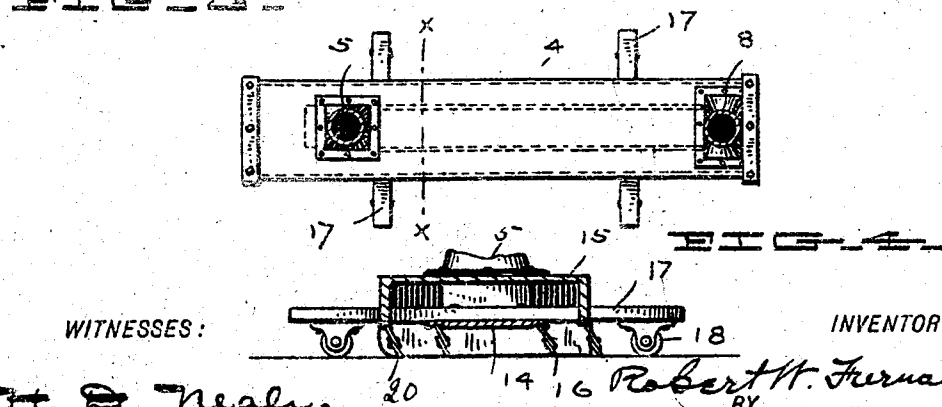
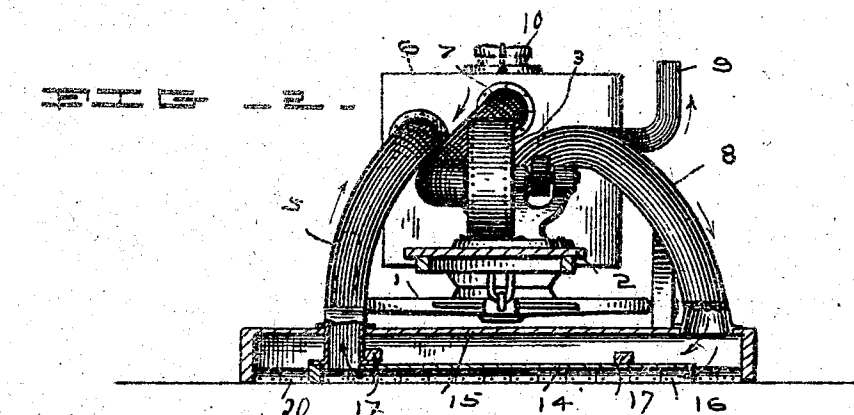
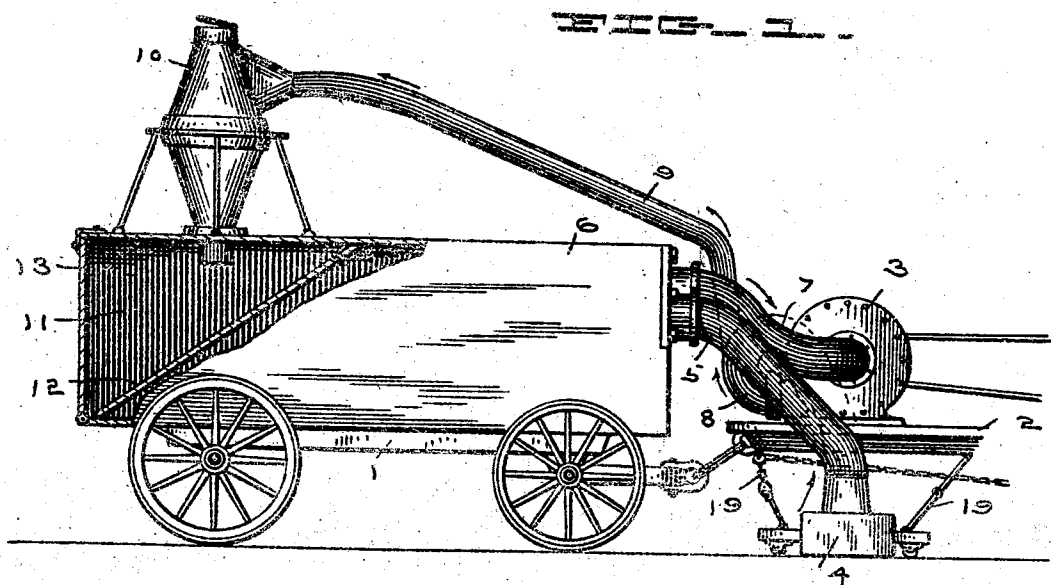


