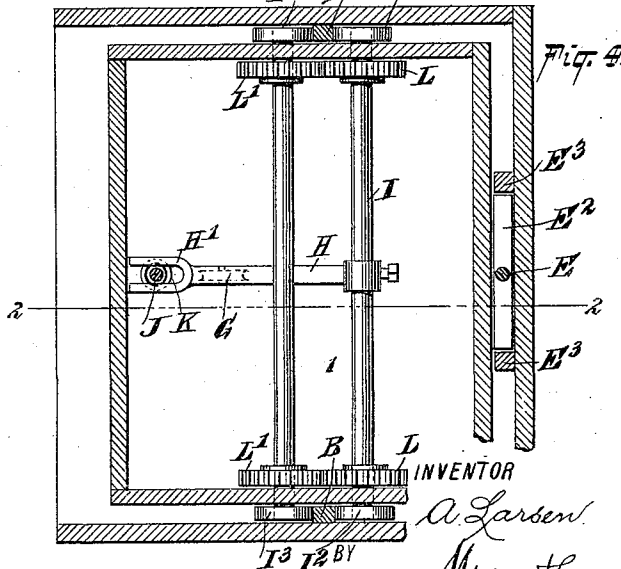
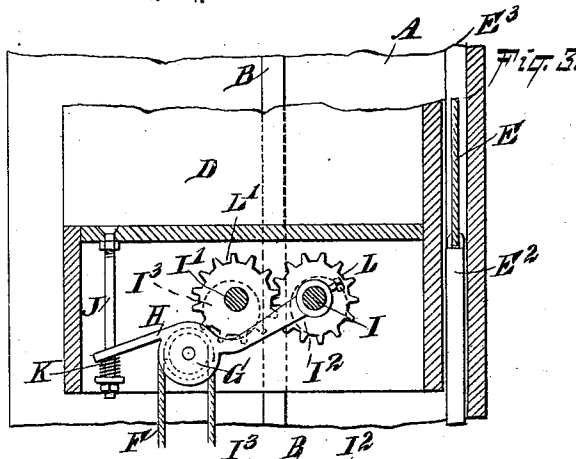
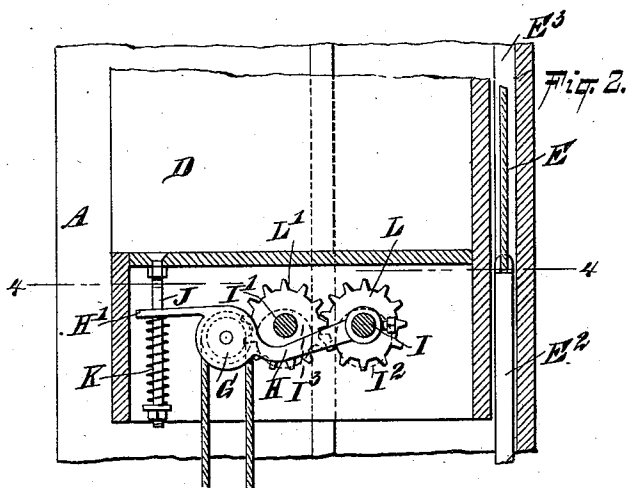
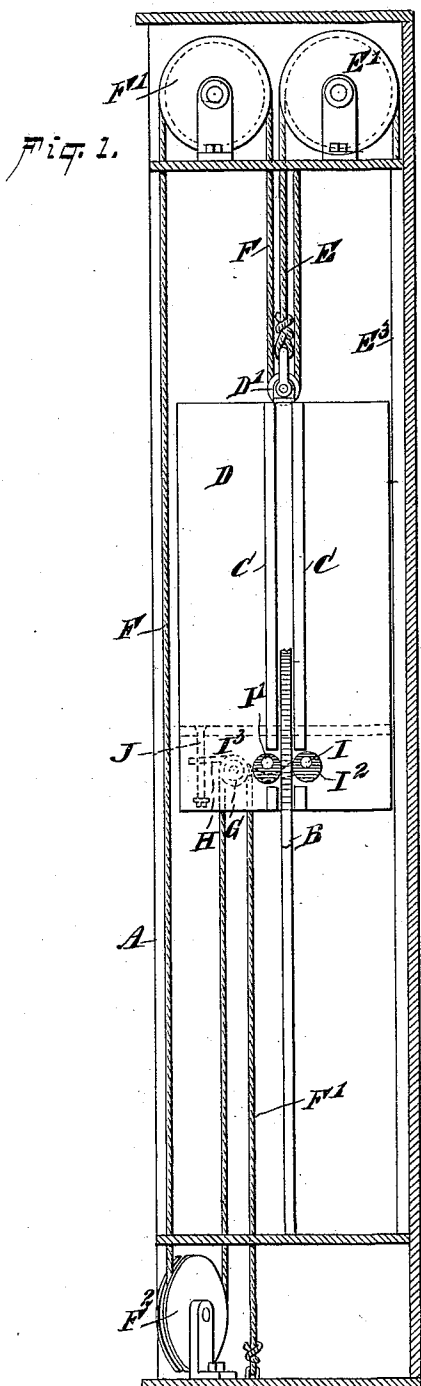


