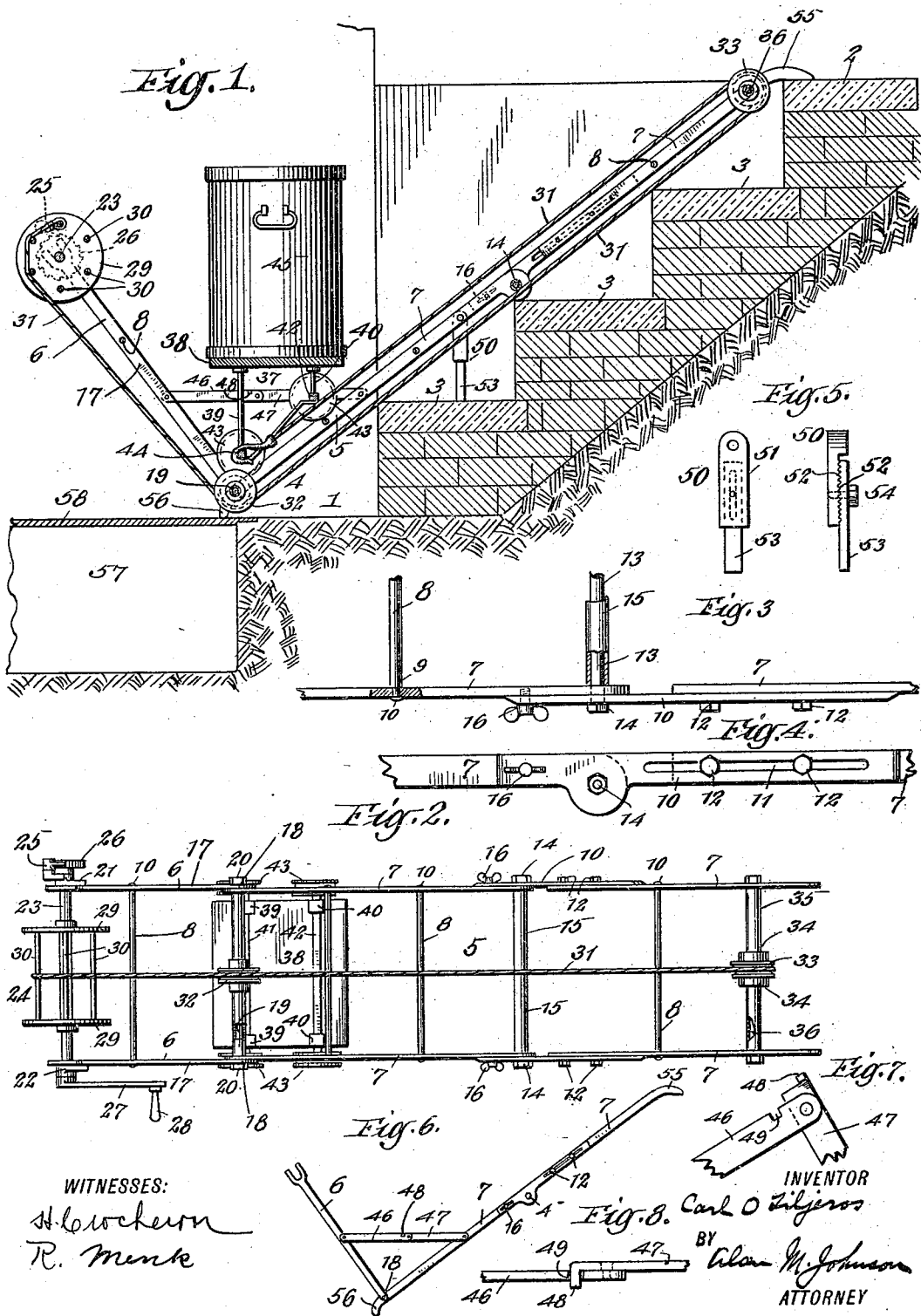


C. O. LILJEROS.
KNOCKDOWN ELEVATOR.
APPLICATION FILED OCT. 14, 1909.

961,782.

