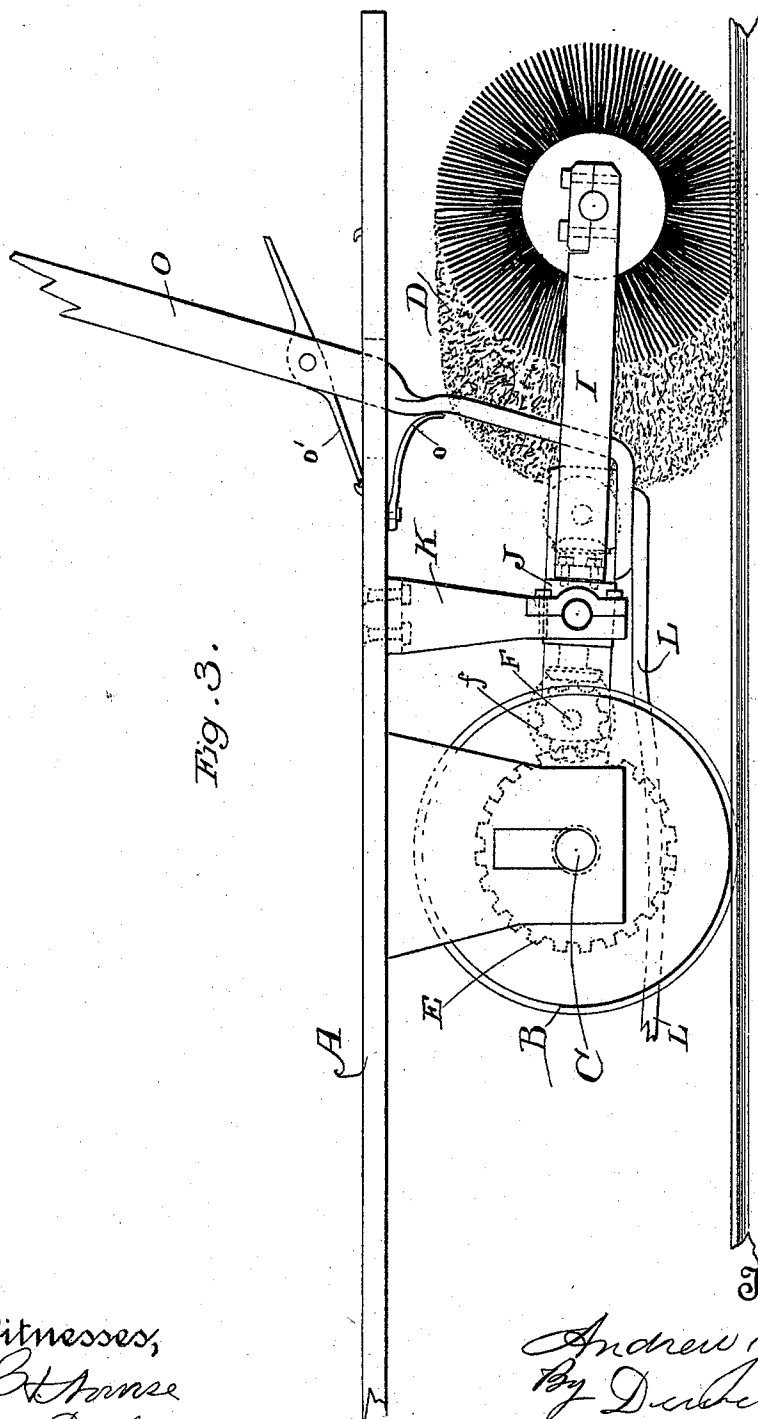
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UNITED STATES PATENT OFFICE.

ANDREW J. SMITH, OF STOCKTON, CALIFORNIA.

TRACK-CLEANER.

SPECIFICATION forming part of Letters Patent No. 535,302, dated March 5, 1895.

Application filed November 23, 1894. Serial No. 529,764. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. SMITH, a citizen of the United States, residing at Stockton, county of San Joaquin, State of California, have invented an Improvement in Track-Cleaners; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of track cleaning attachments for street railway cars, and it consists in the novel details of construction, arrangement and combination which I shall hereinafter fully describe and specifically claim.

