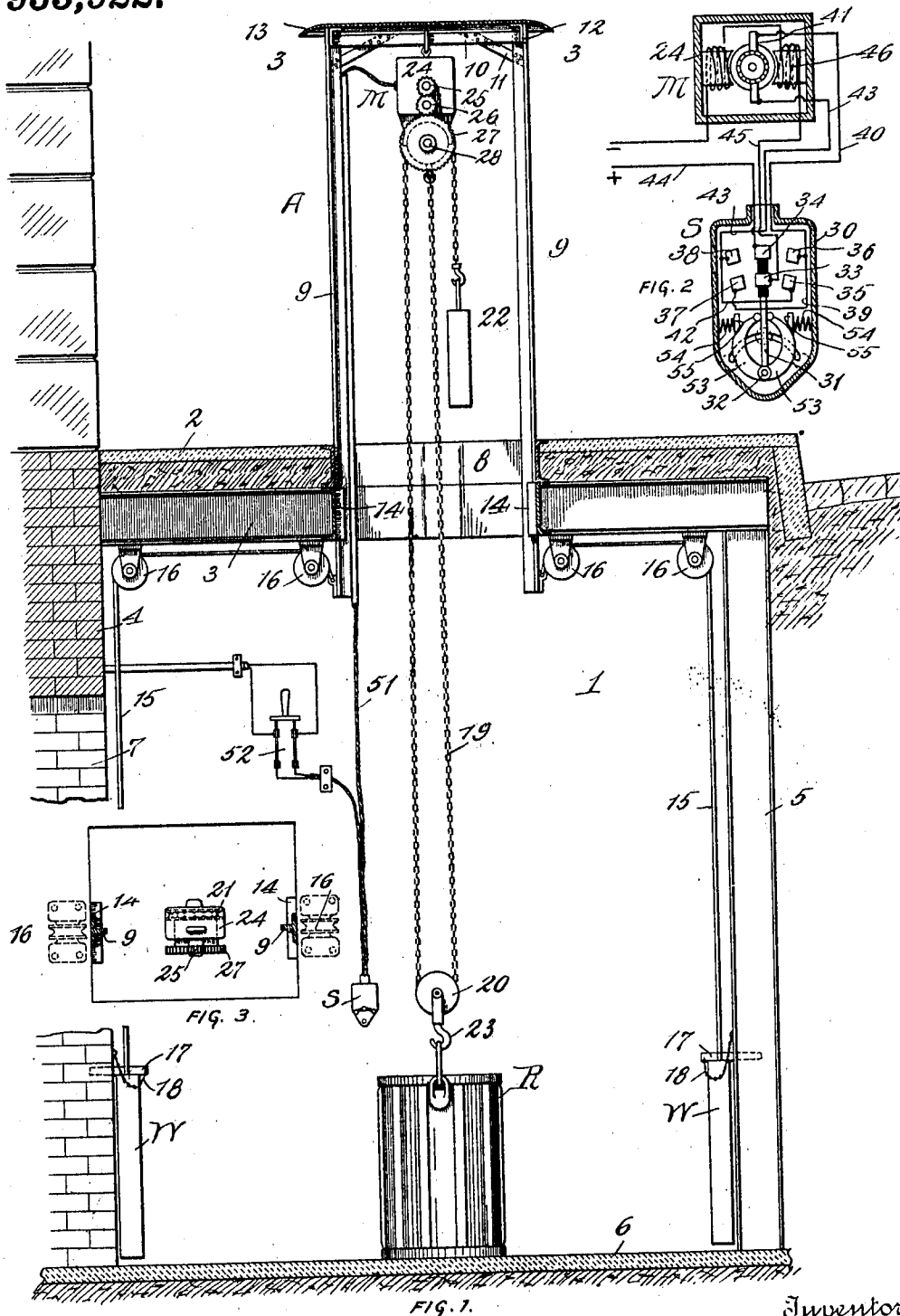


A. SUNDH.
SIDEWALK ASH HOISTING APPARATUS.
APPLICATION FILED AUG. 16, 1907.

955,922.

Patented Apr. 26, 1910.



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UNITED STATES PATENT OFFICE.

AUGUST SUNDH, OF YONKERS, NEW YORK, ASSIGNOR TO OTIS ELEVATOR COMPANY,
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SIDEWALK ASH-HOISTING APPARATUS.

955,922.

Specification of Letters Patent. Patented Apr. 26, 1910.

Application filed August 16, 1907. Serial No. 388,816.

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 Sidewalk Ash-Hoisting Apparatus, of which the following is a specification.

My invention relates to a hoisting device adapted to elevate ashes or other material up through an opening in a sidewalk.

One of the objects of the invention is to provide a device of this character in which the hoisting mechanism is in the form of a block and tackle operated by an electric motor.

Another object is to provide a construction in which the electric motor is carried by a frame movable into a position above the walk when the device is in use, and movable into a position below the walk when not in use.

