

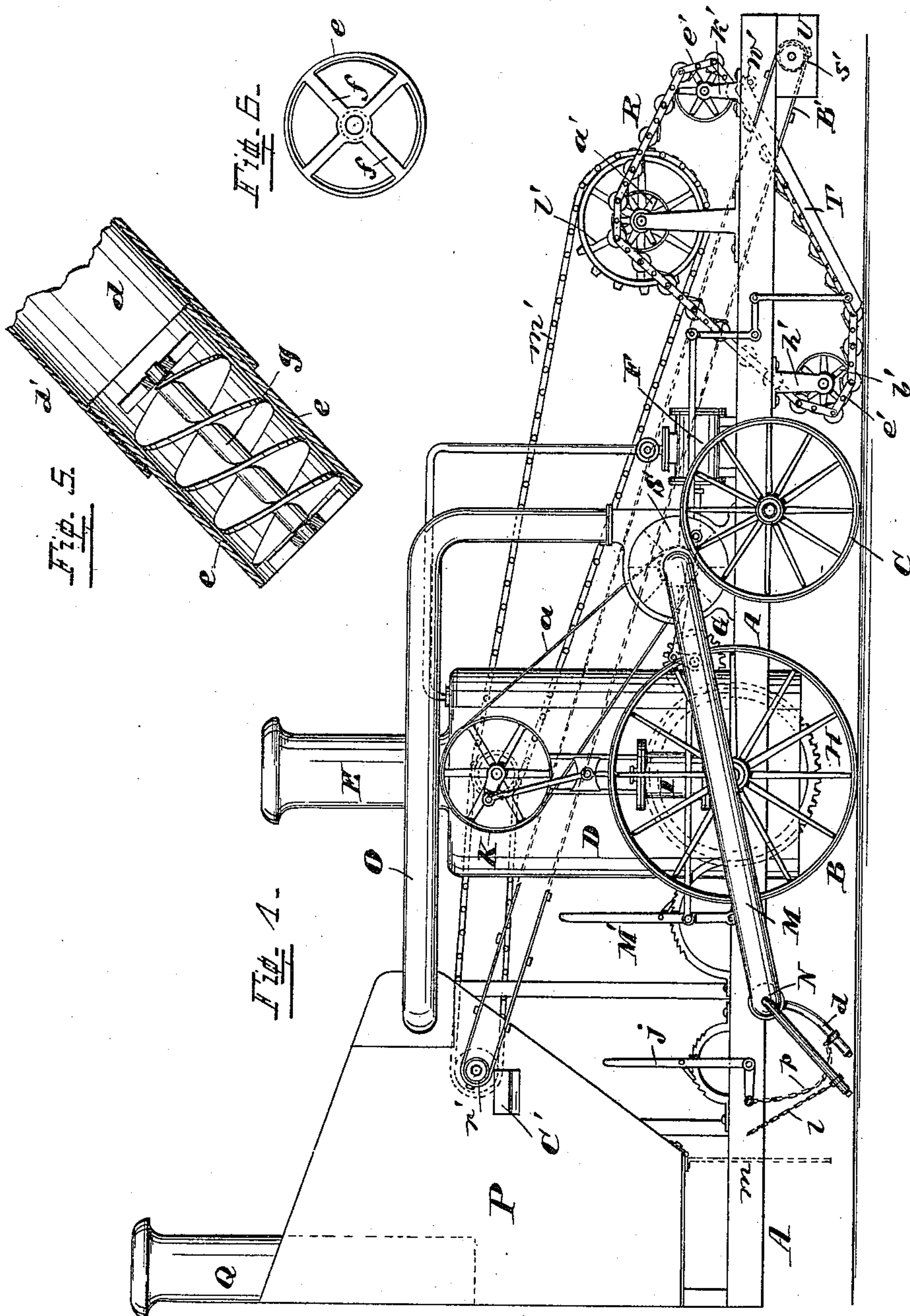
(No Model.)

2 Sheets—Sheet 1.

H. R. WOLFE.
STREET CLEANING MACHINE.

No. 448,900.

Patented Mar. 24, 1891.



