

No. 633,215.

Patented Sept. 19, 1899.

N. POULSON.

ELEVATOR.

(Application filed Nov. 20, 1897.)

(No Model.)

2 Sheets—Sheet 1.

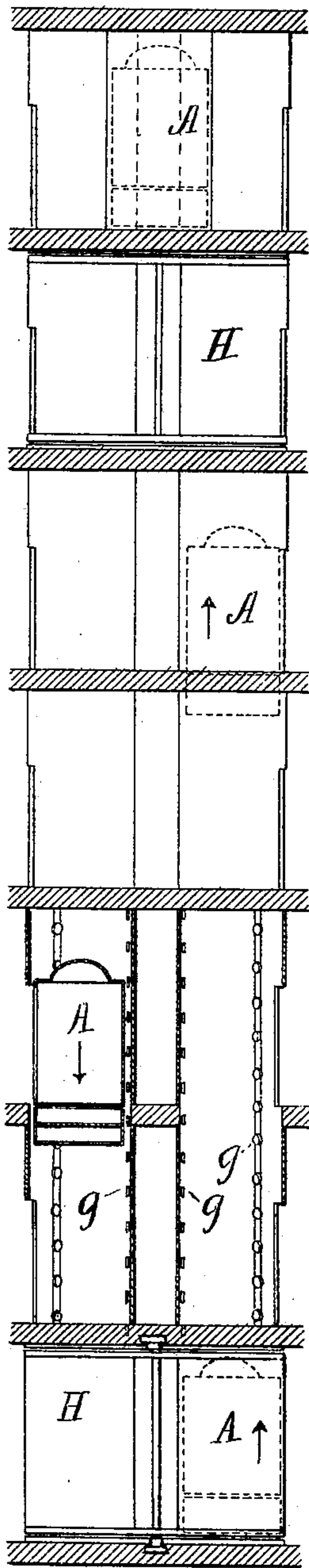


Fig. 1.

