July 19, 1932. J. HIRSHFELD 1,867,568

DUMB WAITER AND DUMB WAITER INCLOSURE UNIT

Filed March 20, 1928 3 Sheets-Sheet 1

Fig. 1.

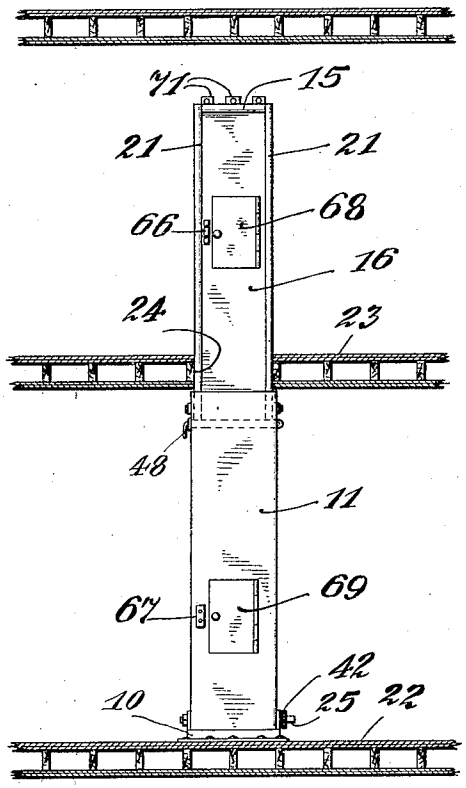


Fig. 2.

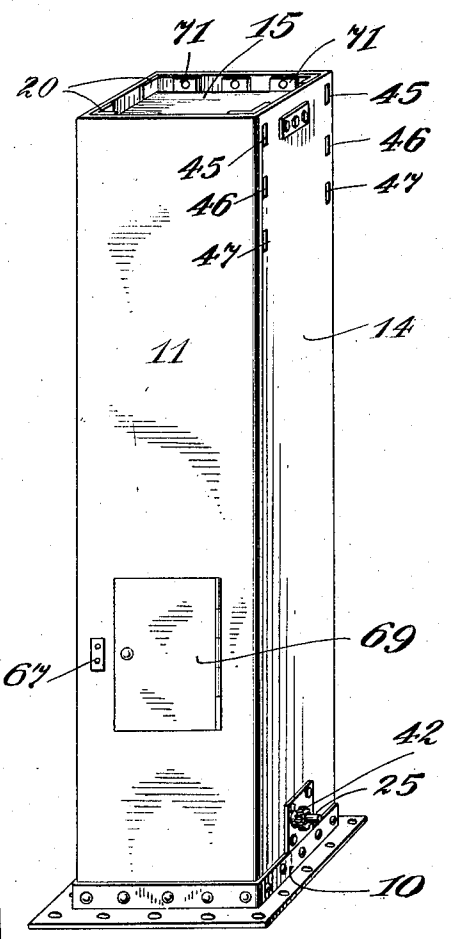
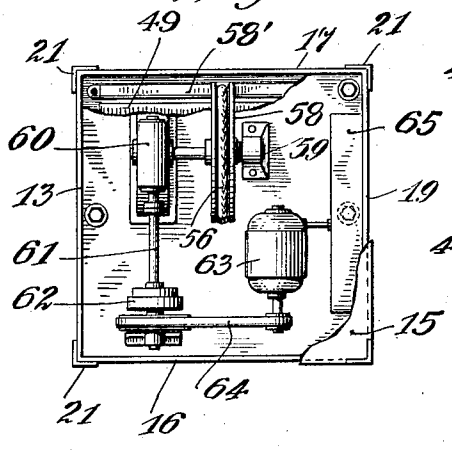


Fig. 3.



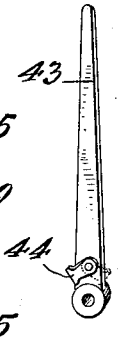


Fig. 9.

