

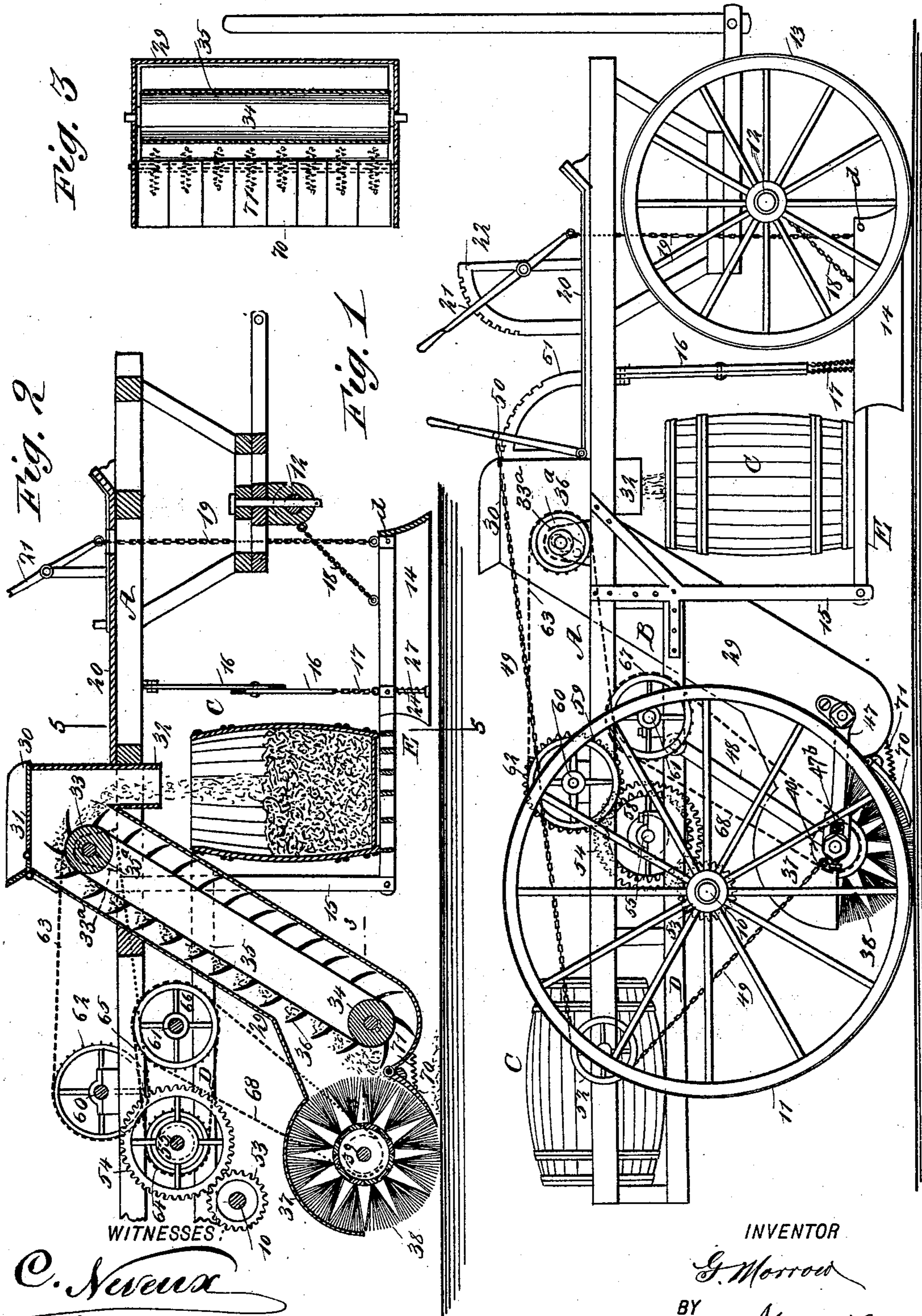
(No Model.)

3 Sheets—Sheet 1.

G. MORROW.  
STREET SWEEPER.

No. 521,665.

Patented June 19, 1894.



WITNESSES:  
*C. Newell*  
*C. Bodgwick*

INVENTOR  
*G. Morrow*  
BY *Munn & Co*  
ATTORNEYS.

(No Model.)

