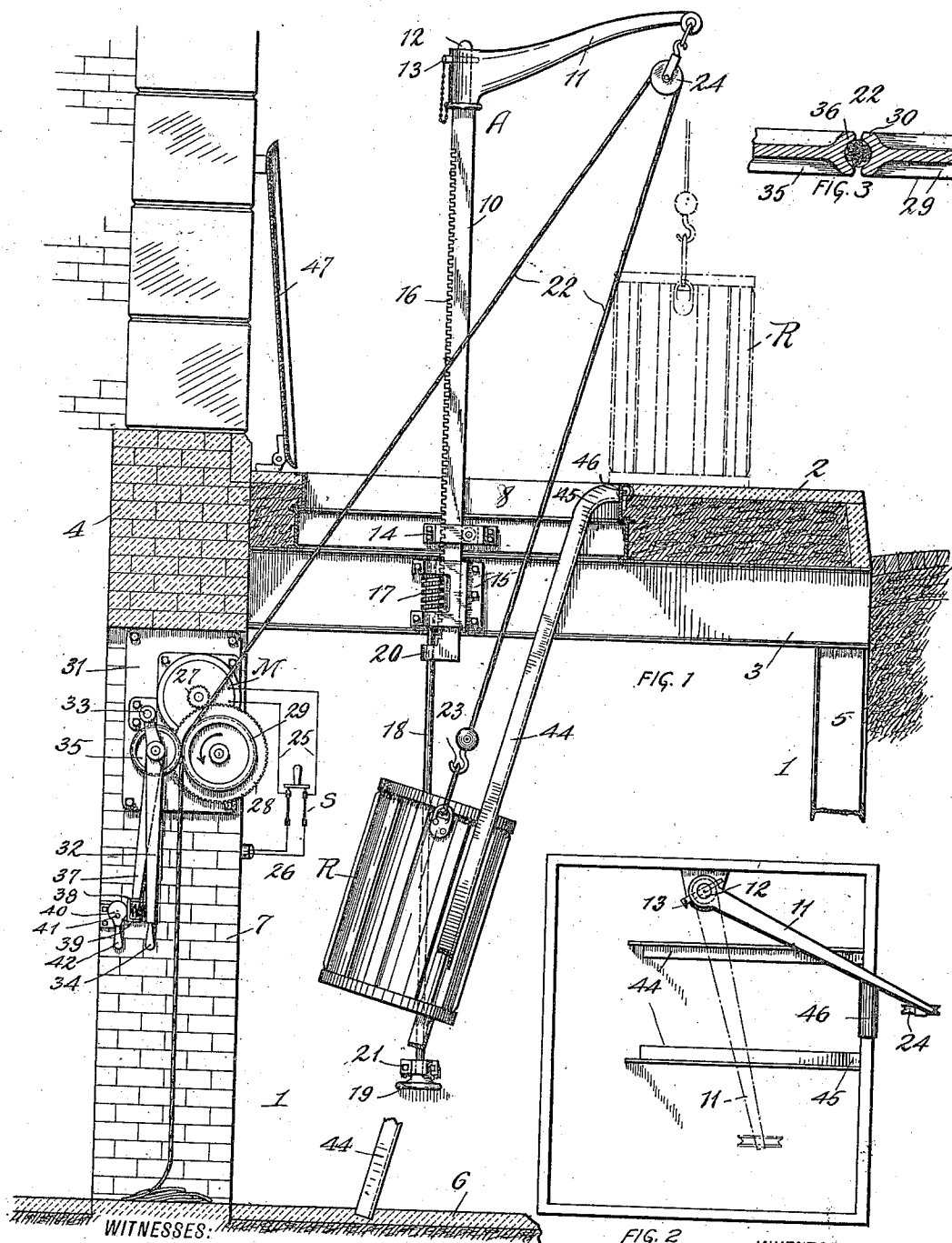


A. SUNDH.
ASH HOIST CONSTRUCTION.
APPLICATION FILED AUG. 16, 1907.

1,011,266.