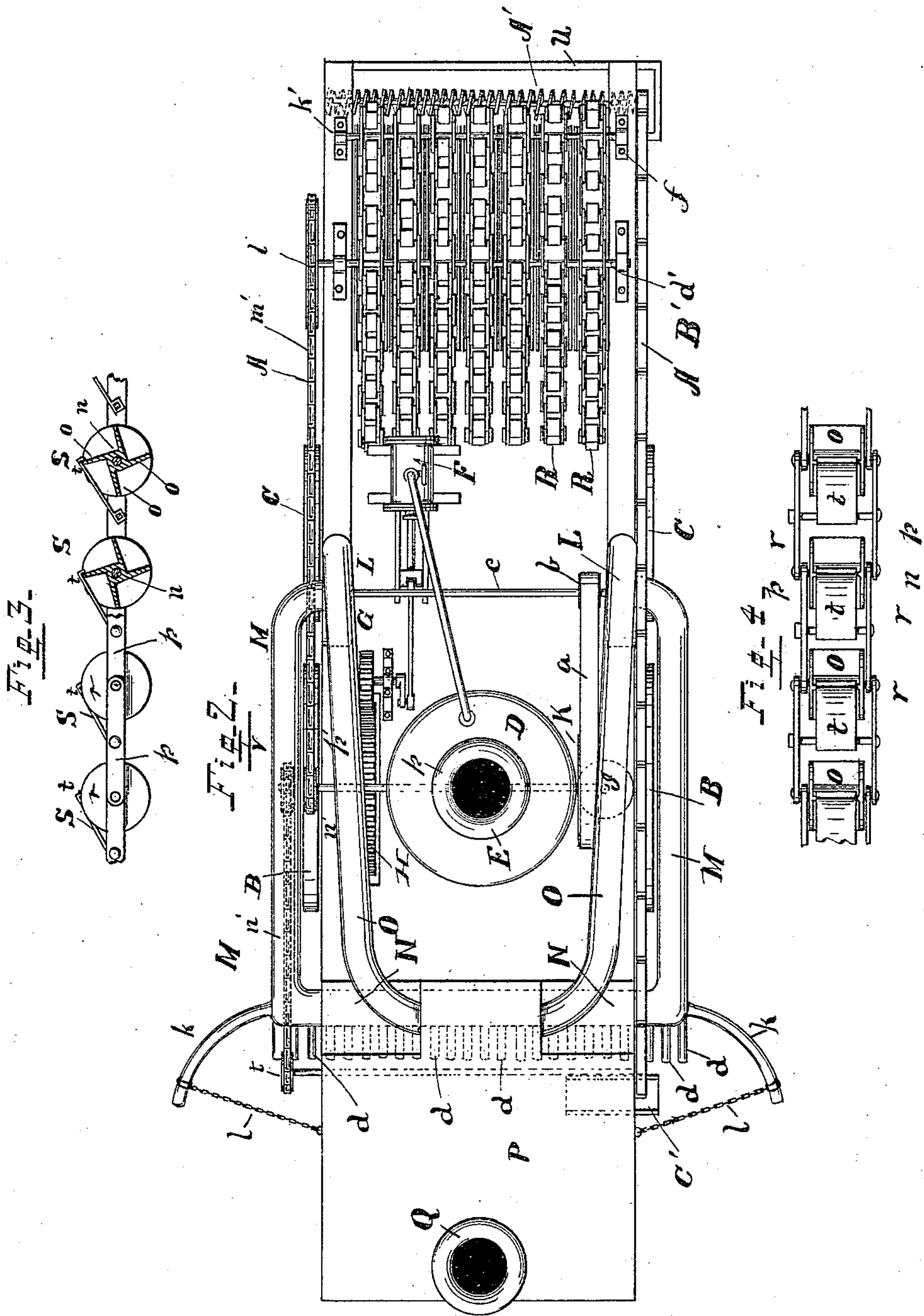
Attest
Alfred M. Allen
George Heidman

Invention
Harvey R. Wolfe
by Arthur Stum
att.

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Inventor
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by Arthur Shaw atty.

UNITED STATES PATENT OFFICE.

HARVEY R. WOLFE, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO THE WOLFE MANUFACTURING COMPANY, OF SAME PLACE.

STREET-CLEANING MACHINE.

SPECIFICATION forming part of Letters Patent No. 448,900, dated March 24, 1891.

Application filed June 27, 1890. Serial No. 356,946. (No model.)

To all whom it may concern:

Be it known that I, HARVEY R. WOLFE, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Street-Cleaning Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to machines for cleaning streets, in which rotary fans are employed to create a powerful suction of air, and thus draw up the dirt and dust; and it consists in a new and improved construction and arrangement of parts, which will be hereinafter more particularly pointed out and claimed.

In machines for the cleaning of streets as hitherto constructed brooms or brushes of one kind or another have been used, and the sweeping of these brushes necessarily raised a large amount of dust. It has been endeavored to overcome this trouble by means of exhaust-fans to draw in the dust and deposit it in a receptacle provided for that purpose; but even these suction-pipes are unable to gather up all the dust raised by the brooms.

It is the object of my invention to overcome this difficulty, and to do this I dispense with brooms or brushes altogether and combine with a series of suction-pipes a series of scrapers in advance thereof, so that all the dirt and dust may be removed from the street in one operation without the raising of dust.

In the drawings, Figure 1 is a side elevation of my street-cleaning machine; Fig. 2, a top plan view; Fig. 3, a side elevation, partly in section, of one of the series of scrapers; Fig. 4, a top plan view of same. Fig. 5 is a longitudinal section of the nozzle of a suction-pipe, showing the double-threaded screw; Fig. 6, an end view of same.

A A is the main sill of the machine, supported on the traction-wheels B B and C C.