Inventor
Jerome Hirshfeld

By his Attorneys

July 19, 1932. J. HIRSHFELD 1,867,568

DUMB WAITER AND DUMB WAITER INCLOSURE UNIT

Filed March 20, 1928 3 Sheets-Sheet 2

Fig. 4.

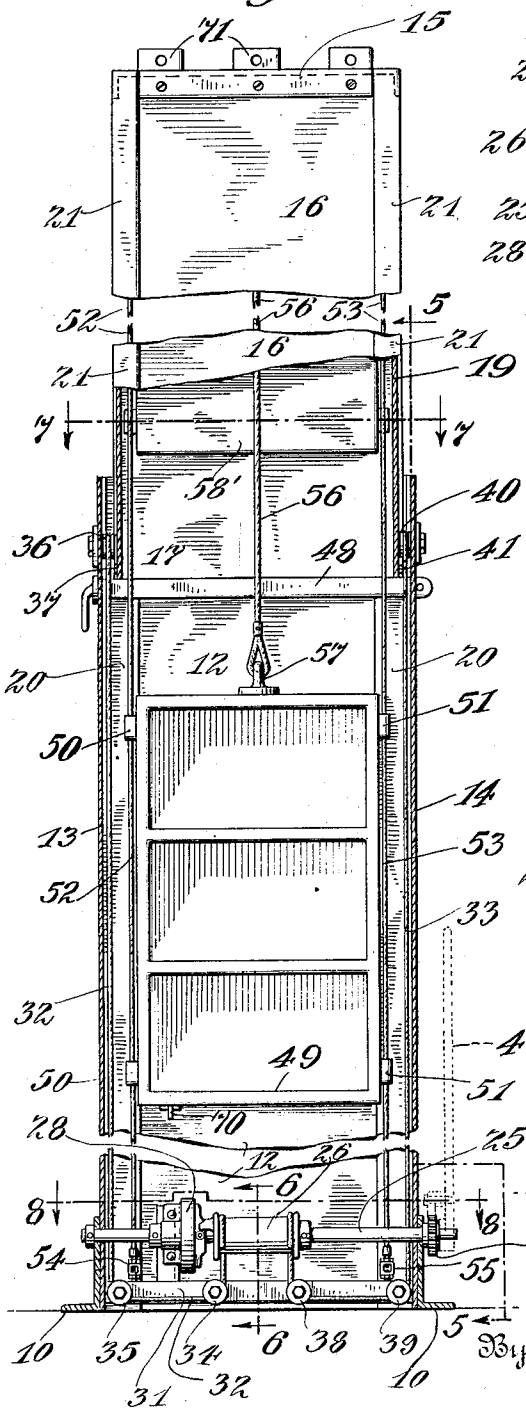


Fig. 6.

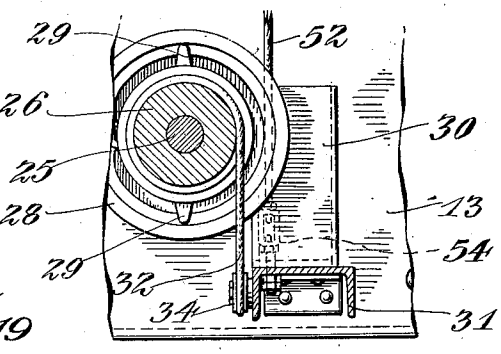
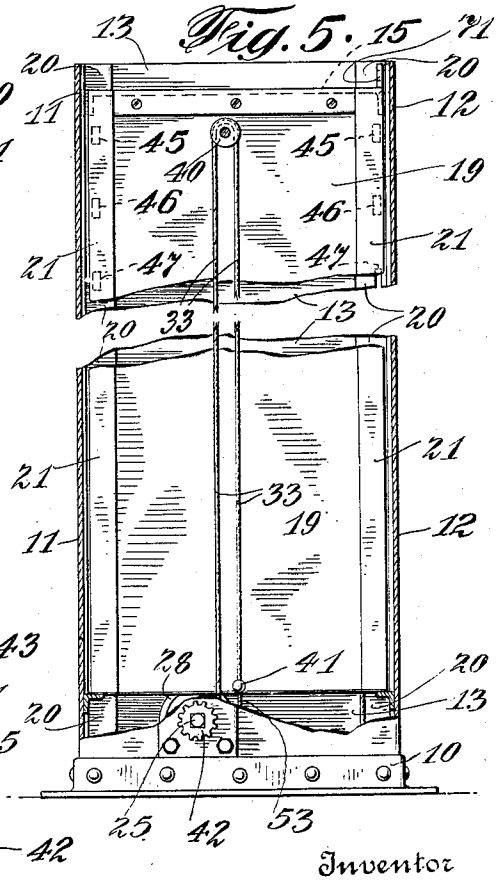