Patented Dec. 12, 1911.



WITNESSES:
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FIG. 2
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AUGUST SUNDH, OF YONKERS, NEW YORK, ASSIGNOR TO OTIS ELEVATOR COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

ASH-HOIST CONSTRUCTION.

1,011,266.

Specification of Letters Patent.

Patented Dec. 12, 1911.

Application filed August 16, 1907. Serial No. 388,817.

To all whom it may concern:

Be it known that I, AUGUST SUNDH, a citizen of the United States, residing at Yonkers, in the county of Westchester and State of New York, have invented a new and useful Improvement in Ash-Hoist Construction, of which the following is a specification.

My invention relates to hoisting mechanism especially adapted for elevating ash cans or other receptacles from a compartment formed beneath a sidewalk up through an opening in the walk and depositing them at the curbstone.

One of the objects of the invention is to provide a device of this character in which the receptacle is carried upwardly through the opening in the walk and automatically guided and placed on the walk at one side of the opening.

Other objects of the invention will appear hereinafter, the novel combinations of elements being set forth in the appended claims.

Referring to the drawing, in which is shown a construction embodying my invention, Figure 1 is a sectional elevation through a sidewalk and compartment in which the hoisting mechanism is installed, and showing the mechanism in operating position; Fig. 2 is a plan view of parts shown in Fig. 1; and Fig. 3 is a sectional view on an enlarged scale of the hoisting rope or cable and portions of the friction pulleys engaging the rope.

The hoisting device is installed in a compartment 1 located beneath a sidewalk 2. The portion of the walk 2 over the compartment 1 may be supported by the horizontal framework 3 carried by the foundation wall 4 of a building and vertical supports 5. The compartment 1 communicates through a door or passageway 7 formed in the wall 4 with a basement or cellar from which the ashes are to be removed.

The hoisting mechanism comprises a supporting member A which is movable up and down through an opening 8 formed in the sidewalk. The supporting member A consists of a vertical rack bar 10 and a substantially horizontal or laterally extending arm 11 at the top of the rack bar. The arm 11 is swiveled on a vertical extension 12 of the rack bar, and may be held against rotation by a removable pin 13 extending

through the arm 11 and the extension 12. The rack bar 10 is held in position and guided in its vertical movements by guide brackets 14 and 15 secured respectively to the side of the opening 8 and the framework 3 immediately below the opening 8. The rack teeth 16 formed on the bar 10 mesh with a worm 17 on the upper end of a worm shaft 18. The shaft 18 has bearings in the bracket 15 above and below the worm 17, and is also held thereby against longitudinal movement. The lower end of the rod 18 is provided with a hand wheel 19, by means of which the rod 18 may be rotated to lift or lower the rack bar. The lower end of the rack bar is formed with a bearing sleeve 20 surrounding the rod 18 and slidable thereon as the rack bar moves up and down. The lower end of the rod 18 is held against any lateral movement by the bearing 21.

Although the construction just described provides a convenient means for lifting and lowering the supporting member A, other forms of lifting and lowering mechanism might obviously be adopted.

The ash can or other receptacle R is lifted and lowered by means of a hoisting rope or cable 22, provided at one end with a hook 23 to hold the bail of the receptacle R. The rope 22 extends from the receptacle upwardly and over a sheave 24 removably connected to the outer end of the arm 11, and from thence to the driving motor. Although the rope 22 may be operated by hand to lift and lower the receptacle R, I prefer to use a small motor which may be of any desired form. In this instance I have shown an electric motor M which is supplied with electric current through wires 25 connected by a switch S with wires 26 leading from a source of current supply. Secured to the motor shaft is a pinion 27 which meshes with a large gear wheel 28. Secured to the gear wheel 28, or keyed to the same shaft for rotation therewith, is a drive sheave 29 having a groove 30 in its periphery to receive the rope 22. The motor and drive gear 28 are carried by a plate 31 bolted or otherwise secured to the side wall of the passageway 7. This forms a convenient location for the motor in a position where the operator can observe the operation of the hoisting mechanism and can watch the receptacle during its entire travel. A controlling lever

