R. L. SHOEMAKER.

STREET SWEEPER.

APPLICATION FILED MAR. 12, 1910.

1,012,171.

Patented Dec. 19, 1911.

5 SHEETS—SHEET 1.

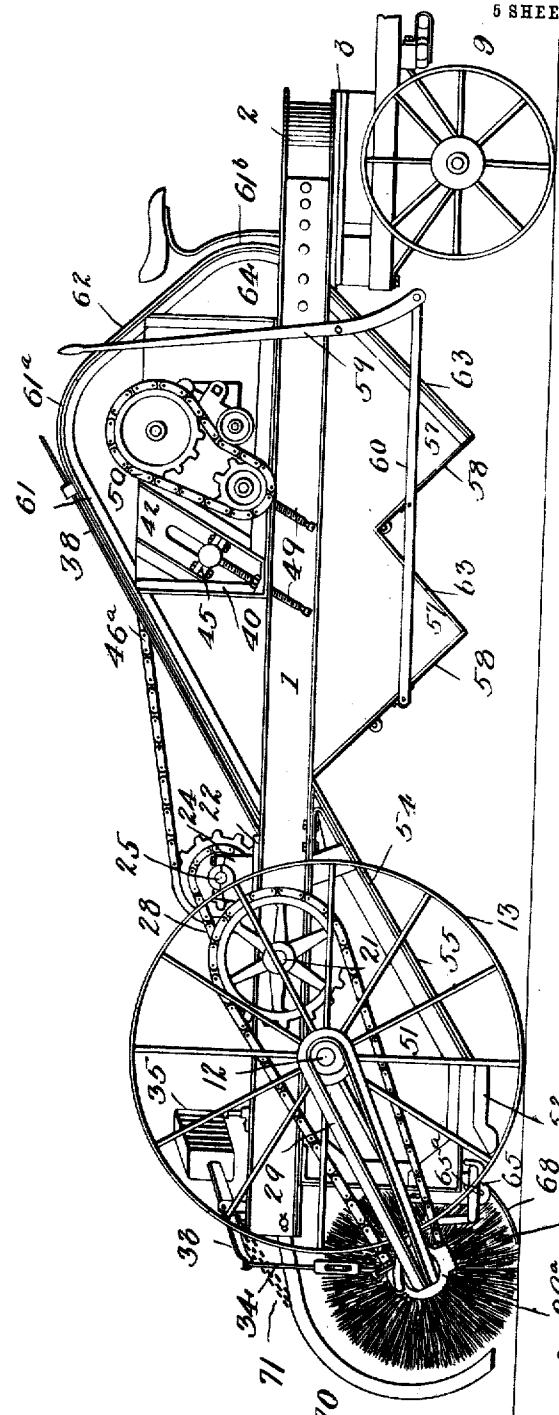

Fig. 1.

Witnesses

J. Hollins.

V. Landreth Jr.

Inventor

By Rankin L. Shoemaker.

