

D. H. FINCH.
STREET SWEEPER.

APPLICATION FILED MAY 20, 1912.

1,085,676.

Patented Feb. 3, 1914.

2 SHEETS-SHEET 1.

FIG. 1

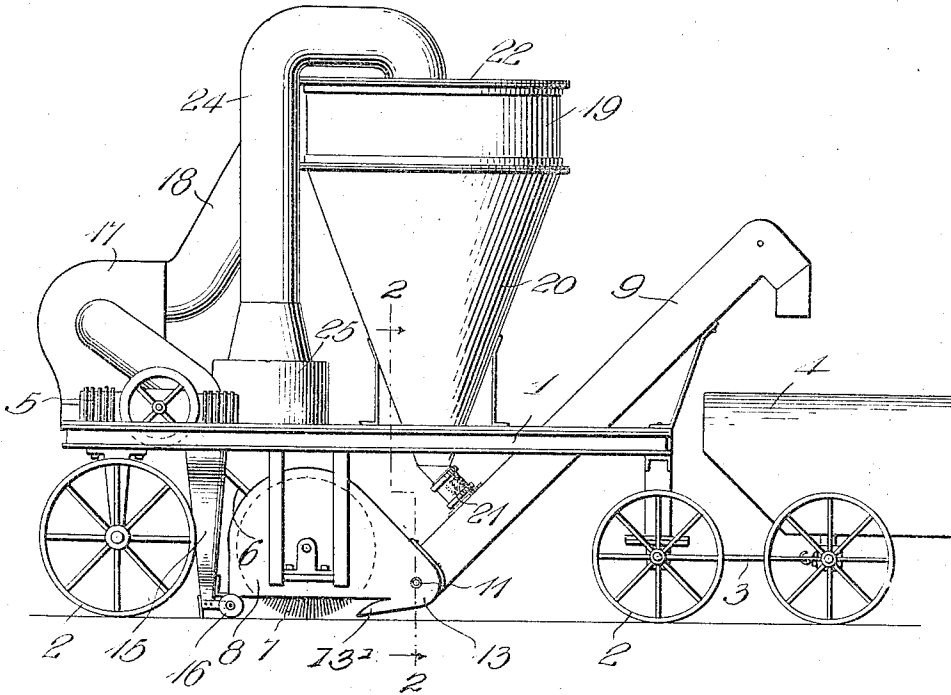
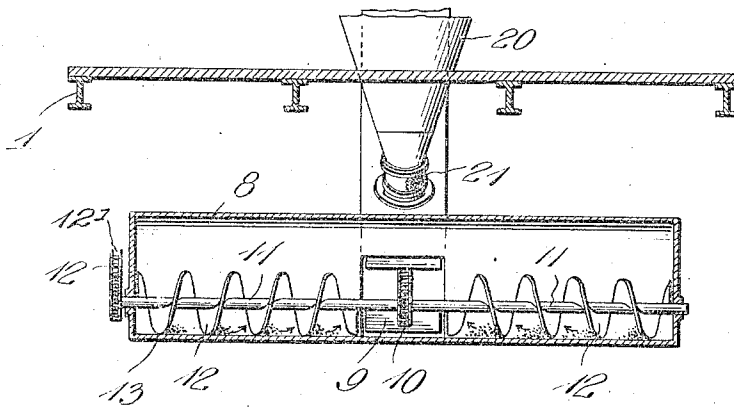


FIG. 2



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UNITED STATES PATENT OFFICE.

DWIGHT H. FINCH, OF MANCHESTER, IOWA.

STREET-SWEEPER.

1,085,676.

Specification of Letters Patent.

Patented Feb. 3, 1914.

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To all whom it may concern:

Be it known that I, DWIGHT H. FINCH, a citizen of the United States, residing at Manchester, in the county of Delaware and State of Iowa, have invented certain new and useful Improvements in Street-Sweepers; and I 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.

This invention relates to the class of brushing and scrubbing, and more especially to street sweepers; and the object of the same is to produce a trailing street sweeper which may be attached to the back of a wagon or cart and which will deliver into the latter the sweepings as well as the dust extracted from the air stirred up by the brush, and will purify the air separated from the dust before the former is passed out of the machine back into the atmosphere. This and other objects are accomplished by the construction hereinafter more fully described and claimed, and as shown in the drawings wherein—

Figure 1 is a side elevation of this machine complete; Fig. 2 is a cross section on the line 2—2 of Fig. 1; and Fig. 3 is a central vertical longitudinal section.

