

No. 810,547.

PATENTED JAN. 23, 1906.

R. C. MENZIES.  
SELF LOADING CART.  
APPLICATION FILED JUNE 6, 1904.

3 SHEETS—SHEET 1.

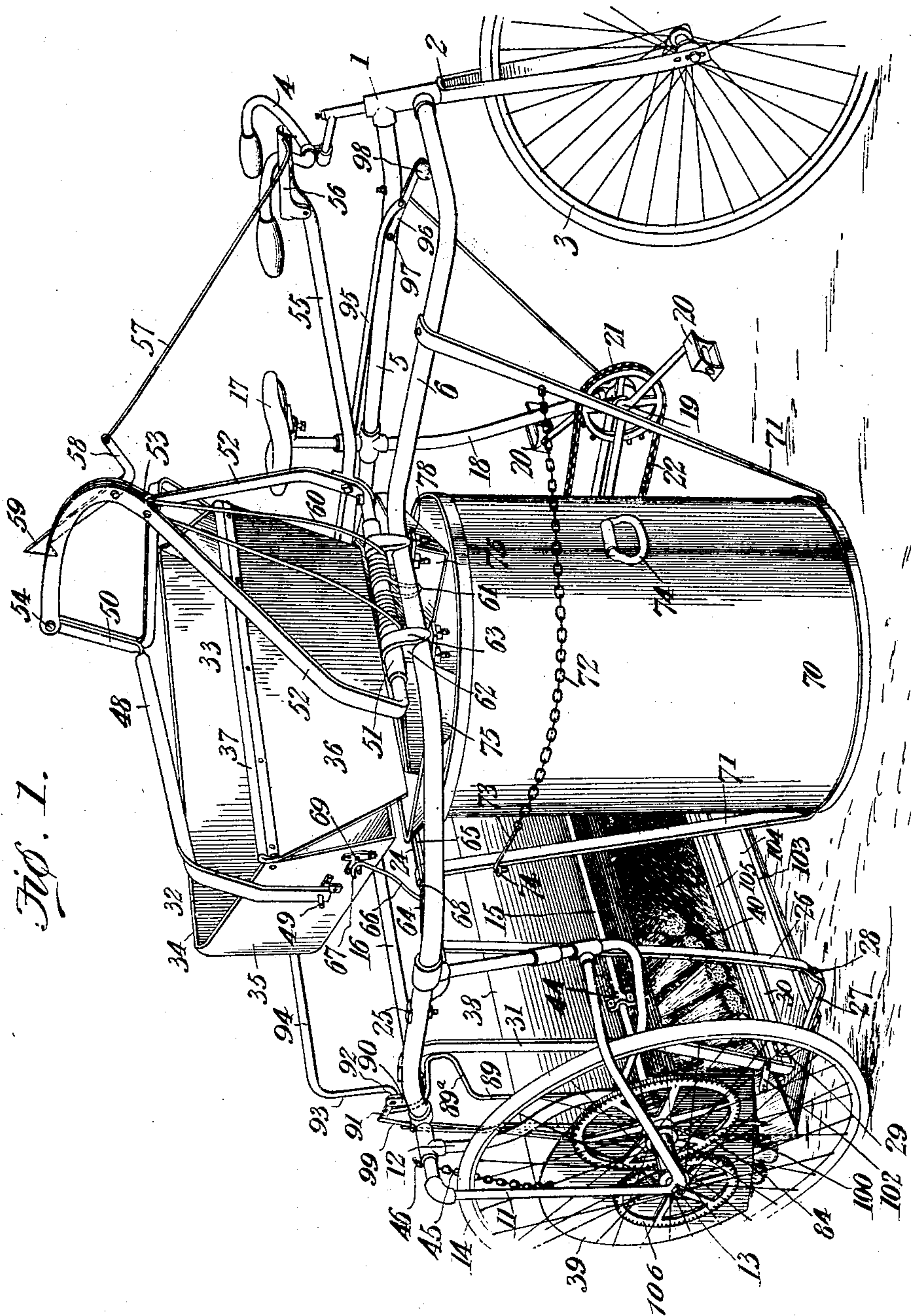


FIG. 1.

Witnesses

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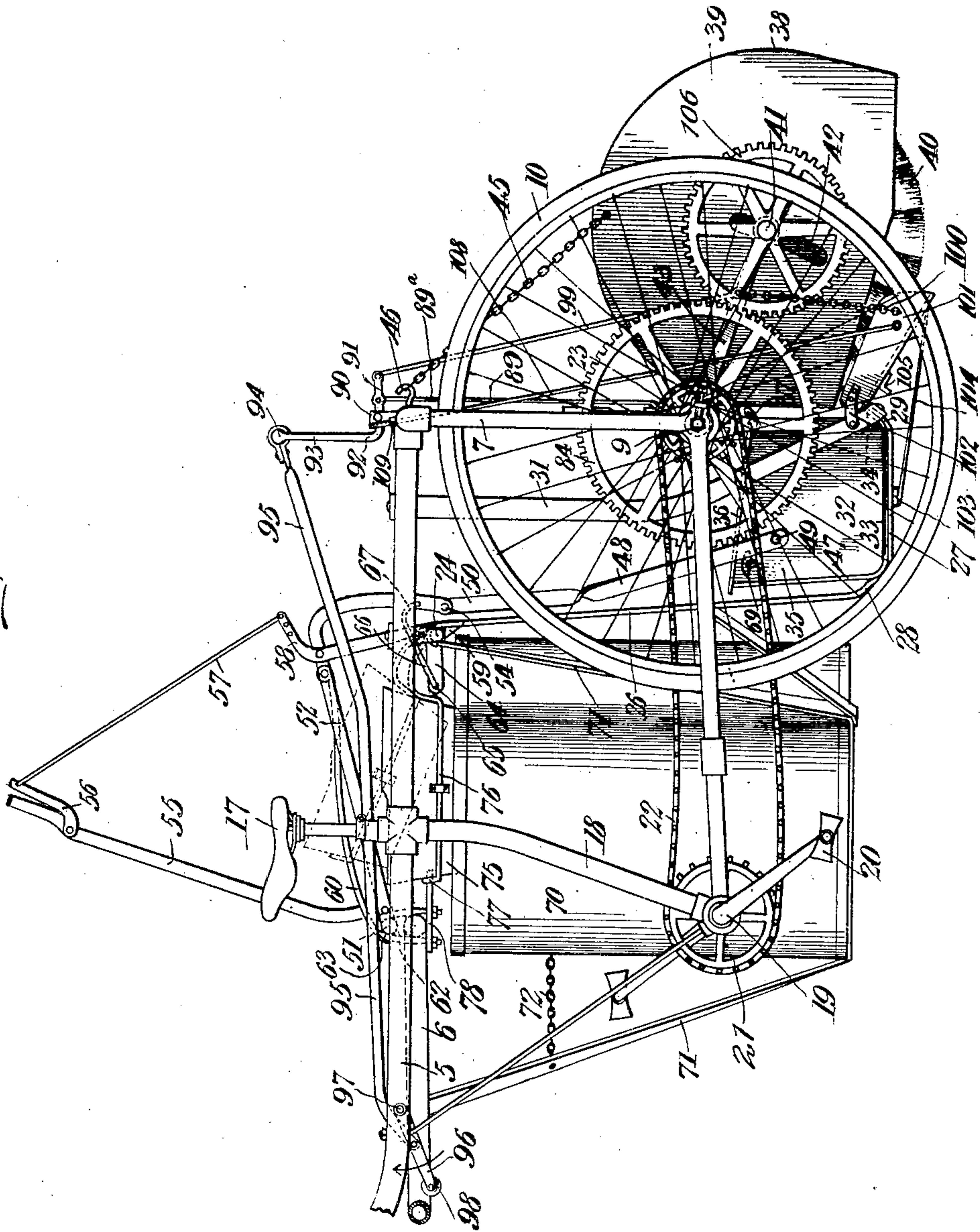
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3 SHEETS—SHEET 2.