(No Model.)

A. LARSEN.
DUMB WAITER.

No. 556,992.

Patented Mar. 24, 1896.



WITNESSES:
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UNITED STATES PATENT OFFICE.

ANTON LARSEN, OF NEW YORK, N. Y.

DUMB-WAITER.

SPECIFICATION forming part of Letters Patent No. 556,992, dated March 24, 1896.

Application filed September 30, 1895. Serial No. 564,205. (No model.)

To all whom it may concern:

Be it known that I, ANTON LARSEN, of New York city, in the county and State of New York, have invented a new and Improved Dumb-Waiter, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved dumb-waiter arranged to securely hold the cage with its load at any point when the operator releases the rope, to reduce the wear on the hoisting-rope and to relieve the car of any strain, and, in case of the breaking of the ropes, whereby the cage will be securely held in the shaft and will not drop.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement on the line 2 2 of Fig. 4. Fig. 2 is an enlarged sectional side elevation of part of the improvement. Fig. 3 is a similar view of the same with parts in a different position, and Fig. 4 is a sectional plan view of the same on the line 4 4 of Fig. 2.

The improved dumb-waiter is provided with the usual well A, containing the guide-posts B, engaged by guideways C, held on the sides of the cage D adapted to slide up or down in the well A. The cage D is counterbalanced, and is for this purpose connected with one end of a rope E extending upwardly from the top of the cage to pass over a pulley E' arranged at the upper end of the well A, said rope then extending downward from the pulley E' to carry a counterbalancing-weight E² mounted to slide in guideways E³ arranged at the back of the well A.

The operating-rope F for moving the cage D up and down in the well A is secured at one end to the upper part of the well A, then passes under the pulley D' journaled on the top of the cage D, then upward over a pulley F' journaled at the top of the well A in front of the pulley E' previously mentioned. The rope F then extends downward from the pulley F' in front of the cage D under a pulley

F² journaled in the bottom of the well A, then upward over a pulley G journaled in an arm H' secured on a transverse shaft I, mounted to turn in suitable bearings in the lower part of the cage D, as plainly illustrated in the drawings. The rope F after leaving the pulley G extends downward and is fastened at the bottom of the well A, as indicated in the drawings.

The arm H has its free end H' forked to engage a rod J depending from the bottom of the cage D, as plainly shown in Figs. 2 and 3, and on this rod J is a spring K pressing against the under side of the free end H' of the arm H, so as to hold the latter normally in an uppermost position, as indicated in Fig. 2.

The shaft I is connected by gear-wheels L and L' with a shaft I' arranged transversely in the lower part of cage D, directly opposite the shaft I, and on the outer ends of the said shafts I I' are secured brake-shoes I² I³, respectively, preferably made in the form of eccentric disks adapted to engage with their peripheries opposite sides of the guide-posts B. (See Fig. 4.) The brake-shoes I² and I³ extend downwardly from the shafts I and I', respectively, as plainly illustrated in Figs. 2 and 3, so that when the cage D moves upward in the well A, by the operator pulling on the run of the rope F extending from the pulleys F' F², then the said brake-shoes will permit a free upward movement of said cage, as said brake-shoes are only held in frictional contact with the guide-posts B by the action of the spring K on the arm H. As soon, however, as the pull is released on the rope F, the spring K, by pressing on the arm H, causes the brake-shoes I² I³ to engage the guide-posts B with sufficient force to hold the cage D in position, and the pressure of the load in the cage tends to draw the shoes I² I³ in very firm contact with the guide-posts B to securely hold the cage in position. Thus the heavier the load in the cage the more firmly the shoes I² I³ will engage and hold on the sides of the guide-posts B.