Fig. 5.



Inventor
Jerome Hirshfeld
By his Attorneys

July 19, 1932. J. HIRSHFELD 1,867,568

DUMB WAITER AND DUMB WAITER INCLOSURE UNIT

Filed March 20, 1928 3 Sheets-Sheet 3

Fig. 7.

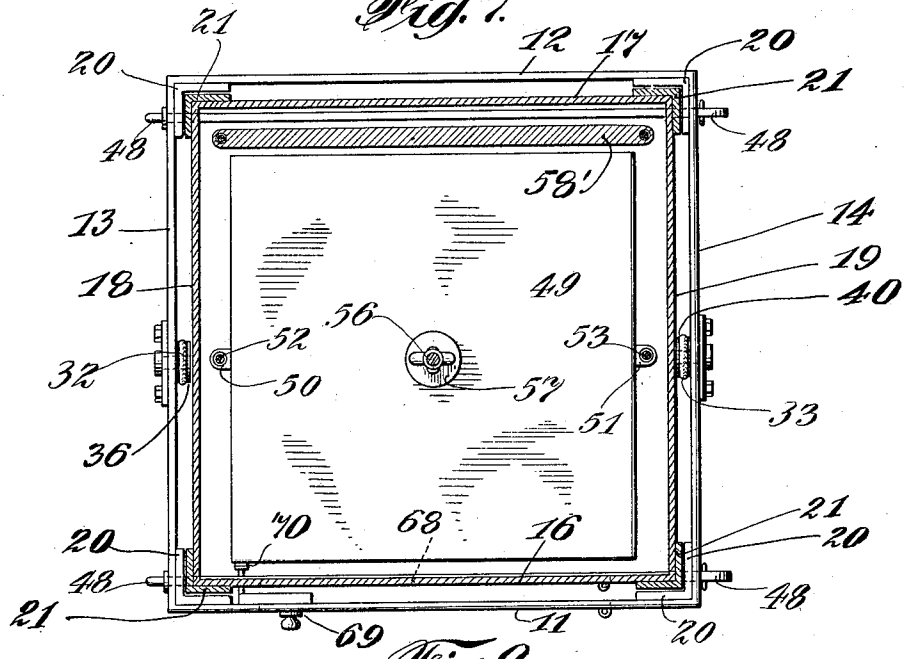
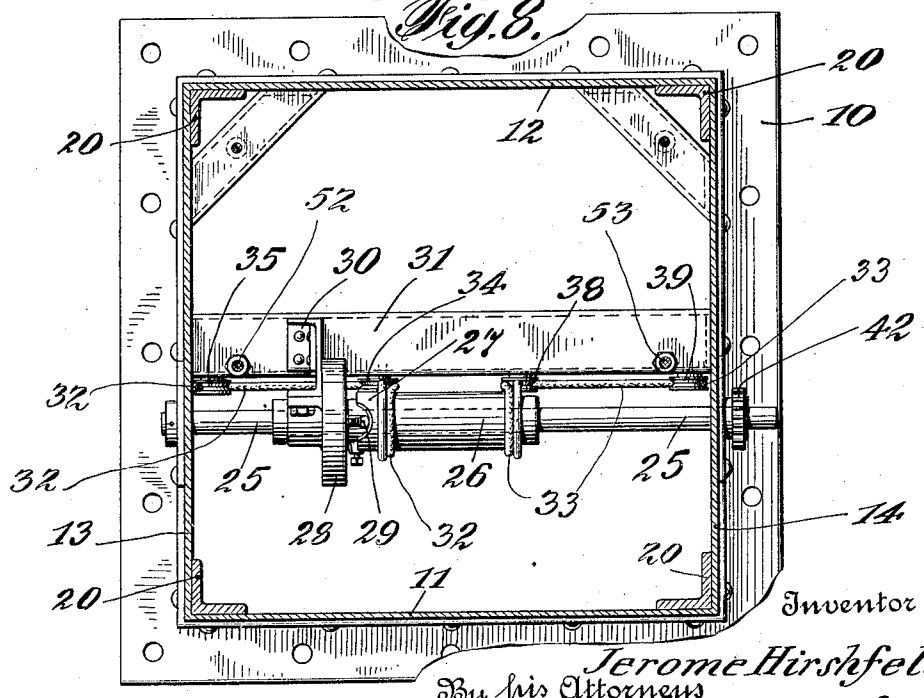