Though my invention is applicable to the cleaning of the tracks of railways of any foreign substances whatever, it is especially adapted and intended for the removal of snow from the tracks, and the prevention of its accumulation.

The object of the invention is, therefore, to clean the road-bed and rails, and to provide, for this purpose, a practicable and effective device, adapted to be carried upon each car, and to remain inactive when not required, whereby there shall be no wear and tear on the parts, and no noise and dust, said device being adapted to be instantly thrown into use as occasion may require.

Referring to the accompanying drawings for a more complete explanation of my invention,—Figure 1 is a top view of my track cleaner. Fig. 2 is a section on the line $x-x$ of Fig. 1, the brush being elevated. Fig. 3 is a side elevation showing the brush down.

A represents the frame of a car, of which B are the wheels and C the axles.

D is a brush carried under the car. This brush may be of any suitable character for sweeping, and may be arranged in one or more sections, and in any proper direction with relation to the road-bed, it being preferably a single brush as here shown, arranged at an angle to the road-bed, so that the sweepings may be the better carried off sidewise out of the way. This brush is carried under the car, and it is geared up to one of the axles, say, the forward axle, by power transmitting connections, in such a manner that its direction of rotation shall be the reverse of that of the wheels, that is to say, forwardly, thereby carrying the débris forwardly and sidewise.

Any suitable power transmitting connections may be employed for transmitting rotation to the brush, though the connections I have here shown are deemed practicable. These consist of a gear E, deriving power from the forward axle, said gear meshing with a pinion f on a countershaft F, the end of which carries a bevel pinion f' meshing with a bevel pinion g on a short counter-shaft G having on its other end a bevel pinion g' which said pinion meshes with a bevel pinion h on a shaft H, the outer end of which carries a gear h' which meshes with a pinion d on the brush shaft. In a device of this character, it is obvious that the brush should not be in a state of continuous operation, but should be inactive normally and only thrown into operation when required. To effect this, it is necessary to provide that the power transmitting connections, of whatever character they may be, shall be provided with means by which they may be thrown into and out of gear with the axle at will. These means, which may be of any suitable character, according to the exigencies of each case, are here shown as consisting of a clutch c fast on the axle C, and a clutch e on the gear E, which said gear is loose on the axle. The clutches may be of any suitable character, either toothed or otherwise, though I prefer, and have here shown, said clutch as being of a frictional character. Now, when the parts of the clutch are disengaged, it is obvious that the main gear E will remain idle, and thus no power will be transmitted to rotate the brush; but when the clutches are thrown to engagement, the power of the axle will be transmitted to the gear E, and through the connections, to the brush.

Any suitable means may be employed for throwing the clutches into and out of engagement. The means which I deem best, are here shown in connection with and adapted to operate simultaneously with the means for raising and lowering the brush to its work.

The brush is mounted in end arms I, which are secured to a rocking head or frame J, having its ends journaled in suitable brackets K. These brackets may, as here shown, depend directly from the car body, but it must be understood that they need not thus be directly connected with the car body, as it may be of more advantage to connect them with some

immovable portion of the car, such, for example, as the frame of the running gear thereof or the truck, so that the brush will not be subject to the vertical movements of the car body which is due to its springs. In this rocking head and in frame bars connected therewith, the various counter-shafts, heretofore mentioned, are mounted, and from said head projects rearwardly a lever L, the rear end of which lies above and is adapted to impinge upon the bent or cam end *m* of a rock shaft M mounted in suitable hangers N, and having a crank *m'* at its forward end which bears against the loose gear E of the power transmitting connections. A spring *e'* bearing behind said loose gear keeps it over against the crank.

O is a lever extending downwardly through the car body, and connected at its lower end with the rocking head J, whereby, through the movement of the lever, said head is rocked. This lever O is controlled by a spring *o*, and has a retaining pawl *o'* which is here shown as a foot actuated pawl, but which may represent any means for retaining the lever in place and for releasing it.

