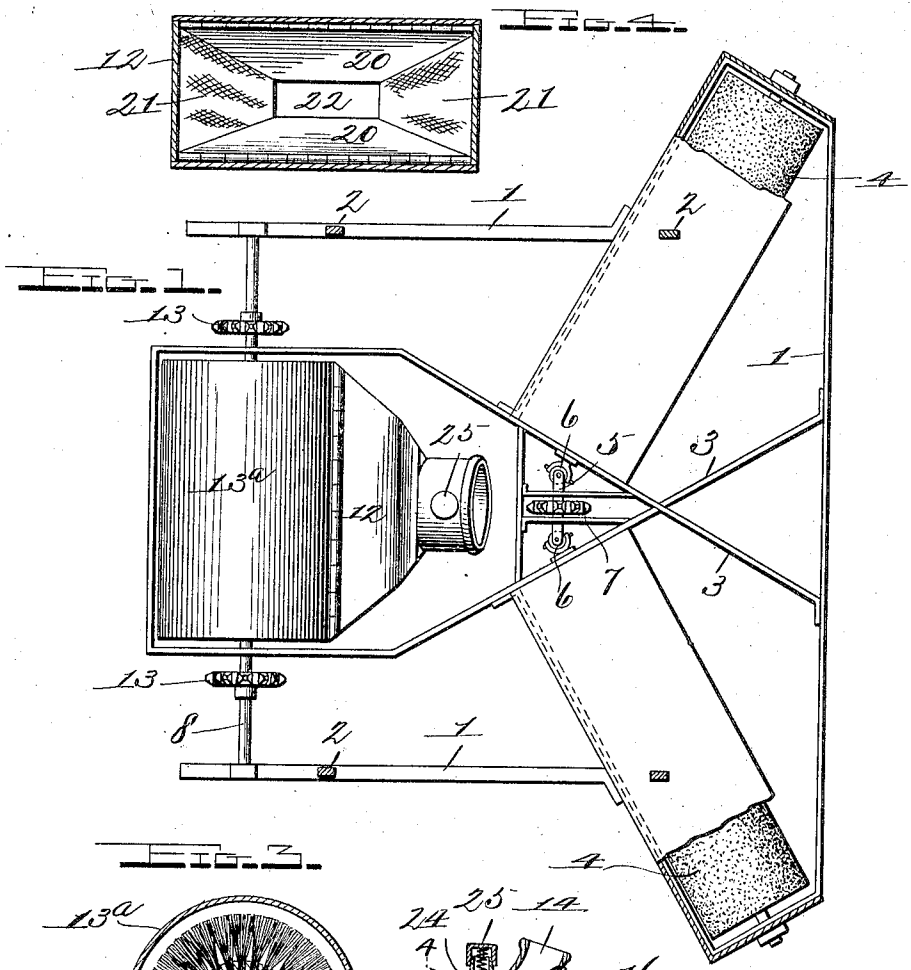
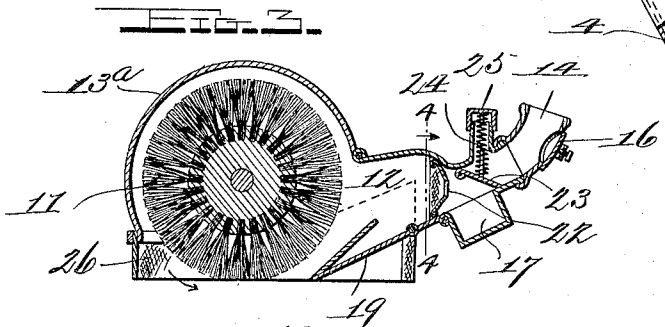
E. K. WARD.

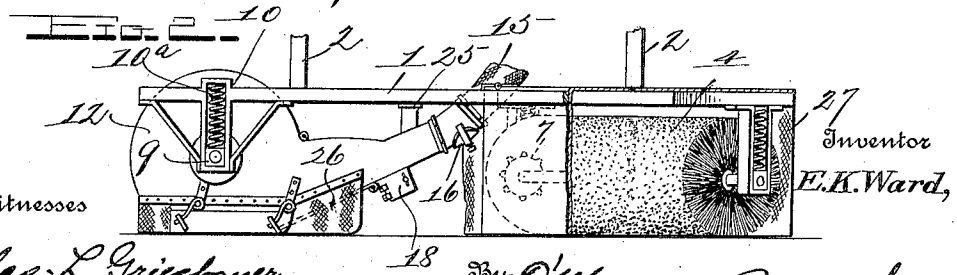
VACUUM STREET SWEEPER.

APPLICATION FILED FEB. 4, 1910.

1,107,564. Patented Aug. 18, 1914.







Witnesses

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VACUUM STREET-SWEEPER.

1,107,564. Specification of Letters Patent. Patented Aug. 18, 1914.

Application filed February 4, 1910. Serial No. 542,009.

To all whom it may concern:

Be it known that I, EDWARD K. WARD, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented a new and useful Improvement in Vacuum Street-Sweepers, of which the following is a specification.

This invention relates to vacuum street cleaners and especially to that portion of the device which is brought into contact with the pavement, and the object of the invention is to remove by means of suction, dirt and refuse matter from the street pavements and at the same time to regulate the vacuum in order to prevent choking of the suction pipe, and furthermore to provide means whereby heavy articles such as loose stones, pieces of brick and so forth may be caught before entering the suction pipe and may be readily removed at any time.