Fig. 8.



Inventor

Jerome Hirshfeld

By his Attorneys

Lemuel Fox

BEST AVAILABLE COF

Patented July 19, 1932 1,867,568

UNITED STATES PATENT OFFICE

JEROME HIRSHFELD, OF NEW YORK, N. Y., ASSIGNOR TO TELEVATOR CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

DUMB-WAITER AND DUMB-WAITER INCLOSURE UNIT

Application filed March 20, 1928. Serial No. 263,158.

My present invention relates generally to a dumb-waiter shaft or well defining structure adaptable for installation in a building as a single independent unit and coordinately relates to a unit or assembly comprising a dumb-waiter well or shaft defining structure and a dumb-waiter contained and supported therein in operative association therewith, for transportation, installation and removal as a unit.

Where it is desired to construct or install an enclosed dumb-waiter particularly in an already completed building, a great deal of construction work is generally involved, necessitating the employment of special labor, the selection of parts and materials for the construction of the shaft in which the dumb-waiter is to be received, the assembly of parts to form the dumb-waiter and its operating mechanism, and the installation thereof in the well so provided. Furthermore, where such a construction is installed, it becomes in fact a fixed part of the building with which it is associated so that neither the dimensions of the dumb-waiter shaft nor its position can be changed or varied without requiring demolition and construction work in connection with the building, knocking down of the dumb-waiter and reassembling of the parts.

It is an object of my invention to provide a dumb-waiter inclosing shaft defining construction which can be transported and installed in a building as a unit separate and apart from the building, and which when installed can function in connection with the building as if it were originally installed therein as a structural part thereof, but which nevertheless readily permits of its being shifted from one part of the building to another or of its complete removal as a unit and without requiring any demolition of said unit or of any part of the building.

Another object of my present invention is the provision of a portable inclosure to serve for defining a shaft or well for receiving a dumb-waiter and which shaft or well can be transported as a unit for purposes of installation in a building, and which inclosure can be so dimensioned for purpose of transportation and preliminary installation as to be receivable between a floor and the ceiling immediately above, and which when so received on the floor can then be extended upwardly through an opening in the ceiling so as to provide a well or shaft reaching from one floor to a floor or floors there above.

Another object of my invention is a provision of an assembly independent of a building which comprises a well or shaft inclosure for a dumb-waiter, of a dumb-waiter so associated therewith as to form therewith a single unit for purpose of transportation, installation and use.