(No Model.)

R. W. FURNAS.
STREET SWEEPER.

No. 514,678.

Patented Feb. 13, 1894.



WITNESSES:

INVENTOR

H. D. Nealy.
A. D. Pilford.

Robert W. Furnas.
BY
H. Lockwood
ATTORNEY.

UNITED STATES PATENT OFFICE.

ROBERT W. FURNAS, OF INDIANAPOLIS, INDIANA.

STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 514,678, dated February 13, 1894.

Application filed October 16, 1893. Serial No. 488,224. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. FURNAS, of Indianapolis, county of Marion, and State of Indiana, have invented certain new and useful Improvements in Street-Cleaning Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like figures refer to like parts.

My invention relates to a pneumatic street cleaning machine, whose object is to remove the dust as well as the dirt from the street surface without raising the dust in the street, and its nature will appear from the following statement and description.

One feature of my invention consists in propelling a small portion of the air exhausted from the gathering hood into a centrifugal dust arrester, but in returning the most of the current to the hood.

Another feature of my invention consists in combining the above features with a construction whereby the air is exhausted from the hood through the upper part of the dirt box, the latter being between the hood and the fan. A leading feature of my invention consists in a double hood, that is, one hood entirely inclosed within another two or three times as large. This is a desirable form of hood, where the current is returned from the machine to the hood. The air returned enters the outer hood and this feeds the inner hood with air. The air enters one end of the inner hood which is open preferably, and also creeps in under the sides, and is exhausted from the other end of such inner hood. The air returned is of course slightly dust laden and is kept circulating through the machine to enable the dust eventually to be collected in the dirt box. Where the return pipe enters the small hood as heretofore, there is a back pressure of the current in the fan. My present arrangement avoids this difficulty. The pipe running to the dust arrester takes off the surplus dust laden air and passes the purified air out of the machine. This surplus of course is equivalent to the amount of air that is drawn in under the hood from the outside. Without this means of disposing of the surplus air, the hood would have a small

amount of dust laden air escaping from it at times.

Figure 1 is a side elevation of my machine, omitting the power mechanism and the rear 55 of the dirt wagon bed being partly broken away. Fig. 2 is a front elevation of the same, omitting the dust arrester and showing the truck and hood in section. Fig. 3 is a plan view of the hood. Fig. 4 is an enlarged sectional view of the same on the line $x-x$, Fig. 3.

In detail 1 is a dirt wagon and 2 a truck or platform supported on the end of a traction engine or other means of furnishing power to operate the fan 3 mounted on such truck. 65

4 is a hood extended transversely across the path of the machine and having a pipe 5 extending from one end of it to an airtight dirt box, 6, entering the latter near its top.

7 is a pipe leading from the dirt box 6 near 70 its top to the fan 3. 8 is a return pipe leading from the fan to the hood.

9 is a small pipe branching off from the pipe 8 and leading to the centrifugal dust arrester 10 mounted over a dust box 11. The 75 air tight dirt box 6 and the dust box 11 I form by separating the bed of the wagon into two chambers by the partition 12, which is preferably hinged at its upper end to the top of the wagon bed. The lower end is free in order that it may be lifted up out of the way in removing the contents of the box 6. The wagon is provided with an end gate 13 whereby the contents of the bed may be removed. It will be observed that the dirt laden air as 85 it comes from the hood enters the top of the box 6, drops its heavy dirt into the box, the dust laden air then passes through the pipe 7 to the fan and from it the most of the current is propelled to the hood, a small portion 90 being propelled to the dust arrester.

