J. H. OSTEN.

STREET SWEEPER.

APPLICATION FILED MAR. 23, 1915.

1,163,948.

Patented Dec. 14, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

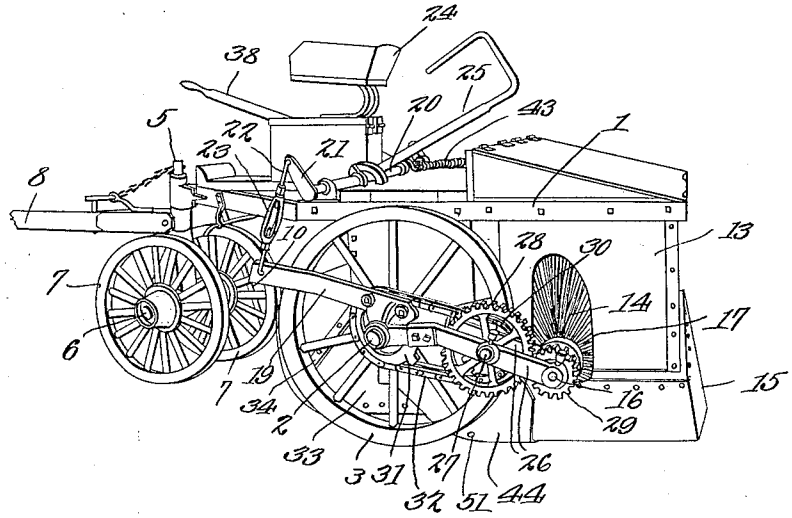
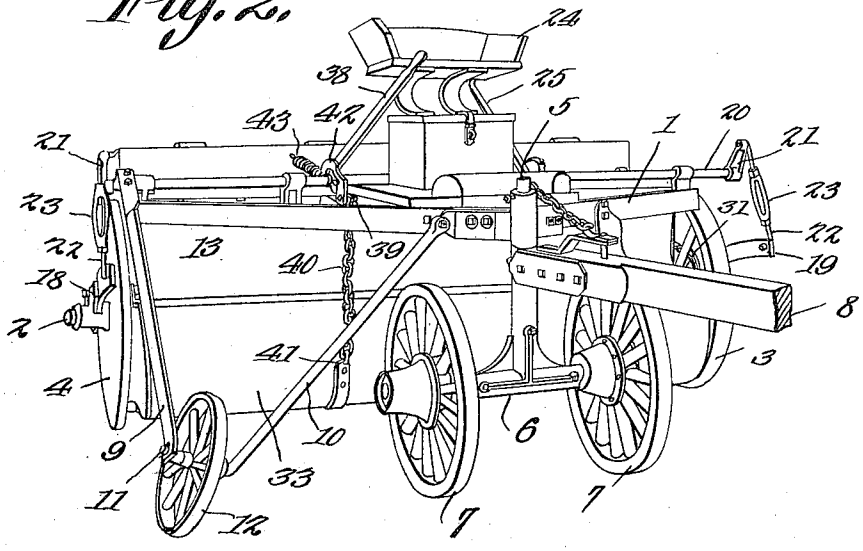