Another object of my invention is the provision of a portable assembly unit comprising a dumb-waiter shaft defining inclosure and a dumb-waiter received therein and supported therefrom for dumb-waiter operation, wherein the dumb-waiter shaft inclosure can be lengthened or shortened without disassociating or affecting the relationship of the dumb-waiter shaft inclosure and the dumb-waiter which it receives within it and which it supports for operation.

Another object of my invention is the provision of a dumb-waiter and a dumb-waiter shaft forming unit assembly in which the shaft inclosure for the dumb-waiter may be so dimensioned for purpose of transportation as to be receivable between the floor and ceiling of one story of a building and when so received can be extended so as to permit the shaft inclosure to extend through an opening in the ceiling to another floor without affecting the operative associations of the dumb-waiter with reference to the inclosure within which it is received and from which it is supported.

Another object of my invention is the provision of an assembly independent of a building of a well or shaft forming structure serving as a dumb-waiter inclosure, a dumb-waiter received therein for operative support thereby and an operating mechanism also received therein for dumb-waiter operation, all as one unit for transportation and installation and dumb-waiter operation purposes.

In the embodiment of my invention herein disclosed, I have illustrated my shaft defin-

BEST AVAILABLE COPY

ing structure as made up of a plurality of telescoping sections so as to permit collapsing of telescopic sections. For purpose of transportation and convenience in handling, the sections are held collapsed, and for purpose of dumb-waiter operation the sections are held extended.

It is one of the objects of my invention to provide as part of the extensible and collapsible well defining unit, mechanism whereby the sections can be collapsed and telescoped at will.

It is the general object of my present invention to provide as a unit assembled independently of and for installation in a building as a unit, a dumb-waiter or conveyor and an inclosure therefor so that the installation of the dumb-waiter or conveyor requires nothing more than the transportation of the unit to its position in the building and the location and the fixing of this unit in such a position.

While reference is frequently made to the fact that my invention is particularly useful in connection with buildings already completed, it will be understood, of course, that it will serve useful functions in connection with building in process of construction, and that in the latter event my unit assembly on one hand will give the appearance of being a part of the building construction and on the other hand will be shiftable therein and removable therein as a unit without in any way effecting or impairing or requiring any change in the building construction.

For the attainment of these objects and such other objects as may hereinafter appear and be pointed out, I have illustrated one embodiment of my invention in the drawings, wherein—

Figure 1 is an elevational view of an embodiment of my invention showing an inclosure for a dumb-waiter in operative position in a building;

Figure 2 is a perspective view of the shaft in transportable telescoped position;

Figure 3 is a plan view showing the dumb-waiter operating apparatus;

Figure 4 is a vertical view of the shaft or inclosure of Figure 1 with its front partly broken away to show the manner in which the dumb-waiter is supported therein.

Fig. 5 is a sectional elevation on line 5—5, Fig. 4,

Fig. 6 is an enlarged section on line 6—6, Fig. 4,

Fig. 7 is an enlarged section on line 7—7, Fig. 4,

Fig. 8 is an enlarged section on line 8—8, Fig. 4, and

Fig. 9 is a perspective view illustrating a handle for operating the mechanism for raising and lowering the sections of the dumb-waiter casing.

Before I describe my invention in detail, I will premise that I have illustrated in the drawings a unit which comprises (1) a casing or well to inclose a dumb-waiter and which is made up of telescoping sections so that it can be collapsed for purpose of transportation and installation and can be extended for dumb-waiter operation; (2) mechanism within and forming part of said unit for extending and collapsing the dumb-waiter shaft sections; (3) the association with a dumb-waiter shaft inclosure of dumb-waiter parts associated therewith in operable relation; (4) motor-mechanism for operating the dumb-waiter parts.

In Figure 2 of the drawings, I have illustrated a shaft or inclosure for a dumb-waiter in collapsed transportable condition, and in Figure 1 have illustrated my inclosure installed in a building and extended so as to form a shaft reaching from one floor to another. In the illustrated embodiment, the inclosure comprises telescoping parts or sections for use in connection with a dumb-waiter for raising and lowering articles from one floor to another in a building, although, as will be understood, the invention is not limited to the number of sections which may be employed or to the number of floors in the building in which the dumb-waiter may be designed to serve. For the purposes of illustration the outer section of the dumb-waiter casing may be constructed to include a base 10 and walls 11 and 12 which are the front and rear walls, together with walls 13 and 14 which are the side walls.

