C. J. GARDNER.

STREET SWEEPER.

APPLICATION FILED MAY 1, 1914.

1,142,415.

Patented June 8, 1915.

3 SHEETS—SHEET 1.

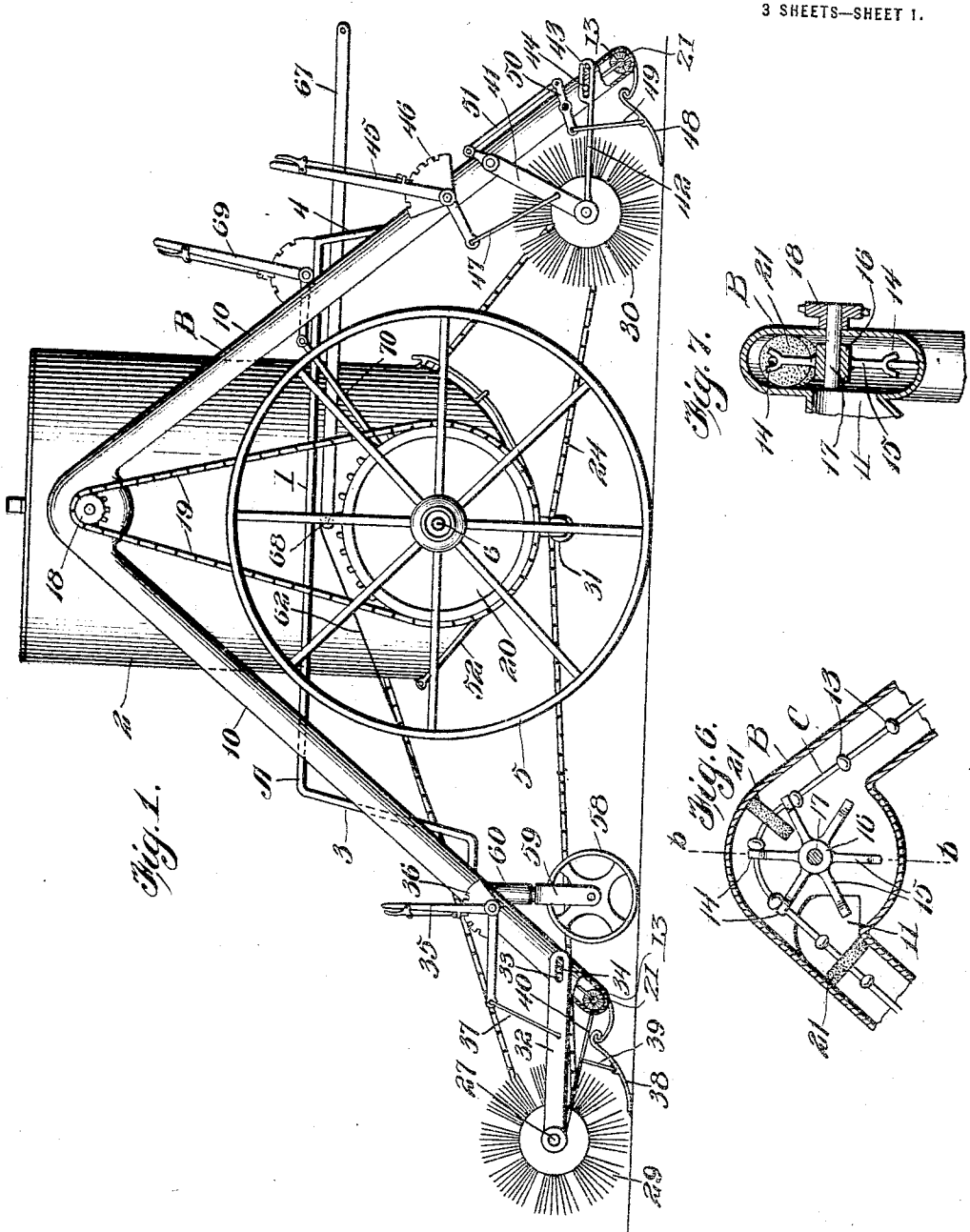


Fig. 1.

Fig. 7.

Fig. 6.