3 Sheets—Sheet 2.

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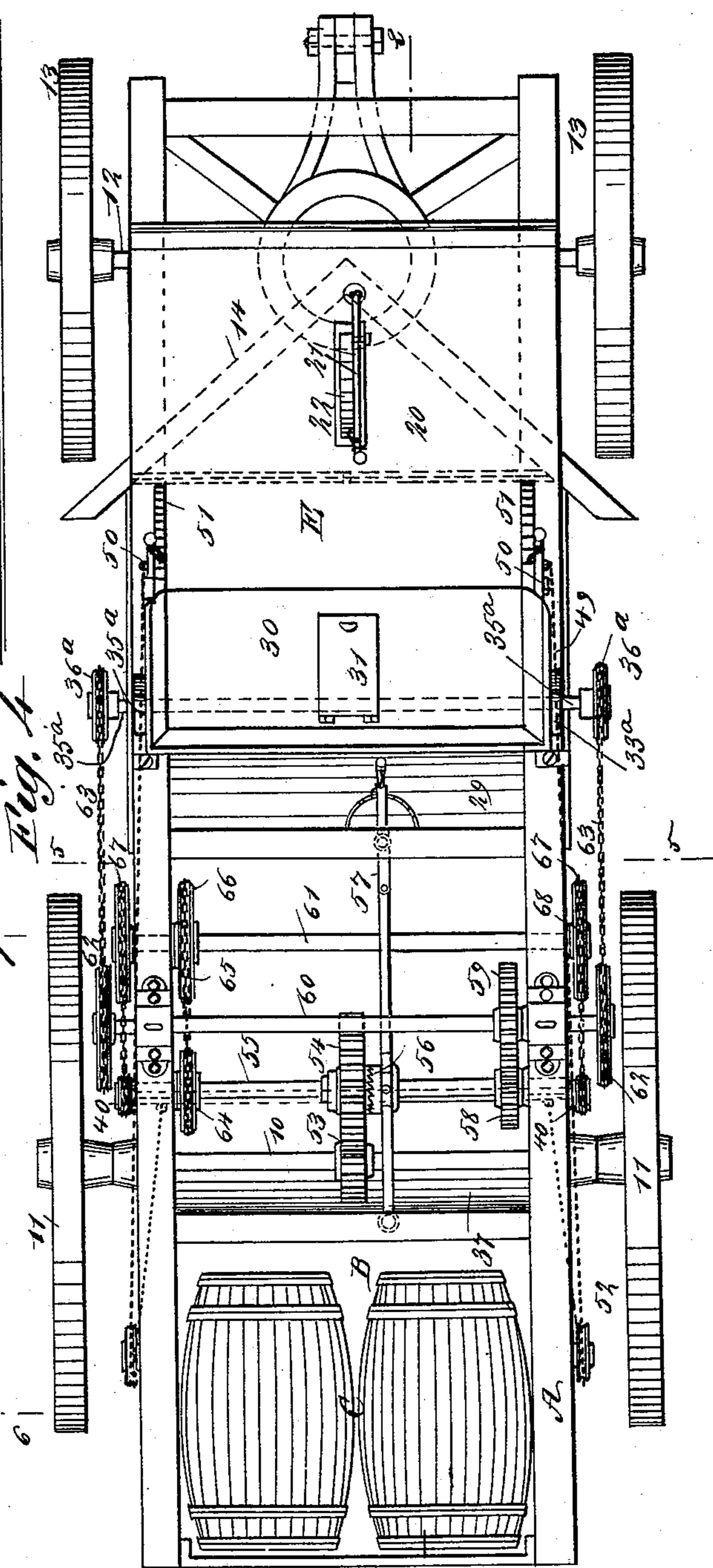