Patented June 21, 1910.



WITNESSES:
H. Lockhart
R. Munk

INVENTOR
Carl O. Liljeros
BY Alan M. Johnson
ATTORNEY

UNITED STATES PATENT OFFICE.

CARL O. LILJEROS, OF CLIFTON, NEW JERSEY.

KNOCKDOWN ELEVATOR.

961,782.

Specification of Letters Patent. Patented June 21, 1910.

Application filed October 14, 1909. Serial No. 522,609.

To all whom it may concern:

Be it known that I, CARL O. LILJEROS, a citizen of the United States, and a resident of Clifton, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Knock-down Elevators, of which the following is a specification, taken in connection with the accompanying drawings, which form a part of the same.

This invention relates to elevators and more particularly to an elevator which can be extended into operative position or folded up and put away when it is not desired to use it.

The elevator is adapted for universal application wherever it is desired to lower or lift a weight. More particularly, but it is to be distinctly understood that it is not to be limited to such work, it is adapted for use in connection with apartment houses, stores, hotels, houses, churches or other similar edifices where it is desired to lift ashes or garbage, or similar material, from the areaway to the level of the street. Under local municipal laws it is usually required that such waste material be deposited in receptacles and that these receptacles be carried from the basement or areaway to the level of the street so that the collector may easily remove their contents. These retainers are usually metal vessels, and when filled with ashes or garbage, or other waste material, are extremely heavy and difficult to move up a flight of steps or other elevation.

By temporarily placing my elevator in operative position the retainer can be quickly and expeditiously elevated with a minimum amount of effort and by a person who could not, without its aid, get the retainer to the higher level. After the elevator has performed its function it can be quickly folded up and removed so as not to encumber the steps or other surface connecting the two levels. While I have shown this use of my knockdown elevator it is, of course, not to be limited to such use for as is apparent, it is adapted to be used for raising and lowering any weight between two levels when it is desirable for any reason to remove the elevator and store it away until some future occasion may demand its use.

In the accompanying drawings showing an illustrative embodiment of this invention in which the same reference numerals refer to the similar parts in the several figures,

Figure 1 is a central vertical section showing my elevator in operative position, the receptacle being shown in side elevation; Fig. 2 is a bottom view of the elevator shown in Fig. 1; Fig. 3 is a detail plan view broken away to show a portion of the construction; Fig. 4 is a detail side elevation of the structure illustrated in Fig. 3; Fig. 5 is a detail view on a smaller scale of the support which may or may not be used with the elevator; Fig. 6 is a detail side elevation on a smaller scale of part of the structure showing the brace in its extended position; Fig. 7 is a side elevation on a smaller scale showing the brace in its inoperative position; Fig. 8 is a plan view on a smaller scale of the brace showing the parts in operative position.

In the illustrative embodiment of my invention shown in the drawing, 1 is the lower and 2 the upper level between which an object is to be raised or lowered as desired. In the particular instance shown in the drawing, 1 is the level of a cellar or areaway and 2 is the level of the street. Between the two levels which I have shown by way of example, are steps 3, 3, though it is to be understood of course, that these steps may be omitted.

My elevator 4 comprises a plurality of skeleton parts which are made out of strips of metal or if desired, metal pipe or wood, or other material, it being immaterial which is employed provided the requisite rigidity of the individual frames is obtained with the minimum amount of weight and expense.