The inner section, as illustrated, includes a top or cover 15, front and rear walls 16 and 17 and side walls 18 and 19. These parts of the casing are preferably made of suitable metal although, as will be understood, they may be made of any desirable material. The sections of the dumb-waiter casing are preferably rectangular and square in cross-section although, as will be understood, the invention is not limited to this formation. In the upright corners between the walls of the outer section I prefer to employ angles 20 and similarly on the outer side of the upright corners of the inner section to employ angles 21. These parts are so constructed that the inner section is adapted to fit within the outer section and to be moved to and from position for use with the angles 20 acting as guides for the angles 21.

In Fig. 1 two floors of a building are diagrammatically illustrated at 22 and 23 and the upper floor 23 is provided with an opening 24 which is of substantially the same area as the cross-section of the inner or upper section of the dumb-waiter casing. It will be understood that the length, that is, the height, of the outer section of the dumb-waiter casing is substantially that of the ceiling in the room or place in the building where the dumb-waiter is to be installed although it may be

BEST AVAILABLE COPY

appreciably less than the height of this ceiling so that with the sections of the dumb-waiter apparatus in their nested positions they may be readily placed in position in the building and the inner section raised so as to pass through the opening in the floor whereby this inner section extends to the floor above making it possible to use the dumb-waiter for its intended purposes.

In order to permit the shaft or well forming structure of Figures 1 and 2 to perform its functions in connection with the dumb-waiter parts contained therein as will be more fully set forth later on, each of the sections is provided with an opening for access to the dumb-waiter. These openings are closed by the doors 68 and 69 shown in the drawings as mounted to swinging horizontally. The doors 68 and 69 are positioned such a distance above the floors 22 and 23 as to permit convenient access thereto by a person standing on these floors.

The portable dumb-waiter shaft of Figures 1 and 2 has associated therewith as a unitary part of the shaft assembly, suitable apparatus for conveniently raising and lowering the nested upper section of the casing and for maintaining this section in raised position, and I have found that the location of this apparatus in the space between the bottom of the door 69 and the bottom of the lower floor section of the casing serves advantageously from a number of standpoints.

To this end the lower section of the casing is fitted with a shaft 25 on which there is mounted a drum 26. This drum 26 at one end thereof is fitted with a socket 27 forming part of a friction brake 28 which includes studs 29 co-operating with the socket 27 in such a manner as to normally maintain the shaft 25 against revoluble movement. The brake device 28 may be mounted on a bracket 30 connected to a channel or other support 31 extending across the base of the outer section of the casing. This raising and lowering mechanism also includes suitable cables 32 and 33. At corresponding ends these cables are wound on the drum 26. The cable 32 passes over a pulley 34 and also over a pulley 35, these pulleys being suitably mounted on the cross-channel 31 or otherwise. The cable then extends upwardly between the walls 13 and 18 and over a pulley 36 suitably mounted on the inner face of the wall 13. The opposite end of this cable 32 is then connected to a stud 37 fixed in the lower outer portion of the wall 18 of the inner section of the casing.

In the same manner the cable 33 passes over pulleys 38 and 39 suitably mounted in the cross-channel 31 and then passes between the walls 14 and 19 and over a pulley 40 mounted on the wall 14, the opposite end of this cable being connected to a stud 41 which is fixed in the lower outer portion of the wall 19 of the inner section of the casing.