32 is fulcrumed at its upper end by a pivot 33 to the plate 31 and has a handle 34 at its lower end. The lever 32 carries a pressure sheave 35 a short distance below the pivot 33, the sheave 35 being opposite and in the same plane with the drive sheave 29, as indicated in Fig. 3. The sheave 35 is also provided with a shallow circumferential groove 36 to receive the rope 22. Pivoted on the lever 32 concentrically with the sheave 35 is a depending arm 37, provided at its lower end with an extension 38 opposite the lower end of the lever 32. Between the lever 32 and the part 38 is a coil spring 39. A cam 40, pivoted on a stationary pivot 41 and provided with a handle 42, is mounted to engage the outer surface of the part 38.

A pair of inclined guide rails 44 are located in the compartment 1 and extend from the floor 6 of the compartment 1 to the edge of the opening 8, the upper ends of the rails being substantially even with the surface of the walk. These rails are preferably made in the form of angle irons placed parallel and spaced apart a sufficient distance to support and guide an ash can or receptacle R in its upward and downward movements. The upper ends of the rails may be curved as shown at 45 to permit a more gradual swing of the receptacle from an inclined position to the vertical position shown in dotted lines, and also to hold the lower side of the receptacle which projects through the rails away from the edge of the opening in the sidewalk. An anti-friction roller 46 is journaled in the edge of the walk, against which the receptacle bears as it is leaving the rails. The arm 11 when held by the pin 13 extends from the rack bar 10 at an angle as shown in Fig. 2 such that the pulley 24 is in a vertical plane midway between the rails 44, the length of the arm being such that the rope 22 extending from the receptacle to the pulley 24 is substantially parallel with the guide rails. When the hoisting mechanism is not in use, it is retained in the compartment 1, the entire mechanism being lowered beneath the surface of the walk and the opening 8 is closed by a hinged door or cover 47.

The operation of the hoisting mechanism will now be briefly stated.

Assuming that the supporting frame A has been raised to operative position as shown, that an ash can R has been placed at the foot of the inclined guide rails, and that the hook 22 has been attached to the receptacle, let the switch S be closed to cause the electric current to flow through the motor to rotate the same and the drive sheave 29 in a counter-clockwise direction, as indicated by the arrow. If the operator now moves the handle 34 to the right the sheave 35 will be pressed against the rope

22. This holds the rope in frictional engagement with the drive sheave 29, and the rope is driven by the sheave 29 and fed through between the same and the sheave 35. As the ash can leaves the rails it swings outwardly over the walk to the position shown in dotted lines. The operator now releases the controlling lever 32 and the ash can settles by its own weight on to the walk. After the can has been emptied it may be placed in position to permit it to descend by gravity while drawing the rope 22 back to position for another operation. To prevent too sudden descent the wheel 35 may be moved to hold the rope against the sheave 29, now held stationary by the motor brake, thus compelling the rope to be frictionally retarded by slipping over the sheave 29. Instead of operating the lever 32 directly by means of the handle 34, the cam 40 may be turned about its axis to move the part 38 to the right which will compress the spring 39 and operate through the lever 32 to hold the sheave 35 against the rope 22 with a yielding pressure varying with the extent the cam is turned. By this means less effort is required to control the friction clutch.

If it is desired to lift the ash can or other article without the use of the guide rails, the pin 13 is removed and the arm 11 swung to the position shown in dotted lines in Fig. 2, in which position the load can be lifted vertically through the opening in the walk.

I have shown and described a construction embodying my invention in a practical form, but it is obvious that various changes in details of construction and arrangement of parts might be made by those skilled in the art without departing from the spirit and scope of the invention, and I wish therefore not to be limited to the precise construction disclosed.