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

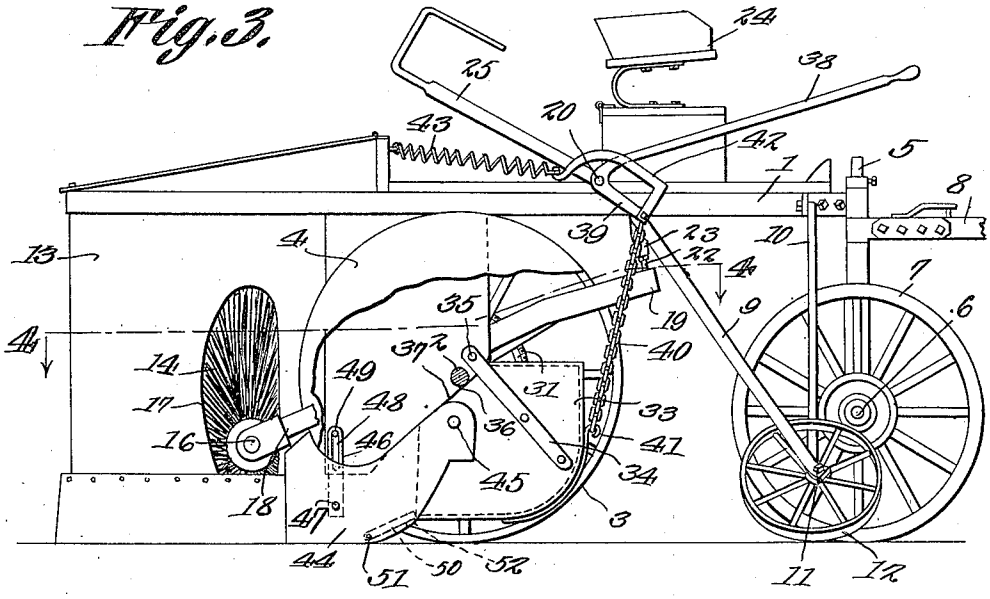


Fig. 4.

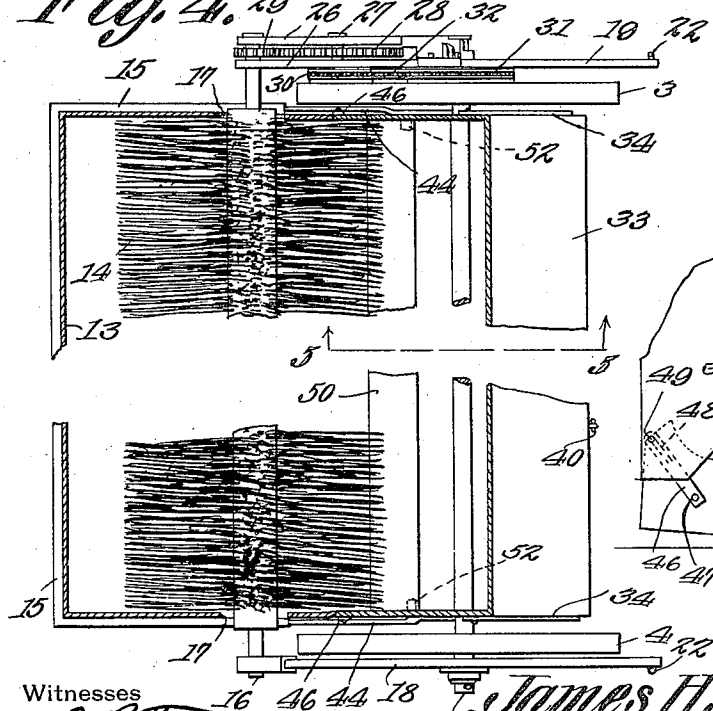
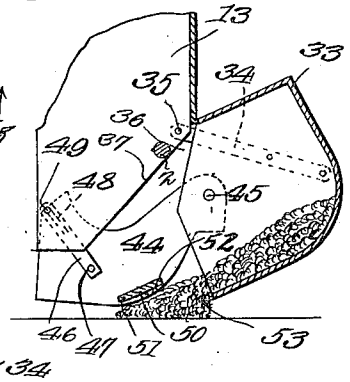


Fig. 5



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STREET-SWEEPER.

1,163,948. Specification of Letters Patent. Patented Dec. 14, 1915.

Application filed March 23, 1915. Serial No. 16,355.

To all whom it may concern:

Be it known that I, JAMES HENRY OSTEN, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented a new and useful Street-Sweepers, of which the following is a specification.

The present invention relates to improvements in street sweepers, and aims to provide a novel and improved apparatus of that character, which will be improved generally in its construction, to enhance the utility thereof.

Among its specific objects, the present invention contemplates the provision of unique means for catching or collecting the dust, refuse, and other foreign matter, and for discharging the same from time to time in a desirable and effective manner.