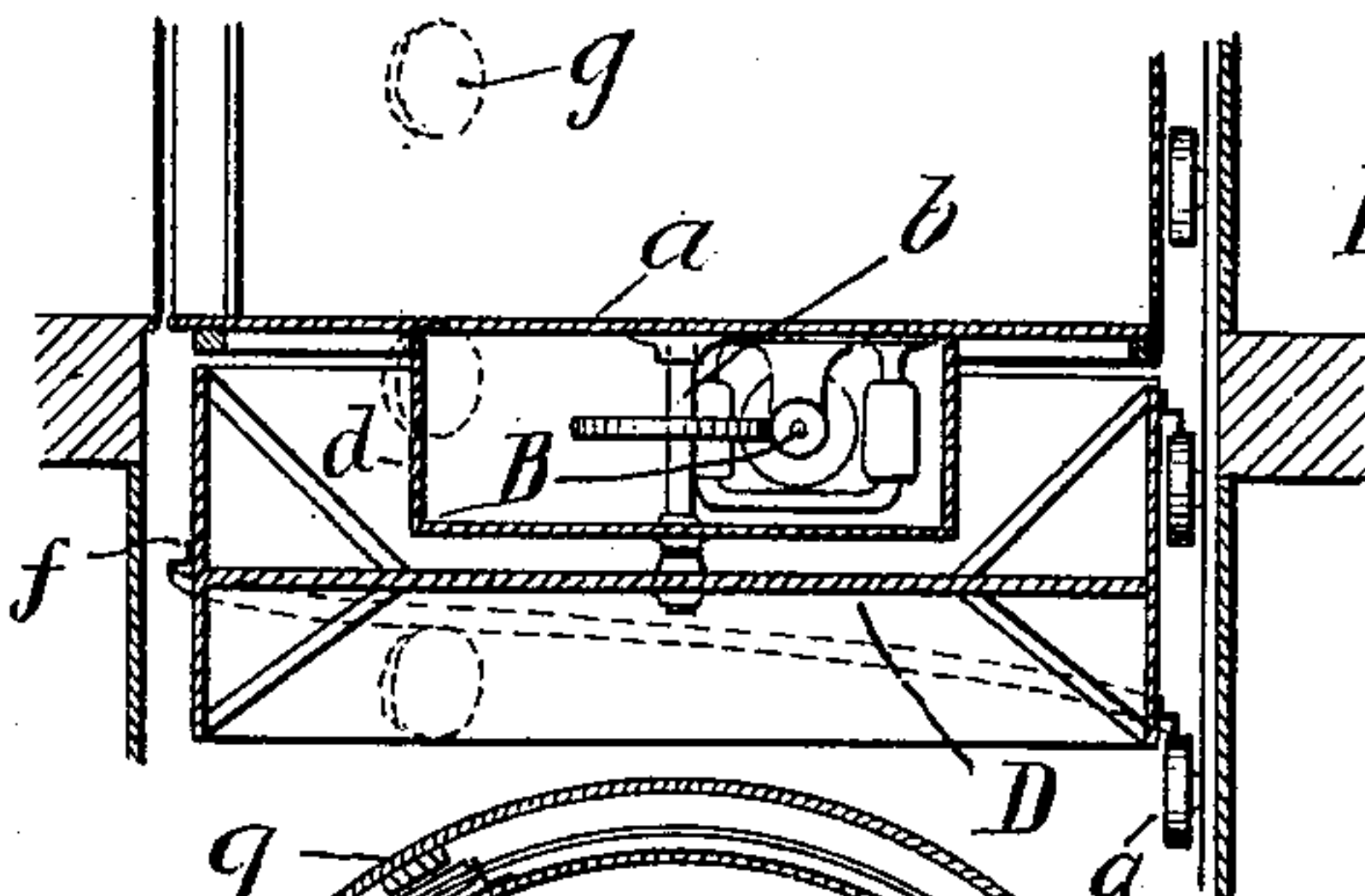


Fig. 2.