Fig. 2.



Witnesses

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3 SHEETS - SHEET 3.

Fig. 3.

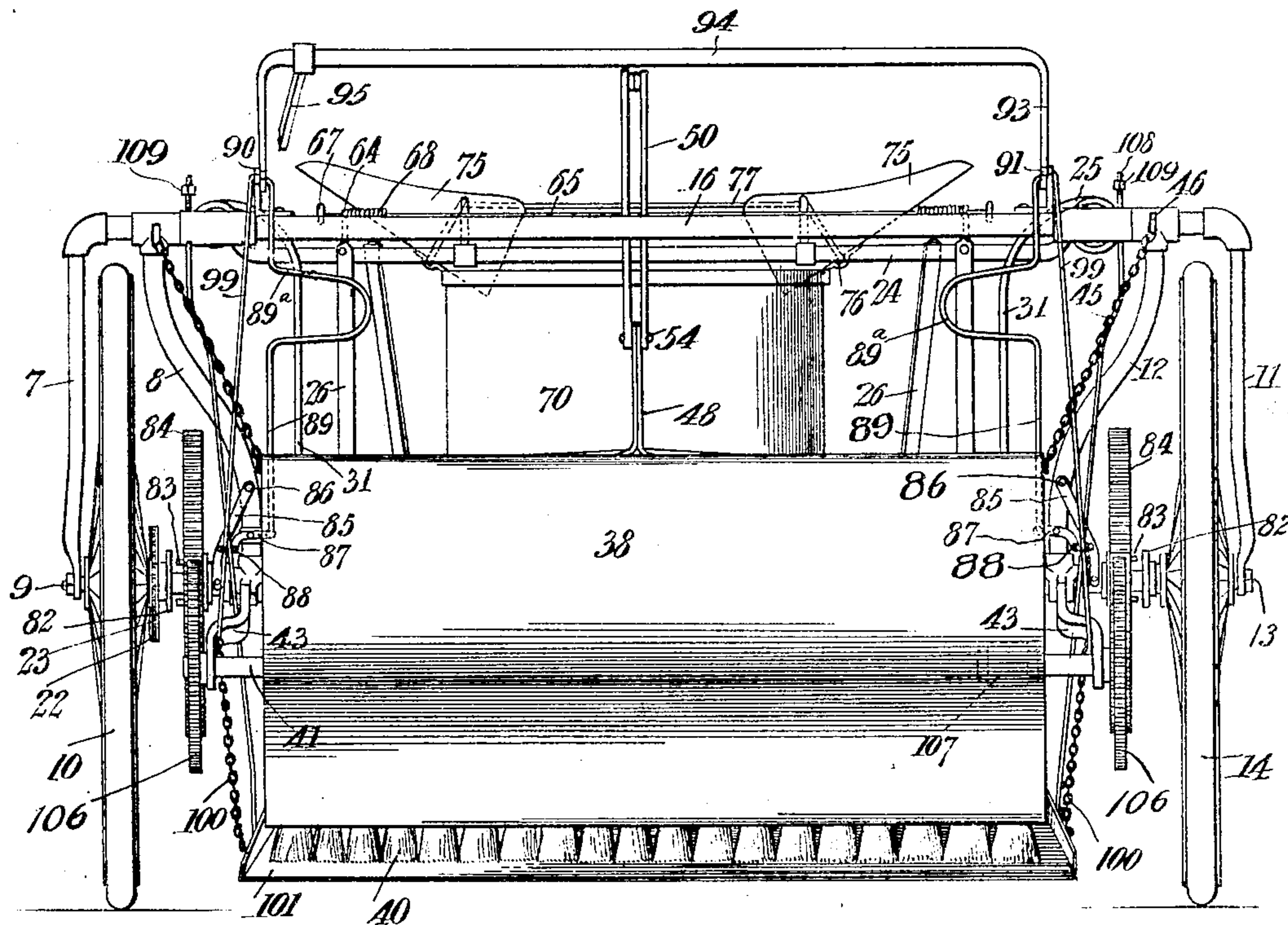
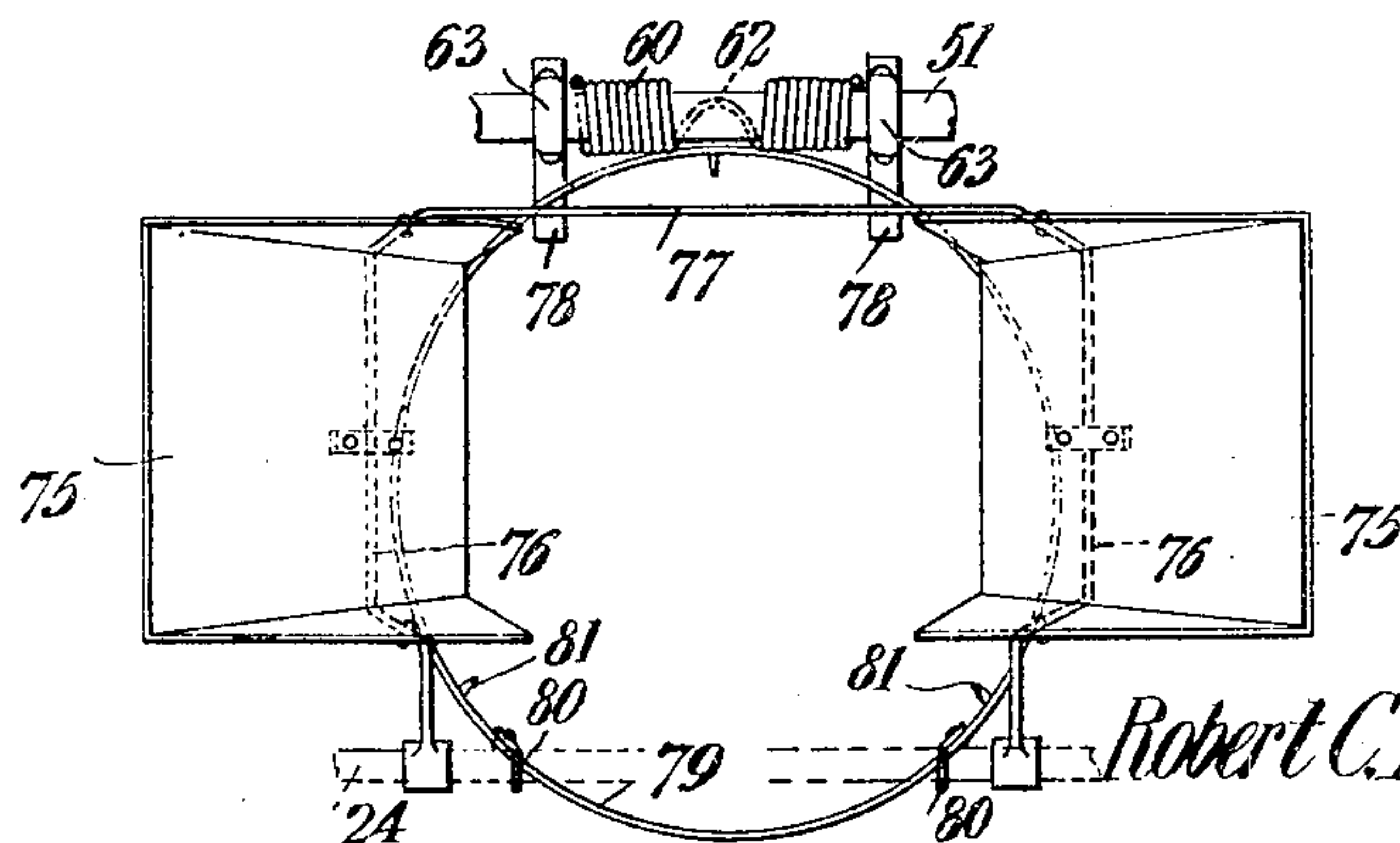