Another object of the invention is to provide novel means for manipulating the dust pan or receptacle.

A further object of the present invention is to provide novel means for actuating the rotary brush or broom from one of the main wheels of the machine.

A still further object of the present invention is to provide a curb wheel carried by the frame of the machine in a peculiar manner, to assist in guiding the machine, and to prevent the corresponding main wheel from rubbing against or riding onto the curb, as is objectionable.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention has been illustrated in its preferred embodiment in the accompanying drawings, wherein—

Figure 1 is a perspective view of the street sweeper, looking toward the left side thereof, a portion of the tongue or pole being broken away. Fig. 2 is another perspective view of the machine, looking from the front. Fig. 3 is a side elevation of the machine, looking toward the right side thereof, and portions being broken away. Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 3, portions being broken away. Fig. 5 is a sectional detail taken on the line 5—5 of Fig. 4, and illustrating the dust receptacle or pan elevated or swung to discharging position.

The present machine embodies a suitable frame 1 which is mounted upon the main axle 2 having the main or ground wheels 3 and 4 secured upon its end portions at the left and right hand sides of the machine. The axle 2 is disposed between the ends of the frame 1, to carry the greater portion of the weight of the frame and parts supported thereby, while an upright steering spindle or post 5 is journaled to the front end of the frame 1 and has a relatively short bearing axle 6 attached to its lower end. The steering wheels 7, which are disposed relatively close together, are journaled upon the ends of the steering axle 6 and the tongue or pole 8 is attached to the spindle or post 5 to turn the same as the tongue is swung to one side or the other, for steering or guiding the vehicle. The main axle 2 is relatively long, and the main wheels 3 and 4 are spaced apart considerably, so that the steering wheels 7 are located between the sides of the machine, and may be angled readily to steer the machine, without interference.

As a means for assisting in guiding or governing the course of the machine, and for preventing the right hand wheel 4 from rubbing against and riding onto the curb, a rearwardly inclined brace 9 has its rear or upper end attached to the right hand side of the frame 1, and a laterally or inwardly inclined brace 10 has its upper or inner end attached to the forward end portion of the frame. A laterally inclined axle 11 is engaged to the lower or free ends of the braces 9 and 10, and has journaled thereon, the curb wheel 12, which is arranged in a canted or inwardly inclined position, whereby it may readily run along the curb or within the gutter at the side of the pavement. The lower portion of the curb wheel 12, projects outwardly slightly beyond the plane of the main wheel 4, to thereby prevent the wheel 4 from rubbing against or climbing or running onto the curb. The curb wheel 12 is thus of considerable assistance in properly governing or guiding the course of the sweeper, it being noted that the curb wheel

is disposed at the right hand side, inasmuch as the sweeper is usually operated along the right hand side of the pavement.

A housing or casing 13 is carried by the rear end portion of the frame 1 in rear of the axle 2, and incloses the rotary brush or broom 14, flexible aprons 15 of fabric textile material, being preferably attached to the rear end and sides of the housing 13 to drag upon the pavement, for preventing the escape of dust from under the housing or hood 13. The rotary brush or broom 14 is mounted upon an axle 16, the end portions of which work within arcuate openings or slots 17 formed in the sides of the housing 13 to enable the brush or broom to be adjusted vertically.

The brush or broom 14 is carried by a pair of levers 18—19 disposed at the right and left hand sides of the machine, respectively, and having their intermediate portions journaled or fulcrumed upon the extremities of the axle 2 outside of the wheels 3 and 4. The extremities of the brush or broom shaft 16 are journaled through the rear ends of the levers 18 and 19, so that the said shaft is carried by the rear arms of the said levers.