Witnesses

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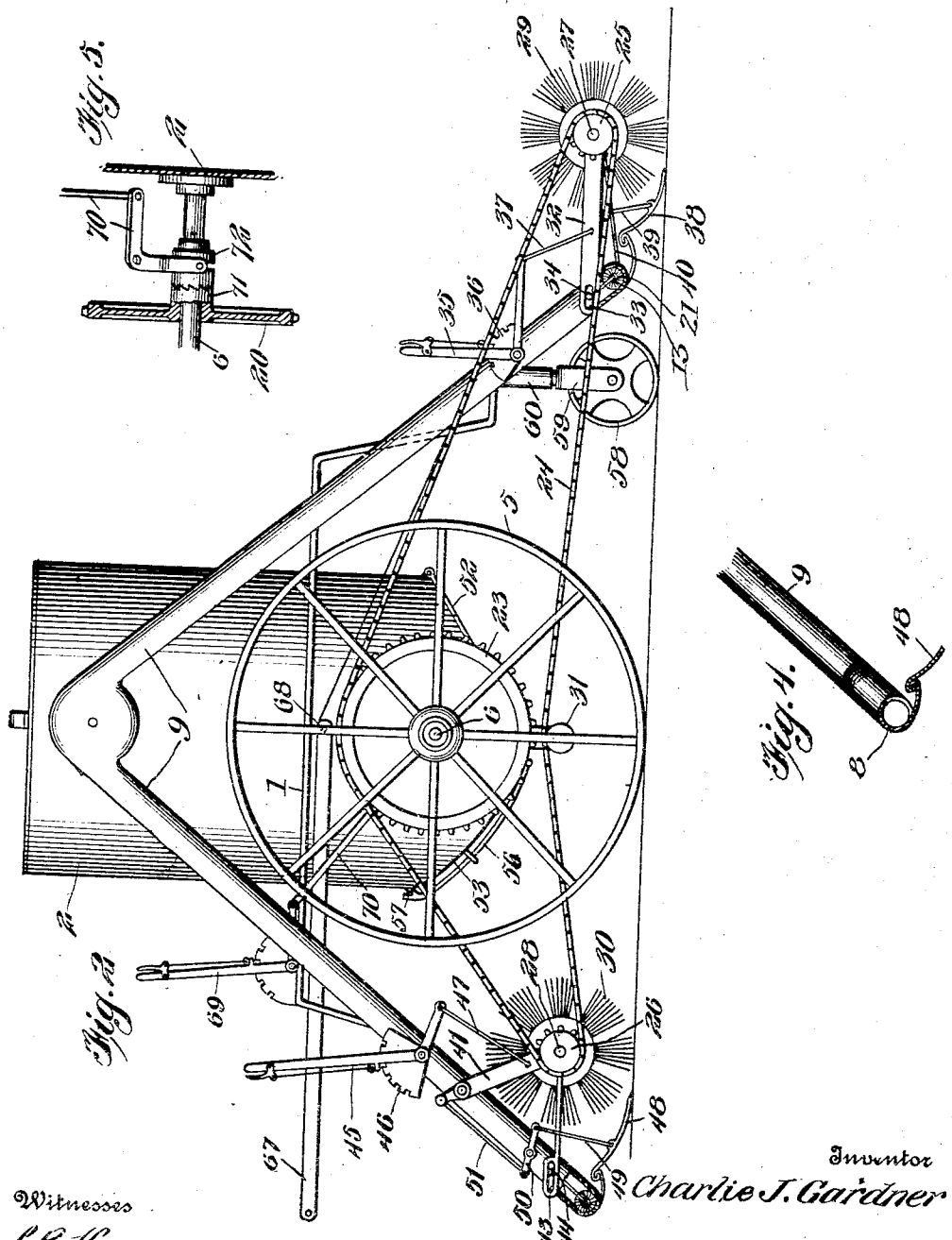
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3 SHEETS—SHEET 3.