D. A. Gourick Attorney

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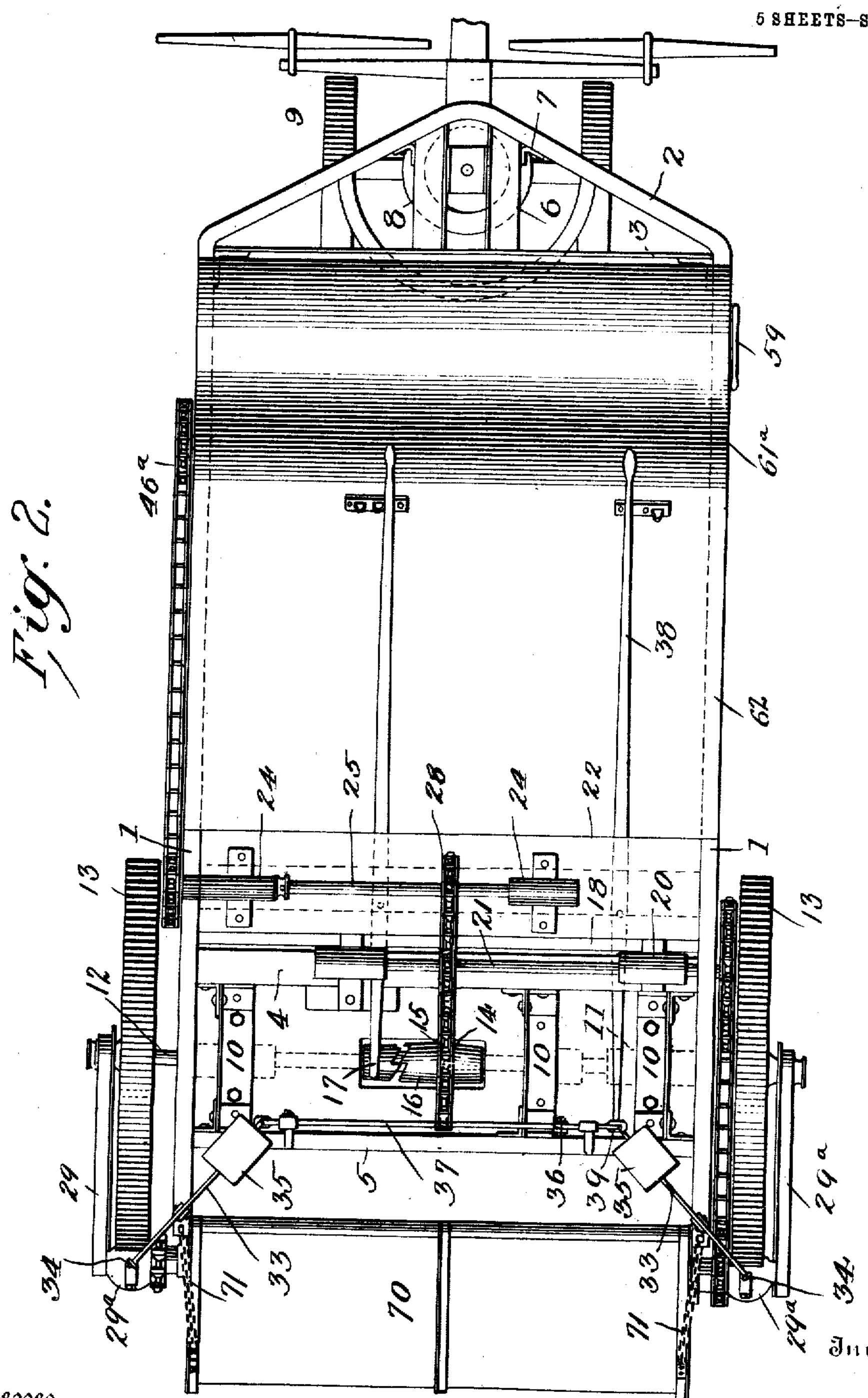
5 SHEETS—SHEET 2.



Witnesses
Jos. Hollins.
V. Randolph Jr.

Inventor
Rankin L. Shoemaker
By D. A. Gourick
Attorney

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5 SHEETS—SHEET 3.

Fig. 3.

