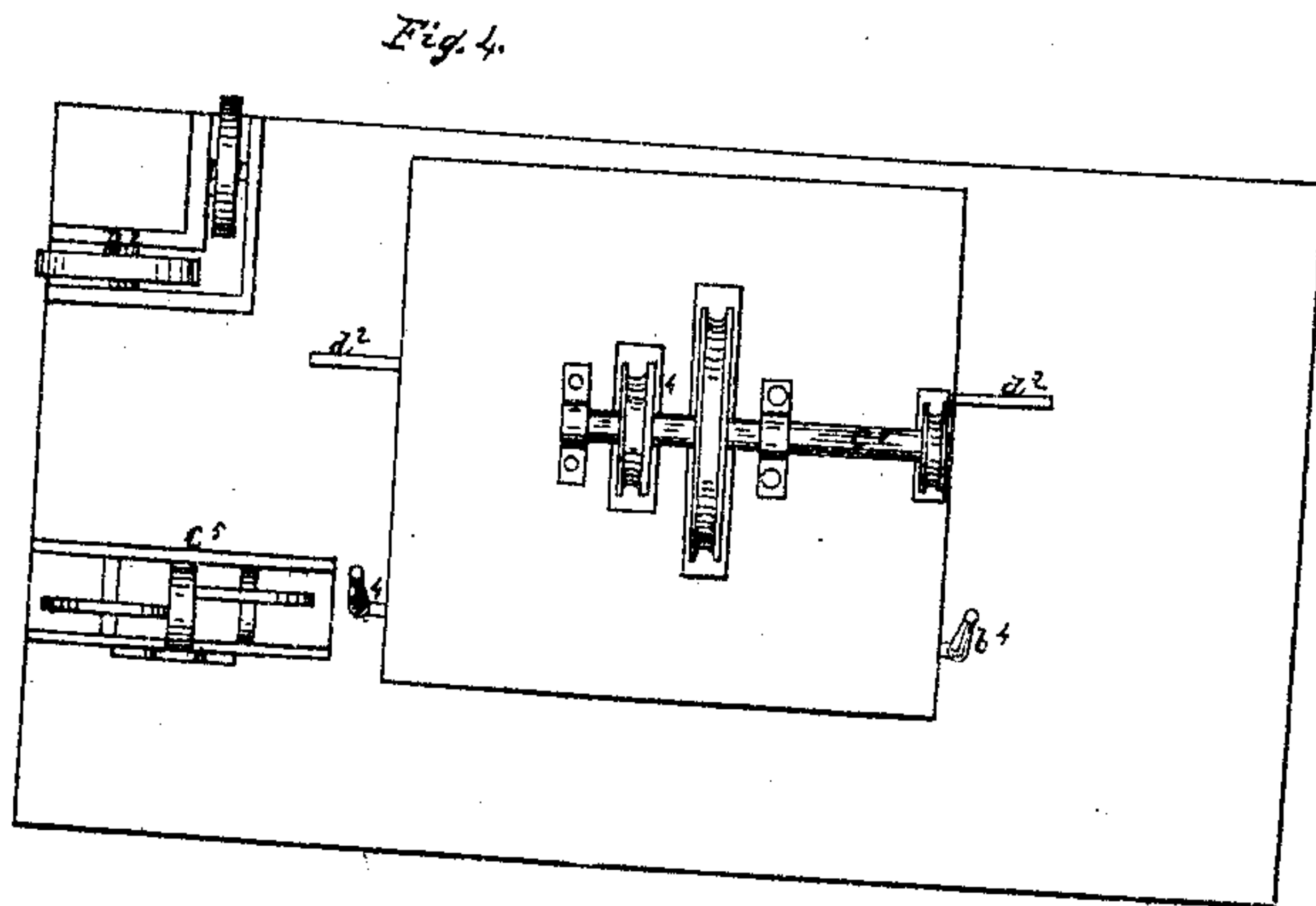
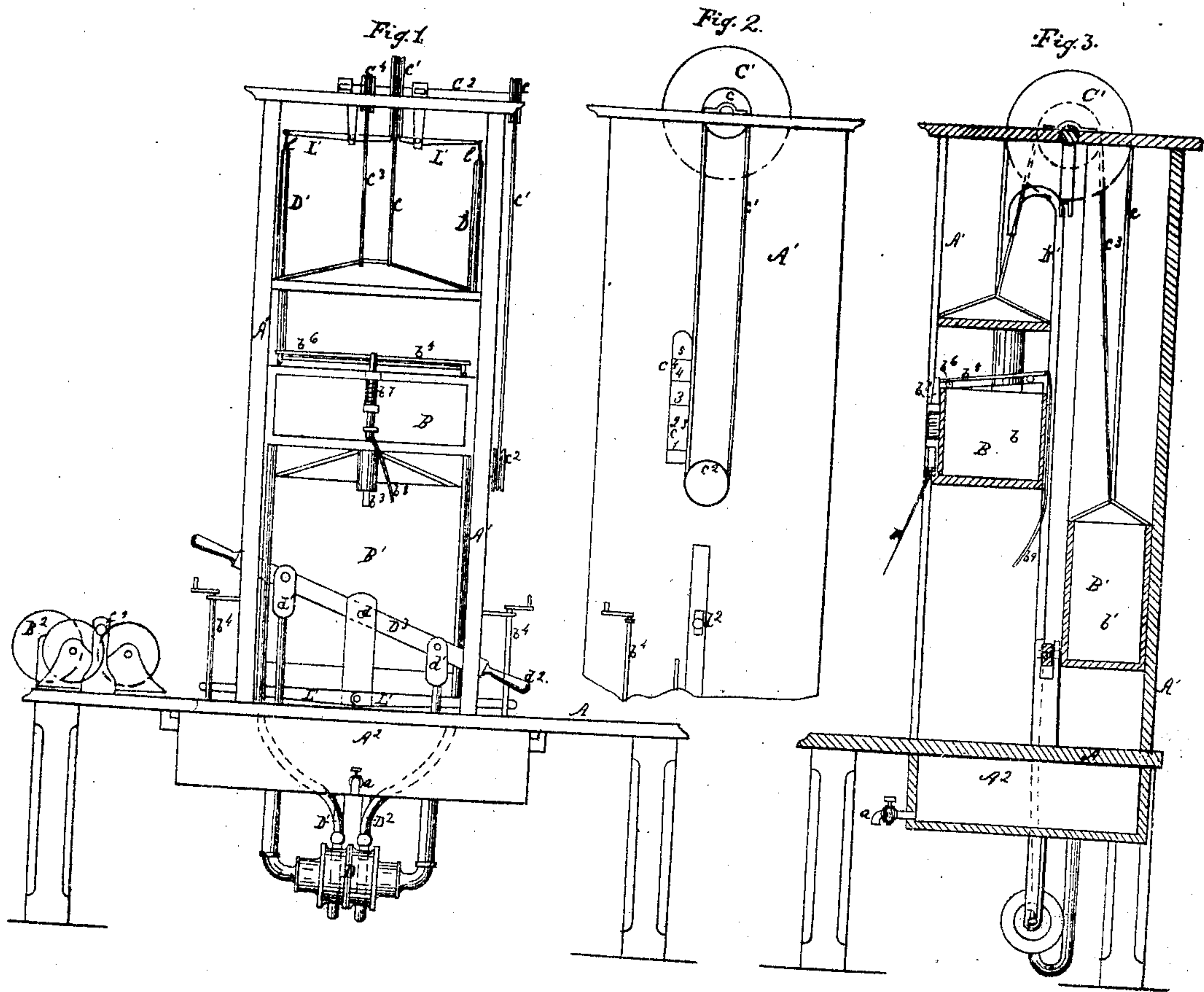