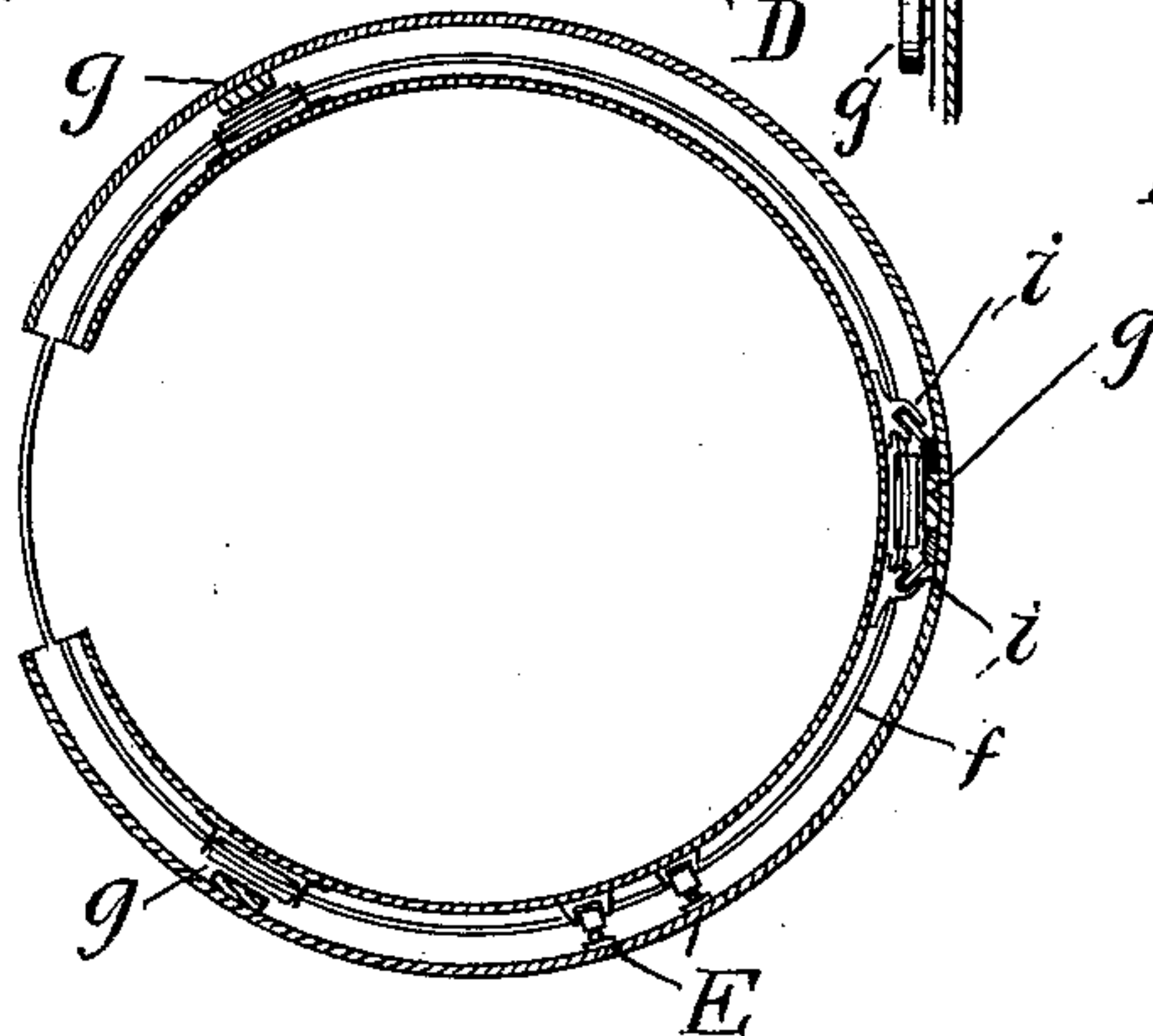


Fig. 3.

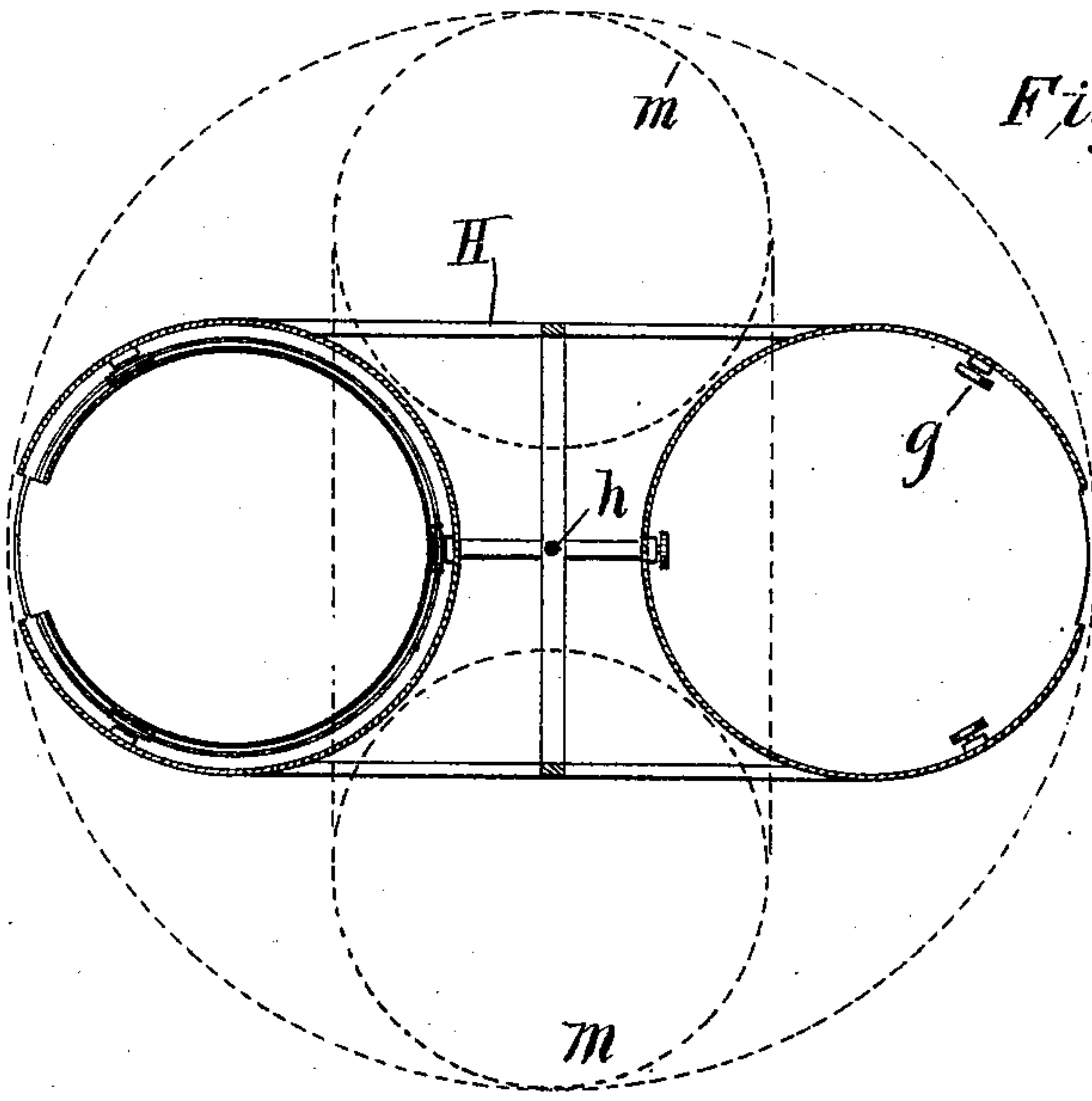


Fig. 4.