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 of the hoisting mechanism, the sidewalk and the compartment therebeneath in which the device is installed; Fig. 2 is a diagrammatic view of the electric motor and reversing switch; and Fig. 3 is a view substantially on the line 3—3 of Fig. 1.

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 which is supported by the foundation wall 4 of a building and the vertical support 5. These latter rest on the cement floor 6 of the compartment 1. 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 sidewalk is formed with an opening 8 in which is mounted for vertical movement a frame A. This frame comprises vertical T-irons forming side members 9, a cross bar 10 uniting the parts 9, braces 11, angle irons 12, and a top 13. When the frame is lowered the top 13 forms a cover for the opening 8 in the sidewalk, and also forms a stop

to limit the downward movement of the frame. The frame is guided in its vertical movement by guides 14 secured to the framework 3 and embracing the lateral flanges of the T-irons 9. The weight of the frame A and parts carried thereby is partially or wholly counterbalanced by counterweights W connected to the frame A by cables 15. These cables are secured to the lower ends of the frame members 9 and pass over direction sheaves 16 supported by the framework 3. The frame A is securely held in a raised position by pins 17 which may be placed in sockets formed in the side walls of the compartment 1 in such position that the pins engage the upper surfaces of the counterweights when the frame is raised. Chains 18 may be used to prevent the loss of the pins 17.

The receptacle R which may be an ash can or other receptacle, or which may be replaced by any other article it is desired to lift or lower through the walk, is lifted and lowered by means of a chain and pulleys having an arrangement similar to the ordinary block and tackle. The hoisting chain 19 is connected at one end to a support near the top of the frame A, which support may be connected to or form part of the motor frame. From this end the chain extends downwardly and around a loose pulley 20 and up to a drive sprocket wheel or pulley 21 (Fig. 3) with which the chain is preferably in positive driving engagement. The free end of the chain is provided with a hook 22 for a purpose hereinafter stated. The pulley 20 carries a hook 23 connected to the receptacle R.

The motor M is mounted in a casing which is suspended from the cross bar 10 at the top of the frame A. The motor shaft extends through the casing and is provided with a drive pinion 25 outside of the casing. The pinion 25 meshes with a connecting gear 26 which in turn meshes with a gear wheel 27 secured to a shaft 28, to which is also secured the drive wheel 21. The kind of electric motor used will depend upon whether a supply of direct or alternating current is available, and upon other conditions met with in practice. In this instance I have shown an ordinary series wound direct current motor. The motor circuits are controlled by a reversing switch S. The switch is inclosed in a casing or switch box 30 (Fig. 110).

2) and comprises a switch lever 31 pivoted at 32 and carrying insulated contacts 33, 34. Fixed contacts 35 and 36 are engaged by the contacts 33 and 34 when the lever 31 is moved to the right, and fixed contacts 37, 38 are engaged by the contacts 33 and 34 when the lever 31 is moved to the left. The contacts 36 and 37 are electrically connected by a wire 39 and both are connected by a wire 40 to the upper brush 41 of the motor armature. The contacts 35 and 38 are connected together by a wire 42 and to the lower brush 50 by a wire 43. The contact 34 is connected to the positive main by a wire 44, and the contact 33 is connected by a wire 45 to one terminal of the field winding 46, the other end of which is connected directly to the negative main. With the switch lever 31 in an intermediate position as shown, the motor circuits are open. If, now, the switch lever is moved to the right, the contacts 33 and 34 will engage respectively the contacts 35 and 36. This will close a circuit through the motor as follows: from the positive main through wire 44, contacts 34, 36, wire 40 to upper armature brush 41, through the motor armature, lower brush 50, wires 43, 42, contacts 35, 33, wire 45, and field winding 46 to the negative main. The motor will now rotate in one direction while the circuit remains closed. If the switch lever is moved to the left to bring the contacts 33, 34 in engagement with the contacts 37, 38, a circuit will be closed through the motor as follows. From the positive main through the wire 44, contacts 34, 38, wire 43, to the lower brush 50, through the motor armature, upper brush 41, wire 40, contacts 37, 33, wire 45, and field winding 46 to the negative main. As the circuit through the motor armature is now reversed, the motor will run in the reverse direction. The reversing switch S may be connected to the motor by a flexible cable or lamp cord 51 extending from the motor to any convenient point where it is desired to place the switch, the flexible cord also permitting the switch to be moved from one place to another. An ordinary two-pole switch 52 may be placed in the circuit between the reversing switch and the source of current supply.

The switch lever 31 is automatically centered by means of spring-pressed levers 53 pivoted at their lower ends concentrically with the lever 31, and having their upper ends bearing against an intermediate portion of the lever 31. Compression springs 54 between the casing 30 and lugs 55 carried by the levers 53 yieldingly hold the switch lever in its central position and return it to such position when released after operation.