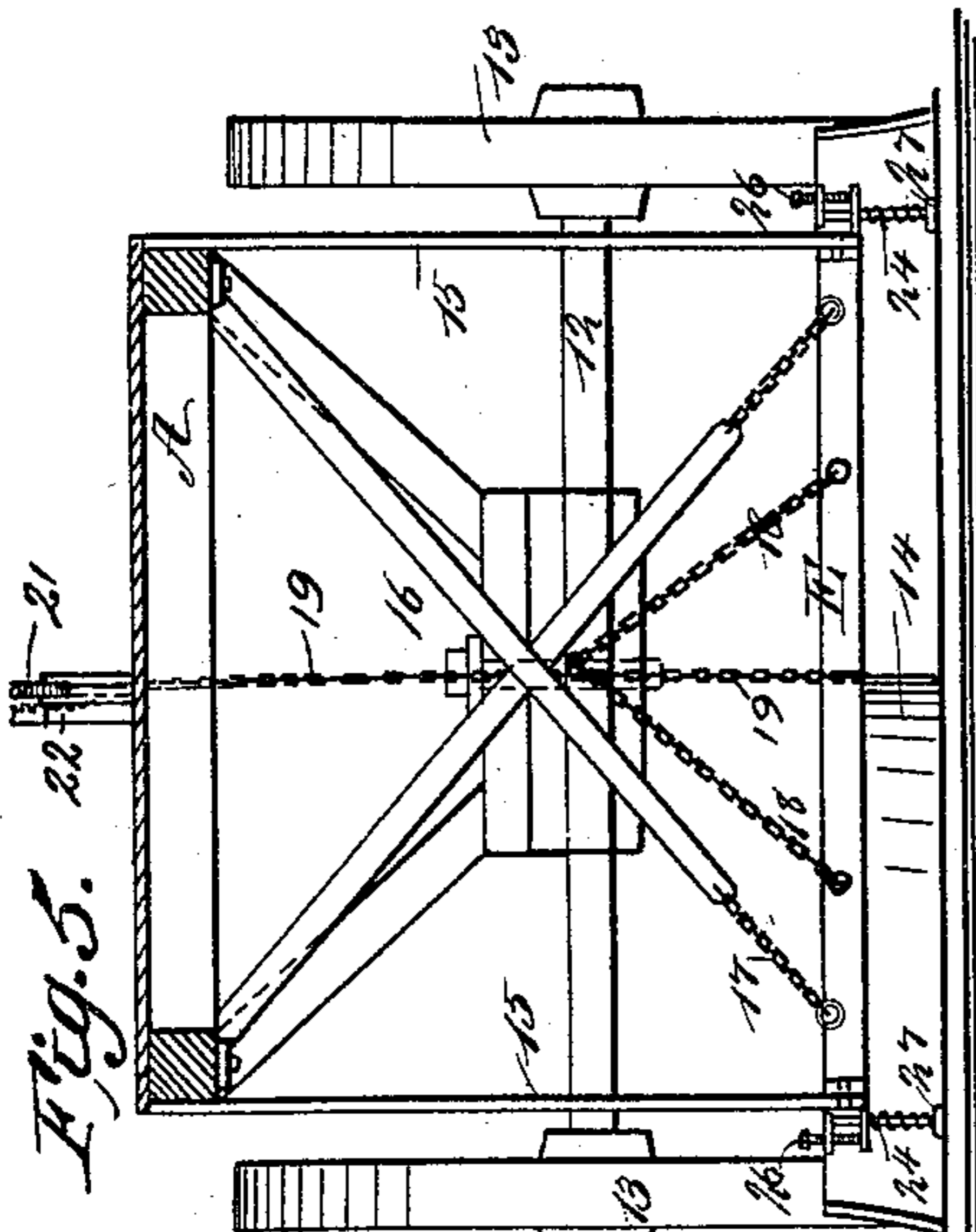
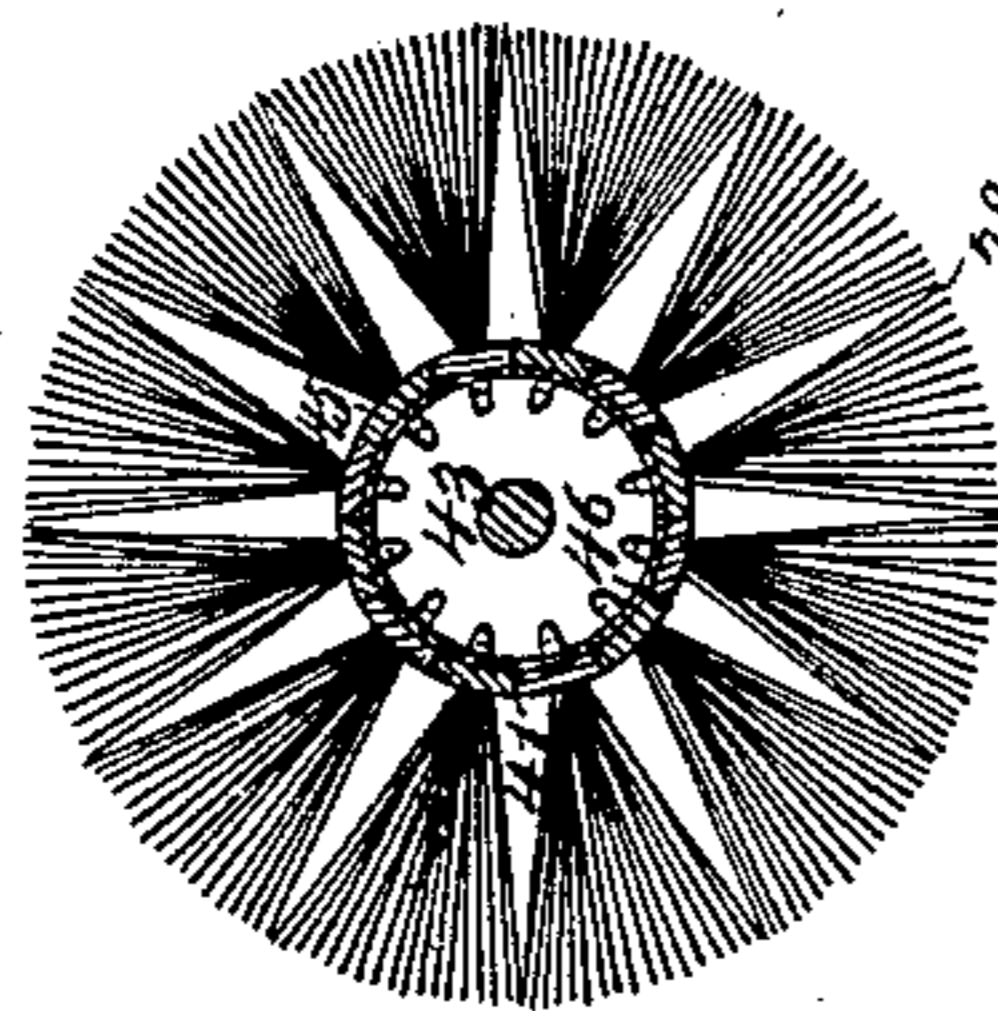