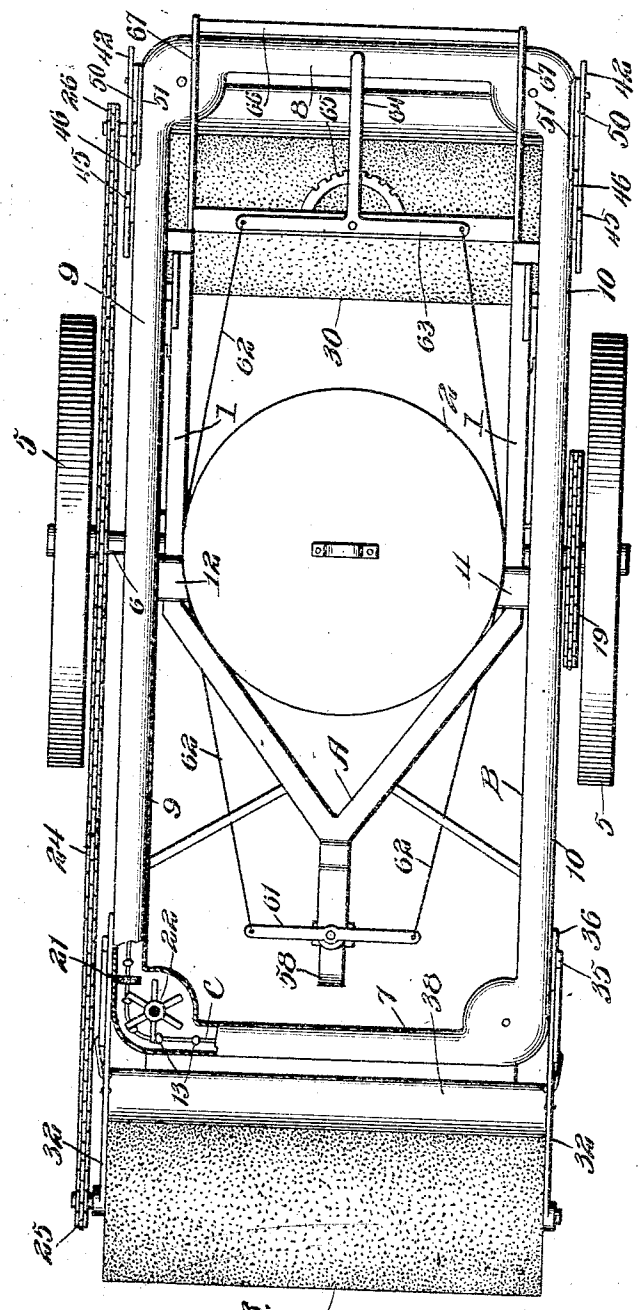


Fig. 3.

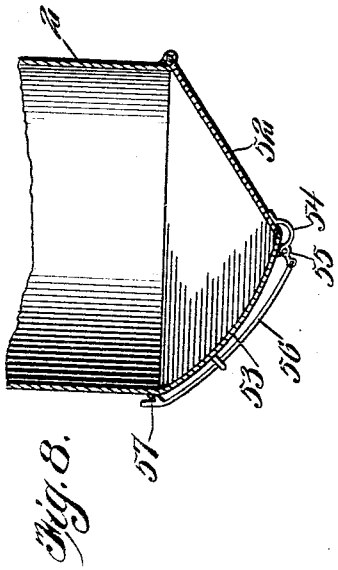


Fig. 8.

Witnesses

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UNITED STATES PATENT OFFICE.

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STREET-SWEEPER.

1,142,415. Specification of Letters Patent. Patented June 8, 1915.

Application filed May 1, 1914. Serial No. 835,661.

To all whom it may concern:

Be it known that I, CHARLIE J. GARDNER, a citizen of the United States, residing at International Falls, in the county of Koochiching and State of Minnesota, have invented new and useful Improvements in Street-Sweepers, of which the following is a specification.

This invention relates to street sweepers, the object in view being to produce a machine of the class described which is adapted to be operated by hand and which involves novel mechanism for conveying the sweepings to the dirt receptacle.

A further object of the invention is to provide in connection with such conveyer, relative coarse and fine rotary sweeping brushes, the sweepings from which are conducted by the same conveyer to the same dirt receptacle.

With the above and many other objects in view, the invention consists in the novel construction, combination and arrangement of parts, as will be hereinafter more fully described, illustrated and claimed.