The invention consists of the novel features of construction hereinafter described, pointed out in the claims and shown in the accompanying drawings, in which,

Figure 1 is a plan view of the cleaning device, which engages the street pavements, parts being shown in section. Fig. 2 is a side elevation of the parts shown in Fig. 1. Fig. 3 is a vertical longitudinal sectional view through the lower end portion of the suction device. Fig. 4 is a section on the line 4—4 of Fig. 3.

In these drawings, 1 represents the members of a horizontally arranged frame, which is suspended in any desired manner, as by means of bars 2, upon the under side of any suitable wheeled vehicle, said vehicle not being a part of the present invention. The frame formed by the members 1 is provided with lateral extensions at its forward end and it is also provided with a supplemental inner frame formed by the bars 3. Arranged in the extensions previously referred to and with their outer ends suitably journaled in the front members 1 are rotatable brushes 4, their inner ends being suitably journaled in the bars 3 and a shaft 5 provided with universal joints 6 drives the brushes 4, said shaft being provided with a sprocket wheel 7 driven by a sprocket chain, not shown, which in turn is driven by any suitable means carried by the truck beneath which the frame is suspended. A suitable shaft 8 is journaled in spring pressed bearings 9, said bearings being arranged in depending brackets 10 carried by the rear portion of the frame 1. This permits vertical movement of the shaft 8 thereby permitting the brush 11 mounted upon said shaft and the other parts carried thereby to accommodate themselves to uneven or rough places in the pavement. The brush 11 is inclosed within a casing 12, said casing being supported by the shaft 8 and said shaft is provided with sprocket wheels 13 over which suitable drive sprocket chains may be run. The top 13ª of the casing 12 is hinged to open upwardly thereby affording ready access to the brush. The casing extends upwardly and forwardly and terminates in a pipe section 14 to which can be secured any form of flexible suction pipe 15 by means of which a vacuum can be produced in the pipe section 14 and the dirt and refuse carried into said pipe section may be discharged.

The pipe section 14 is detachable from the casing and is provided with a suitable hand-hole or clean-out 16. The forward portion of the casing 12 is provided with a depending pocket 17 provided at the side with a door 18, by means of which rubbish that may be caught in pocket 17 may be removed. Within and below the casing there is also provided a V-shaped hinged trough 19 also vertically movable which will also serve to catch and retain trash, such as small sticks and twigs. Immediately to the rear of the pocket 17 there is hinged within the casing two metal plates 20 which incline toward each other and the sides of which are beveled and the beveled sides of one plate are connected to the beveled sides of the other plate by means of pieces of canvas 21. By means of this construction a contracted mouth 22 is formed. The passage of material into the pipe 15 is further retarded by a hinged flap valve 23 pressed down by a suitable spring 24 the upper end of which is inclosed within a suitable cap 25. From the bottom of the casing depends a suitable canvas 26, and suitable canvas flaps 27 which also are provided for the brushes 4.

In operation the brushes 4 will throw the dirt into a windrow over which the casing 13 travels, and the rotation of the brush 11 in the direction of the arrow will sweep the dirt over and into the trough 19 where all that portion of it not immediately caught by the air suction through the mouth 22 is finally caught up and drawn through said mouth 22. With the exception of articles,

such as sticks and the like which are retained in the bottom of the trough any articles which would be likely to catch or clog in the pipe 15, such as pieces of stone and brick will fall into the pocket 17, their lodgment being facilitated by the flap valve 23 which is set at an angle to the diameter of the pipe and partially overhangs said pocket. As the opening of said valve 23 is dependent upon the maintaining of a vacuum in the pipe 15 any momentary failure of said vacuum will cause said valve to temporarily close. In the meantime the trough 19 will take care of the sweepings thrown into it by the brush 11 until the vacuum is reëstablished and the valve 23 opens.

I have not illustrated means for producing a vacuum in the pipe 14, or means for driving the sprocket wheels 7 and 13, or receptacles for receiving the dirt from the pipe 14 as any suitable means can be employed for creating said suction and driving said sprocket wheels or any suitable receiving device may be employed to receive the dirt all of these parts being independent and separate from the invention herein shown and claimed. I do not however desire to be limited to any specific form of valve mechanism, or for any particular construction of casing, since these parts could be changed also without in any way affecting or materially changing my invention.

What I claim is:—

1. In a street sweeper brushes arranged at an angle to each other having their adjacent ends spaced apart, a casing arranged to the rear of said brushes and in alinement with the space between them, a brush in said casing, a suction pipe in communication with said casing, an upwardly opening spring pressed valve controlling the passage to said suction pipe, and means for rotating said brushes.

2. In a street sweeper, means for throwing dirt in a windrow, a brush adapted to travel in said windrow, a casing partially inclosing said brush, said casing terminating in a suction pipe section, a suction pipe connected to said section, a flap valve regulating admission of air to said pipe section, plates hinged in said casing, a fabric connecting the sides of said plates, said plates and said fabric forming a contracted mouth, and being arranged in advance of said flap valve, as and for the purpose set forth.

3. A device of the kind described comprising two rotatable brushes arranged at an angle to the line of travel and to each other having their inner ends spaced apart, a casing arranged directly in the rear of the inner ends of said brushes and being downwardly open, a brush arranged in said casing, a suction pipe attached to said casing, and a spring pressed valve arranged in said casing and controlling passage of sweepings between said casing and said pipe.

4. In a device of the kind described a casing, a suction pipe connected thereto, means for closing said pipe upon loss of a vacuum therein, a vertically movable hinged trough arranged within said casing, and a brush arranged within the casing adapted to deliver sweepings to said trough, said trough serving as a receptacle to hold said sweepings during closure of the suction pipe.

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