The hood consists of an inner hood 14 and an outer hood 15, the latter entirely inclosing the former. The inner hood consists of a long narrow hood transverse with the line of movement of the machine and located close 95 to the surface of the street, having flexible depending sides 16. One end of such inner hood is open for the admission of air which sweeps transversely across the line of movement of the machine and is exhausted from 100 the other end by the pipe 5. The outer hood

15 has the depending aprons 20 and is constructed in identically the same manner as the small one except that it is about twice as high, twice as wide, and somewhat longer. The return pipe 8 enters this outer hood. The hood is supported on cross bars 17 that are mounted on caster wheels 18 and are held to the truck by links 19. The inner hood 14 is fed chiefly from the air returned through the pipe 8. It is dust laden and is desired to be kept circulating through the machine until it loses nearly all its dust.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a pneumatic street cleaning machine, a gathering hood, a dust arrester, an exhaust fan, means of conveying the air from the hood to the exhaust fan and means of conveying a portion of the current from the exhaust fan to the dust arrester and a portion to the hood, substantially as shown and described.

2. In a pneumatic street cleaning machine, a gathering hood, a dirt box, a centrifugal dust arrester, and means of exhausting the air from the hood through the dirt box and propelling a small portion of it to the dust arrester and the balance to the hood, substantially as shown and described.

3. In a pneumatic street cleaning machine, a gathering hood, a dirt box, a pipe extending from the hood to the dirt box, an exhaust fan, a pipe extending from the box to the fan, a centrifugal dust arrester, and means of conveying a portion of the current to the dust arrester and a portion of it to the hood, substantially as shown and described.

4. In a pneumatic street cleaning machine, an air tight dirt box, a gathering hood, a pipe leading from the hood to the dirt box, an exhaust fan, a pipe leading from the dirt box to the fan, a dust box, a centrifugal dust arrester mounted on the dust box, a divided pipe leading from the exhaust fan, a small branch of it extending to the dust arrester and a larger branch of it leading to the hood, substantially as shown and described.

5. In a pneumatic street cleaning machine, a double hood consisting of two separate hoods,

one within the other, substantially as shown and described.

6. In a pneumatic street cleaning machine, a double hood consisting of two separate hoods, one inclosed within the other, and means of exhausting the air from the inner hood and returning it to the outer hood, substantially as shown and described.

7. In a pneumatic street cleaning machine, a double hood consisting of two separate hoods, one inclosed within the other, one end of the inner hood being open and an exhaust pipe leading from the other end of the same, a return pipe adapted to convey a portion of the current of air into the outer hood, and a means of exhausting the air from such inner hood and returning a portion thereof to the outer hood substantially as shown and described.

8. In a pneumatic street cleaning machine, a double hood extended transversely across the path of the machine, and parallel with and close to the street surface, and consisting of two separate hoods, one inclosed within the other, and means of exhausting the air from the inner hood and returning it to the outer hood, substantially as shown and described.

9. A pneumatic street cleaning machine consisting of a suitable carriage, an air tight dirt box mounted on such carriage, a double hood supported from such carriage and contacting with the street surface and consisting of two separate hoods, one inclosed within the other, an exhaust pipe extending from one end of the inner hood to the air tight dirt box, a fan mounted on the carriage, means of actuating such fan, a pipe leading from the air tight dirt box to the fan, a dust box mounted on the carriage, a centrifugal dust arrester mounted on the dust box, and a divided pipe leading from the exhaust fan, a small branch of it leading to the dust arrester and a larger branch to the hood, substantially as shown and described.

In witness whereof I have hereunto set my hand this 13th day of October, 1893.

ROBERT W. FURNAS.

Witnesses:

V. H. LOCKWOOD,
N. D. TILFORD.