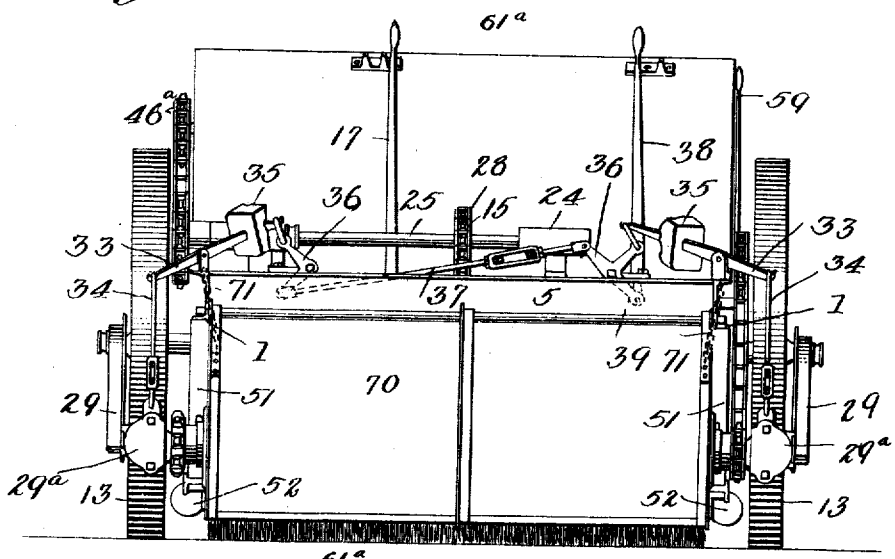


Fig. 6.

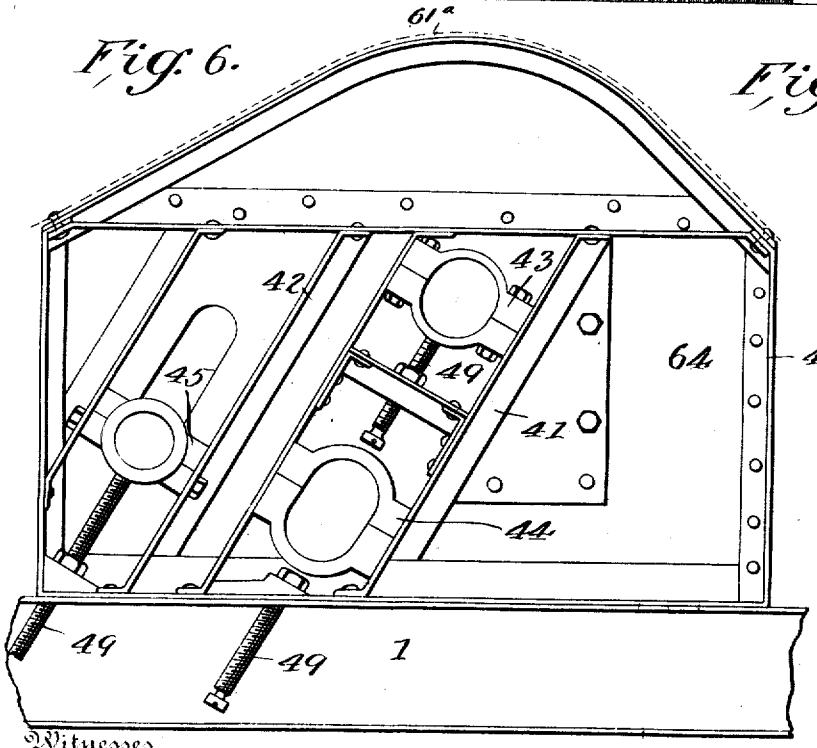
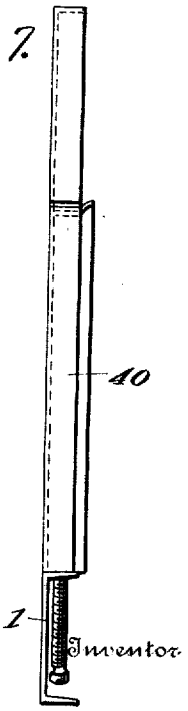


Fig. 7.



Witnesses

Jos. J. Collins.