On the shaft 25 exteriorly of the casing I preferably employ a pinion 42. In order to turn the shaft 25 the apparatus may include a suitable handle 43 adapted at one end to fit over the protruding end of the shaft 25 and fitted with a pawl or dog 44 for engagement with the teeth of the pinion 42 whereby, as will now be understood, the shaft 25 may be turned in one direction to raise the inner section of the casing from its nested or telescoped position within the outer section of the casing to its position for use, that is, the inner section may be moved from the position in which it is illustrated in Fig. 2 to that in which it is illustrated in Figs. 1 and 4. The brake is so constructed as to include an expansion ring locking device by which when raised the inner section of the casing may be retained in position. This locking device per se, however, forms no part of my invention. Obviously also, by releasing the brake the shaft is permitted to turn in the opposite direction the inner or upper section of the casing may be thus lowered to its nested position within the outer section of the casing. In order to relieve the brake device 28 from supporting the inner section when extended for use the side walls of the outer section may be provided with a series of slots 45, 46 and 47 placed adjacent the upper end thereof and adapted to receive support bars 48. It will be apparent that a set of support bars may be employed with either set of slots depending upon the extent to which the inner section of the casing is raised and that when in use the lower end of the inner section rests upon these support bars and is thereby maintained in place when the dumb-waiter is installed.

From the description thus far given, it will be understood that my invention contemplates a unit assembled independently of a building of parts which, when in nested relation, permits the unit to be transported from place to place as a unit and which when extended permits the assembly to extend from one floor to another to serve to enclose the shaft or well for a dumb-waiter and which assembly includes openings necessary in connection with a dumb-waiter operation and also mechanism for extending and collapsing the assembly and for keeping it in either such position.

My invention further contemplates the inclusion as unitary elements of such assembly of dumb-waiter parts already positioned in their operative relationship to the well within which they are to function for dumb-waiter purposes. I will now describe the dumb-waiter parts and their relationship to the rest of the portable assembly.

The dumb-waiter parts include the car 49 which may be of any desired type and in suitable positions in the side walls thereof the

BEST AVAILABLE COP

car is provided with lugs 50 and 51. Passing through these lugs 50 and 51 there are guide ropes 52 and 53. At their lower ends the guide ropes 52 and 53 are connected respectively to turn buckles 54 and 55 suitably secured to the cross channel member 31 or otherwise. At their upper ends these guide ropes are suitably connected to the cover or upper end of the inner section of the casing. It will be understood, of course, that when the parts of the casing are extended for use the turn buckles 54 and 55 may be adjusted so as to place the necessary tension on the guide ropes 52 and 53.

The car 49 is raised and lowered by means of a cable, a counter weight, and means for actuating the same. The cable is indicated at 56. At one end this cable is secured in an eye 57 fixed to the upper or top part of the car 49. The cable passes over a pulley 58 and at its opposite end is connected to a counter weight 58', the travel of which may be directed by any suitable means. The pulley 58 is mounted on a shaft 59 journaled in suitable bearings and connected to a set of reduction gears 60. These reduction gears 60 are connected to a shaft 61 on which there is a brake device 62, the shaft 61 being driven from a motor 63 by a suitable belt 64 or otherwise. The parts, as will be understood, that is, the pulley, the reduction gears, the motor and the parts connecting the same, are suitably mounted at the upper end of the inner section of the casing.

The motor may be operated from a suitable control panel 65 by the operation of push buttons 66 and 67 or otherwise. The push buttons 66 are located adjacent the door 68 in the front wall of the inner casing while the push-buttons 67 are similarly located relatively to the door 69 in the outer or lower section of the casing. The arrangement may be such that the car carries a trip 70 for operating a lock by means of which the doors 68 and 69 are closed and locked and cannot be opened except when the car is in position at the door. These devices, however, for operating the car and locking the doors are old in the art and consequently per se form no part of my present invention.

As shown in Figs. 1 and 4 of the drawings the top of the inner section of the casing may be provided with one or more lugs 71 by means of which the parts when in position may be secured in place by being connected to a wall.