In the drawings the numeral 1 designates a frame mounted on wheels 2 and dragged by a tongue 3 or other connection with a wagon or cart indicated at 4 and into which the dirt and dust is to be delivered, and on the frame is mounted an engine 5 (preferably driven by gasoline) which furnishes the motive power for the machinery to be described. The shaft of this engine is connected by bevel gears and shaft 6 to the shaft of a large rotary brush 7 which is driven in the direction of the arrow beneath an upwardly curved sheet metal hood 8, and the dirt so picked up from the street by the brush is delivered across an apron 13' to an elevator 9 consisting of buckets or blades fast on an endless belt moving within a casing as shown, and by the same is dropped into the wagon box 4. The belt at its lower end passes around a pulley 10 fixed at the center of a shaft 11 which carries spiral conveyers 12 at opposite sides of the pulley, each mounted within a trough 13 extending across the front of the hood 8, and one end of the shaft 11 has a sprocket connected by

a belt 12' with another sprocket on the shaft of the brush. With this construction the rotation of the latter tosses the dirt into the trough 13, where it is engaged by the conveyor, and carried to the center under the pulley 10, and there it is taken up by the buckets or flights on the belt 9 and raised through the elevator casing and dropped into the wagon box. This detail of construction permits me to use a rather long brush, possibly eight feet in length, from which it will be seen that the path cleaned by this street sweeper is considerably wider than the path traveled by a wagon of ordinary width.

In rear of the brush and its hood is situated a suction nozzle or chamber 15 whose walls converge downward to a point near the ground behind the rear wall of said hood 8; and this nozzle by preference carries rollers 16 standing just in rear of the brush, capable of traveling on the ground and permitting the open end of the nozzle to stand adjacent thereto. The upper end of the nozzle or chamber 15 communicates with a suction fan 17, preferably driven from the same engine or source of power 5, and the dust-laden air drawn upward through the nozzle 15 by the fan 17 is delivered into a pipe 18 by which it is conveyed tangentially into the upper end 19 of a dust collector. Herein it swirls around and around until its momentum is spent, when the dust falls through the tapering body 20 to its apex, which through a flexible connection 21 delivers it into the elevator so that it joins the dirt being carried upward therein and is finally dumped into the wagon box 4. The upper end 22 of the collector is closed except for an outlet 23 for the air, from which a pipe 24 leads downward into an open topped chamber 25 containing water and disinfectant, after striking upon which the air may pass out the top of the chamber into the outside atmosphere. By preference I employ a spray nozzle 30 directed upward into the lower end of the outlet pipe 24, and the air moving down such pipe is sprayed by means of water forced upward through the nozzle by a pump 31 driven from the same source of power; and the water falls back into the chamber. When this detail is employed the air issuing from the dust collector is thoroughly moistened (and possibly also disinfected) and is therefore delivered

into the outside atmosphere in an absolutely pure condition. However, any other suitable means for washing or cleansing the air may be employed without departing from the principles of my invention, as it relates more particularly to the street sweeper proper.

The action of this machine will now be clearly understood. As it passes over the pavement or ground the sweepings from the brush are tossed across the apron and carried upward by the elevator and the dust raised by the brush is conveyed into the collector where the dust proper is separated from the air which latter is afterward washed and delivered back into the atmosphere. The suction nozzle 15, in addition to picking up the dust raised by the brush, is carried so near to the surface of the ground or pavement by the small rollers 16, that what dust or dirt is not brushed up by the brush 7 is taken up by the suction of air so that the ground or pavement is left comparatively clean after the passage of this machine.

All parts are of course of the desired sizes, shapes, proportions and materials, and

changes in details may be made without departing from the essential principle.

What is claimed as new is:

In a street cleaning machine, the combination with the running gear, the rotary brush, and a dust-collector having an inlet conduit whose receiving end stands adjacent said brush; of a hood overlying the brush with its rear wall connected to said receiving end and its front wall inclined forward and downward, thence bent to the rear in a trough standing parallel with said brush, and thence extended rearward and downward toward the brush to form an apron, a double-spiral conveyer within said trough, and an upwardly inclined elevator whose casing is in communication with the discharge end of said dust collector and whose lower end is in communication with the center of the trough between said conveyers.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

DWIGHT H. FINCH.

Witnesses:

A. M. CLOUD,

F. A. LUNDELL.