V. Landvoigt, Jr.

Inventor

By Rankin L. Shoemaker

D. A. Gourick

Attorney

R. L. SHOEMAKER.

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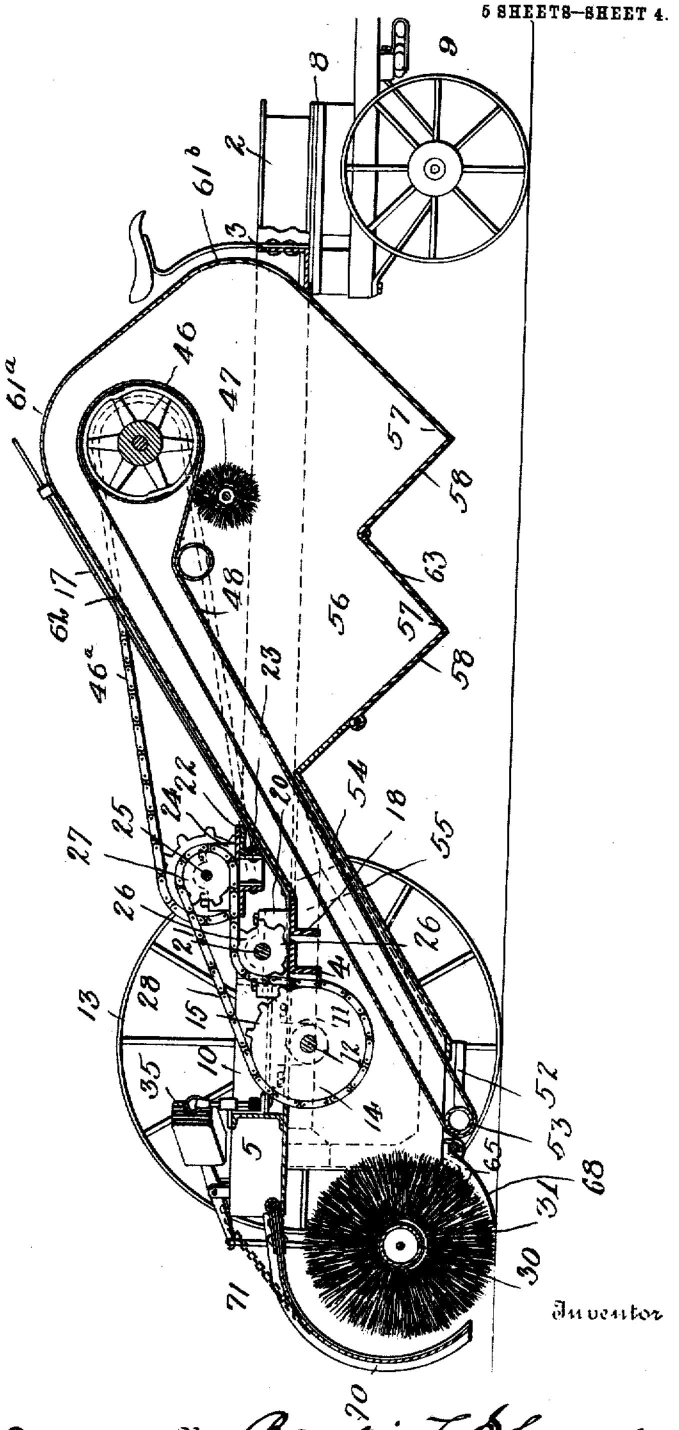
5 SHEETS—SHEET 4.

Fig. 4.



Witnesses

Jos. J. Collins.

S. Randolph Jr.

Inventor

By Rankin L. Shoemaker

S. A. Gourick Attorney

R. L. SHOEMAKER.

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5 SHEETS—SHEET 5.

Fig. 9.

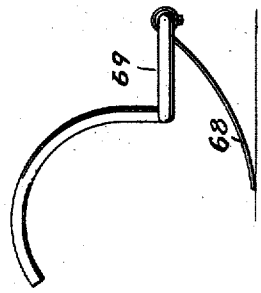


Fig. 11.

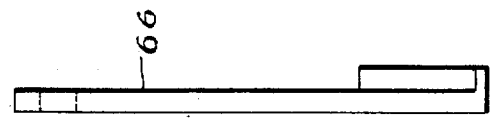


Fig. 10.

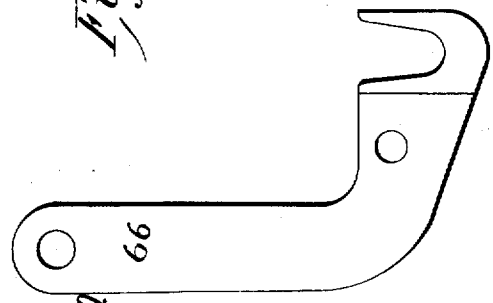


Fig. 8.