From the foregoing description it will now be understood that the dumb-waiter unit made in accordance with my invention is constructed as a self-contained apparatus which may be set up for use in substantially any place in any building either by providing an aperture in the floor and ceiling therefor in constructing a new building or by making such an aperture in an old building; that the apparatus when installed is not a permanent fixture but may be removed and set up in another building at the will of the user: and also that the construction is relatively simple and may be easily installed and as readily removed by unskilled labor.

It will also be understood that while the apparatus as shown and described is power driven the same may be driven manually or in any other manner, and furthermore, that the apparatus is as much adapted for use in elevator practice as it is in that of dumb-waiter practice.

I claim as my invention:

1. In a dumbwaiter apparatus, an outer closed casing, an inner closed casing adapted to fit within the outer casing and to form therewith a dumb-waiter enclosure, means for moving the inner casing out of the outer casing to a position for use, devices independent of the aforesaid means for supporting the inner casing when in its extended position for use, a car, means for moving the car in the inner and outer casings when extended, guide ropes connected to said casings for directing the travel of the car, said ropes being slack when the inner casing is within the outer casing and straight when the inner casing is moved out of the outer casing, all of said parts forming a unitary assembly for installation in the building as such.

2. In a dumbwaiter apparatus, an outer casing adapted to extend between the floor and ceiling, an inner casing adapted to fit within the outer casing and to be moved therefrom through an opening in the ceiling and floor of the room above to extend into the room above, means for moving the inner casing out of the outer casing to its position for use, devices independent of the aforesaid means for supporting the inner casing when in its position for use, a car movable from the inner and outer casings when in its position for use, guide devices connected to said casings for directing the travel of the car, said devices being collapsed when the inner casing is within the outer casing and extended when the inner casing is moved out of the outer casing, all of said parts forming a unitary assembly for installation in the building as such.

3. In a dumbwaiter apparatus, an outer casing adapted to extend between a floor and ceiling, an inner casing adapted to fit within the outer casing, a drum mounted in the outer casing, sets of cables passing around the drum and connected to the inner casing whereby in the operation of the drum the inner casing is moved from the outer casing through an opening in the ceiling and floor of an upper room to a position in the upper room, a car movable through the inner and outer casings when extended, means for actuating the car, guide ropes connected to said casings for directing the travel of the car,

BEST AVAILABLE COPY

said guide ropes being slack when the inner casing is in position within the outer casing and drawn substantially straight when the inner casing is moved out of the outer casing, all of said parts forming a unitary assembly for installation in the building as such.

4. In a dumbwaiter apparatus, an outer casing adapted to extend between a floor and ceiling, an inner casing adapted to fit within the outer casing, a drum mounted in the outer casing, sets of cables passing around the drum and connected to the inner casing whereby in the operation of the drum the inner casing is moved from the outer casing and through an opening in the ceiling and floor of an upper room to position in the upper room, a car movable through the said inner and outer casings when extended, a pulley, a counter weight, a cable connected at one end to the car, passing over the pulley and connected at the other end to the counter weight, means for operating the pulley to raise and lower the car, guide ropes connected to said casings for directing the travel of the car, said guide ropes being slack when the inner casing is in the outer casing and which are drawn substantially straight when the inner casing is moved out of the outer casing, all of said parts forming a unitary assembly for installation in the building as such.

5. In a dumb-water apparatus, an outer casing adapted to extend between the floor and ceiling, an inner casing adapted to fit within the outer casing and to be moved therefrom through an opening in the ceiling and floor of the room above, to extend into the room above, means for moving the inner casing out of the outer casing to its position for use, devices independent of the aforesaid means for supporting the inner casing when in its position for use, a car movable from the inner and outer casings when in its position for use, guide devices connected to said casings for directing the travel of the car, said device being collapsed when the inner casing is within the outer casing and extended when the inner casing is moved out of the outer casing, all of said parts forming a unitary assembly for installation in a building as such and means for tensioning said guide devices.

Signed by me this 7th day of March, 1928.

JEROME HIRSHFELD.