

(No Model.)

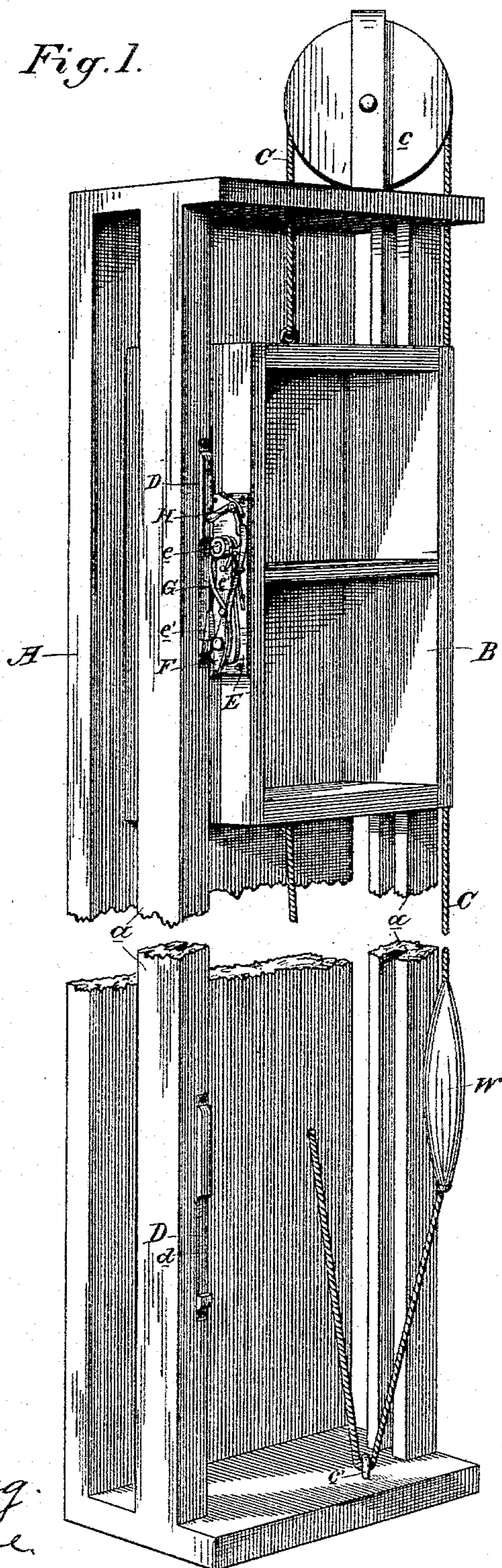
2 Sheets—Sheet 1.

J. J. MAHONY.
DUMB WAITER STOP.

No. 356,948.

Patented Feb. 1, 1887.

Fig. 1.



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UNITED STATES PATENT OFFICE.

JOHN J. MAHONY, OF SAN FRANCISCO, CALIFORNIA.

DUMB-WAITER STOP.

SPECIFICATION forming part of Letters Patent No. 356,948, dated February 1, 1887.

Application filed October 27, 1886. Serial No. 217,370. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. MAHONY, of the city and county of San Francisco, State of California, have invented an Improvement in
5 Dumb-Waiter Stops; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of reciprocating elevators commonly known, from the
10 use to which they are put, as "dumb-waiters," and to certain improvements therein with respect to the mechanism by which they are stopped at any desired point in the course of their travel.

15 My invention consists in the combination and arrangement of the pivoted spring-actuated catch, the rack or notched cam-strip with which it engages, the pivoted spring-actuated trip-lever, the pivoted levers by which
20 said trip is controlled, and certain details of construction, which I shall hereinafter fully describe.

The object of my invention is to provide simple and effective means for positively stop-
25 ping the waiter at points at which it is intended to rest, and by the employment of these means to so nicely balance the elevator as to avoid the usual and wholly unnecessary friction by which the ordinary dumb-waiters are checked
30 at points desired.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view. Fig. 2 is an enlarged elevation of the stop mechanism.

35 A is the well or shaft, having the grooved guides *a*. B is the dumb-waiter, mounted in the well and provided with side strips or guides which are seated in the grooved guides *a*. The waiter is suspended by means of a
40 cord or rope, C, attached to its upper end and passing upwardly over a sheave, *c*, at the top of the well or shaft, and down to the bottom again around a guide-pin, *c'*, and up to the bottom of the waiter. Secured to the rope
45 or cord C in any suitable position is a weight, W, whereby the waiter is nicely balanced. To the side of the guide *a*, or otherwise secured in the well or shaft, is fixed a rack or strip, D, which is provided on one edge with an elongated notch, *d*, forming a shoulder or rest, *d'*,
50 at its lower end and a cam, *d*², at its upper end. Below the shoulder is an inclined plane, *d*³.

Upon the side of the waiter is secured a plate, E, to which is pivoted at *e* the catch *e'*, which is influenced by a spring, *e*². Pivoted upon
55 and carried by the lower end of the catch is a double-ended or reversible trip-lever, F, against which the spring *f* operates to hold its lower end against the strip D.

The operation of these devices, as far as ex-
60 plained, is as follows: When the waiter is ascending, the catch *e'*, in traveling up the inclined plane *d*³, is forced back until, arriving at the shoulder *d'* at the base of the notch *d*, it is forced into said notch under the influence
65 of its spring, and resting on the shoulder holds and supports the waiter in position. In order to release it for the purpose of descending, the waiter is still farther elevated, until the lower end of the trip-lever F, coming op-
70 posite the notch, is forced therein by its spring. The waiter is now pulled down, whereby the lower end of the trip-lever, meeting with the shoulder *d'*, is so obstructed and stopped by it as to be caused to turn upon its central pivot.
75 In order to do this, it is obvious from its position that it must be forced over to one side, and in being thus forced over it carries the catch *e'* over with it, whereby said catch is released from the notch *d* and thrown to one side
80 of the vertical plane thereof, allowing it then to pass the shoulder. Immediately after this the trip-lever, passing over the center, is relieved and turns through a semicircle to a
85 working position, presenting, however, its other end for the next operation.