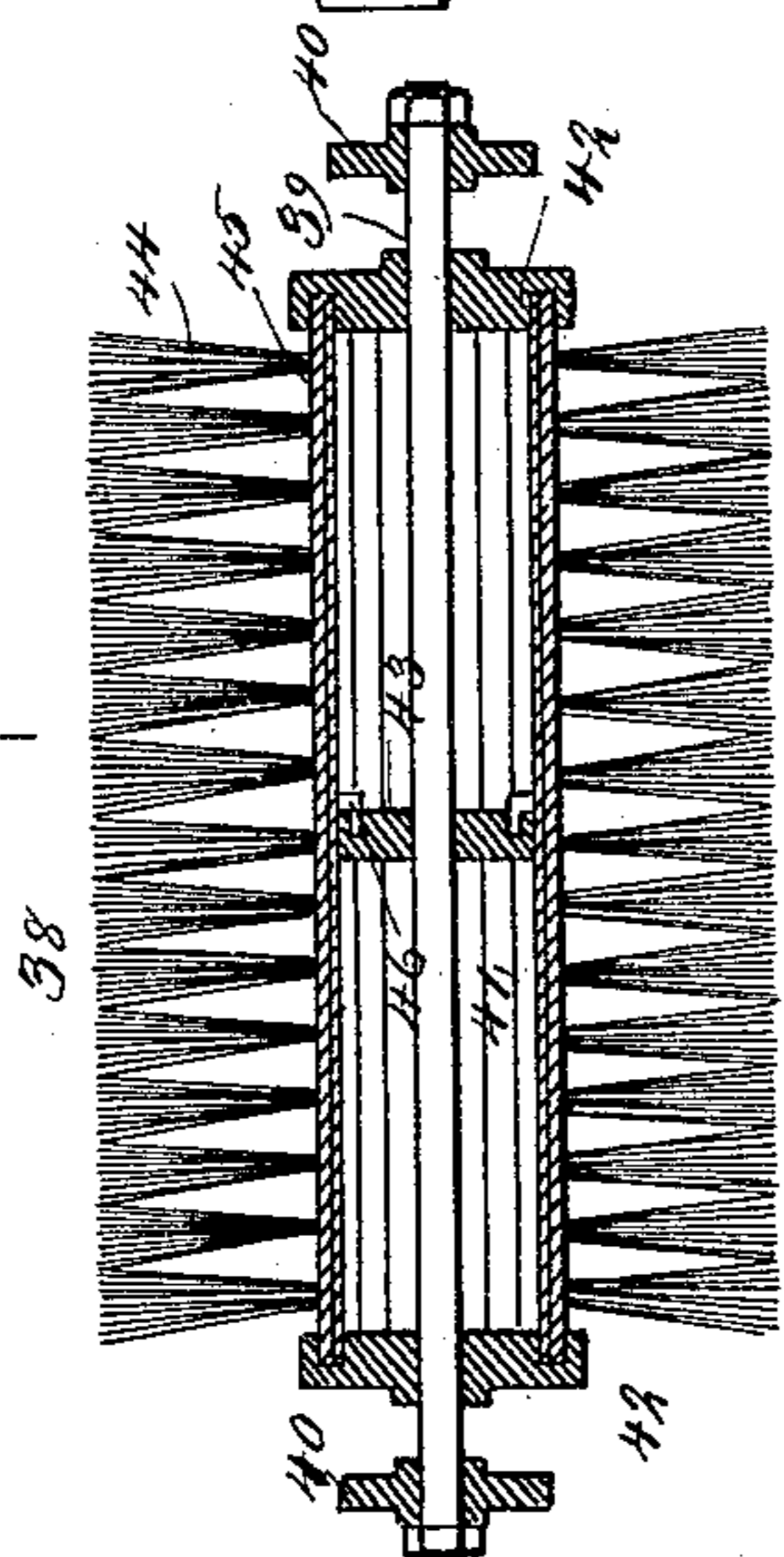
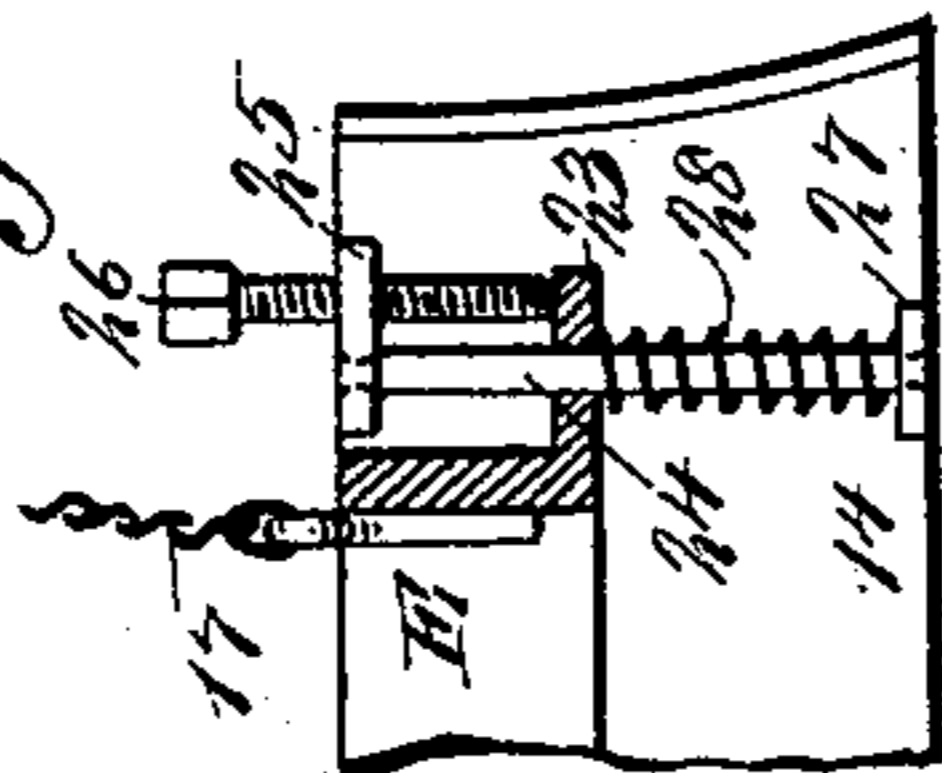