T. Chambers. Hydraulic Elevator.

N^o 72165

Patented Dec. 17, 1867.



Witnesses
M. Randolph

Chas. H. Boyle

Inventor

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United States Patent Office.

THOMAS CHAMBERS, OF ST. LOUIS, MISSOURI.

Letters Patent No. 72,165, dated December 17, 1867.

IMPROVEMENT IN HYDRAULIC ELEVATORS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS CHAMBERS, of the city and county of St. Louis, and State of Missouri, have invented a new and useful Improvement in "Hydraulic Elevators;" and I do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of this invention consists in the application to an ordinary "elevator" or "dumb-waiter" of a series of water-tight chambers and force-pumps, the whole being connected with such pipes, valves, and levers, as may be necessary to render the whole apparatus complete.

The operation of the elevator is such that, by a slight motion of the lever of a pump, a sufficient amount of water or other fluid may be thrown into the proper chamber to cause the car of the elevator to ascend or descend at pleasure. There are also connected with this elevator various other improvements, such, for instance, as the indicator, which shows to which story the car may have arrived, either on its upward or downward trip. A regulating-brake is also applied to the car, to check or stop its motion at any point. Other improvements on this machine will more fully appear in the following description.

To enable those skilled in the art to make and use my improved "dumb-waiter" or "elevator," I will proceed to describe its construction and operation.

Figure 1, of the drawings, is a front elevation of the improved apparatus.

Figure 2 is a sectional side elevation of it.

Figure 3 is a transverse sectional elevation.

Figure 4 is a top plan.

A is the lower floor, to which the elevator extends, and A¹ are the walls or casings of the elevator. B is the car or dumb-waiter proper, and B¹ is a counterpoising-weight chamber, connected therewith by a cord or rope, C, which passes up over the wheel C¹. The chambers b and b¹ are water-tight compartments, which will be used as hereinafter more fully explained.