D is a boiler with smoke-stack E, and steam from this boiler operates a small steam-engine F. This engine, by means of pinion G and gear-wheel H on the axle, operates the traction-wheel B, and in this way the machine is moved by steam-power. Another steam-engine I operates the wheel K, which in turn,

by the belt a, pulley b, and shaft c, operates the fans within the fan-cases L L at a high rate of speed, so as to create a powerful suction of air. Suction-pipes M M connect these exhaust-fans with the suction-drum N, a sheet-iron drum extending across the machine from side to side at the rear. Opening into this drum N are a series of pipes or rubber hose d d, about four or five inches apart, extending the whole length of the drum and of suitable length to drag on the street. The drag ends of these pipes are shod with iron nozzles, constructed as shown in Figs. 5 and 6. d is the hose, and e the iron nozzle. At each end of the nozzle are cross-bars ff, which at the center form journal-bearings for the double-threaded screw g. This screw will revolve rapidly under the strong suction created by the fans, and the end of the hose, owing to this motion, will therefore always be kept clean. The suction-pipes d d can be raised or lowered by the chain h and lever j, as shown in Fig. 1. At each end of and opening into the drum N are the pipes k k, longer than the pipes d and intended to reach to the gutter wherever the pipes d are not long enough. These two pipes are held in position by the chains l l, attached to the sill A A.

The suction created by the fans carries the dirt and dust by direct suction through the suction-pipes d d and pipes M M, through the fans L L and exhaust-pipes O O, into the dirt-chest P, which is provided with an exhaust outlet or stack Q. When the dirt-chest becomes full, the contents may be removed through the trap-door m.

At the forward end of the machine are arranged a series of endless-chain scrapers R R, each running in its own spout T. Each endless-chain scraper as a whole is made up of a continuous series of scrapers S S, Fig. 3, made up of a shaft n and four radiate plates o o, arranged thereon so as to turn with the shaft, which is pivoted in the links of the chain p p, and the sides of these radiate scrapers are inclosed in the case r r. Between each radiate scraper is a flat steel spring t t, pivoted between the links and catching over the topmost scraping-plate. By this spring the scraping-wheel is held stationary until an obstruction is met with, when the spring will

give way and allow the radiate scraper to revolve a quarter of a revolution, where it is again held by the spring until another obstruction is met with, when the obstruction
 5 will be passed in the same manner. These endless-chain scrapers are arranged close together across the entire front of the machine, and each chain runs on the sprocket-wheels
 10 a' , b' , and c' , which are arranged on shafts d' , e' , and f' , extending across the machine, supported and journaled in the standards g' , h' , and k' . The entire series of scrapers is operated by the sprocket-wheel l' on the shaft d' , sprocket-chain m' , and sprocket-wheel n' on
 15 the shaft p' of the wheel K, which is operated by the steam-engine I, as shown in the drawings. These scrapers deliver into the mud-chest U, extending longitudinally through which is the screw conveyer A'. An endless-
 20 belt conveyer B', consisting of a series of shallow buckets or scoops arranged thereon, runs over the pulleys r' s' . The pulley s' is keyed to the shaft of the screw conveyer A', and as the bucket-conveyer transfers the mud to the
 25 mud-chute C' and dirt-chest P the screw conveyer continually delivers the mud collected by the scrapers to the bucket-conveyer. The shaft of the pulley r' extends across the machine and is operated by the sprocket-wheels
 30 t' and v' and chain w' , as clearly shown in Fig. 2.

As it is not intended to use the endless-chain scrapers except for stiff mud, the spouts T, in which the chains are carried, are hinged
 35 to the forward part of the frame at w' , and by means of the lever M' and connecting-arms, as shown in Fig. 1, the spouts, and with them the scrapers, can be raised, so as not to operate. These endless chains, it may be said,
 40 are arranged to be self-adjusting and to follow the irregular surface of the ground.

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

1. In a street-cleaning machine, the combination, with a series of suction-tubes extending along the surface of the street, of exhaust-fans and dirt-receptacle, with suction-pipes connecting the same, substantially as shown and described. 45

2. In a street-cleaning machine, the combination, with dirt-receptacle, exhaust-fans, and exhaust-pipes, in connection with each other, of suction-pipes, dirt-drum, and suction-tubes dragging on the ground and extending in series the entire width of the machine, the whole arranged so that the dirt will be drawn up and deposited in the receptacle by the direct action of the intruding current of air, substantially as shown and described. 50

3. In a street-cleaning machine, a series of scrapers to loosen and scrape up the stiff dirt, in combination with mud-chest, screw conveyer therein, bucket-conveyer, and dirt-receptacle, substantially as shown and described. 55

4. In a street-cleaning machine, a series of endless-chain scrapers running separately from each other, and mud-chest to receive the dirt, arranged substantially as shown and described. 60

5. In a street-cleaning machine, two or more radiate plates arranged on a shaft or pin pivoted within the links of an endless chain and forming a scraping-wheel, and spring to hold said wheel rigid until an obstruction is met, said wheels arranged in series on an endless chain to form endless-chain scrapers, substantially as shown and described. 65

6. In a street-cleaning machine, revolving screws pivoted longitudinally within the drag ends of the suction-tubes, so as to revolve under the action of the intruding air, and thus keep the nozzles of the suction-tubes free from dirt, substantially as shown and described. 70

HARVEY R. WOLFE.

Witnesses:

GEO. E. ROOT,
 R. M. KELLY.