Fig. 6



WITNESSES:  
*C. Newell*  
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Fig. 8



INVENTOR

*G. Morrow*

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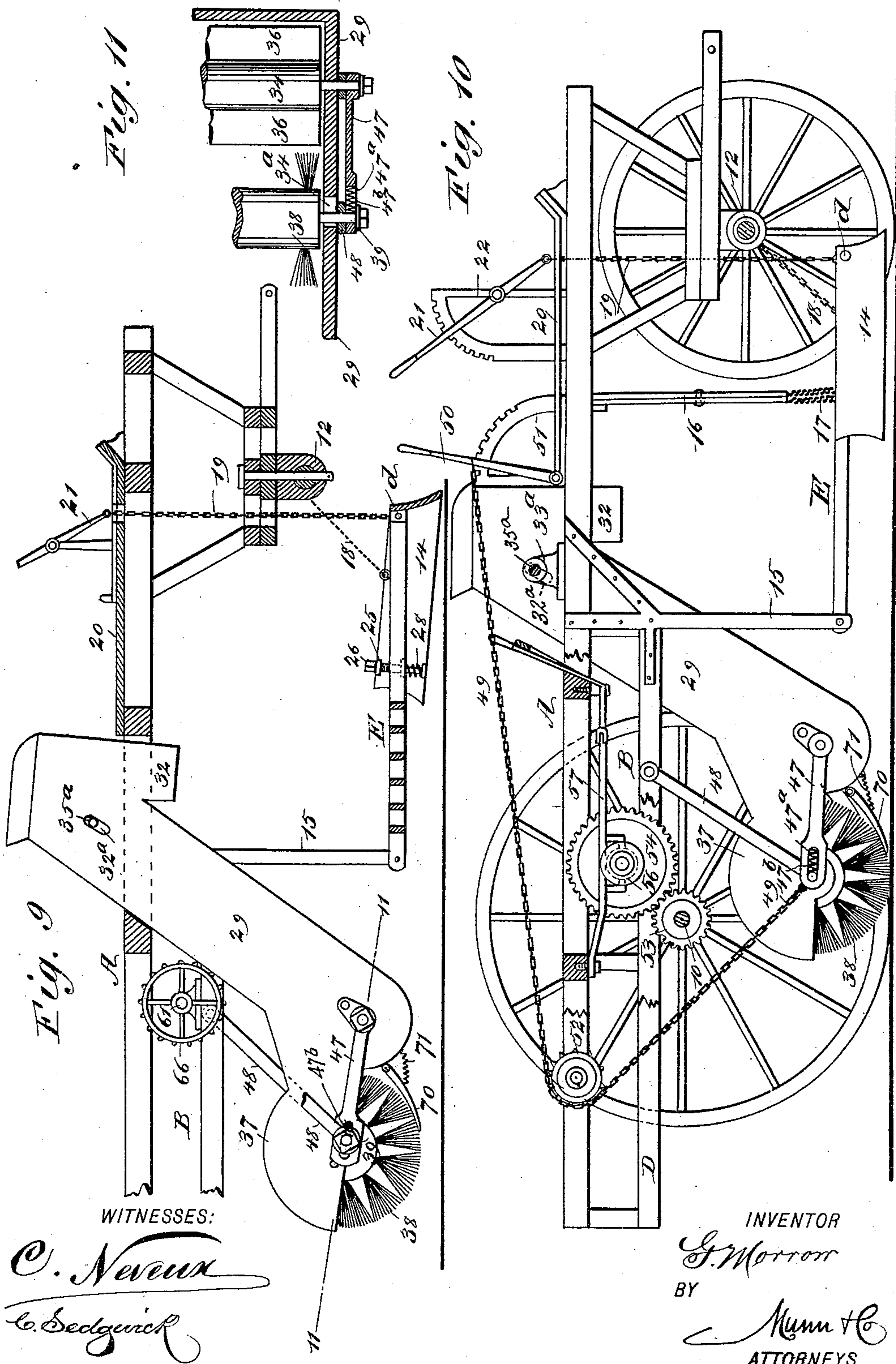
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3 Sheets—Sheet 3.