Fig. 4.



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# UNITED STATES PATENT OFFICE.

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## SELF-LOADING CART.

No. 810,547.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed June 6, 1904. Serial No. 211,424.

*To all whom it may concern:*

Be it known that I, ROBERT CHARLES MENZIES, a citizen of the United States, residing at Glens Falls, in the county of Warren and State of New York, have invented a new and useful Self-Loading Cart, of which the following is a specification.

This invention relates to street-cleaning devices; and it has among its objects to provide a device of this class which shall be simple in construction, durable, and efficient in operation.

Among the special objects of the invention are the production of an organized machine in which means for gathering and collecting the dirt or refuse shall be mounted upon a wheel-supported frame in connection with a receptacle into which the refuse may be emptied from time to time, said wheel-supported frame affording also a seat for an operator, who by pedaling causes the machine to be propelled over the ground and supplies the motive power needed for the operation of movable members of the device.

A further object of the invention is to provide an improved dirt-receiver and means for elevating the same, so as to cause it to be emptied into the receptacle which is carried by the machine.

A further object of the invention is to provide an improved conveyer-pan or guide adapted to coöperate with the receiver.

A further object is to provide resilient supporting means for the free edge of the conveyer-pan.

Further objects of the invention relate to improvements in the detailed parts or members of the device.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of embodiment of the invention, it being understood that no limitation is necessarily made to the precise structural details therein exhibited, but that the right is reserved to any changes, alterations, and modifications which come fairly within the scope of the invention and which may be resorted to without departing from the spirit or sacrificing any of the advantages of the same.

In said drawings, Figure 1 is a perspective view of a street-cleaning device constructed in accordance with the principles of the invention. Fig. 2 is a side elevation of the same. Fig. 3 is a rear elevation. Fig. 4 is a detail top plan view.

Corresponding parts in the several figures are indicated by similar numerals of reference.

The frame of this improved machine includes a tubular bearing 1, in which is journaled the front fork 2, affording bearings for the axle of a light wheel 3, which is preferably rubber-tired and of ordinary bicycle construction. The upper end of the front fork carries a handle-bar 4, by means of which the machine may be steered, as will be readily understood.

Extending rearwardly from the tubular bearing 1 are the side frame-bars 5 and 6, which for the sake of combining lightness and strength are preferably of tubular construction. The side bar 5, which I term the "inner" side bar, is approximately straight and is extended in a rearward direction, terminating at its rear end in downwardly-extending fork members 7 and 8, having bearings for the spindle 9 of the rear wheel 10, which is disposed approximately in the same vertical plane as the front or guiding wheel 3. The outer side bar 6 is provided with offset portions or curves whereby its rear end is considerably spaced apart from the rear end of the inner side bar 5. The rear end of said outer side bar is provided with downwardly-extending fork members 11 and 12, affording bearings for the spindle 13, carrying the rear supporting-wheel 14, which is in axial alignment with the rear supporting-wheel 10, the spindles 9 and 13 being connected by means of a shaft 15. A cross-bar 16 connects the upper ends of the fork members 7 8 and 11 12, and suitably-disposed brace members are to be employed for the purpose of strengthening the frame structure wherever needed. The inner side bar 5 also supports a seat 17 and a downwardly-extending arm or bracket 18, provided at its lower end with a bearing for a crank-shaft 19, the cranks of which are provided with pedals 20. The crank-shaft 19 carries a sprocket-wheel 21, connected by a chain 22 with a sprocket-wheel 23 upon the hub of the driving-wheel 10, to which motion may thus be transmitted, as will be readily understood.

