

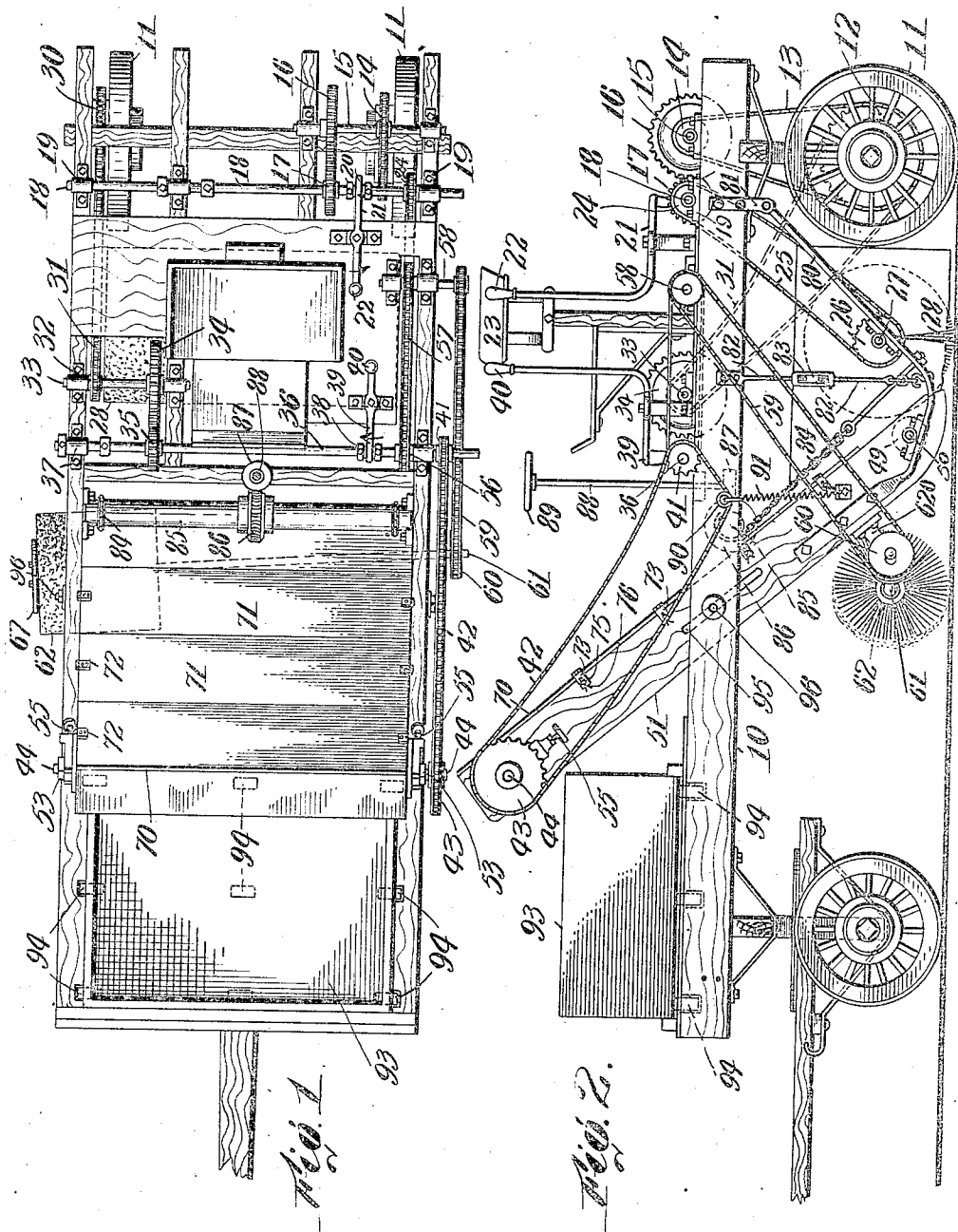
M. J. KANE.
STREET SWEEPER.

APPLICATION FILED MAY 16, 1907.

935,991.

Patented Oct. 5, 1909.