It will be seen that on account of the proximity of the engaging end of the catch *e'* and the lower end of the pivoted trip F there would have to be considerable accuracy of movement
90 in order to stop the waiter when the catch passes the shoulder *d'*, and before the lower end of the trip reaches said shoulder. In order to avoid the necessity for this accuracy, and yet have the device operate perfectly within any
95 desired limits, I have pivoted at *g* an intermediate lever, G, the lower end of which bears on the upper end of the trip-lever F, and I have pivoted at *h* an elbow or bell-crank lever, H, one arm of which bears against the upper
100 end of the intermediate lever, and the other arm is provided with an anti-friction roller, *h'*, traveling upon the strip D, a spring, *h*², holding said lever in position. At any desired dis-

tance above the notch d , I make in the strip D an offset, d^4 , for releasing the lever H.

The operation as completed is as follows: When the waiter is ascending, the anti-friction roller h' of the elbow-lever H, traveling on the cam d^2 at the upper end of the elongated notch d , is so turned upon its pivot as to throw the lower end of the intermediate lever, G, against the upper end of the trip F, and to force said trip on its pivot to approximately a perpendicular position, in which it is entirely free of the strip D, and will not engage it at all. The waiter may therefore be run up without exercising great accuracy, for as long as the trip is held inactive the catch e' will engage the shoulder d' and support the waiter. The distance through which the waiter may play is governed by the position of the offset d^4 , for until the bell-crank lever reaches that point it holds the trip inactive. Now, in order to provide for the descent of the waiter, it is moved up until the roller h' of the bell-crank lever drops into the offset d^4 , thereby relieving said lever, which thereupon relieves the intermediate lever, G, which in turn relieves the trip-lever F, and this, under the influence of its spring, at once moves to its proper engagement. The waiter is now pulled down and the trip, coming in contact with the shoulder d' , throws the catch, as I have heretofore described. A small stud, e^3 , upon the plate E limits the inward movement of the catch.

In ordinary dumb-waiters their suspending-rope is so arranged by being passed over a number of sheaves or pulleys as to create a considerable amount of friction, for the purpose of making the waiter stop in any position desired. The disadvantage of this is that considerable force is required to operate the waiter, even when empty; but with my arrangement it will be seen that I can mount the waiter on a perfect balance, whereby nothing will have to be raised but the weight of the material which it carries, and yet by having the elongated notch and the offset in the strip D at different points or stations thereon the waiter can be stopped and supported at desired places.

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

1. The combination, with a dumb-waiter mounted or suspended so as to be reciprocated, of a notched strip or rack in the shaft or well in which the waiter travels, a pivoted spring-actuated catch on the waiter for engaging the rack or strip and supporting said waiter, and a pivoted spring-actuated trip mounted on and carried by the catch for engaging said rack or strip, whereby the catch is thrown and its engagement prevented, substantially as herein described.

2. A dumb-waiter mounted in a well or shaft and suspended by a weighted cord or rope,

whereby it is balanced and adapted to be reciprocated, in combination with a notched strip or rack in the well or shaft, a pivoted spring-actuated catch on the waiter for engaging the rack or strip and supporting said waiter, and a pivoted spring-actuated trip mounted on and carried by the catch for engaging said rack or strip, whereby the catch is thrown and its engagement prevented, substantially as herein described.

3. A balanced reciprocating dumb-waiter, in combination with the rack or notched strip D in the well or shaft in which the waiter travels, the pivoted spring-actuated catch e' on the waiter for engaging the rack or notched strip and supporting said waiter, and the centrally-pivoted spring-actuated reversible trip F, carried by the catch for engaging the rack or notched strip, whereby the catch is thrown and its engagement prevented when the waiter is descending, substantially as herein described.

4. A reciprocating dumb-waiter, in combination with the strip D in the well or shaft in which the waiter travels, having the elongated notch d , forming a shoulder, d' , at its base, and a cam, d^2 , at the top, and the offset d^4 on said strip above, the pivoted spring-actuated catch e' on the waiter for engaging the shoulder of the notch and supporting the waiter, the pivoted spring-actuated trip F on the catch for engaging the shoulder on the notch and throwing the catch when the waiter is descending; the pivoted elbow or bell-crank lever H on said waiter, having an anti-friction roller, h' , traveling against the strip, and the pivoted intermediate lever, G, whereby the bell-crank lever controls the trip and holds it from its engagement until it is itself relieved by the offset d^4 , substantially as and for the purpose herein described.

5. The well or shaft A, having the guides a , and the strip D, having the notch d , forming a shoulder, d' , at its lower end, and a cam, d^2 , at its upper end, and an offset, d^4 , above, in combination with the dumb-waiter B, the weighted suspending-cord C, the pivoted spring-actuated catch e' on said waiter for engaging the shoulder of the notch, the centrally-pivoted spring-actuated reversible trip F, carried by the catch for engaging the notch and throwing the catch as the waiter descends, the pivoted spring-actuated bell-crank lever H, having an anti-friction roller, h' , traveling against the strip D, and the pivoted intermediate lever, G, all arranged and adapted to operate substantially as herein described.

In witness whereof I have hereunto set my hand.

JOHN J. MAHONY.

Witnesses:

C. D. COLE,
J. H. BLOOD.