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# UNITED STATES PATENT OFFICE.

GEORGE MORROW, OF SALT LAKE CITY, UTAH TERRITORY.

## STREET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 521,665, dated June 19, 1894.

Application filed August 23, 1893. Serial No. 483,850. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE MORROW, of Salt Lake City, in the county of Salt Lake and Territory of Utah, have invented a new and  
5 Improved Street-Sweeper and Road-Cleaner, of which the following is a full, clear, and exact description.

My invention relates to an improvement in street sweepers and road cleaners, and it has  
10 for its object to provide a machine capable of sweeping a street or road, and of delivering the sweepings to a receptacle carried by the machine and removable therefrom, the operation of the machine being automatic.

15 A further object of the invention is to so construct the machine that it will be capable of carrying a number of receptacles to receive dirt, and whereby also provision will be made for removing from the path of the broom large  
20 stones or other obstacles which would interfere with its action.

Another feature of the invention is to provide a means for adjusting the mold board adapted to remove large obstructions or ob-  
25 stacles, and likewise a means for elevating the broom and parts connected therewith from the ground when desired.

The invention consists in the novel construction and combination of the several parts, as  
30 will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of refer-  
35 ence indicate corresponding parts in all the views.

Figure 1 is a side elevation of the machine. Fig. 2 is a longitudinal section taken practically on the line 2—2 of Fig. 4 parts being  
40 omitted. Fig. 3 is a horizontal section taken through the elevator, its casing and throat plate, on the line 3—3 in Fig. 2. Fig. 4 is a plan view of the machine. Fig. 5 is a transverse vertical section thereof looking in di-  
45 rection of the front of the machine; said section being taken practically on the line 5—5 of Fig. 4. Fig. 6 is a longitudinal section through the broom, taken essentially on the line 6—6 of Fig. 7. Fig. 7 is a transverse section of the same on the line 7—7 of Fig. 6;  
50 and Fig. 8 is a detail view, illustrating the manner of adjusting the mold board. Fig. 9 is a longitudinal sectional view through the

machine, illustrating the mounting of the elevator casing therein, and the movement of  
55 the mold-board. Fig. 10 is a partial side elevation and partial sectional view of the machine, illustrating the manner in which the shaft of the upper elevator drum is journaled, the driving wheel located upon said shaft be-  
60 ing omitted, and likewise illustrating the application of a shifting lever to the driving mechanism and the manner in which the supporting links of the lower end of the elevator casing are connected; and Fig. 11 is a section  
65 taken horizontally through the elevator casing on the line 11—11 of Fig. 9.

In carrying out the invention the frame A of the machine is preferably made of skeleton form, and somewhat rectangular, and is pro-  
70 vided with a well B at the back, which may be loaded with stones, or other large obstacles, picked up from the road, or with receptacles C, such as barrels, that are to be filled with sweepings. This well B, is usually con-  
75 structed by locating a second frame D, below the lower portion of the first frame, and connecting the two frames. A rear axle 10, is held to revolve in suitable bearings located upon or projected from the bottom of the well,  
80 or lower frame D, and the axle is provided with supporting wheels 11, secured thereon; the forward axle 12, has pivotal connection with the forward portion of the frame and carries two supporting wheels 13.  
85

At the forward portion of the machine a platform E, is suspended beneath the frame. This platform is provided with a forward, tri-  
angular, preferably skeleton extension, and to this extension a mold-board 14, is pivoted,  
90 the rear portion of the platform being adapted to support one of the barrels or receptacles C heretofore alluded to for receiving the sweepings.