As a means for operating or acutating the levers 18—19, a transverse rock shaft 20 is journaled upon the frame 1 in advance of the housing 13, and has arms 21 attached to its extremities at the sides of the frame. Links 22 connect the arms 21 and the forward ends or arms of the levers 18—19, turn buckles 23 being preferably interposed in the links 22, whereby said links may be extended or contracted when desired. By manipulating the turn buckles 23, the normal positions of the levers 18 and 19 may be adjusted, and in this manner the levers may be readjusted from time to time, to compensate for the wear of the broom or brush. The rock shaft 20 is disposed directly in rear of the operator's seat 24, and a hand lever 25 is secured to the shaft 20 at the left hand side of the seat 24 and normally projects rearwardly, so that when the hand lever 25 is swung forwardly by the left hand of the operator, the arms 21 of the shaft 20 which project forwardly, will be depressed, to depress the forward arms of the levers 18—19 and to thereby raise the rear arms of the said levers 18—19 to elevate the brush or broom. The rock shaft 20 is preferably spring pressed in such a manner as to assist in swinging the same to raise the broom or brush, and to counter-balance the brush or broom, whereby it may be manipulated readily.

As a means for operatively connecting the broom or brush shaft 16 and the main or driving axle 2, the rear arm of the lever 19 is provided with the two parallel portions or bars 26, through which is journaled a short shaft 27. A relatively large spur gear 28 is keyed or secured upon the shaft 27 between the bars 26 and intermeshes with a relatively small pinion 29 secured or keyed upon the shaft 16 between the said bars. A relatively small sprocket wheel 30 is keyed or secured upon the inner end of the shaft 27 next inside the inner bar 26, and a relatively large sprocket wheel 31 is keyed or secured upon the axle 2 between the lever 19 and the corresponding wheel 3. A sprocket chain 32 is trained around the sprocket wheels 30 and 31, whereby when the axle 2 is rotated due to the wheels 3 and 4 running upon the pavement, the sprocket wheel 30 will be rotated with the sprocket wheel 31, and will thereby rotate the shaft 27, and as a consequence, the gear wheel 28 will be ratated to rotate the pinion 29 and the shaft 16 upon which it is secured. The brush or broom 14 is thus rotated at a relatively high speed, and is rotated in a direction opposite the direction of rotation of the wheels 3 and 4, in order that the bristles of the brush or broom which engage the pavement or under lying surface, will move forwardly to throw the dust, dirt, and extraneous matter, in advance of the brush or broom.

The gathering or collecting device includes a receptacle 33, which is elongated and disposed transversely in advance of the lower portion of the housing 13, and the rear portion which is open to communicate with the interior of the housing 13, in front of the brush or broom. The receptacle or pan 33 is pivoted or hinged to the forward portion of the housing 13, by means of straps or strips 34 secured to the ends of the pan or receptacle and projecting therefrom and overlapping the sides of the housing 13, the projecting ends of the straps 34 being pivoted to the sides of the housing, as at 35, whereby the dust pan or receptacle 33 may be swung forwardly and upwardly, as seen in Fig. 5. The ends of the pan or receptacle 33 are provided with diagonal or oblique portions 36 between their upper and rear edges, which are adapted to abut against the diagonal or oblique portions 37 of the sides of the housing 13 between the forward and lower edges of the said sides of the housing. Thus, when the receptacle or pan 33 is swung downwardly, the diagonal portions 36 thereof rest against the portions 37 of the housing, so that the receptacle or pan will communicate with the interior of the housing. The bottom of the pan or receptacle is spaced above the pavement or under lying surface.

In order to enable the operator to manipulate the pan or receptacle 33, a forwardly projecting hand lever 38 is mounted loosely upon the rock shaft 20 at the right hand side of the seat 24, and is provided with a lower forwardly projecting arm 39 to which is connected one end of a chain or flexible ele-

ment 40. The other end of the chain or flexible element 40 is attached to the forward side of the pan 33, as at 41, whereby when the hand lever 38 is raised and swung rearwardly, the pan will be swung upwardly, or elevated, as seen in Fig. 5.