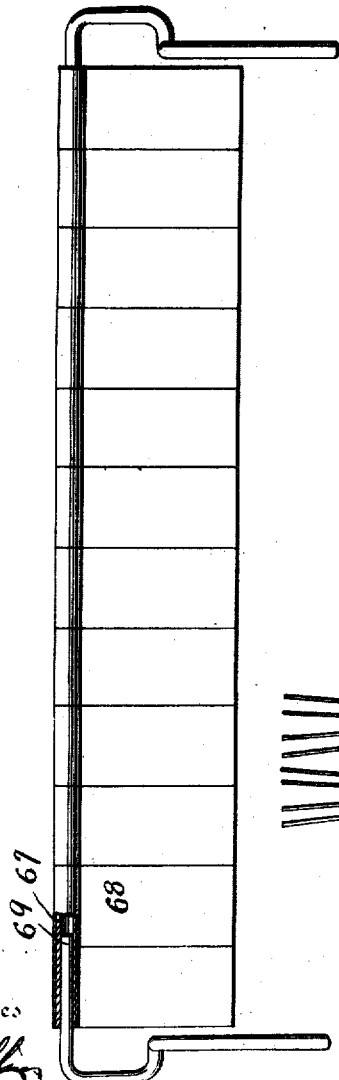
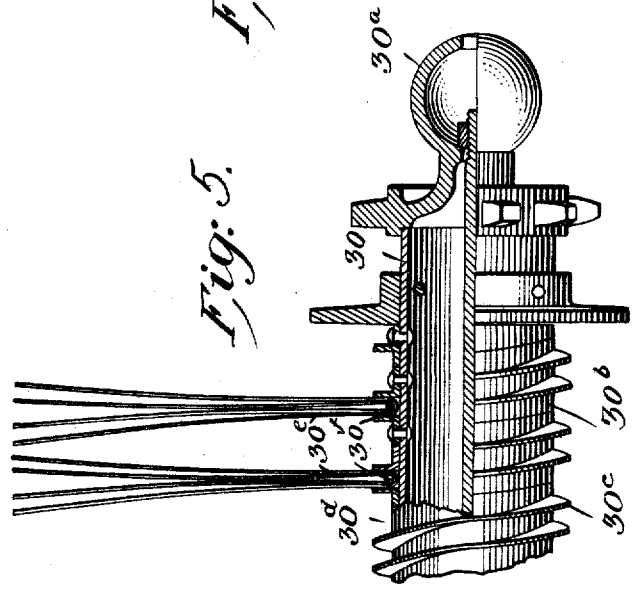


Fig. 5.



Witnesses

J. Hall

A. Randolph Jr.

Inventor

Rankin L. Shoemaker

By D. A. Gourick

Attorney

UNITED STATES PATENT OFFICE.

RANKIN L. SHOEMAKER, OF NEWCOMERSTOWN, OHIO.

STREET-SWEEPER.

1,012,171. Specification of Letters Patent. Patented Dec. 19, 1911.

Application filed March 12, 1910. Serial No. 548,923.

To all whom it may concern:

Be it known that I, RANKIN L. SHOEMAKER, a citizen of the United States, residing at Newcomerstown, in the county of Tuscarawas and State of Ohio, have invented certain new and useful Improvements in Street-Sweepers, of which the following is a specification.

My invention relates to street sweepers and has for one of its objects the improvement of the construction of the frame and operative parts of the machine to the end that it may be more easily and economically operated.

Another object of my invention is the provision of a machine having a storage receptacle for the sweepings with dump openings in its bottom and a conveyer to carry the sweepings from the broom to the storage receptacle.

Another object of my invention is the provision of a dust pan in advance of the broom to carry the sweepings to the conveyer, said pan consisting of a series of strips of steel secured to a revoluble shaft, the shaft being operatively secured to the broom journals so that when the broom is raised into an inoperative position the pan is also raised. When in its lowered position the strips of steel comprising the pan will give individually so as to permit passing over obstructions without affecting the operation of the pan as a whole. The pan is also adjustably mounted so that it can be lowered as it wears from engagement with the street surface to add to the life of the parts.