The inner and outer side bars 5 and 6 of



the frame are connected near their rear ends by a cross-bar 24, provided with upturned ends 25, which rest and are supported upon the upper sides of the side bars and are connected with the latter by means of vertically-disposed bolts or in any other suitable and convenient manner. Suitably connected with and supported by the cross-bar 24 are a pair of downwardly-extending straps or hangers 26, terminating at their lower ends in approximately horizontal supports or stirrups 27, having offsets 28 and provided with upturned rear ends 29. These hangers are preferably constructed of flat straps of metal of suitable dimensions, and the upturned portions of the rear ends 29 of the stirrups are connected by a cross-bar 30, which may be secured by means of bolts or rivets and the ends of which are bent upwardly, so as to form the arms 31 of a yoke of which the member 30 is the cross-bar. The arms 31 are bent in a vertical plane, as will be clearly seen in Fig. 2 of the drawings, so that they may be described as extending upwardly and forwardly from the points at which they are connected with the front ends of the stirrups 27 and thence upwardly to the side bars 5 6 of the frame with which they are connected and whereby they are firmly supported.

The cage or structure, comprising the hangers 26, stirrups 27, cross-bar 30, and arms 31, is for the purpose of supporting the dust-receiver 32, which consists of a suitably-constructed approximately rectangular box, which may be appropriately made of galvanized iron or other sheet metal suitably protected against corrosion. The bottom 33 of this receiver is rounded at its front and rear portions, the rear portion of said bottom being extended beyond the box, so as to form a lip 34, appearing in dotted lines in Fig. 2, and which when the receiver is in operative position is supported upon the cross-bar 30. The rear side of the box 32 is entirely open for the reception of sweepings. The end pieces 35 of the box increase in height in the direction of their front portions, and they serve to support a lid 36, which is hinged between the upper rear corners of the end pieces. The rear edge of the lid or the rod which hingedly supports said lid is provided with a guard-strip 37 of rubber, felt, or other suitable material, which when the receiver 32 is in operative position abuts upon the front side of the brush-casing, which will be hereinafter described, said strip performing the double function of steadying the receiver 32, so as to prevent rattling and of preventing the escape of dust upwardly in front of the brush-casing between the latter and the receiver 32.

38 designates the brush-casing, which is in the nature of a curved, partly cylindrical shield, having end pieces 39 and containing a cylindrical rotary brush 40, which is mounted upon a shaft or axle 41, the ends of which

project through segmental slots 42 in the ends of the casing. The brush-carrying shaft 41 is journaled in a pair of rocker-arms 43, the opposite ends of which are pivotally mounted upon the shaft 15, with which the slots 42 are concentric. The brush-casing is connected with the shaft 15 by means of clips, as best seen at 44, in Fig. 1 of the drawings. Additional supporting means for the brush-casing are in the nature of chains 45, which connect said casing with hooks 46 upon the frame of the machine.

The dust-receiver 32 is provided near the ends thereof with reinforcing straps or bands 47, which coincide with the supporting-hangers 26 and which may be described as forming shoes engaging said hangers when the receiver 32 is slid or moved upwardly for the purpose of discharging its contents into a receptacle provided for the purpose or when it is moved downwardly into its normal position upon the stirrups 27. The upward and downward movement of the receiver 32 is effected by means of a yoke 48, the ends of the arms of which have pivotal connection with pins 49, extending from the ends of the receiver. The arms of the yoke, at the point where they meet each other, are quarter-twisted and cooperate to form an arm 50.

51 designates a shaft which is journaled in bearings upon a portion of the outer side bar 6 of the frame, said portion of the side bar being disposed approximately parallel to the shaft 15. The ends of the shaft 51 are bent at angles to the body of the shaft, thus forming arms 52, which converge at 53, so as to form the side members of an approximately triangular frame, of which the shaft 51 is the base. From the apex 53 of this frame the arms or side members 52 are extended in the direction of the arm 50 of the yoke 48, with which they are pivotally connected, as indicated at 54.

Rigidly connected with the triangular frame, of which the rock-shaft 51 is the base, is an operating-lever 55, having a pivoted handle member 56, which is connected, by means of a rod or member 57, with one arm of a bell-crank 58, fulcrumed upon the extended ends of the side pieces 52. The free end of the bell-crank 58 terminates in a hook or ratchet member 59, which when the dust-receiver 32 is in a lowered or operative position, as shown in Fig. 2, automatically engages under the cross-bar 24, thus positively preventing displacement in an upward direction of the dust-receiver 32 and related parts. When the dust-receiver is in this position, the operating-lever 55 will be elevated, as best seen in Fig. 2, to a convenient position accessible to the operator who occupies the seat 17. When it shall be desired to elevate the dust-receiver to the position shown in Fig. 1, the operator grasps the handle portion of the lever 55, thus actuating the pivoted grip por-



tion 56, and through the latter and the rod 57 the bell-crank 58, having the catch 59, which is thus released from the cross-bar 24, thereby permitting the lever 55 to be moved in a downward direction, so as to elevate the dust-receiver, as will be readily understood.

For the purpose of assisting in raising the weight of the dust-receiver a spring 60 is provided, a portion of said spring being wound upon the shaft 51, so as to form two coils or helices and a central depending tongue 61, which is inserted under the portion of the frame-bar 6 upon which the shaft 51 is mounted. The ends of the spring 60 are suitably extended and connected with the apex 53 of the approximately triangular frame formed by the shaft 51 and side members 52. It is obvious that the tension of this spring will be exerted to assist in overcoming the weight of the receiver 32 when the latter is to be elevated. At the same time it is not intended that the tension of this spring should be sufficiently great to prevent the weight of the receiver from restoring it by gravity to its normal operative position.