2 SHEETS—SHEET 1.



Witnesses:

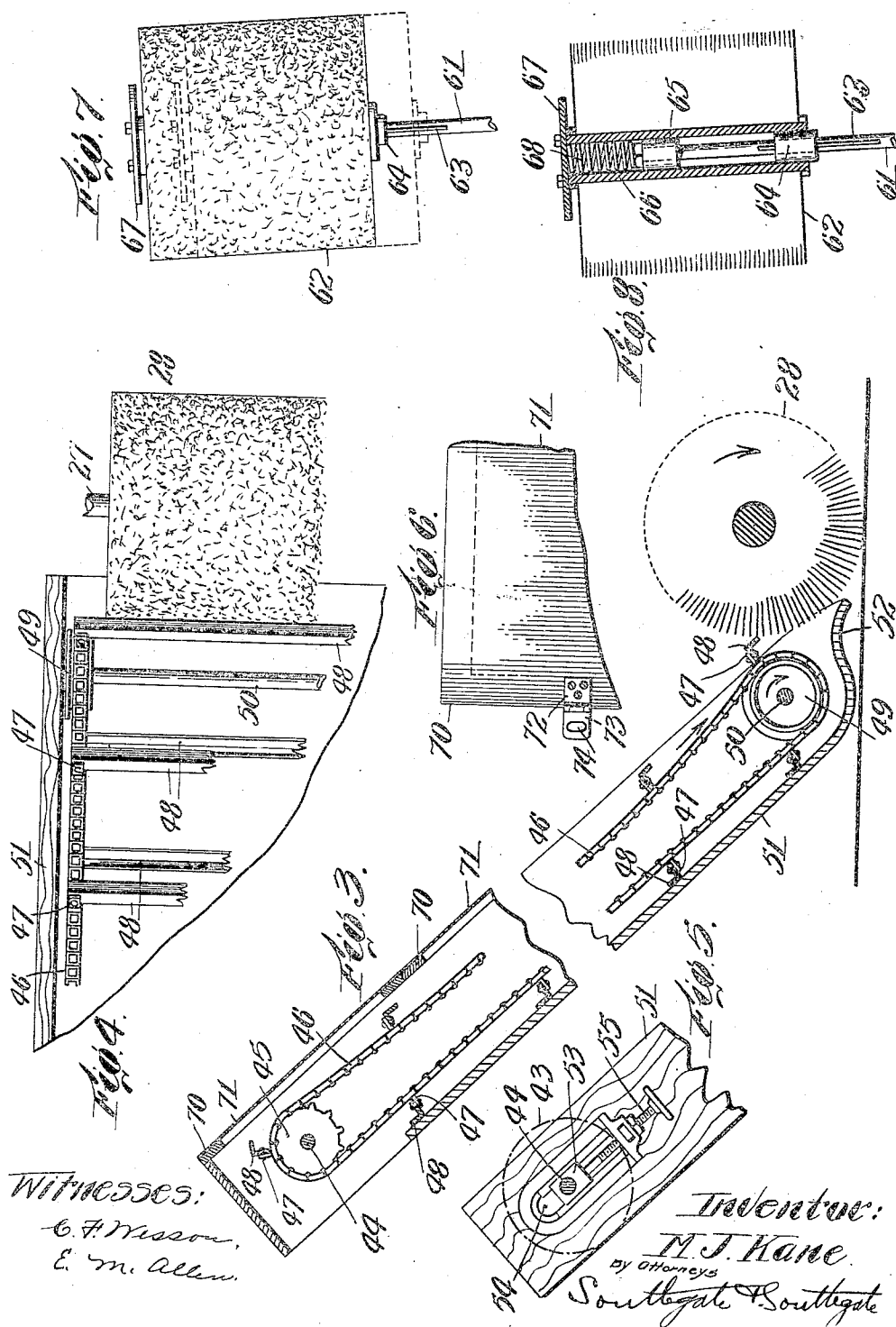
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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

MICHAEL J. KANE, OF WORCESTER, MASSACHUSETTS.

STREET-SWEEPER.

935,991.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed May 18, 1907. Serial No. 373,904.

To all whom it may concern:

Be it known that I, MICHAEL J. KANE, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Street-Sweeper, of which the following is a specification.

This invention relates to a street sweeper of the variety which comprises a vehicle adapted to be drawn by horses or propelled in any desired manner along the streets and provided with a seat for the operator.

The principal objects of the invention are to provide means whereby the sweeping brush can be efficiently operated from the wheels of the vehicle and the conveyer which takes the material swept up from the brush can also be operated in a convenient way in a similar manner; to provide a simple arrangement for connecting the conveyer and brush with and disconnecting them from operating mechanism controlled from the driver's seat; to provide means for holding the brush at the proper elevation and simple means for raising the brush and conveyer operated from the seat of the driver; and to provide an improved form of gutter brush which will be automatically adjustable to sweep the gutters and deposit its sweepings in front of the sweeping brush so constructed that irregularities in the curbs or in the course of the street sweeper will not prevent the efficient operation of the gutter brush.