In the accompanying drawings: Figure 1 is a side elevation partly in section of a street sweeper embodying the present invention. Fig. 2 is also a side elevation partly in section taken from the side opposite Fig. 1. Fig. 3 is a plan view of the machine partly broken away. Fig. 4 is a detail cross section through a horizontal run of the conveyer trough and adjacent scraper. Fig. 5 is a detail section of one of the clutches. Fig. 6 is a fragmentary vertical longitudinal section through a portion of the conveyer trough, showing also a portion of the conveyer chain and one of the sprocket wheels. Fig. 7 is a detail vertical cross section on the line *b*—*b* of Fig. 6. Fig. 8 is a detail vertical section through the discharge end of the dirt receptacle showing the dump gate and operating means therefor.

The street sweeping machine contemplated in this invention comprises essentially a frame designated generally at A, the upper portion 1 of said frame extending in a substantially horizontal plane and having an open central portion to embrace a centrally located dirt receptacle 2 which is substantially circular in horizontal section and which is firmly held by the frame A. Said frame also embodies the front and rear downwardly extending portions 3 and 4 designed for the support of the sweeping brushes and scrapers hereinafter particularly described. The frame A and the dirt receptacle 2 are supported by a pair of carrying wheels 5 the axles 6 of which extend laterally from the lower part of the dirt receptacle 2.

B generally designates an endless conveyer trough which comprises a front horizontal receiving run 7, a rear horizontal receiving run 8, and upwardly extending runs 9 and 10 located at opposite sides of the dirt receptacle, the runs 9 at one side converging at their upper extremities where they discharge through a lateral inlet 12 in the dirt receptacle 2. The side runs 10 at the opposite side of the machine also converge toward their upper extremities where they discharge through another inlet opening 11 in the opposite side of the dirt receptacle 2 as indicated in Fig. 3.

Extending throughout the entire length of the endless conveyer trough B is an endless conveyer designated generally at C, said conveyer being in the form of an endless chain provided with knobs 13 at frequent intervals throughout the length thereof to engage the forked extremities 14 of the arms 15 of a sprocket wheel 16 as shown in Figs. 6 and 7, the shaft 17 of said sprocket wheel being provided with a sprocket pinion 18 from which a sprocket chain 19 extends downwardly around a relatively large driving sprocket wheel 20 on one of the axles of the carrying wheels 5 above referred to, motion being in this way transmitted to the endless conveyer. The conveyer C is further provided at suitable intervals with conveyer brushes 21 of circular or disk shape and preferably composed mainly of bristles which serve to scour the inside walls of the conveyer trough and carry the sweepings to the inlets 11 and 12 of the dirt receptacle 2. Where the horizontal runs 7 and 8 join the side runs 9 and 10, guiding sprocket wheels 22 smaller but of similar construction to the sprocket wheel 16 are provided as shown in Fig. 3 so as to effect the proper turning of the endless conveyer chain at such joints. At the opposite side of the machine is a sprocket wheel 23 over which passes an endless sprocket chain 24, said sprocket chain extending around sprocket pinions 25 and 26 fast respectively on the shafts 27 and 28 of front and rear rotary sweeping brushes 29 and 30, respectively. The bottom run of the chain 24 passes over a rotary guide 31

such as a roller or sprocket pinion located below the driving sprocket wheel 23 and supported by the dirt receptacle 2.

The front rotary sweeping brush 29 is preferably coarser than the rear brush 30 so as to pick up the heavier sweepings and the shaft 27 thereof is journaled in a pair of supporting arms 32 the rear ends thereof being slotted at 33 to slide on pins 34 projecting from the adjacent portions of the conveyer trough B as shown in Fig. 1. The arms 32 are adapted to be raised and lowered by means of a brush adjusting lever 35 operating in connection with a toothed holding rack 36 and connected by cables 37 to the arms 32. In connection with the sweeping brush 29 there is a scraper 38 arranged just in rear of said brush and having its rear edge supported by a gutter leading to the front receiving run 7 of the conveyer trough by which said scraper is supported. The scraper is further supported by links 39 which connect it with stay rods 40 leading from the forward extremities of the arms 32 back to the conveyer trough B. Therefore, when the brush 29 is raised and lowered by means of the lever 35, the scraper 38 is correspondingly elevated and depressed. The rear rotary sweeping brush 30 is likewise mounted in a pair of supporting arms 41 connected by stay rods 42 to the conveyer trough B, said rods being formed with slots 43 which ride upon pins 44 on said trough to allow for the up and down movements of the brush 30.