Below the floor A there is a cistern or reservoir, A²; and below or connected with this cistern is a force-pump, D; and from this force-pump there are two pipes, D¹ and D², extending upward to near the top of the casing A¹, the upper end of the pipe D¹ being turned downward, and arranged so as to discharge into the chamber b, and the upper end of the pipe D², in like manner, arranged to discharge into the chamber b¹. The pump D may be a single or double-acting one, but the double-acting variety is preferred; and, if it is used, the lever D³, as represented in the drawings, will be the most convenient arrangement of it. This lever has a fulcrum, at d, and two piston-rods, d¹, for the pump-plungers, while outside of the casing A¹ are the handles, d², for working the pump. Supposing the car B to be at the bottom of the ways, and the tank B¹ at the top of its ways, then, by working the pump, having previously arranged the valves (not shown) so as to throw the water up through the pipe D², water will be discharged into the chamber b¹ until it will counterpoise the weight of the car B, and cause it to ascend with its load to the story to which it is desired to elevate it, where it can be stopped by the application of the brake L to the periphery of the wheel C¹. The brake L is actuated by the lever L', which is placed in a convenient position for the operator to place his foot upon it and press it down. The said lever and brake are connected together by the rod or cord Z.

For convenience in operating this elevator, the shaft C², on which the wheel C¹ is placed, extends a little outside of the casing A¹, where it receives a band-wheel, c; and from this band-wheel a cord or band, c¹, extends downward to and around the band-wheel c², which latter wheel is located where the operator can easily see it. A finger, c³, attached to the cord c¹, points to the figures on an index-board, c⁴, in the operator's room, corresponding with the number of the floor at which the car may have arrived; and thus the operator may constantly be advised as to the location of the car, and may control its motions accordingly.

When either of the chambers, b or b¹, arrives at the bottom, its contents may be discharged into the tank or cistern A² by opening the valve b³. This valve is to be operated by the crank-rods b⁴, the lower ends of which are connected with levers, (not shown,) the said levers being so arranged as to open the aforesaid valves when the said cranks are turned in the proper direction.

To insure the safety of this elevator, I employ an auxiliary cord, C³, to connect the two tanks together; but the wheel C⁴, over which it passes at the top, is so much smaller than the wheel C¹ as to render the working

of the machine much harder when this auxiliary arrangement is employed than when the proper rope is in place. This will compel the use of the larger wheel and its rope, and thus insure its repair in case of its being broken or deranged, and thus prevent serious accident to those employed about the elevator by constantly having two ropes to depend upon. The cord or rope C^3 should be a little slacker than the other one, when both are in place, so as not to interfere with the proper working of the elevator when it is in perfect repair.

The fluid used in this elevator or dumb-waiter may be simply water, when there is no danger of freezing; or, if it be desirable to do so, some anti-freezing liquid may be employed. In either case it will be judicious to have a draw-off faucet, a , in the tank or cistern A^2 .

It is especially desirable, in many places, to have an elevator or dumb-waiter so arranged as to be operated from one single station; and, as this elevator is otherwise operated from the lower floor, I propose to arrange the car so it may be unloaded from the same place. The shelf b^3 , on which the articles to be hoisted are placed, is set at an angle slightly inclining toward the front of the case; and it is mounted on rollers, b^6 , and held in place, from rolling forward, by the spring-catch b^7 .

When the car shall have arrived at the place where it is to be unloaded, the operator at the bottom of the establishment will pull on the cord b^8 , and thereby release the spring-catch above referred to, and thus allow the shelf b^3 to roll forward and discharge itself, after which it may be again drawn back into its former position by pulling the cord b^9 , when the spring-catch will again hold it in place.

To render the workings of this machine easy and noiseless, the shaft C^2 should have bearings on anti-friction rollers, as seen at C^5 in fig. 4, and have rollers on the corners of the two tanks, as seen at B^2 . These rollers should be made of cork, so as to render their working noiseless. These wheels should be banded with brass or leather.

The foregoing description of elevator may be better adapted to dwelling-houses by the use of only one pump and water-tank, without any tank on the hoisting-car, as is herein shown and described.

Having described my invention, what I claim, is—

1. The reservoir A^2 , the car B , the chamber B^1 , the pump D , and the pipes D^1 and D^2 , when combined and arranged as described and set forth.
2. The indicator c c^1 c^2 c^3 c^4 , when arranged in relation to the dumb-waiter, as described.
3. The brake-attachment L L' , when constructed and arranged in relation to the elevator, as described and set forth.
4. The self-tipping and unloading shelf b^3 , when combined with the elevating-car, as described and set forth.

THOMAS CHAMBERS.

Witnesses:

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