The bearings in which the shaft 51 is mounted upon the frame-bar 6 are in the nature of blocks 62, each having an upper and a lower concave side, engaging, respectively, the frame member 6 and the shaft 51, for which latter the said blocks form half-boxes. The boxes or bearings are completed by means of clips 63, which include between them the shaft 51, the blocks 62, and the frame member 6, all of which are thus firmly united, but in such a manner as to permit the shaft 51 to rock freely in its bearings in the manner and for the purposes herein indicated.

The hangers 26, which, as hereinbefore described, are supported at their upper ends upon the cross-bar 24, are extended in front of said cross-bar, so as to form arms or brackets 64, through which extends a rock-shaft 65, provided at the ends thereof with rearwardly-extending crank-arms 66, having hooks 67 at the extremities thereof. These hooks are normally forced in a downward and a rearward direction by the action of springs 68, suitably wound upon the rock-shaft 65 and having their ends in contact, respectively, with the fixed bearings 64 and with the movable hook members, as will be readily understood. Upon the ends of the dust-receiver 32 are provided laterally-extending pins 69, which when the dust-receiver is elevated by the means herein described will contact with the hooks 67, whereby the hooks will be tilted upwardly as the dust-receiver continues its upward movement, while at the same time the said dust-receiver by the action of said hooks will be tilted upon its pivots to the position indicated in Fig. 1 of the drawings, by reference to which it will be seen that the open rear side of said receiver is uppermost, while the lid 36 will swing open and cause the con-

tents of the receiver to dump into a receptacle provided therefor. When the receiver is lowered, the hook members 67 will be caused by the tension of the springs 68 to be automatically restored to their normal position, causing the dust-receiver likewise to be tilted into its normal position while in the act of being lowered. When it nearly reaches its lowest limit, the box will be pressed in a rearward direction by the shoulders or offsets 28 upon the hangers, thus forcing it to occupy the precise position with relation to the refuse-gathering mechanism which it is intended that it shall occupy.

The refuse-receptacle may be and is preferably in the nature of a can 70, of galvanized iron or other suitable material, which is supported upon hangers or bracket members 71, depending from the frame of the machine and which, each of said brackets being suitably located and connected with the remaining ones, cooperate to form a convenient support for the can 70, which latter, however, may be readily removed by simply lifting or tilting it off the support afforded by said brackets. Two of the latter are connected by means of a chain 72, which is permanently connected to either of said brackets and detachably connected with the other, for instance, by means of a hook and staple 73 and 74. This chain is simply for the purpose of retaining the refuse-receptacle securely in position during the operation of the machine and in such a manner that when it has become filled it may be quickly and conveniently removed and an empty one substituted in its place. It is obvious that any other well-known and approved means may be used for the purpose of detachably supporting the refuse-receptacle in its proper position. The latter is also preferably provided with handles, as 74, by means of which it may be conveniently manipulated.

For the purpose of directing the refuse from the receiver 32 into the receptacle 70 I avail myself of a pair of hopper-shaped chutes 75, which are mounted in and suitably connected with loops 76, formed upon a supporting-rod 77, the rearwardly-extending ends of which are suitably connected with the cross-bar 24, said ends being arched so as not to interfere with the rock-shaft 65 or related parts. The front portion of the supporting-rod 77 is adapted to rest upon one or both of the clip-plates 78 of the clips 63, hereinbefore described. By these hoppers or chutes, which are disposed transversely with relation to the machine and the upper edges of which are spaced sufficiently apart to receive the material discharged from the receiving-box 32 when the latter is elevated and tilted, as hereinbefore described, the refuse will be directed into the receptacle placed underneath without the least danger of spilling any portion thereof. The rearward-extending ends



of the supporting-rods 77 are coiled upon or otherwise hingedly connected with the cross-bar 24, so that when it shall be desired to remove the can or receptacle 70 from its supports the hopper-carrying frame may be swung back to a position indicated in dotted lines in Fig. 2 of the drawings.

When it shall be desired in place of the metal can to use an ordinary gunny sack as a receptacle for the refuse collected by the machine, I prefer to avail myself of a bag-supporting ring 79, (shown in Fig. 4 of the drawings,) said ring being provided with a hook member 80, adapted to engage the cross-bar 24, the opposite side of the said ring being permitted to rest upon one or both of the clip-plates 78. This bag-supporting ring will be preferably provided with hooks, as 81, or other convenient and approved means whereby a bag may be supported in position and which will permit such bag to be conveniently applied or removed, as may be desired.

It has already been stated that by the use of this machine refuse is gathered by the cylindrical brush 40, which is mounted upon the shaft 41, journaled in the free ends of arms or levers 43, fulcrumed upon the shaft 15. Rotary motion is conveyed to said brush from the driven rear wheel 10 of the machine. The mode of and means for transmitting motion and of throwing the cylindrical brush into or out of gear, as required, are as follows: The wheels 10 and 14 are both mounted to rotate freely upon their respective spindles. The hub of the wheel 10 carries the sprocket-wheel 23, whereby it is connected, through the chain 22, with the directly-driven sprocket 21. The hubs of each of the wheels 10 and 14 carry disks 82, which are perforated for the reception of pins 83, extending from the hubs of gear-wheels 84, which are journaled upon the shaft 15 adjacent to the inner sides of the transporting-wheels. The inner ends of the hubs of the gear-wheels 84 are annularly grooved and are engaged by the bifurcated ends of levers 85, which are fulcrumed at 86 upon the frame members 8 and 12 of the frame. It is obvious that by moving the levers 85 in the proper direction the gear-wheels may be moved axially upon the shaft 15, causing the projecting pins 83 to pass into or out of engagement with the perforations in the disks 82, thereby locking the gear-wheels upon or unlocking them from the hubs of the transporting-wheels 10 and 14, as may be required. For the purpose of actuating the levers 85 additional short levers 87 are provided, said short levers being fulcrumed upon the frame members 8 and 12 below the fulcrum of the levers 85, with which the outer ends of the levers 87 are connected by means of links 88. The inner free ends of the levers 87 are pivotally connected with the lower