When it is desired to lower the cage D, the operator pulls on that part of the rope F extending from the pulley G to the pulley F², whereby a downward pull is exerted on the arm H, and the latter in swinging downward

causes a turning of the shafts I and I' and shoes I² I³ to disengage the peripheral surfaces of said shoes from the guide-posts B; but as soon as the operator releases the pull 5 on this part of the rope F then the spring K will again cause the brake-shoes I² I³ to engage the posts B. It will be seen that by this arrangement the cage, with its load, is supported within the well A by the brake-shoes 10 whenever the operator releases the rope F, and consequently all strain on the counterbalancing-rope E, as well as on the operating-rope F, is taken off. The wear on said ropes is greatly reduced and the strain of the load 15 on the car is taken off from the latter, especially as the brake-shoes are arranged on the lower part of the cage D instead of on the top. It will further be seen that the entire arrangement is completely noiseless, and 20 the operator can conveniently raise or lower the cage D and hold the same at any desired point, as required.

Having thus fully described my invention, I claim as new and desire to secure by Letters 25 Patent—

1. In a dumb-waiter, the combination with a cage, and the rope for moving the cage up and down, of brake-shoes adapted to engage guide-posts in the well, in which the cage 30 moves, and intermediate mechanism between the shoes and rope for applying the brake-shoes to stop the cage whenever the operator releases the said rope, substantially as described.

2. A dumb-waiter, comprising a cage, brake-shoes adapted to engage guide-posts in the well in which said dumb-waiter moves, a spring-pressed arm for moving the said shoes in and out of engagement with said posts, and 40 a rope for moving the cage up and down engaging said arm, whereby the shoes will be pressed in contact with the posts to stop the cage when the operator releases the rope, and will be moved out of engagement with the 45 posts when the operator exerts a pull on said rope, substantially as shown and described.

3. A dumb-waiter, comprising a cage, transverse shafts journaled in said cage and geared together, brake-shoes held on said shafts and 50 engaging fixed guide-posts in the well in which the dumb-waiter moves, an arm secured on

one of said shafts and pressed on by a spring, and a rope for moving said cage up and down, said rope passing over a pulley in said arm, whereby the shoes will be held out of engage- 55 ment with the guide-posts by the pull of the operator on the said rope and forced into the said posts as soon as the operator releases the rope, substantially as shown and described.

4. A dumb-waiter, comprising a cage, a rope 60 for moving said cage up and down, transverse shafts journaled in the lower part of the said cage and connected with each other by gear-wheels, brake-shoes in the form of eccentric disks secured on said transverse shafts, and 65 engaging opposite sides of fixed guide-posts in the well in which the dumb-waiter moves, an arm secured on one of said transverse shafts, and a pulley journaled in said arm and over which passes said operating-rope, 70 substantially as shown and described.

5. A dumb-waiter, comprising a cage, a rope for moving said cage up and down, transverse shafts journaled in the lower part of said cage and connected with each other by gear-wheels, 75 brake-shoes in the form of eccentric disks secured on said transverse shafts and engaging opposite sides of fixed guide-posts in the well in which the dumb-waiter moves, an arm secured on one of said transverse shafts, a pul- 80 ley journaled in said arm and over which passes said operating-rope, and a spring held on said cage and engaging the free end of said arm, substantially as shown and described.

6. A dumb-waiter, comprising a cage, trans- 85 verse shafts mounted in the cage and geared together, brake-shoes in the form of eccentric disks on the shafts and engaging guide-posts in the well, a vertical rod depending from the bottom of the cage, an arm on one of the trans- 90 verse shafts and having its end forked to receive the said rod, a pulley mounted in the arm, a spring on the rod and pressing the under side of the said arm, and a rope for moving the cage up and down passed over the 95 pulley in the said arm, substantially as described.

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Witnesses:

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