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STREET SWEEPING APPARATUS.
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5 SHEETS—SHEET 2.

FIG. 2.

Witnesses:

Inventors

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The invention relates to street sweeping apparatus and particularly to apparatus of this class designed to be carried by and to be operated from vehicles, such as cars operating along track rails.

The object of the invention is to provide a construction of street sweeping apparatus which is simple and efficient, whereby snow, dirt, rubbish or the like may be swept from a street car track and for a considerable space alongside such track.

A further object is to provide means whereby a sweeper carried by a car may be operated beyond the side of the car, but can be swung out of the way when necessary for the car to pass in close proximity to another vehicle or other object.

Other objects of the invention will appear more fully hereinafter.

The invention consists substantially in the construction, combination, location and relative arrangement of parts, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the drawings,—

Figure 1 is a view in perspective looking toward the left hand side of the end of a car showing the application thereof to a street sweeping apparatus embodying the principles of our invention.

Fig. 2 is a similar view looking toward the right hand side of the end of the car.

Fig. 3 is a view showing the swinging sweeper and its carrier in horizontal position for use.

Fig. 4 is a view in end elevation of the sweeper and its carrier when occupying their horizontal position for use.

Fig. 5 is a top plan view of the same, parts in horizontal section.

Fig. 6 is an end view of the swinging sweeper and its frame.

Fig. 7 is a transverse section of the same on the line 7, 7, Fig. 5, looking in the direction of the arrows.

Fig. 8 is a broken view in side elevation, showing the swinging sweeper frame in raised or vertical position.

Fig. 9 is a broken detail view in vertical section on the line 9, 9, Fig. 5, showing the movable connection to the vertical frame of the car of the stay rods which suspend the swinging sweeper in horizontal position for use.

Fig. 10 is a broken detail view in section on the line 10, 10, Fig. 5, showing the connection of the lifting piston to the swinging sweeper frame.

Fig. 11 is a similar view on the line, 11, 11, Fig. 10.

The same part is designated by the same reference numeral wherever it occurs throughout the several views.

In the work of sweeping the streets, and particularly along street car tracks, for the removal of snow, dirt, rubbish and the like, where the sweepers are carried on cars operating on the tracks, it is a common expedient to employ a rotary sweeper located beneath the floor of the car and ordinarily extending transversely of the car body and in rearwardly inclined horizontal position. This is the type of apparatus which is most commonly employed in city use, and in operation the sweepers clean merely the space between the track rails leaving the sweepings of snow, dirt or the like piled up in a row along side of and closely adjacent the car tracks. This is undesirable and objectionable for the reason that passengers desiring to board or alight from a street car operating along the track system are required to walk through or over the piled up sweepings. Moreover, such sweepings, particularly in the case of heavy snow, obstruct other vehicles using the street, at least until the piled up snow is removed, and such removal is not always accomplished with a desirable celerity. The result is that other vehicles, in such cases,
finding the street outside of the track rails filled with the sweepings from the tracks, and difficult, if not impossible, to overcome, will invariably be driven onto and along the car tracks, thereby seriously impeding the operation of the street car system for rapid transit.

It is among the special purposes of our present invention to provide a street sweeping apparatus which supplements the ordinary track space sweeper with an auxiliary sweeper carried by a swinging frame and designed to operate horizontally beyond the side of the sweeper car on which the sweepers are carried, but to be rocked or swung into vertical position when not required for use or when necessary in passing a vehicle or other obstruction.

In the accompanying drawings we have shown a simple construction and arrangement embodying the principles of our invention but to the specific details of which, however, we do not desire to be limited or restricted, and wherein 12 designates what may be termed a sweeper car, and shown in this instance as operating along the track rails 13, of a street car system. It is obvious, however, that any suitable form of vehicle or carrier may be used, and whether operating along the track rails of a street car system or not.

The car 12 is provided with the usual rotary sweeper 14, which, as is common, extends horizontally across and is located beneath the car floor, in horizontal position and usually inclined with relation to the length of the car.