The operation of the hoisting mechanism will be apparent, in view of the above de-

scription. When the reversing lever is moved in the right direction the motor will operate through the reduction gearing 25, 26, 27 to run the drive gear 21 at a reduced speed and lift the receptacle R, which will move upwardly at half the peripheral speed of the drive gear 21. When the receptacle has been lifted above the surface of the walk, it may be removed and its contents emptied into a wagon at the curb-stone, and the receptacle again lowered by reversing the switch. The hook 22 may be used if desired to lower a receptacle simultaneously with the elevating of the receptacle R. Or, it may be used in place of the hook 23 if a greater speed is desired, the speed of the hook 22 being double that of the hook 23. Also a counterweight may be attached to either hook while a load is attached to the other.

Although I have shown a construction embodying a preferred form of my invention, I do not wish to be limited to the precise construction shown, as various changes in the details of construction and arrangement of parts might obviously be made by those skilled in the art without departing from the spirit and scope of the invention. Furthermore, I do not wish to be limited to the use of the device as an ash hoist, nor to its use in connection with a sidewalk, as it may be employed in other connections and in other places.

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

1. In a hoisting device, the combination with a stationary support, and a frame movable vertically in the support, of a motor carried by the frame, and a load-carrying device operatively connected to the motor.

2. In a hoisting device, the combination with a stationary support, and a frame movable vertically in the support, of a motor carried by the frame, a load-carrying device, and a flexible driving member uniting the motor and load-carrying device.

3. In a hoisting device, the combination with a stationary support, and a frame movable up and down in the support, of a motor carried by the frame, a drive chain depending from the frame, a load-carrying device supported by the chain, and driving connections between the motor and chain.

4. In a hoisting device, the combination with a motor, and a drive wheel connected thereto, of a loose sheave or pulley, a chain depending from the motor passing beneath the loose sheave and up over the drive wheel, a counterweight connected to the free end of the chain, said loose sheave being supported by the chain, and a load-carrying device connected to the sheave.

5. In a hoisting device, the combination with a motor, and a drive wheel connected thereto, of a loose sheave or pulley, a chain

connected at one end to the motor frame, and extending beneath the loose sheave and up to and over the drive wheel, and load-carrying devices connected to the loose sheave and to the free end of the chain.

6. The combination with a floor provided with an opening therethrough, and a compartment beneath the floor, of a frame movable up and down through said opening, a counterweight, a cable connecting the frame and counterweight, and means for locking the counterweight in its lowered position to hold the frame in its elevated position.

7. The combination with a floor or walk provided with an opening therethrough, and a compartment beneath the same, of a frame movable up and down through the opening, means for guiding the frame in its movements, a motor carried by the frame, and hoisting mechanism operatively connected to the motor.

8. The combination with a floor provided with an opening therethrough, and a compartment below the floor, of a frame movable up and down in said opening, a motor carried by the frame, a load-carrying device, and driving connections between said device and the motor.

9. The combination with a support provided with an opening therethrough, of a frame, means for supporting it above the opening, a motor carried by the frame, a load-carrying device, and driving connections between said device and the motor for lifting and lowering said device through the opening.

10. The combination with a member provided with an opening therethrough, and a compartment below said member, of a frame movable up and down through the opening, means for guiding the frame in its movements, a motor carried by the frame, and means connected to the motor and operated thereby for lifting a load from said compartment through the said opening.

11. The combination with a sidewalk formed with an opening therethrough, and a compartment beneath the walk, of a frame movable vertically in the opening, guides for the frame, means for holding the frame in its lifted position, a motor carried in the upper part of the frame, a load-carrying device, and a driving chain connecting said device and the motor.

12. The combination with a walk provided with an opening therethrough, and a compartment beneath the walk, of a frame movable up and down through said opening, means for guiding the frame in its movements, a cover for said opening carried by the frame and movable into position to close the opening when the frame is lowered, a motor carried by the frame beneath the cover, a load-carrying device, and connections between the motor and said device.

13. The combination with a walk provided with an opening therethrough, and a compartment beneath the walk, of a frame movable vertically in the opening, means for guiding the frame, an electric motor carried by the frame, a load-elevating device connected to the motor, and a controlling switch for the motor located in the compartment.

14. The combination with a sidewalk formed with an opening therethrough, and a compartment beneath the walk, of a frame movable up and down through the opening, means for guiding the frame in its movements, an electric motor carried in the frame, a load-carrying device, connections between said device and the motor for elevating a load through said opening, a reversing switch for the motor located in the compartment, and flexible connections between the motor and switch.

15. The combination with a cover for an opening, of framework connected to said cover, guides for the framework, a motor suspended from beneath said cover, and a sprocket and sprocket chain hoist connected to said motor.

16. The combination with a cover for an opening in a horizontal partition, of a cover for said opening, framework movable through said opening and carrying said cover, an electric motor suspended from beneath said cover, a sprocket wheel connected to said motor, a chain in positive driving engagement with said sprocket wheel, and a load-carrying device connected to said chain.

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

AUGUST SUNDH.

Witnesses:

CHAS. M. NISSEN,
ALFRED C. BECHT.