ends of a pair of resilient operating-rods 89, which, for the purpose of inducing resiliency in the desired direction, are provided with loops 89<sup>a</sup>, formed thereon. The rear cross-bar 16 of the frame of the machine is provided with brackets 90, with which are pivotally connected the approximately horizontal arms 91 of a pair of bell-crank levers 92, the approximately vertical and longer arms 93 of which are connected with each other by a connecting-rod 94, said connecting-rod and levers coöperating to constitute a yoke. Pivotaly connected with the cross-bar 94 is a forwardly-extending connecting-rod 95, the extended front end of which is connected pivotally with a lever 96, which is fulcrumed upon the inner side of the side bar 5 of the frame at the point indicated by 97 and which is provided with a crank or handle 98, by means of which it may be easily reached and manipulated by the operator, the lever 96 being disposed, as will be seen, in a convenient position between the driver's seat and the handle-bar of the device. The rod 95, near its point of connection with the lever 96, is slightly bent, as will be clearly seen in Fig. 2, so that by depressing the front end of the lever 96 the pivotal connecting-point of said lever and the connecting-rod 95 will be thrown slightly past a dead-center, whereby the said connecting-rod and the parts operated thereby will be automatically retained in adjusted position. The rear ends of the horizontal arms of the bell-crank levers 92 are connected, by means of rods 99, with the arms 43, carrying the rotary brush member of the device. Said arms are connected, by means of chains 100, with the flanged edges of a conveyer 101, which is in the nature of a pan provided with forwardly-extending ears or lugs 102, which are pivotally connected with the lower ends of the brackets 31, which in part support the dust-receiver, the front edge of the conveyer-pan 101 being normally supported upon the rearwardly-projecting lip 34 of the receiving-box 32, into which refuse will thus be guided over the said pan or conveyer, as will be readily understood. Secured transversely of the under sides of the stirrups 27, upon which the dust-receiver is practically supported, is a transverse bar 103, to which is secured the front edge of a plate 104 of resilient material, such as sheet-steel, said plate projecting under the conveyer-pan 101, the free end of which is partially supported upon said resilient plate. The under side of the conveyer-pan is reinforced by a transversely-disposed cross-bar 105, which, in the drawings has been shown as being L-shaped for the purpose of increasing the stiffness and rigidity of the pan. It will be seen that by operating the lever 96 in one direction, which is indicated by an arrow in Fig. 2 of the drawings, the bell-crank levers 92 will be rocked upon their fulcrum, with the re-



sult that the resilient connecting-bars 89 will be depressed, thus causing the levers 87, through the links 88, to actuate the levers 85, thereby sliding the spur-wheels 84 outwardly upon the shaft upon which they are journaled and causing them, by means of the pins 83 and disks 82, to become interlocked with the transporting-wheels 10 and 14, thus causing them to transmit motion to the rotary brush 40, the shaft of which is provided at the ends thereof with spur-wheels 106, intermeshing with the gear-wheels 84. At the same time the rotary brush member, which is carried by the arms 43, connected by the rods 99 with the rear ends of the bell-crank levers 92, will be lowered into active or operative position in contact with the ground. Furthermore, and by the same operation, the free edge of the conveyer-pan, which is connected by the chain 100 with the link-bars 43, will be lowered for the purpose of receiving the refuse swept over it by the rotary action of the brush and guiding the same into the receiver 32.

The shaft 41, carrying the rotary brush member, is incidentally provided with a compensating gearing, (conventionally indicated in dotted lines at 107 in Fig. 3 of the drawings,) the object of this being simply to permit the machine to turn freely in any direction, as will be readily understood. This is an important feature of the device, for the reason that when the machine is thrown into operation both of the transporting-wheels 10 and 14 will become interlocked with the brush-operating mechanism, and without the presence of compensating gearing the machine would be prevented from turning freely, which in a device of this class is of the greatest importance, as will be readily understood.

For the purpose of preventing the free end of the conveyer-pan 101 from being lowered too far, or rather for the purpose of controlling and regulating the exact point to which it may be lowered, I provide a pair of rods 108, pivotally connected with the flanges at the edges of said pan and extending upwardly through a frame-bar or, if preferred, through lugs or brackets connected with said frame-bar and provided at their upper ends with regulating-nuts 109. It is obvious that the chains 100 should be of sufficient length to permit the free edge of the conveyer-pan to be lowered as far as shall be necessary under any circumstances; but by means of the connecting-rods 108 the free edge of said pan may be sustained a short distance above the ground. This is for the purpose of preventing it from acting as a scraper, whereby the dirt and refuse will be carried in front of the brush. The resilient shield 104, which in part supports the conveyer-pan 101, also performs an important function in so sliding over the refuse and carrying the free edge of the conveyer-pan over the same as to insure

its being operated upon directly by the brush member, whereby it is caused to pass over the conveyer-pan and into the receiver 32.

From the foregoing description, taken in connection with the drawings hereto annexed, the nature of the invention and the operation and advantages of the same will be readily understood by those skilled in the art to which it appertains. The rotary brush member of which I avail myself for the purpose of gathering the refuse is not *per se* a part of my invention, rotary brush members having for a long time been well known for the purpose of gathering and collecting refuse. The invention resides more particularly in the means for receiving the refuse, as it is being gathered or collected, in the mechanism for elevating the receiver and for dumping or discharging its contents into a larger receptacle carried and supported by the frame of the same organized machine of which the receiving and gathering devices form a part, and, further, in so mounting the several devices upon a wheel-supported frame provided with pedally-operated propulsion means that the entire machine may be propelled over the ground and operated successfully to gather the refuse by an operator seated upon the machine, the principal and general object of the invention being to furnish a simple and conveniently-operable organized machine whereby the gathering of refuse shall be greatly facilitated and whereby it may be effected in a simple, convenient, and inexpensive manner.

In the operation of the machine the operator occupying the seat 17 may ride easily and swiftly from a central point or depot to the point where operations are to take place. While the machine is thus being transported the operative parts are held elevated in the position illustrated in Fig. 2 and being of a comparatively light nature will not to any serious extent hamper the progress of the operator. As soon as the place of operation is reached the operator, by means of the lever 96, will throw the rotary gathering member 40 into contact with the ground, simultaneously lowering the conveyer-pan 101 to its proper position and throwing the operating mechanism for the rotary brush member into gear, as has been already described. It is here to be observed that the throwing into gear of the rotary brush is effected in an extremely simple manner, the driving mechanism being of the simplest possible nature in order to avoid any of the parts being choked by dirt. I have consequently avoided the use of complicated clutch devices, which would be easily choked and rendered temporarily useless. Another important feature is the use of the vertically-resilient connecting-rods 89 with the loops 89<sup>a</sup>, whereby the parts directly operated thereby will be retained in their desired relative positions with