What I claim as new and desire to secure by Letters Patent of the United States is:—

1. In hoisting mechanism, the combination with a rope or cable, and means carried thereby for holding a receptacle, of a pair of parallel inclined guide rails spaced apart to support and guide the receptacle, a direction sheave over which the rope or cable passes, and means for supporting the sheave in a position in which the cable extending from the sheave to the receptacle is substantially parallel with the rails.

2. In hoisting mechanism, the combination with a hoisting rope or cable, and a sheave over which the rope or cable passes, of inclined guide rails, and means for supporting the sheave either in line with or at one side of the guide rails.

3. The combination with a walk formed with an opening therethrough, and a compartment beneath the walk, of guide rails in the compartment, a direction sheave, 130

means independent of the guide rails and supported in said compartment for supporting the sheave in a position above the walk, and a hoisting cable passing over the sheave.

4. The combination with a sidewalk provided with an opening therethrough, and a compartment beneath the walk, of inclined guide rails in the compartment and extending to the surface of the walk, a direction sheave, a device adjustably supported in said compartment for supporting the sheave above the walk and substantially in line with the guide rails, and a hoisting cable passing over the sheave.

5. The combination with a sidewalk provided with an opening therethrough, and a compartment beneath the opening, of inclined guide rails extending from the floor of the compartment to the surface of the walk, and means wholly supported in said compartment for moving a receptacle upwardly along the rails and placing it on the walk beyond the rails.

6. The combination with a walk formed with an opening therethrough, and a compartment beneath the opening, of an inclined guide in the compartment extending through the opening to the surface of the walk and having its upper end carried from an inclined to a horizontal direction.

7. In hoisting mechanism, the combination with a pair of inclined guide rails, of a horizontal roller located between the upper ends of the guide rails.

8. The combination with a sidewalk formed with an opening therethrough, and a compartment beneath the walk, of inclined guide rails, a hoisting cable, a member supporting and guiding the cable, said member being vertically movable through the opening in the walk, and means for guiding it in its movements.

9. The combination with a sidewalk provided with an opening therethrough, and a compartment beneath the walk, of inclined guide rails in the compartment, a vertical bar, means for moving the bar vertically up and down through the opening in the walk, an arm carried by the upper end of the bar, a sheave at the free end of the arm, a hoisting cable passing over the sheave, a load-carrying device secured to one end of the cable, a motor, a drive sheave operatively connected thereto and with

which the cable frictionally engages, and manually operable means for varying the frictional contact between the drive sheave and cable.

10. In hoisting apparatus, the combination with a vertical support, of an arm extending therefrom, a load-carrying device, driving apparatus, a cable connecting said driving apparatus, arm and load-carrying device, an inclined guideway for said load-carrying device, and connecting means between the support and arm, said means when disconnected permitting the load-carrying device to be lifted vertically.

11. In hoisting apparatus, the combination with a rack bar, of a hoisting pulley connected to said bar, guiding appliances for said bar, a worm meshing with said rack bar, means for rotating said worm to transmit motion to said bar and pulley, a movable body, and a cable associated with said pulley and connected to said movable body.

12. In hoisting apparatus, the combination with a vertical rack bar movable through an opening, of guides for said bar, a worm meshing with said bar, mechanism for rotating said worm to lift or lower said bar through said opening, an arm swiveled at or near the upper end of said bar, a pin-and-slot connection between said arm and bar to prevent relative motion, a pulley at the outer end of said arm, a receptacle, an inclined guideway for said receptacle, a cable connected to said receptacle and extending over said pulley, and driving apparatus for pulling on said cable to lift the receptacle along its inclined guideway to a vertical position when said pin is in place and to lift said receptacle vertically through said opening when the arm swiveled to the vertical bar is free to swing.

13. The combination with a floor, of guide rails extending downwardly from the floor, and means supported below said floor for elevating a receptacle along said rails and placing it in position on the floor beyond the rails.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

AUGUST SUNDH.

Witnesses:

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ALFRED C. BECHET.