At the end of the car, preferably, though not necessarily, the rear end of the car, is mounted a frame work 15, which, as shown, extends laterally from the car in angular relation to the length of the car. This frame work includes a stirrup 16, upon which are pivotally mounted arms 17.

These arms are formed with bosses 18, at their free ends, through which extend pins or studs 19, connected to the rear end of a sweeper frame 20. The frame 20 is of generally rectangular shape and a rotary sweeper 21 is journaled at its ends in the end pieces 22, 23 of said frame. The pins or studs 19 are connected to the end piece 22, of the carrier frame 20. The side members of this frame extend on the opposite sides of the sweeper. If desired, and as shown, coil springs 24, may be interposed between the bosses 18, and the end frame piece 22, thereby forming a yielding supporting connection for the frame 20, to enable shocks or jars imparted to the sweeper when in operation to be taken up. If desired, and in order to still further brace the carrier frame 20, struts or braces 25 may be secured to the arms 17 and to said frame.

The frame 20 extends laterally from the car when in horizontal position for use, and in order to efficiently suspend the outer end of said frame, when in this position, we employ brace rods 26, which are pivotally connected at one end to the side members of 70 frame 20, and at their other ends, through link connections 27, to rods 28, the other ends of these latter being connected to a bar 29, having its ends connected to boxes 30, mounted to slide vertically in a guide 75 way formed in a stationary vertical frame 31, mounted on the car or forming part of the framework 15. By this construction the suspension rods 26, 28, are enabled to fold up upon each other when the sweeper frame 20, is swung into vertical position, as shown in Fig. 8.

The frame 20 may be rocked or swung into vertical position in any suitable or convenient manner. In the arrangement shown we provide a motor 32 for this purpose. While we do not wish to be limited thereto, we have shown a motor of the reciprocating piston type. The piston rod 33 of the motor is swivelly connected to the frame 20 in a suitable manner to enable the latter to tilt vertically when it is desired to raise said frame. To accomplish this the end of the rod 33 is provided with a head 34, which is clamped to a bracket 35, the latter being pivotally connected to a bail or strap 36, connecting the side members of the carrier frame 20, and passing over and across the sweeper 21. When the sweeper is swung into completely vertical position it may be retained therein in any suitable or convenient manner so as to relieve the motor of this work. A simple arrangement is shown wherein a pivoted hook 37, carried by the upper end of the vertical guide frame 31, is arranged to engage over the end frame piece 23 of carrier frame 20 thereby locking and retaining the frame 20 in its raised position.

The sweeper 21 may be driven in any suitable manner. The essential feature to be observed in this connection is that the driving connection be flexible to permit the swinging movement of the carrier frame 20.

In the form shown as exemplifying our invention a shaft 38 is driven from any convenient source from the car or other vehicle, and it is coupled through a connection, indicated at 39, to the shaft of sweeper 21.

If desired, and in order to efficiently brace the frame 20, laterally, and to make the frame 20 in operation, a flexible or other connection 40 is connected to the outer end of frame 20, and to the side of car 12.

Many variations and changes in the details of construction and arrangement may
be made without departure from the spirit and scope of our invention.

Having now set forth the objects and nature of our invention, and a construction embodying the principles thereof, what we claim as new and useful and of our own invention and desire to secure by Letters Patent of the United States, is—

1. In a street sweeping apparatus, a vehicle, an auxiliary frame extended laterally therefrom, a sweeper frame pivotally mounted thereon to swing vertically and extending rearwardly therefrom, a sweeper mounted in said sweeper frame, and a motor connected to said sweeper frame to swing the same.

2. In a street sweeping apparatus, a vehicle, an auxiliary frame located at the end thereof and extending laterally therefrom, a sweeper frame extending rearwardly from said auxiliary frame when in horizontal position, and pivotally mounted upon said laterally extending frame to rock vertically thereon, and means for rocking said sweeper frame.

3. In a street sweeping apparatus, a vehicle, a sweeper carried thereby and extending transversely across and beneath the same, an auxiliary sweeper pivotally mounted upon the vehicle to extend laterally and rearwardly therefrom, and means for operating said sweepers.