WITNESSES:

C. L. Belcher
Wm. H. Capel.

INVENTOR

Niels Poulson

BY

H. Townsend

ATTORNEY

No. 633,215.

Patented Sept. 19, 1899.

N. POULSON.

ELEVATOR.

(Application filed Nov. 20, 1897.)

2 Sheets—Sheet 2.

(No Model.)

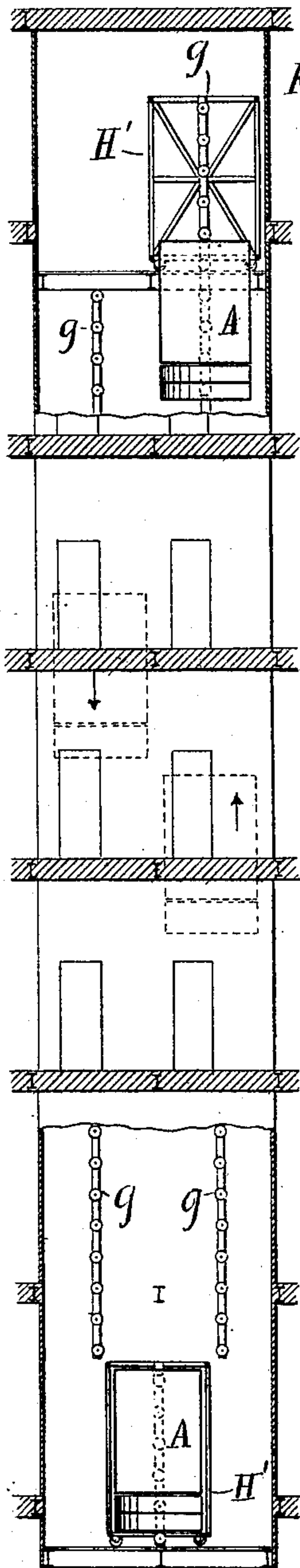


Fig. 5.