the utmost security, while the rigidity where-  
by they would be exposed to breakage even  
by slight jarring or jolting of the machine is  
entirely absent. As the machine progresses  
5 the refuse will be caused to pass over the con-  
veyer-pan 101 into the box or receiver 32  
over the lip 34 at the front edge of said box,  
upon which the rear edge of the pan 101 nor-  
mally rests. When a quantity of refuse has  
10 accumulated in the receiver 32, the machine  
is stopped. The operator then, by means of  
the lever 55, elevates the dust-receiver 32,  
which as soon as it comes under the influence  
of the upward pull upon the arms of the yoke  
15 48 will slide forwardly upon the offset por-  
tions 28 of the supporting-bars 26, thereby  
enabling the lip 34 to pass out of engagement  
with the rear end of the conveyer-pan 101.  
The dust-receiver will then swiftly be ele-  
20 vated in the manner which has been already  
described until the pins 69, coming into en-  
gagement with the hooks 67, will cause the  
receiver to be tilted until the lid 36 swings  
open and the contents of the box is dumped  
25 upon the hoppers or chutes 75, whereby it is  
discharged into the can 70 or into such means  
as have been provided for the reception  
thereof. By operating the lever 55 in a re-  
verse direction the dust-receiver will be low-  
30 ered and when it approaches the lower limit  
of its movement will be pushed by the shoul-  
ders or offsets 28 in a rearward direction,  
thereby causing the lip 34 to pass under the  
rear edge of the conveyer-pan 101. In this  
35 lowered position the receiver 32 will be se-  
curely maintained by the action of the hooks  
59 upon the levers 58, operated by means of  
the connecting-rods 57 and hand-grips 56,  
said hook members engaging under the cross-  
40 bar 24, as hereinbefore described. This  
dumping mechanism may be operated, if de-  
sired, without necessity of throwing the  
gathering mechanism and the means for  
transmitting motion out of gear. When the  
45 can or receptacle 70 or the means for receiv-  
ing the refuse is full, it may be dumped easily  
and quickly detached and an empty one sub-  
stituted in place thereof.

Having thus described the invention, what  
50 is claimed is—

1. In combination, a wheeled frame hav-  
ing a rider's seat, a dirt-receptacle supported  
by the frame at a point to one side of the  
seat, a dirt-gathering means in a plane to the  
55 rear of the seat, a dirt-receiver for conveying  
the dirt from the gathering means to the re-  
ceptacle and adjustable to a dumping posi-  
tion above the receptacle, and within reach  
of said seat.

60 2. In combination, a rider-propelled  
wheeled frame, a dirt-receptacle supported  
by the frame at a point to one side of the  
rider's seat, a dirt-gathering means, a dirt-  
receiver movable between the gathering  
65 means and the receptacle, and a receiver

hoisting and lowering means adjacent to and  
operable from the rider's seat.

3. In combination, a rider-propelled  
wheeled frame, a dirt-gathering element sup-  
ported by the frame, a rider's seat and a dirt- 70  
receptacle arranged side by side in front of  
the dirt-gathering element, a dirt-receiver  
movable between the dirt-gathering element,  
and the receptacle, and a receiver elevating  
and lowering means adjacent to and operable 75  
from the rider's seat.

4. In a device of the class described, a  
wheel-supported frame, a cage supported by  
said frame, a receiver vertically movable in  
and supported by said cage, and tiltable at 80  
the upper limit of its movement and means  
for raising and lowering said receiver.

5. In a device of the class described, a  
wheel-supported frame, a cage connected  
with said frame and including hangers hav- 85  
ing stirrups at their lower ends and side bars  
connecting the free ends of said stirrups with  
the frame, and a receiver normally supported  
upon said stirrups.

6. A wheel-supported frame, a cage con- 90  
nected with said frame and including a pair  
of hangers having stirrups and supporting-  
bars connecting the free end of said stirrups  
with the frame, a receiver normally support-  
ed upon said stirrup and having wear-strips 95  
adapted to engage said stirrups and hangers,  
and means for vertically moving said receiver  
with its wear strips or shoes in contact with  
the hangers.

7. A wheel-supported frame, a cross-bar 100  
connecting the side members of said frame,  
hangers depending from said cross-bar and  
having offset shoulders and rearwardly-ex-  
tending stirrups, side bars connecting the  
free ends of said stirrups with the frame, a 105  
cross-bar connecting the lower ends of the  
side bars, and a receiver normally supported  
upon the stirrups and having an open rear  
side and a rearwardly-projecting lip nor-  
mally resting upon the cross-bar connecting 110  
the lower ends of the side bars.

8. A wheel-supported frame, a cross-bar  
connecting the side members of said frame,  
hangers depending from said cross-bar and  
having offset shoulders and rearwardly-ex- 115  
tending stirrups having upturned rear ends,  
side bars depending from the side members of  
the frame and connected by a cross-bar ex-  
tending beneath the upturned rear ends of  
the stirrups, a receiver consisting of a box 120  
having rounded bottom edges engaging the  
rounded ends of the stirrups and provided  
with a rearwardly-extending lip supported  
upon the cross-bar connecting the supporting  
side members, and means for manipulating 125  
said receiver.

9. A supported cage including hangers hav-  
ing offset lower ends and rearwardly-extend-  
ing stirrups having upturned ends, side bars  
supporting the rear ends of said stirrups and 130



connected at their lower ends by a cross-bar, a receiver supported by the stirrups and having a rearwardly-extending lip and a conveyer-pan connected pivotally with the side bars and normally supported upon the lip of the receiver.

10. A supported cage, a receiver vertically movable in said cage and having an open rear side and a bottom provided with a rearwardly-extending lip, a lid hinged at the upper corners of said receiver, and means for elevating the receiver and for tilting the latter as it approaches the upper limit of its movement.

11. A wheel-supported frame, a cage depending from and supported by said frame, a receiver vertically movable in said cage, and tiltable at the upper limit of its movement and means for guiding said receiver into and out of contact with hangers constituting part of the cage, in contact with which the receiver is guided upwardly and downwardly.

12. A wheel-supported frame, a receiver-supporting cage depending from said frame, a receiver vertically movable in said cage, a yoke pivotally connected with said receiver, an operating-lever connected with said yoke, and a locking device connected with said lever to retain the receiver in a lowered, supported position to prevent it from jolting.