In the form of my invention illustrated, my elevator comprises a main frame 5 and an auxiliary frame 6, the two being secured together in any suitable manner to permit them being moved with relation to each other. The main frame 5 comprises two spaced rails 7, 7 of any suitable material, preferably, though not necessarily, made of iron or pipe, though wood or other material may be used if desired. These rails 7, 7 are secured to, but spaced from, each other by rods 8, 8 having reduced ends 9, 9 which are passed through the rails 7, 7 and upset as at 10, 10, Fig. 3. In some instances I may extend the rails 7, 7 without an interruption or break to the extreme end of the main frame 5. Usually, however, though not necessarily, I make them adjustable to fit different lengths or different distances between the levels 1 and 2. These rails may be made adjustable in any suitable manner. For pur-

poses of illustration I have shown them separated intermediate their ends, and one portion of the rails (Figs. 1 and 3) is provided with plates 10, 10 which have longitudinal slots 11 through which pass bolts 12, 12 taking into the severed ends of the rails 7, 7. It is obvious that if the bolts 12, 12 are loosened, they with their severed rails 7, 7 can be adjusted along the slots 11, 11 and in this manner lengthen or shorten the main frame 5 to adjust the elevator for different distances between the levels 1 and 2.

As a further improvement, I may form the main frame 5 of two or more hinged portions to permit the elevator to occupy the minimum amount of space when in its knockdown or inoperative condition. It is to be distinctly understood, however, that this feature of forming the main frame of two or more hinged portions may be omitted without departing from my invention. Various forms of hinges may be used. The form which I have illustrated, simply for example, comprises a rod 13 its ends being screw threaded for the reception of the nuts 14, 14. The ends of the rod 13 pass through the plates 10, 10 (Fig. 2) and through openings in the rails 7, 7. Preferably, between the ends of the rails 7, 7, I mount a cylindrical member or pipe 15, which is shown partly broken away in Fig. 3. To make this pivoted connection rigid when in use, or in the position shown in Fig. 1, I preferably use locking or thumb screws 16, 16 which are adapted to take into the rails 7, 7 (Figs. 1, 2 and 3) but can be readily disconnected from the rails 7, 7 when it is desired to fold or knockdown the elevator preparatory to storing it away.

The auxiliary frame 6 is formed of two members 17, 17 held apart by a rod 8 or similar member. The ends 18, 18 of the members 17, 17 are pivoted to the lower ends of the rails 7, 7 by means of a rod 19 passing through the respective ends of the rails and members 17, the rod being held in position by means of nuts 20, 20, Fig. 2.

On the opposite ends of the members 17, 17 I mount bosses 21 and 22, in which is mounted the axle or arbor 23 of a reel or drum 24. On the boss 21 I pivot a pawl 25 to cooperate with a ratchet 26 which is mounted on and rotates with the axle 23 on which the reel or drum 24 is also fast. On the other end of the axle 23 I mount a crank 27 provided with a handle 28. The reel 24 may be of any construction. As shown it is of skeleton form having end plates 29, 29 connected by slats 30, 30.

On one of the slats 30 I connect a rope or cable 31 passing the other end under a pulley or sheave 32 mounted on the rod 19, thence over a pulley or sheave 33, mounted between collars 34, 34 on a pipe or hollow axle 35 through which passes the rod 36,

and thence into engagement with the car or truck 37. This truck or car 37 may be of any suitable construction. As shown it consists of a platform or body 38 from which extends downwardly two pair of standards 39, 39 and 40, 40, the latter being shorter than the former to permit the platform 38 to be on a substantially horizontal plane throughout its travel. Connecting the standards 39, 39 is an axle 41 and a similar axle 42 connects the standards 40, 40. On each axle is mounted a pair of flanged wheels 43, 43 which travel on the rails 7, 7. The free end of the rope or cable 31 is preferably provided with a hook 44 to detachably engage the truck or car 37, as by hooking over the axle 41, Fig. 1. It is obvious that any object as for example the can or receptacle 45 placed on the car 37 will be raised or lowered by turning the crank 27 and winding or unwinding the cable or rope 31.