Another object of my invention is the provision of an improved construction of broom consisting of forming a spiral groove around a tubular core by securing lengths of angle beams around it with oppositely disposed lateral flanges to form the grooves for the broom fibers or wires that are secured in position in the usual manner.

My invention will be described in detail hereinafter and illustrated in the accompanying drawings in which—

Figure 1 is a side view in elevation of my improved street sweeper, Fig. 2, a top plan view, Fig. 3, a rear view, Fig. 4 a longitudinal sectional view, Fig. 5, a fragmental view of the train showing it partly in section, Figs. 6 and 7, detached views of the conveyer inclosure frames, Figs. 8 and 9, views of the dust pan, and Figs. 10 and 11, views of the dust pan supporting bracket.

In the drawings similar reference characters indicate corresponding parts in all of the views.

The frame of my improved machine is made of structural steel, the side sills 1 and the front sill 2 being in one continuous length of channel beam, 3 indicates a cross beam connecting the side sills 1 adjacent to their front-ends, and cross beams 4 and 5 connecting the sills near their rear ends. The front beam 2 is formed angular as shown in Fig. 2 and short-lengths of angle beams 6 are secured longitudinally of the supporting frame at each side of the median line thereof by means of angular brackets 7, 8 indicating a plate secured to angle beams 6 to form the support for the front-truck 9 of the machine which is swivelly mounted thereon.

10 indicates angle beams connecting cross beams 4 and 5 on which are mounted journal boxes 11 in which are journaled the axle 12 on which are mounted the rear wheels 13 of the machine, said axle being formed in two parts connected by a differential gearing of ordinary construction contained in casing 14. Casing 14 is formed with a spur gear face 15, and 16 indicates a clutch operated by lever 17 to throw the differential gearing contained in casing 14 into and out of gear.

18 indicates beams secured to the under sides of sills 1 just forward of cross beam 4 and on which are mounted journal boxes 20 for counter shaft 21.

22 indicates a plate secured to the upper sides of sills 1 and strengthened by cross-beams 23, said plate 22 supporting journal boxes 24 in which is journaled counter shaft 25.

26 indicates a sprocket wheel secured to counter-shaft 21, 27 a sprocket wheel secured to counter shaft 25 and 28 an endless chain geared to sprocket wheels 26 and 27 and spur gear face 15 so that when the machine is drawn forwardly and the clutch 16 is closed the counter shafts 21 and 25 are rotated.

29 indicates arms loosely mounted on the ends of axle 12 and each having a journal box 29^a secured thereto in which is journaled the ends of the core 30 of the broom 31, said broom being rotated by a chain and sprocket gearing 32 connecting counter shaft 21 and core 30.

My improved broom is constructed as shown in Fig. 5, in which the core 30 is

shown as tubular and may be constructed of steam pipe with ball-like ends 30^a that are journaled in spherical journal boxes 29^a so as to allow play between the two ends of the broom and their journals in going over roughnesses and obstructions in the street as well as turning the machine.

30^b indicates angle beams secured spirally on the tubular core 30 and having their vertical flanges 30^c spaced apart to form grooves 30^d for the broom bristles 30^e which are secured in the usual manner by bending them in their middles, to fit the grooves 30^d and securing them in position by means of a rod or length of wire 30^f.

33 indicates levers mounted in the rear ends of sills 1 and supporting the broom 31 by means of links 34 secured to journal boxes 29^a the free ends of the levers being provided with adjustable weights and operated by means of bell crank levers 36 fulcrumed to cross-beam 5 connected by a link 37, 38 indicating a lever suitably fulcrumed and connected to an arm 39 extending from one of said levers 36 to raise and lower the broom. It will be understood that when in its lowered position the pressure of the broom may be regulated by moving the weights 35 on the levers 33.