4. In a street sweeping apparatus, a vehicle, a sweeper carried thereby and extending transversely and beneath the same, an auxiliary sweeper pivotally mounted upon the vehicle to rock vertically thereon, said auxiliary sweeper when in position for use extending laterally and rearwardly from the vehicle, and means for operating said sweepers.

5. In a street sweeping apparatus, a vehicle, a sweeper carried thereby and extending transversely across and beneath the same, an auxiliary sweeper pivotally mounted thereon to rock into rearwardly extending horizontal position for use and into vertical position out of use, and means for rocking said auxiliary sweeper.

6. In a street sweeping apparatus, a vehicle, a frame carried thereby and extending laterally therefrom, arms pivotally mounted on said frame, a sweeper frame carried by said arms, a sweeper journaled in said frame, and means for rocking said arms to move the sweeper frame into rearwardly extending horizontal position for use or into vertical position out of use.

7. In a street sweeping apparatus, a vehicle, a frame carried thereby and extending laterally therefrom, arms pivotally mounted on said frame, a sweeper frame supported at one end upon said arms, braces for suspending the other end of said sweeper frame in a rearwardly extending horizontal position for use, a sweeper carried by said sweeper frame, means for operating said sweeper, and means for rocking said arms to swing said sweeper frame into vertical position out of use.

8. In a street sweeping apparatus, a vehicle, a frame carried thereby and extending laterally therefrom, arms pivotally mounted on said frame, a sweeper frame that yields at one end on said arms, braces to suspend the other end of said sweeper frame in a rearwardly extending horizontal position, a sweeper carried by the sweeper frame, means for operating the sweeper, and means for rocking said arms to swing said sweeper frame into raised position out of use.

9. In a street sweeping apparatus, a vehicle, a frame extending laterally therefrom, vertical guides carried thereby, a sweeper frame pivotally connected at one end to said frame, brace rods for suspending the other end of said sweeper frame, said brace rods having sliding connection with the upper ends of said vertical guides, and means for rocking said sweeper frame into and out of horizontal position for use.

10. In a street sweeping apparatus, a vehicle, a frame extending laterally therefrom, a sweeper frame pivotally connected to said laterally extending frame and extending rearwardly therefrom when in horizontal position, a sweeper carried by the sweeper frame, means connected to said sweeper frame for rocking the frame into and out of horizontal position for use, and a catch to engage said sweeper frame when raised into vertical position to hold the same in that position.

11. In a street sweeping apparatus, a vehicle, a carrier frame extending laterally therefrom, a sweeper frame pivotally supported at one end upon said carrier frame, means for suspending said sweeper frame in a rearwardly extending horizontal position for use, a motor, and pivoted connections between the motor and sweeper frame for rocking the latter into and out of position for use.

12. In a street sweeping apparatus, a vehicle, a carrier frame extending laterally therefrom, a sweeper frame pivotally connected at one end to said carrier frame, jointed brace rods for suspending the other end of the sweeper frame in a rearwardly extending horizontal position for use, and means for rocking said sweeper frame vertically.

13. In a street sweeping apparatus, a vehicle, a carrier frame extending laterally therefrom, a sweeper frame including side and end members, said sweeper frame piv-
totally supported at one end upon the carrier frame; a bail strap connecting the side members of the sweeper frame; a motor having a pivotal connection with said bail strap; for rocking the sweeper frame, and brace rods connected to said side members for suspending the same in a rearwardly extending horizontal position for use.

In a street sweeping apparatus, a vehicle, a carrier frame extending laterally therefrom, and including a stirrup, a sweeper frame pivotally connected at one end to said stirrup; brace rods for suspending said sweeper frame in a rearwardly extending horizontal position for use; said rods being jointed together; a motor pivotally connected to said sweeper frame to rock the same into and out of horizontal position for use, a sweeper journaling in said sweeper frame, and means for driving said sweeper.

In testimony whereof we have hereunto set our hands in the presence of the subscribing witnesses, on this 21st day of September A. D., 1914.

FRANK HEDLEY.
JAMES S. DOYLE.

Witnesses:
H. P. TITUS,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."