To keep the main and auxiliary frames properly spaced apart in their operative position I use braces 46 and 47 pivoted respectively to the auxiliary and main frames and to each other, Figs. 6, 7, and 8. On one of the braces for instance 47, I preferably form an arm 48 to take into a recess 49 in the cooperating brace 46, Figs. 7 and 8.

In some instances it may be desirable to support the main frame intermediate its ends. In such cases a support 50, Fig. 5 may be used. This support comprises a member 51 hinged to the rails 7 and provided with teeth 52 to cooperate with similar teeth 52 in an extensible member 53, a bolt or screw 54 being used to secure the members together in their adjusted position. It is to be understood, however, that my invention is not to be confined to using supports of this or any other type.

Preferably, though not necessarily, I protect the pulleys or sheaves, 32 and 33 from coming in contact with any object on either level. I accomplish this by forming extensions or fingers 55 on the upper portion of the main frame and somewhat similar extensions or feet 56 on the lower portion of the main frame.

It is to be understood that my elevator may be used without either fingers or feet or with either or both of said elements.

In some cases it may be desirable to form a pit 57 (see Fig. 1) to receive the ends of the main and auxiliary frames, the pit being normally closed by means of a cover 58. By such a construction the platform 38 of the car or truck 37 would then be on the same elevation as level 1. This pit, however, is not essential as the platform 38 of the car is, in its lowest position, Fig. 1, only slightly raised above the level 1 so that the can 45 or other object can be readily tilted and forced on the car.

After using the elevator and preparatory

to storing it for future use, it is only necessary to unhook the hook 44, remove the car 37, break the braces 46 and 47, fold the auxiliary frame 6 onto the main frame 7 and
5 remove it. It is formed of very light materials and being of skeleton form it is easily handled. If a form of my invention comprising the hinge in the main frame 7 is
10 used then, in addition to the steps above mentioned, the main frame is folded upon itself after loosening the thumb screws 16, 16.

It is also to be understood, of course, that when used to get an object up the ordinary
15 steps, the elevator, due to its width, only partly encumbers the steps and does not prevent them being used by persons going in or out of the building.

Having thus described this invention in
20 connection with an illustrative embodiment thereof to the details of which I do not desire to be limited, what is claimed as new and what it is desired to secure by Letters Patent is set forth in the appended claims:

25 1. A portable knockdown elevator comprising a main adjustable frame, one or more fingers mounted at one end of the main frame, one or more feet mounted at the other end of the main frame, the sides of the
30 main frame adapted to act as rails for the wheels of a car or truck, a car or truck provided with wheels to run on the sides of the main frame, an auxiliary frame pivoted to the main frame, a reel on the auxiliary
35 frame, idlers on the main frame, a rope or cable connected to the car or truck and passing over the idlers and the reel, and pivoted

braces connected respectively to the main and auxiliary frames and adapted to hold
40 and lock the auxiliary and main frames apart while in operative position.

2. A knockdown elevator comprising a pivoted main frame the sides of which are adapted to act as rails for a truck or car, an
45 auxiliary frame, pivoted means to connect the main and auxiliary frames, pivoted braces secured respectively to the main and auxiliary frames, said braces being provided with a cooperating arm and a recess to receive the arm to brace and lock the main
50 and auxiliary frames apart, a truck or car provided with wheels to run on the pivoted main frame, and means to move the car or truck.

3. A knockdown elevator comprising a
55 pivoted main frame the sides of which are adapted to act as rails for a truck or car, an auxiliary frame pivoted to the lower end of the main frame to permit the auxiliary frame and operating means for the car or
60 truck to be located in the areaway, pivoted braces secured respectively to the main and auxiliary frames, said braces being provided with a cooperating arm and a recess to receive the arm to brace and lock the main and
65 auxiliary frames apart, a truck or car provided with wheels to run on the pivoted main frame, and means to move the car or truck.

CARL O. LILJEROS.

Witnesses:

GEO. F. SCHMIDT,
CHAS. C. CARLSON.