An arcuate and angular bar 42 passes over and partially around the rock shaft 20 adjacent the hand lever 38, and has one end pivotally engaged to the free end of the arm 39, of the said lever, while one end of a coiled retractile spring 43 is attached to the other or rear end of the bar 42 and has its other end anchored to the housing 13. When the lever 38 is in normal depressed position, so that the dust pan 33 is swung to operative position, the forward end of the bar 42 which is pivoted to the arm 39 of the lever 38, is arranged to swing below the line passing through the axis of the shaft 20 and the rear or anchored end of the spring 43, so that the spring 43 and bar 42 will be swung slightly beyond dead center, and as a consequence, the spring 43 will tend to maintain the lever 38 in depressed condition. When the lever 38 is manually raised, the bar 42 and spring 43 will be swung upwardly beyond dead center, the forward pivoted end of the bar 42 and the arm 39 of the lever, moving upwardly beyond the line intersecting the axis of the shaft 40 and the rear anchored end of the spring 43, whereby the spring 43 will create a rearward pull upon the arm 39 when it is raised. As a result, when the lever 38 is raised, the spring 43 will assist in swinging the same rearwardly and holding the dust pan 33 in elevated position.

As a means for directing the dust and foreign matter into the pan or receptacle 33 from the broom or brush, a pair of plates or shields 44 are disposed at the sides of the housing 13 between the pan 33 and the side aprons 15, to close the openings between the ends of the pan and the side aprons 15. The forward ends of the plates or wings 44, which are upturned, are pivoted as at 45, to the ends of the pan 33, and the lower edges of the plates 44 are so formed, that the said plates serve as runners which are adapted to ride upon the pavement and to trail in rear of the pan 33. Links 46 are pivoted to the plates 44, as at 47, and are provided at their upper or free portions with elongated slots 48 which are engaged over pins or lugs 49 secured to the sides of the housing 13 above the plates 44. Thus, the links 46 having their lower ends pivoted to the plates 44 and having their upper ends slidably connected to the sides of the housing 13, will support the plates 44 when they are in their lowermost positions, and will thus prevent the excessive downward movement of the said plates, although the links 46 will enable the plates 44 to swing upward sufficiently under the varying conditions, so that the plates may conform to the unevenness of the pavement. An elongated dust board 50 is disposed transversely between the plates 44 and is inclined forwardly. The ends of the dust board 50 are pivoted, as at 51, to the plates 44 adjacent the rear or lower edge of the dust board, and stops 52 are carried by the plates 44 in advance of the pivots 51, and upon which the rear or free edge of the dust board 50 is seatable to hold the dust board in inclined position, and to enable the dust board to swing upwardly and rearwardly slightly. Normally, the free or forward edge of the dust board is disposed adjacent the rear edge of the bottom of the rearwardly facing pan 33, whereby the dust and foreign matter thrown over the dust board 50 is directed into the pan 33. The pivots 51 are disposed adjacent the lower edges of the plates or runners 44, whereby the lower or rear edge of the dust board will run close to the pavement, to cause the dust and foreign matter which is directed forwardly by the brush or broom, to be deflected over the dust board into the pan wherein the dust, refuse and extraneous matter is collected or accumulated.

The peculiar assemblage of the plates or runners 44, which carry the dust board 50, with the pivotally mounted receptacle or pan 33, and the housing 13, enables the pan 33 to be emptied in a convenient and efficient manner, from time to time. Thus, when the pan 33 is swung rearwardly and upwardly by the hand lever 38, to bring the bottom of the pan to an inclined position, as seen in Fig. 5, the forward ends of the plates or runners 44 being pivoted to the ends of the pan 33 considerably above the bottom of the pan, will cause the rear edge of the pan to be moved away from the dust board 50, to provide an opening 53 therebetween, through which the dust or foreign matter may be discharged or ejected from the pan under the dust board. The plates or runners 44 being pivoted to the dust pan, will be drawn forwardly therewith, and the links 46 in being swung forwardly, will raise the plates 44 as they are pulled forwardly, to thereby elevate the dust board 50 to permit the dumped material to pass there in under as the machine is drawn forwardly. It is to be noted that the lower edge portion of the dust board 50 in being pivoted to the plates 44, will enable the dust board to swing upwardly and rearwardly away from the stops 52, if necessary. When the hand lever 38 is again swung forwardly and depressed to permit the pan 33 to swing to normal position, the plates 44 will also be swung to normal position, and the dust board 50 will again be brought into coöperation with the bottom of the pan, to close the opening 53 therebetween, and to cause the dust and dirt

to be properly directed into the pan from over the dust board.