The platform E is suspended by projecting  
95 hangers 15 downward from the frame of the machine from each side at a point near the center; and the said platform at its rear end is pivotally connected with these hangers. The platform is further connected with the  
100 frame through the medium of braces 16, which are carried from the side pieces of the frame diagonally downward in direction of the sides of the platform, and are connected with the platform by lengths of chains or cables 17, as  
105 shown in Fig. 5, the braces crossing one an-

other. As an additional support for the platform chains or cables 18, are attached to it at each side of its forward portion, and the said chains or cables 18, are carried upward and secured to the axle at or near its center, as is best shown in Figs. 2 and 5. The frame is raised and lowered by attaching to its forward end a chain or cable 19, which is carried upward through an opening produced in a platform 20, formed upon the forward portion of the machine frame, the upper end of the chain or cable 19, being attached to a hand lever 21, provided with a suitable rack 22, the lever being operated by the driver. It will be observed that the chains or cables 17 and 18, will admit of the forward end of the platform being elevated or depressed, while at the same time, in connection with the braces 16, they serve to preserve the platform from lateral movement.

The mold board 14, is adjustably connected with the platform E, being pivotally attached to the platform at the forward end of the latter, as shown at *d* in the drawings, adjusting devices being located at the rear portions of the mold board. The adjusting devices may be of any desired description, one form being illustrated in detail in Fig. 8, in which it will be observed that a lug 23, is made to project from the frame, and a rod 24, is passed upward through the aperture in the lug, the said rod being attached to a lug 25, secured to the upper portion of the mold-board, which lug 25, has an aperture the wall of which is threaded to receive an adjusting screw 26, the said screw having a bearing upon the lug 23 of the frame. The lower end of the rod 24 is attached to a second lug 27, projected from the bottom of the mold board; and a spring 28, is coiled around the rod, having bearing upon the lower lug of the mold board and the lug 23 of the frame. Thus, by adjusting the screw 26, the mold board may be raised or lowered and can not drop downward from its adjusted position; but in the event the mold board should strike an elevation in the ground, for example, it may be forced upward against the tension of the springs 28, and therefore sustain no injury.

The elevator casing 29, is pivotally supported in the frame of the machine, said elevator casing being preferably made to extend above the top of the frame, and downwardly and rearwardly beneath the pit or well B. The top of the casing is shaped as a seat 30 for the driver, and the seat is provided with a door 31, which renders the interior of the elevator casing visible. The elevator casing at its upper end is provided with a delivery chute 32, which is carried downward over the platform E, and the barrel to receive the sweepings is placed beneath this chute.

The elevator consists of an upper drum 33, a lower drum 34, an endless belt 35, carried by the drums, and buckets 36, secured upon the outer face of the belt. The upper drum is mounted securely upon a shaft 35<sup>a</sup>, which

is journaled in bearings 33<sup>a</sup>, located upon the upper portion of the frame; and upon this shaft the elevator casing 29, is pivotally supported, the casing being provided with slots 32<sup>a</sup> produced longitudinally therein and adapted to receive the shaft 35<sup>a</sup>. Thus when the elevator casing is thrown upward, the elevator belt will be slack. The upper drum shaft 35<sup>a</sup>, is provided with a pulley 36<sup>a</sup> at each of its ends.

The casing 29, is provided with a rearwardly extending hood 37, which is located at its lower end, being integral with its upper end; and a brush 38, is located beneath the said hood, the shaft 39 of the brush or broom being journaled in the ends of the hood. The broom shaft is provided at each end with a pulley 40, and the broom is preferably made up of a hollow cylindrical body 41, usually of wood, provided at each end with a head 42, and at its center with a disk 43; and the bristles, or other material from which the sweeping sections 44 of the broom are constructed, are passed in clusters through openings made in strips 45, as shown in Figs. 6 and 7, the strips being secured in the heads and body of the broom, and the strips are connected with the center disk 43 by means of clamping irons 46, or other form of fastening device. Thus the sweeping sections of the broom may be repaired without necessitating the dismantling of the body.

The shaft of the lower drum 34 of the elevator extends beyond each side of the elevator casing, and one end of a link 47, is pivotally attached to each end of the said drum shaft, while the opposite ends of the links have pivotal connection with the extremities of the broom shaft, and said shaft has sliding movement in the elevator casing, the shaft being made to pass through slots 34<sup>a</sup> formed therein as shown in Fig. 11. The end of the links 47 receiving the broom shaft, is provided with a longitudinal slot 47<sup>a</sup>, and a spring 47<sup>b</sup> is located in the slot, having bearing against the broom shaft; but the connection may be made in any other approved manner. Another set of links 48, is likewise pivotally connected with the ends of the broom shaft and with the frame A of the machine, whereby the broom and elevator may be raised when they are not needed for use; at the same time, the lower end of the elevator casing and the broom will be given a rearward movement.