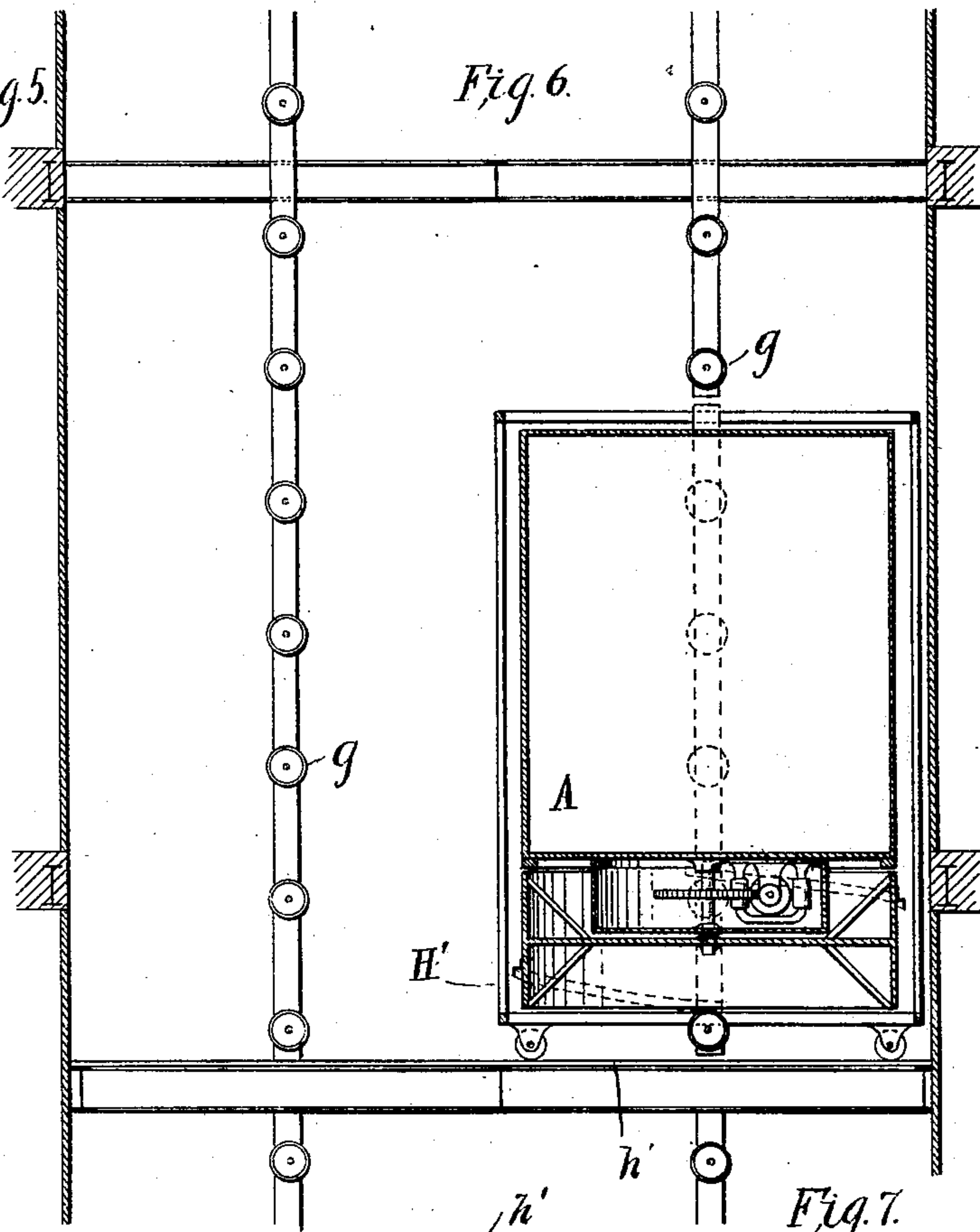


Fig. 6.