Now, it will be seen that when the brush is to be inactive, the lever O is pulled back, thereby rocking the head J so that it elevates the brush; and this same movement of the head, by depressing the rear end of its lever L, causes said end to impinge upon the cam end of shaft M, thereby turning said shaft and causing its forward crank *m'* to bear against the side of the gear E, and to force and hold the clutch *e* of said gear out of engagement with the clutch *c* of the axle, so that the axle may rotate without transmitting power to the gear, and the brush will remain inactive and be elevated out of the way. When ready to be used, the lever O is released, and as it moves forwardly, it rocks the head J back again, thus depressing the brush into contact with the track; and this same movement of the head freeing the cam end of shaft M, allows the crank *m'* of said shaft to yield, before the pressure of the spring *e'* which forces the gear clutch *e* over into engagement with the clutch *c* of the axle, thereby connecting up the parts and rendering the brush operative.

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

1. A track cleaner for street railway cars, consisting of a brush, carried under the car, a rocking frame or head in which said brush is mounted, a loose gear on the axle of the car and controlled by a spring, a clutch device on said axle adapted to engage with said gear, power transmitting gears carried by the rocking frame or head and conveying the power of the loose gear to the brush to rotate the latter in a direction opposite to that of the main wheels, and means for connecting and disconnecting the loose gear and the clutch device.

2. A track cleaner for street railway cars, consisting of a brush carried under the car, a rocking frame or head for supporting the brush, power transmitting gears carried by the rocking frame, a slidable gear loose upon the main axle and adapted to engage and disengage a clutch device whereby said gear is thrown into and out of gear with the power transmitting gears of the rocking frame or head, and means for operating the loose gear endwise on its shaft to render the brush inactive or operative at will.

3. A track cleaner for street railway cars, consisting of a brush carried under the car, a rocking frame or head from which the brush is supported, power transmitting connections carried by the rocking frame whereby said brush is operated from the axle, the gear mounted loosely on the axle and forming part of the power transmitting connections, said gear having a clutch, a clutch fast on the axle and means actuated by the movement of the frame or head for moving the gear to cause the clutches to engage and disengage whereby the power transmitting connections are thrown into and out of gear, to render the brush alternately operative and inactive.

4. A track cleaner for street railway cars, consisting of a brush carried under the car, power transmitting connections whereby said brush is operated from the axle, the gear mounted loosely on the axle and forming part of the power transmitting connections, said gear having a clutch, a clutch fast on the axle, and means for moving the disk to engage and disengage the clutches, consisting of an operating lever, an oscillating shaft with a crank end bearing against the gear, a connection between the operating lever and the oscillating shaft whereby the latter is operated, to cause its crank to force the gear to one side, and a spring for returning the gear when relieved of the crank.

5. A track cleaner for street railway cars, consisting of a brush under the car, a rocking head or frame carrying said brush, power transmitting gears and shafts carried in said frame and adapted to rotate the brush, a spring-controlled sliding gear loosely mounted on the axle of the car, for operating the power transmitting connections, said gear having a clutch, a clutch fast on the axle with which the clutch of the gear engages, a lever for rocking the brush carrying head or frame to elevate or depress the brush, and means by which the movement of said frame will cause the engagement and disengagement of the clutches as the brush is depressed and elevated respectively.

6. A track cleaner for street railway cars, consisting of a brush carried under the car, a rocking head or frame carrying said brush, power transmitting gears and shafts carried by said frame and adapted to rotate the brush, a spring-controlled sliding gear loosely mounted on the axle of the car, for operating the power transmitting gears, said sliding gear

having a clutch, a clutch fast on the axle with
which the clutch of the gear engages, the oper-
ating lever for rocking the frame which car-
ries the brush, the oscillating shaft M with its
5 crank for sliding the gear on the axle to effect
the disengagement of the clutches, said shaft
having a cam end, and the lever of the rock-
ing frame impinging upon said cam end where-
by as the brush is elevated out of the way, the
10 power transmitting connections are thrown

out of gear with the axle, and when the brush
is lowered to its work the power transmitting
connections are thrown into gear to operate
said brush.

In witness whereof I have hereunto set my 15
hand.

ANDREW J. SMITH.

Witnesses:

S. H. NOURSE,
H. F. ASCHECK.