45 designates a rear brush adjusting lever which coöperates with a toothed rack 46 and is connected by links 47 to the arms 41. A scraper 48 is also used in conjunction with the rear sweeper brush 30 and is simultaneously adjusted up and down with the brush by means of rods 51 which extend from the upper extremities of the arms 41 to a pair of oppositely arranged levers 50 pivotally mounted on the trough, the other arms of said levers 50 being connected by rods or links 49 to the scraper 48 intermediate the front and rear edges of the latter. The scraper 48 like the scraper 38 has its rear end supported in a receiving gutter on the rear horizontal run 8 of the endless conveyer trough so that the sweepings are directed into said trough both at the front of the machine and at the rear of the machine. The rear sweeping brush 30 is preferably finer than the front brush so as to sweep up the smaller particles of dirt, dust and the like.

The dirt receptacle 2 is provided at the bottom thereof with a hinged dump gate 52 and a concaved wall 53 leading to said gate. The gate is adapted to be opened and closed by means of the arm 54 of a lever 55 which is pivotally mounted on the bottom of the dirt receptacle and is operated by means of a latch rod 56 which engages and is held by a latch 57 on the dirt receptacle.

The steering of the machine is effected by means of a steering wheel 58 journaled in a steering fork 59 passing upward through a tubular head 60 connected with the downwardly extending forward portion 3 of the main frame. At its upper end the steering work 9 is provided with a cross head 61 from which operating cables 62 extend rearwardly along the frame A where they are connected at their rear ends to a cross head 63 operated by a hand lever 64 adapted to be held by a toothed rack 65. The lever 64 is arranged in convenient proximity to a handle bar 66 by which the operator pushes the street sweeper, said handle bar 66 being connected by side bars 67 to the frame of the machine and also attached at their forward extremities to the opposite sides of the dirt receptacle 2 at the points 68.

It will be understood that the side runs of the endless conveyer chain travel in opposite directions as do also the front and rear horizontal runs thereof. The horizontal front run gathers up the coarser sweepings delivered to the trough by the front sweeping brush and scraper and carries said sweepings up one side of the endless trough, discharging the same into the dirt receptacle 2. The rear horizontal run of the conveyer takes up the sweepings received in the corresponding run 8 of the trough and carries said sweepings up the other side of the conveyer trough, discharging the same into the dirt receptacle 2 at the opposite side from the other run of the chain. Thus the conveyer moves constantly around the endless conveyer trough, gathering the sweepings from both brushes and discharging the same into the common dirt receptacle.

In order to move the machine from one place to another when not used in the sweeping operation, I provide a pair of clutch levers 69 having suitable connections 70 leading to clutches 71 and 72 by means of which the sprocket wheels 20 and 23 may be thrown into and out of engagement with the hubs of the carrying wheels 5. When the clutches are thrown out, the machine may be moved from place to place without operating the sweeping and conveying mechanism above described.

What I claim is:—

1. In a street sweeper, the combination of a main frame, a dirt receptacle, carrying wheels, front and rear rotary sweeping brushes, a conveyer trough embodying horizontal receiving runs and side runs extending from opposite ends of said horizontal runs upwardly where they communicate with the upper part of the dirt receptacle, and an endless conveyer moving lengthwise of said horizontal runs and in

opposite directions in said side runs of the conveyer trough, said conveyer being actuated by one of the carrying wheels.

2. In a street sweeper, the combination of a main frame, a dirt receptacle, carrying wheels, front and rear rotary sweeping brushes, a conveyer trough embodying horizontal receiving runs and side runs extending from opposite ends of said horizontal runs upwardly where they communicate with the upper part of the dirt receptacle at opposite sides of the latter, and an endless conveyer moving lengthwise of said horizontal runs and in opposite directions in said side runs of the conveyer trough, said conveyer being actuated by one of the carrying wheels.

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

CHARLIE J. GARDNER.

Witnesses:
F. J. McPartlin,
H. S. Campbell.