Mounted on the sills 1 adjacent to the forward ends thereof are frames 40 having inclined supports 41 and 42 therein in which are mounted journal boxes 43, 44 and 45. Journal boxes 43 supporting the apron roll 46 driven by chain and sprocket gearing 46^a from shaft 25, journal box 44 supporting rotary brush 47 to clean the apron 48 to remove any wet or sticky substances that adhere thereto, and journal box 45 supporting an idler roll for the apron. All of said journal boxes 43, 44 and 45 are adjustable by means of screws 49.

50 indicates a chain and sprocket gearing to drive brush 47 from the apron roll shaft.

51 indicates a frame secured under each sill 1 adjacent to its rear end and having journal boxes 52 secured to its under side to support apron roll 53. The forward end of each frame 51 is inclined as shown at 54 and the forward and under sides of the frames 51 are covered with metal plates 55.

56 indicates a plate secured under each sill 1 just forward of frame 51 having angular points 57 with doors 58 pivotally secured to the rear sides of the points said doors being simultaneously operated by means of lever 59 and a rod 60 connecting the lever 59 and said doors 58.

61 indicates an angle beam on each side of the machine, secured at one end to plate 22, to the upper corners of each frame 40, being curved as shown at 61^a between said corners of frame 40, then curved at the front as shown at 61^b and finally secured to the front edge of plate 56, said beams 61 forming ribs to which plates or sheets of metal 62 are secured to inclose the top and front of the machine. The inclined portion of the plates 56 between the doors 58 also have a plate 63 secured thereto and the plates above the rearmost door are also inclosed by a plate. The spaces between the sill 1, frame 40 and angle beam rib 61 are also inclosed by plates 64, this structure comprising the conveyer casing and dust receptacle, the sweepings being delivered from the conveyer into the inclined receptacles formed by the plates 56, doors 58 and the connecting plates, said receptacle being dumped when desired by means of lever 59.

65 indicates a plate secured to the lower rear corner of each frame 51, each plate having elongated openings 65^a in which are secured hanger brackets 66 for the dust pan which consists of a tubular shaft 67 having strips of steel 68 secured thereto and rods 69 brazed into its ends, said rods mounted in the brackets 66, the free ends of said rods being curved upwardly and rearwardly and secured to journal boxes 29^a so that when the broom is raised by the instrumentalities hereinbefore described, the dust pan will swing upwardly out of engagement with the street surface and when the broom is lowered the pan will also be lowered to engage the street surface and carry the sweepings to the conveyer apron 48.

The pan by being formed of a number of strips of spring steel as shown and described admits of the part of the pan striking an obstruction raising to pass over it without necessitating the whole pan raising and after the obstruction has been passed the upwardly sprung portions resume their former positions.

By mounting the hanger brackets in the elongated openings I am enabled to lower the brackets and pan to compensate for the wear of the part in use, the lowermost openings 56^a being, as shown in Figs. 11 and 12 inclined rearwardly so as to turn the lower edge of the pan under the broom as well as keep the curved portion of rods 69 in their positions in the journal boxes 29^a.

70 indicates the broom apron pivotally secured to the rear ends of sills 1 and supported in position by means of chains or other flexible devices 71.

Having thus described my invention what I claim is:—

1. In a street sweeper, in combination with an adjustably mounted broom, and a sweepings conveyer, a shaft journaled between the broom and conveyer, strips of steel secured to said shaft and constituting the dust pan to carry the dust from the broom to the conveyer, and means secured to the shaft and connected to the broom to adjust the pan simultaneously with the broom.

2. In a street sweeper, in combination

with a supporting frame, arms pivotally secured to said frame, journal boxes secured to said arms, a broom journaled in said journal boxes, and a sweepings conveyer, a shaft journaled between the broom and conveyer, strips of steel secured to said shaft and constituting the dust pan to carry the dust from the broom to the conveyer, and rods secured to the ends of said shaft and engaging the broom journal boxes to raise and lower the pan when the broom is raised and lowered.

In testimony whereof I hereto affix my signature in the presence of two witnesses.

RANKIN L. SHOEMAKER.

Witnesses:

DENT L. LYDICK,

H. E. YEAGLEY.