13. A wheel-supported frame, a receiver-supporting cage connected with and depending from said frame, a receiver vertically movable in said cage, a yoke connected pivotally with the receiver, an operating-lever connected pivotally with the yoke, a bell-crank lever terminating at one end in a hook adapted to engage a fixed portion of the frame to thereby lock the operating-lever, the yoke and the receiver when the latter is in a lowered position, a hand-lever connected with the operating-lever, a grip pivotally connected with said hand-lever, and a rod connecting said grip with the free end of the bell-crank lever having the locking member.

14. A wheel-supported frame, a suitably-supported, vertically-movable receiver having an open rear side and a lid hinged at the upper corners thereof, means for elevating said receiver, and movable means for engaging and tilting said receiver as it approaches the upper limit of its movement to cause the lid to swing open.

15. A wheel-supported frame, a suitably-supported, vertically-movable receiver having a hinged lid and provided with laterally-extending pins, means for elevating said receiver, and spring-supported, pivotally-mounted hook members disposed in the path of said pins to engage the latter, thereby causing the receiver to be tilted as it approaches the upward limit of its movement.

16. A wheel-supported frame, a vertically-movable receiver, means for supporting and guiding the latter, operating means for said

receiver including a yoke pivotally connected therewith, an operating-lever fulcrumed upon the frame and connected pivotally with said yoke, and a hand-lever connected with the operating-lever, a locking device connected with the operating-lever for retaining the receiver in a lowered position, means connected with the hand-lever for releasing said locking device when the receiver is to be started in an upward direction, and means for tilting the receiver as it reaches the upper limit of its movement.

17. A wheel-supported frame, a vertically-movable receiver, means for supporting said receiver, including hangers depending from a cross-bar of the frame and having forwardly-extending brackets, spring-actuated hook members connected with the frame cross-bar and pins extending laterally from the receiver in the path of said hook members to be engaged thereby during the upward movement of the receiver which is thereby tilted as it approaches the upper limit of its movement.

18. A wheel-supported frame, including a side member having a transversely-disposed portion, box members supported thereon, a rock-shaft mounted upon said box members, clips connecting the rock-shaft and box members with the frame member, converging arms connected with said rock-shaft and having bent ends, said rock-shaft and arms constituting an operating-lever, a vertically-movable receiver, a yoke connected pivotally with the latter and having an arm connected pivotally with the bent arm of the operating-lever, and spring means to assist the operating-lever in overcoming the weight of the receiver.

19. A wheel-supported frame, a rock-shaft pivotally connected therewith and having converging arms constituting an operating-lever, a pivotally-mounted receiver supported by said lever, a hand-lever connected with the operating-lever, spring means for assisting the latter in overcoming the weight of the receiver, and means for causing the latter, when elevated, to be tilted as it approaches the upper limit of its movement.

20. A wheel-supported frame, an operating-lever connected pivotally with the same, a pivotally-supported receiver connected pivotally with the operating-lever, means connected with the latter for raising and lowering the receiver, means for tilting the latter as it approaches the upper limit of its movement, and means connected with the operating-lever, for locking the receiver at the lower limit of its movement.

21. A wheel-supported frame, an operating-lever connected pivotally therewith, a receiver connected with and carried pivotally by said operating-lever, means connected with the latter for raising and lowering the receiver and for tilting the same as it approaches the upper limit of its movement,



suitably-supported hoppers to receive the material discharged from the receiver, and a receptacle supported removably below said hoppers to receive the material discharged from the latter.

22. A wheel-supported frame, an operating-lever, a vertically-movable receiver supported pivotally by said lever, means for tilting said receiver as it approaches the upper limit of its movement, means, supported by the frame, for receiving the material discharged from the receiver, and intermediate hoppers constituting guides to convey material from the receiver into the receptacle.

23. A wheel-supported frame, a receptacle supported detachably thereon, a cross-bar forming a part of said wheel-supported frame, and a hopper-carrying frame hingedly connected with said cross-bar and provided with hoppers adapted to discharge into the receptacle.

24. A wheel-supported frame, a receptacle supported thereby, a rock-shaft connected with a side member of the frame and provided with arms constituting an operating-lever, a clip serving to connect said rock-shaft with the frame member and having a rearwardly-extending plate, a hopper-carrying frame connected hingedly with the wheel-supported frame and adapted to be supported upon the rearwardly-extending clip-plate, and a vertically-movable receiver adapted, when elevated, to discharge over said hoppers into the receptacle.

25. A wheel-supported frame, a receiver-supporting cage connected with said frame, a vertically-movable receiver having an open rear side, a pivotally-mounted conveyer-pan disposed in proximity to the open rear side of the receiver, a gathering member cooperating with said conveyer-pan to discharge material into the receiver, a casing for said gathering member, and a flexible strip connected with the receiver and abutting upon said casing when the receiver is at the lower limit of its movement.

26. A frame, guiding and transporting wheels for said frame, a seat, a crank-shaft having pedals adapted to be operated by a

person occupying the seat, means for transmitting motion from said crank-shaft to one of the transporting-wheels, a rotary gathering member, links mounted pivotally upon the shaft of the transporting-wheel and having bearings for the shaft of the rotary gathering member, means for transmitting motion from the driven transporting-wheel to said shaft, and means for throwing said motion-transmitting means into operation and simultaneously lowering the arms carrying the gathering member, and vice versa.

27. A machine of the class described including a rotary gathering member, a vertically-movable receiver, and a pan for conveying material into the receiver, said pan being hingedly connected with a receiver-supporting cage, means for simultaneously raising or lowering the rotary gathering member and the conveyer-pan, and means for, at the same time, throwing out of or into operation means for transmitting motion from a transporting-wheel of the machine to the rotary gathering member.

28. In an organized machine of the class described, a vertically movable and tiltable receiver having an open rear side and a rearwardly-extending lip, a conveyer-pan normally resting upon said lip, a rotary gathering element cooperating with the conveyer-pan to discharge material into the receiver, means for effecting the vertical adjustment, simultaneously, of the rotary gathering member and the conveyer-pan, means for positively limiting the downward movement of the free edge of the latter, means for transmitting motion to the rotary gathering member from a transporting-wheel of the machine, and means including vertical, resilient rods for throwing into and out of gear said motion-transmitting means.

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

ROBERT CHARLES MENZIES.

Witnesses:

EDWARD M. ENGELL,  
C. L. CARSONS.