In operation, the hand levers 25 and 38 are normally depressed, to thereby bring the broom or brush and dust-collecting device into operation, the dust, refuse and foreign matter being thrown forwardly from the brush or broom over the dust board into the pan or receptacle 33 wherein the foreign matter is accumulated and confined. Now, when the operator wishes to dump the contents of the pan 33, he raises the hand levers 25 and 38, to simultaneously raise the broom or brush 14 and the receptacle or pan 33, and as a result, the dust and foreign matter will be discharged from the tilted pan 33 through the discharge opening 53 provided between the dust board and pan, and the dumped material will then fall into a pile or heap upon the pavement or underlying surface. The dust board and broom or brush being raised or elevated, will readily pass over the heap of dumped material, to prevent interference therewith, as would be likely to scatter the same. After the brush or broom has passed the heap of dumped material, the broom or brush and the dust receptacle are each lowered into normal operative position, in which event the sweeping operation will be resumed.

The plates or runners 44 in riding upon the pavement, will hold the dust board 50 in coöperative relation with the pavement, to properly direct the dust and foreign matter thrown forwardly by the broom or brush into the dust pan. The plates or runners 44 may swing or vibrate sufficiently under the varying conditions of the pavement, without disturbing the coöperative relation of the dust board and the bottom of the dust pan. It is also to be observed that the dust pan being pivotally mounted will be free to vibrate or move slightly, if necessary.

Particular attention is also directed to the fact, that the canted curb wheel 12 is disposed in advance of the right hand driving wheel 4, which is of considerable advantage, in that it prevents the machine from being drawn too close to the curbing, and although the machine may run comparatively close to the curbing, the wheel 4 will be prevented from rubbing against and riding onto the curb, which would result in a premature dumping and scattering of the dust and refuse.

Having thus described the invention, what is claimed as new is:—

1. In a sweeper, a tiltable dust receptacle, runners, a dust board carried by the runners and coöperable with the dust receptacle, and means for raising the runners when the receptacle is tilted, the receptacle and dust board separating when the receptacle is tilted, to provide a discharge opening therebetween.

2. In a sweeper, a pivotally hung dust receptacle, a pair of runners, a dust board carried by the runners and coöperable with the receptacle, the receptacle being swingable away from the dust board to provide a discharge opening therebetween, and means for raising the runners when the receptacle is swung away from the dust board.

3. In a sweeper, a pivotally hung dust receptacle, runners pivoted to the receptacle, a dust board carried by the runners and cooperable with the receptacle, the receptacle being swingable away from the dust board to provide a discharge opening therebetween, and means for raising the runners when the receptacle is swung away from the dust board.

4. In a sweeper, a broom housing, a dust receptacle pivotally supported thereby and normally communicating therewith, runners pivotally connected to the receptacle, a dust board carried by the runners and coöperable with the receptacle, and links loosely connecting the runners and said housing, the receptacle and dust board separating when the receptacle is swung away from said housing.

5. In a sweeper, a pivotally hung dust receptacle, a hand lever having a lower arm, means connecting the lower arm of the hand lever and dust receptacle, a bar passing over and partially around the axis of the lever and having one end pivotally connected to the said arm of the lever, and a retractile spring connected to the other end of the said bar.

6. In a street sweeper, a frame, main wheels disposed at the sides of the frame, steering wheels disposed at the forward end of the frame and between the planes of the main wheels, a rearwardly and an inwardly inclined brace having their upper ends secured to one side and the forward portion of the frame, respectively, a laterally inclined axle carried by the lower ends of the braces, and a curb wheel journaled upon the said axle and disposed in advance of one of the main wheels.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JAMES HENRY OSTEN.

Witnesses:
M. W. Baker,
J. S. Miller.

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