

June 12, 1928.

1,673,780

C. E. SARGENT
STREET SWEEPER

Filed March 9, 1925

Fig. 1.

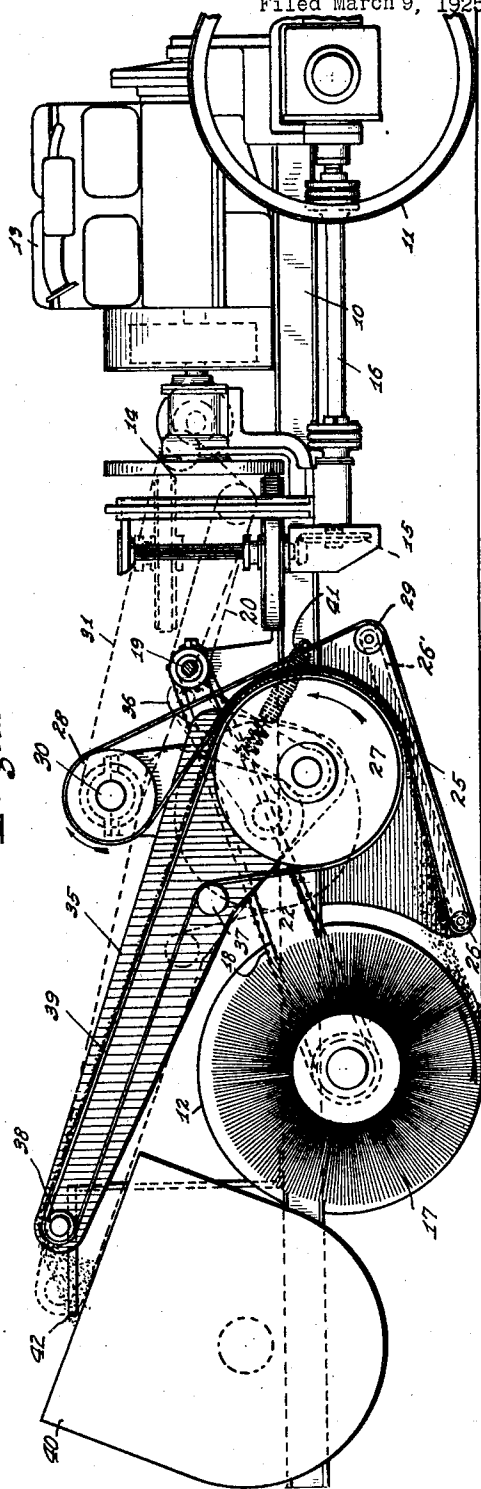
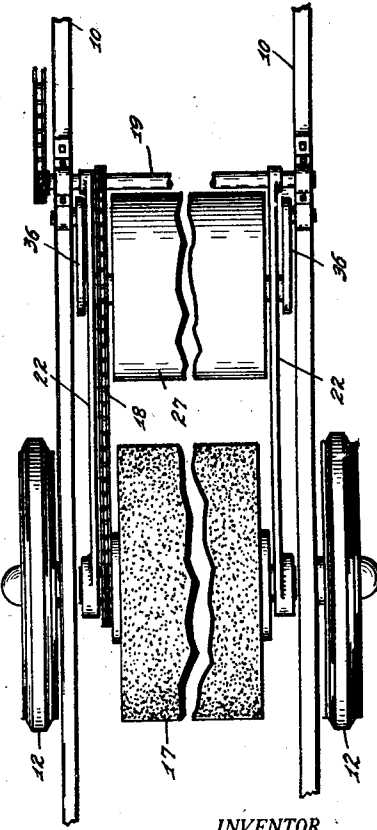


Fig. 2.



INVENTOR.
CHARLES E. SARGENT,

BY

W. J. Schley
ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES E. SARGENT, OF ELGIN, ILLINOIS, ASSIGNOR TO ELGIN STREET SWEEPER COMPANY, OF ELGIN, ILLINOIS, A CORPORATION OF ILLINOIS.

STREET SWEEPER.

Application filed March 9, 1925. Serial No. 14,058.

It is the object of my invention to produce a sweeper for removing dirt and refuse from streets. More specifically, my object is to produce a sweeper embodying a novel means for elevating into a dust-bin the refuse swept from the street, which elevating means will be capable of handling both small particles and large objects.

I accomplish the above objects by mounting a rotating broom between the rear wheels of a front-wheel drive sweeper, and I arrange an endless belt conveyor in position to receive the refuse swept up by such broom this endless belt conveyor being in engagement for part of its length with a second belt conveyor which carries the refuse to the dust-bin. The second belt conveyor is yieldably mounted, so as to permit the passage of relatively large objects between the two belt conveyors.

The accompanying drawing illustrates my invention: Fig. 1 is a somewhat diagrammatic side-elevation of my sweeper with parts of such sweeper removed to show the arrangement of the broom and the belt conveyors above referred to; and Fig. 2 is a fragmental plan view of my sweeper with the belt conveyors and their supporting parts removed to show the manner in which the broom is mounted and driven.

My sweeper consists of a frame 10 supported on front wheels 11 and rear wheels 12. The frame 10 carries an engine 13 which is arranged to drive the front wheels 11 through any suitable variable speed mechanism 14, gears 15, and shaft 16. The present invention is not concerned with the details of this drive.