The elevation of the elevator casing is effected through the medium of chains or cables 49, attached to the rear ends of the links 47, but the said chains or cables may be secured to the hood extensions of the elevator if desired. The cables in any event are attached at their opposite ends to levers 50, located one at each side of the driver's seat, the levers being provided with suitable racks 51, and the chains or cables are passed over guide pulleys 52, located upon the frame.

The elevator and broom are driven in the following manner: A pinion 53, is secured

upon the axle 10, which pinion meshes with a gear 54, loosely mounted upon a line shaft 55, parallel with the axle. The gear 54, is engaged by a clutch 56, mounted to slide upon and turn with the shaft 55, the clutch being shifted by a lever 57, leading conveniently to the driver's seat, whereby the gear 52 may be placed in or out of mesh with the driving gear 53, and thus set in motion, or stop, whatever gearing is driven by the shaft 55. The shaft carries a gear 58, near one end, which gear meshes with a gear 59 upon a parallel shaft 60, located above and between the shaft 55 and the second shaft 61, the upper shaft 60 being provided at each outer end with a pulley 62, connected by belts 63 with the pulleys 36<sup>a</sup> on the upper drum shaft of the elevator. The shaft 55, is provided with a pulley 64, connected by a belt 65 with a pulley 66 located upon the shaft 61, thus giving motion to the latter shaft; and the shaft 61 has secured to each end a pulley 67, connected by belts 68, with the pulleys 40 on the broom shaft. When the broom is in its lowest position, it sweeps the dirt into the buckets of the elevator, and the buckets carry the dirt upward and deliver it through the chute 32 into the receptacle C placed to receive it, the mold board removing all heavy obstacles from the path of the broom. The mold board may be used for cleaning the snow from the ground or for scraping the roads, in which event the broom is held up out of the way. The dirt is forced to pass from the broom to the buckets of the elevator by reason of a series of plates 70, which is pivoted to the lower end of the lower wall of the elevator casing, the plates being arranged quite close together. These plates are curved, and are held in proper relation to the broom by means of springs 71. Should any of the plates meet an obstacle on the road said plates will yield upwardly until the obstacle is passed, and will then drop to normal position. The plates 70, serve as a guard for the throat or inlet of the elevator casing. The plates have a shoulder on their hinged end so that when the sweeper is raised they will stay in position and will not fall down.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a sweeper, the combination, with a frame, a platform located beneath the frame, and a mold board adjustably connected with the said platform, of an elevator carried by the frame at the rear of the platform and mold board, a brush held to revolve at the mouth of the elevator, the said elevator having its delivery end over the said platform, and guard plates located at the receiving end of the elevator, partially encircling the brush, said plates having yielding movement to and from the brush, substantially as and for the purpose specified.

2. In a sweeper, the combination, with a frame, a platform located beneath the forward

portion of the frame, pivotally connected with hangers attached to the frame, a lift lever connected with the platform, and a mold board pivotally connected to the forward portion of the platform and having adjustable connection at its rear with the rear portion of the platform, of an elevator pivotally located in the frame, having an exit opening over the platform and provided with an extension at its lower end, a broom held to revolve in the extension, lift levers connected with the elevator and broom, whereby both may be simultaneously raised, and a driving mechanism, substantially as shown and described for the elevator and broom, as and for the purpose specified.

3. In a sweeper, the combination, with a frame, a platform located beneath the frame and pivoted to a support at its rear end, a substantially triangularly shaped mold board attached to the forward portion of the platform, a lift lever located upon the frame and connected with the forward portion of the platform, and yielding braces connecting the frame and platform, of an elevator casing pivoted upon the platform, having a seat formed at its top, provided with an opening, and an outlet at its upper end leading over the forward platform, the casing being provided with a rear extension, an elevator located within the casing, a broom located within the extension of the casing, a lift lever located upon the frame and connected with the elevator casing, and a driving mechanism driven from the axle and having driving connection with the broom and elevator, substantially as and for the purpose specified.

4. In a sweeper, the combination, with a frame, a platform located beneath the frame and pivoted to a support at its rear end, a substantially triangularly shaped mold board attached to the forward portion of the platform, a lift lever located upon the frame and connected with the forward portion of the platform, and yielding braces connecting the frame and platform, of an elevator casing having a seat formed at its top, provided with an opening, and an outlet at its upper end leading over the forward platform, the casing being provided with a rear extension, an elevator located within the casing, a broom located within the extension of the casing, a lift lever located upon the frame and connected with the elevator casing, a driving mechanism driven from the axle and having driving connection with the broom and elevator, and a series of spring-controlled plates adapted substantially for engagement with the ground, hinged upon the lower portion of the elevator casing, adapted as guards for the broom; and a well formed in the frame of the machine, as and for the purpose set forth.

GEORGE MORROW.

Witnesses:

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J. H. WOODMAN.