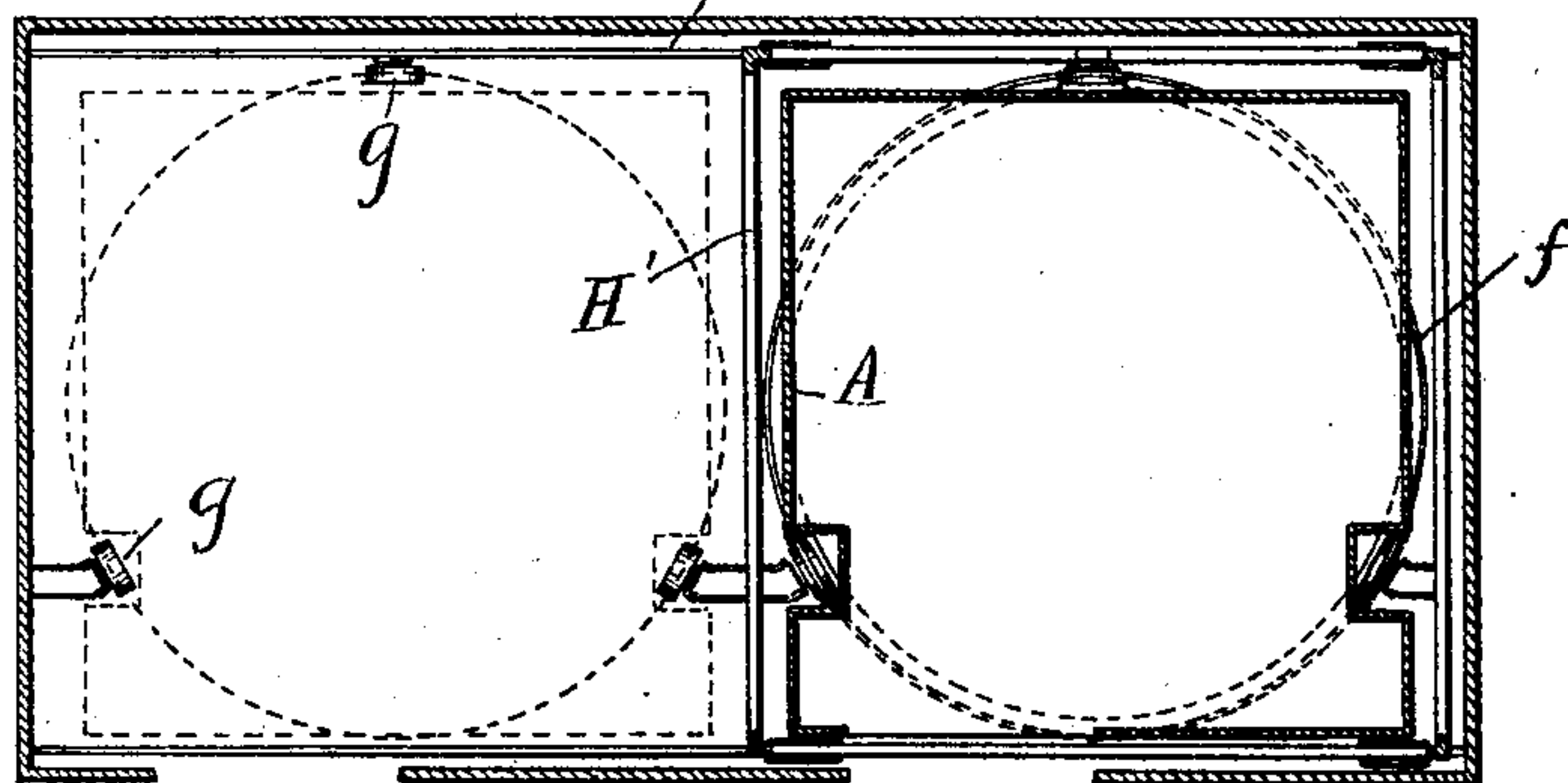


Fig. 7.

WITNESSES:

C. L. Belcher
Wm. H. Capel.

INVENTOR

Niels Poulson

BY

H. H. Townsend

ATTORNEY

UNITED STATES PATENT OFFICE.

NIELS POULSON, OF NEW YORK, N. Y.,

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 633,215, dated September 19, 1899.

Application filed November 20, 1897. Serial No. 659,252. (No model.)

To all whom it may concern:

Be it known that I, NIELS POULSON, a citizen of the United States, and a resident of New York, (Brooklyn,) in the county of Kings and State of New York, have invented a certain new and useful Improvement in Elevators, of which the following is a specification.

My invention relates to elevator apparatus, and more particularly to apparatus designed for passenger or similar service in office or other buildings or structures where the traffic is heavy and economy of space is desirable.

My invention relates to a system wherein two elevator wells or shafts are employed and are interconnected at top and bottom to permit the elevator-cars to be shifted from one to the other and back again, and the elevator-cars move in endless series in the wells, upwardly in one well and downwardly in the other, and are provided with suitable operating mechanism whereby each may be stopped and moved independently of the other.

My invention relates more particularly to the means for shifting the cars or lifts from the up to the down shaft at the top and from the down to the up shaft at the bottom and also to the means for storing the cars not in use.

The invention consists in the novel combinations and features hereinafter described, and specified in the claims.

The propelling or operating devices for the several cars may be of any desired kind which will permit each car to be run independently of the others.

I have shown my invention as carried out by the use of a single pair of elevator-wells, although, as will be well understood, a larger number may be employed. Ordinarily a single pair will provide the same services as a very much larger number operated under the old system.

In the accompanying drawings, Figure 1 illustrates my invention in skeleton elevation. Fig. 2 is a vertical section through the parts supporting and operating the car. Fig. 3 is a longitudinal section through a revolving support which carries the special rail by which the car is lifted. Fig. 4 is a plan illustrating the transfer-table and the provision that may be made for storing elevator-cars not in use. Fig. 5 is a skeleton elevation showing another

form of transfer-table. Fig. 6 is an enlarged detail elevation and section showing the elevator-car as carried on the transfer-table. Fig. 7 is a horizontal section through the transfer-table and the car therein.

A indicates the cars or lifts adapted to move in the two shafts in the direction of the arrows, any number of such cars being provided according to the service required and the height of the shafts. When the service required is light, a portion only of the cars are employed, the remainder being stored in extensions (lateral or vertical) from the said shafts. Two of the four elevators indicated are shown as in transit, one at the bottom as having been transferred from the down shaft to position for beginning its upward journey and the fourth as stored at the top of the building.