Other objects of the invention are to provide an improved form of conveyer which will take all the material from the brush; to provide means whereby the lifting of the conveyer will not interfere with the driving connections; and to provide convenient means for removing the sweepings from the vehicle body.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings which illustrate a preferred form of the invention and in which,

Figure 1 is a plan of a street sweeper embodying the invention. Fig. 2 is a side elevation of the same. Fig. 3 is an enlarged side elevation partly in section showing the relation of the sweeping brush and the conveyer. Fig. 4 is a fragmentary plan of the same. Fig. 5 is a side elevation of the adjusting mechanism for the sprocket shaft of the conveyer. Fig. 6 is a plan of one of the

frames for covering the open side of the conveyer. Fig. 7 is a plan of the gutter brush, and Fig. 8 is a central horizontal sectional view of the same.

In its preferred form the invention is embodied in a structure as indicated, in which a vehicle body 10, provided to support the rest of the apparatus is of such a character that it can be drawn by horses or the like or propelled automatically if desired.

On the hub of one of the rear wheels 11 is a sprocket-wheel 12 which, by means of a chain 13, drives a sprocket wheel 14 on a shaft 15 which has a gear 16 meshing with the gear 17 on a longitudinally movable shaft 18 mounted in bearings 19 on the body of the vehicle. This shaft 18 is provided with a pair of collars 20 between which is a lever 21 having a handle 22 located adjacent to the seat 23 for the operator. It will be obvious that by manipulating this lever, the gear 17 can be thrown out of mesh with the gear 16. When it is in mesh, however, it operates through a sprocket wheel 24 and a chain 25 to rotate a sprocket wheel 26 on a shaft 27 on which the sweeping brush 28 is located. The hub of the other rear wheel has a sprocket wheel 30 connected by a chain 31 with a sprocket wheel 32 on a shaft 33, which has a gear 34 meshing with a pinion 35 on a longitudinally movable shaft 36 mounted to slide in bearings 37 on the body of the vehicle. This shaft has collars 38 between which is the end of a lever 39 having a handle 40 located in proximity to the seat 23 and operated in the same manner as the lever 21. The shaft 36 is provided with a sprocket wheel 41 connected by a chain 42 with a sprocket wheel 43 which is mounted on an adjustable shaft 44 which carries sprocket wheels 45 on which an endless chain conveyer 46 is mounted. This conveyer is provided with projections 47 to which are secured L-shaped flights 48 and passes over drums 49 on a lower shaft 50. The lower shaft is so located that the flights 48 engage the surface of the brush 28 as they move downwardly from the drum 49 and wipe the dirt therefrom, depositing it in a casing 51 in which the endless conveyer is mounted. This casing is provided with a curved bottom 52 for receiving the sweepings.

The flights 48 in their upward movement, pass along the floor of the conveyer and serve to carry all the material therein upwardly and discharge it from the receptacle.

The shaft 44 is mounted in movable bearings 53 which slide in ways 54 in the upper end of the sides of the casing of the conveyer. These bearings are provided with adjusting screws 55 whereby the conveyer can be adjusted in any desired way.

In order that the gutters may be properly swept, the shaft 36 is provided with an additional sprocket wheel 56 which transmits power through a chain 57 to a shaft 58, which in turn transmits power by a chain 59 to a wheel 60 on a shaft 61. This shaft is mounted in a bearing on a bracket 620 connected with the casing of the conveyer and is located at an angle with respect to the shaft 27, whereby the brush 62 on the shaft will be located in such a manner as to deposit its sweepings in front of the brush 28. On account of the fact that the course of the vehicle cannot be made uniform and the additional fact that the curbs and gutters are sometimes irregular, the brush 62 is made automatically adjustable. This is done by providing the shaft 61 with a spline 63 and mounting a bushing 64 thereon so that it will be free to slide along the shaft. A second bushing 65 is also mounted on the shaft. The brush itself comprises a cylinder 66 which is secured to the bushings 64 and 65. This cylinder is provided with a plate 67 at its end and between the end of the shaft 61 and this plate is located a spring 68. This spring obviously tends to force the end of the cylinder away from the end of the shaft and to hold the gutter brush as far out as possible. When the plate 67 engages the curb, the brush is forced yieldingly inwardly so as to follow the curb in an obvious manner.