Each of the rear wheels 12 is separately supported from the frame 10, there being no axle extending between these wheels. The broom 17 is rotatably mounted between and normally substantially coaxial with the rear wheels. The broom 17 is driven in a counterclockwise direction (Fig. 1) by a chain 18 extending from the sprocket on the broom to a sprocket on a cross-shaft 19, which in turn is driven from the engine 13 by any suitable means such as the chain 20. The broom 17 is maintained at a constant distance from the cross-shaft 19 by being rotatably mounted in the rear ends of two bars 22, the front ends of which are pivotally supported coaxial with the shaft 19.

By this method of mounting the broom, its weight tends to hold it securely in contact with the pavement, while it is still free to swing upward when it passes over irregularities in the surface being swept.

A belt conveyor 25 extends around a roller 26 located close to the ground and just ahead of the broom 17; and from the roller 26, the conveyor 25 extends forwardly and upwardly and part way around a drum 27, from which it passes around a driving roller 28 and the idle roller 29 to the roller 26. The roller 28 is rigidly mounted on a transverse shaft 30, which shaft is driven from the engine 13 by a chain 31. If desired, the roller 26 may be yieldably supported as by being mounted in links 26' which extend forwardly from the roller 26 and are pivotally supported from the sweeper frame so that the roller 26 can swing upward to avoid damage from any objects which may lie in its path.

The drum 27 is rotatably supported in a floating frame 35 the forward end of which is supported by links 36. Mounted on the frame 35 are two guiding rollers 37 and 38 for a second belt conveyor 39 which passes around the drum 27 between such drum and the belt conveyor 25 and is driven by reason of its contact with the conveyor 25. The upper stretch of the conveyor 39 extends rearwardly and upwardly from the upper part of the drum 27 to the rear guiding roller 38 which is located over the dust-bin 40.

A tension spring 41 acts between the frame 10 and each of the links 36 and serves to force the two conveyors 25 and 39 together where such two conveyors pass around the drum 27. The rear end of the floating frame 35 can be supported in any convenient manner such as by means of guides 42.

With the construction described, refuse swept up by the brush 17 falls upon the conveyor 25 and is carried upwardly and forwardly around the drum 27 and between the conveyor 25 and the conveyor 39. As the two conveyors separate near the top of the drum 27, the conveyor 39 is lowermost and hence receives the refuse and carries it over and across the brush 17 to the dust-bin 40. Should any large objects be thrown onto the conveyor 25 and be carried between it and the conveyor 39, the frame 35 is forced

upwardly and rearwardly and carries the drum 27 with it to permit such large objects to pass between the two conveyors.

I claim as my invention:—

5 1. In a street sweeper having a broom and a dust-bin, a belt conveyor arranged to receive refuse swept up by said broom, said conveyor extending obliquely upward and
10 part way around a rotating drum and leaving said drum near the top thereof, a second belt conveyor extending around said drum and lying between said drum and said first
15 conveyor and extending from said drum to a point above said dust-bin at an angle to the horizontal such that refuse carried by it will not slide backward under the influence of gravity.

2. In a street sweeper having a rotating broom arranged to sweep refuse forwardly,
20 a dust-bin mounted in rear of said broom, refuse-conveying means arranged to receive refuse swept up by said broom and to convey such refuse upwardly and across said broom to said dust-bin, said conveying means in-
25 cluding a pair of belts arranged to pinch said refuse between them, and yielding means tending to force said two belts to-
gether.

3. In a street sweeper having a broom and
30 a dust bin, a belt conveyor arranged to receive refuse swept up by said broom, a second belt conveyor adapted to receive refuse from said first conveyor, said conveyors being in contact with each other throughout a
35 portion of their respective lengths and moving in a generally upward direction where they are in contact, and means for causing said two conveyors to follow a curved path throughout those portions of their lengths in
40 which they are in contact, whereby the tension in that one of said conveyors disposed on the outside of such curved path tends to force the conveyors together.

4. In a street sweeper having a broom and

a dust bin, means for elevating and convey- 45
ing refuse from said broom to said dust bin, said means including a rotatable drum, a belt conveyor partially encircling said drum, a second belt conveyor in contact with said first conveyor where it encircles said drum, 50
said second conveyor having a straight stretch approaching said drum at an angle to the horizontal such that refuse thereon will not slide backward under the influence of gravity, said first conveyor having a 55
straight stretch leaving said drum at an angle to the horizontal such that refuse thereon will not slide backward under the influence of gravity, and yielding means acting on said drum and tending to force it 60
outward against the tension in said second conveyor whereby the tension in said second conveyor tends to maintain the conveyors in contact with each other.

5. In a street sweeper having a broom and 65
a dust-bin, a belt conveyor arranged to receive refuse swept up by said broom, a yieldingly supported frame, a drum and one or more guide rollers carried by said frame, a second belt conveyor passing around said 70
drum and said roller or rollers and arranged to discharge into said dust bin, said second conveyor being in contact with said drum throughout a portion of its circumference, and means acting on said frame for holding 75
said two conveyors yieldingly in contact throughout a portion of the circumference of said drum, said first conveyor having a straight stretch approaching said drum and said second conveyor having a straight 80
stretch leaving said drum at angles to the horizontal such that refuse thereon will not slide backward under the influence of gravity.

In witness whereof, I have hereunto set my hand at Elgin, Illinois, this 4th day of 85
March, A. D. one thousand nine hundred and twenty five.

CHARLES E. SARGENT.