The propelling-motor for each car consists, preferably, of any suitable form of electric motor provided with the usual controlling devices and mounted on the car. The armature of such a motor (indicated at B) is geared by a screw and worm to a vertical shaft *b*, that serves to turn a frame or support D, connected to said shaft and supporting the elevator-car by its floor *a* through the intervention of the casing or frame *d* for the motor, which frame is secured to the floor. The motor receives electric current through wires or conductors in the side of the elevator-shaft and conductor-wheels on the car, as indicated at E, Fig. 3. The rotary support or propeller D is caused to climb or descend in the elevator shaft or well by a special track or rail and rolls or wheels engaging with said rail. The rails may be on the rotary support and the wheels or rolls in the side of the well, or vice versa, or other lifting mechanism or devices may be employed. In the present instance I show the rails secured to the rotary support D and the rolls or wheels in the well. The rails *f* are in one or more spirals of approximately one or more turns and are secured to the circumference of the frame or support D and in position to travel upon the several vertical series of rolls or wheels *g*, which are mounted on uprights in the side of the well, as indicated. Guide-rolls *i* on the car engage with the uprights, as indicated in Fig. 3. The rails

are conveniently made of angle-iron bent to shape and bolted to the frame D.

A transfer table or device (indicated at H H') is located at top and bottom of the two shafts in a connection between them. This may be a rotary table, the pivot of which is indicated at *h* in Fig. 4, or it may travel backward and forward on rails *h'*, as indicated in Figs. 6 and 7.

The element of the lifting mechanism consisting of the rolls *g* is continued on the transfer-table, as shown more clearly in Fig. 6, the supporting-upright for the rolls on said table being mounted thereon independently of that in the well. They are continued on the transfer table or device to a sufficient height or depth to permit the car to be moved into the same sufficiently to entirely clear the portion of shaft in which the fixed uprights are located and may extend vertically clear through the transfer-table, so that the car may be moved therefrom into the storage extension of the wells above or below the landing-floors for the elevator, such extensions being also provided with vertical series of rolls or wheels.

The storage-spaces may be in line with the shafts or wells, and other spaces out of alinement therewith, as indicated by the dotted lines in Fig. 4, may also be provided, the rotary transfer-table serving to move the elevator-cars into alinement with the same.

In Fig. 5 the elevator-car is shown as about to enter the transfer-table at the top of the two shafts, and at the bottom is shown in transit from one shaft to the other.

In the operation of the apparatus the cars are loaded in succession at the ground floor and proceed upward in one shaft as fast as loaded, dropping their passengers at the several floors, and descend by the other shaft, taking on passengers.

What I claim as my invention is—

1. The combination with an elevator-car and elevator-shaft, of devices on said car and devices on said elevator-shaft coacting to lift the car in the shaft, and a horizontally-movable transfer table or carriage at the top of said shaft and provided with devices which

are adapted to form a continuation of said devices on the elevator-shaft.

2. The combination of a pair of elevator shafts or wells adapted for a series of independent elevator-cars moving upwardly in one shaft and downwardly in the other, a horizontally-movable transfer-table between the shafts and storage-spaces and above the transfer-table and adapted to receive the elevator-cars, as and for the purpose described.

3. The combination with two elevator wells or shafts connected at top and bottom and adapted for a series of independently-operating elevator-cars moving in the same direction upwardly in one shaft and downwardly in the other, of a storage space or spaces also connected with said wells and provided with devices coacting with devices on the car to lift or lower the car in them.

4. The combination with an elevator well or shaft and the car traveling therein, of a lifting device comprised of two elements relatively movable and consisting of a spiral rail and a series of wheels, one of said elements being fixed in the wall of the shaft and the other being mounted on the car, a transfer-table carrying a continuation of the element in the well, and mechanism on the car for revolving the element on the car, as and for the purpose described.

5. The combination with the elevator-car, of an electric motor, the vertical shaft B, on the car carrying the frame or support D, provided with spiral rail *f*, the worm and screw gearing connecting the vertical shaft B, and the armature-shaft, a series of rolls or wheels *g*, mounted on uprights in the elevator-well, the transfer-table carrying uprights disconnected from those in the well, and similar rolls *g*, upon the transfer-table uprights, as and for the purpose described.

Signed at New York, in the county of New York and State of New York, this 19th day of November, A. D. 1897.

NIELS POULSON.

Witnesses:

WM. H. CAPEL,
DELBERT D. DECKER.