The upper side of the conveyer casing is open and is adapted to be closed by means of a series of frames 70, each being covered by a sheet of canvas 71 or other textile material. To these frames are secured hinges 72 each of which has a butt 73 provided with a slot 74 adapted to be fastened to the side of the casing by means of a projection 75 thereon and a cotter pin 76 or the like. By means of this arrangement, the frames can be readily removed to permit the interior of the conveyer to be inspected, cleaned or repaired.

The elevator casing carrying the shafts 27, 44 and 50 and the bracket 620 is supported at the rear by a pair of arms 80. These arms are pivotally connected with brackets 81 at the rear of the body of the vehicle and are fixedly secured to the casing of the conveyer. Obviously the arms are adapted to swing downwardly as far as may be desired and the limit of their motion in this direction is provided for by means of pairs of screw threaded rods 82, one of each pair of which is loosely connected with a frame and the other with the body of the vehicle. These rods are connected by a turn

buckle 83 so that their combined length may be adjusted to bring the lower surface of the two brushes to the proper elevation.

For the purpose of raising each arm, a chain or other flexible connection 84 is connected with it and is adapted to be wound on a drum 85 which is provided with a worm wheel 86 meshing with a worm 87 on a shaft 88 which is provided with a hand wheel 89 in position to be operated from the seat 23.

In order that the chain 42 may be long enough to permit the conveyer to be raised in this way, it is provided with a chain tightener consisting of a roller or wheel 90 connected with the casing of the conveyer by a spring 91. With a construction like this the chain can be made of any convenient length to permit the conveyer to be raised and as it is raised, the chain tightener moves up with it so as to allow the chain to be brought into taut position.

The conveyer casing has slots 95 into which a rod 96 extends to guide the casing in its movement. The contents of the conveyer are discharged into a receptacle 93 which is mounted on a series of rollers 94 located to turn on longitudinal axes on the body of the vehicle. On account of this, the receptacle can easily be removed at one side and another one substituted.

While I have illustrated and described a particular form in which I prefer to embody my invention, I am aware that many changes may be made therein by a skilled mechanic without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to the construction shown, but

What I do claim is:—

1. In a street sweeper, the combination with a vehicle body, of an elevator casing or support movably mounted thereon and extending below the body, inclined arms extending upwardly and rearwardly from the bottom of the casing and pivoted at their upper ends to the vehicle body, a flexible adjustable device depending substantially vertically from the vehicle body and connected with said arms for limiting the lowermost position of the conveyer casing, and means connected with said arms and extending upwardly forward for raising and lowering said casing independent of said limiting device.

2. In a street sweeper, the combination with a vehicle body, of an elevator casing or support movably mounted thereon and extending below the body, inclined arms extending upwardly and rearwardly from the bottom of the casing and pivoted at their upper ends to the vehicle body, a flexible adjustable device depending substantially vertically from the vehicle body and connected with said arms for limiting the lowermost position of the conveyer casing, means con-

5 nected with said arms and extending upwardly forward for raising and lowering said casing independent of said limiting device, a main brush mounted on said arms, a
 10 brush supported by said casing, and means on the body for driving said brushes.

15 3. In a street sweeper, the combination with a vehicle body, of an elevator casing or support movably mounted thereon inclined downwardly at the rear and extending below the body, inclined arms extending upwardly and rearwardly from the bottom of the casing and pivoted at their upper ends to the vehicle body, a flexible adjustable device depending substantially vertically from the vehicle body and connected with said arms for limiting the lowermost position of the conveyor casing, means connected with said arms and extending upwardly forward for
 20 raising and lowering said casing independently of said limiting device, a conveyer in

the casing, a chain for driving the conveyer and yielding means connected with the casing for keeping the driving chain taut in all positions of the conveyer casing.

25 4. A street sweeping machine provided with a brush having a shaft located at an angle to the line of movement of the machine and at one side thereof, a pair of bushings on said shaft one of which is splined
 30 thereto so as to be slidable freely along the shaft, a cylinder mounted on said bushings and a spring between the end of the shaft and the end of the cylinder for normally holding the cylinder in a certain position. 35

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

MICHAEL J. KANE.

Witnesses:

ALBERT E. FAY,

CATHARINE I. HARTNETT.