(No Model.)

O. R. OLSEN.

ELEVATOR.

No. 495,598. Patented Apr. 18, 1893.

Fig. 1.

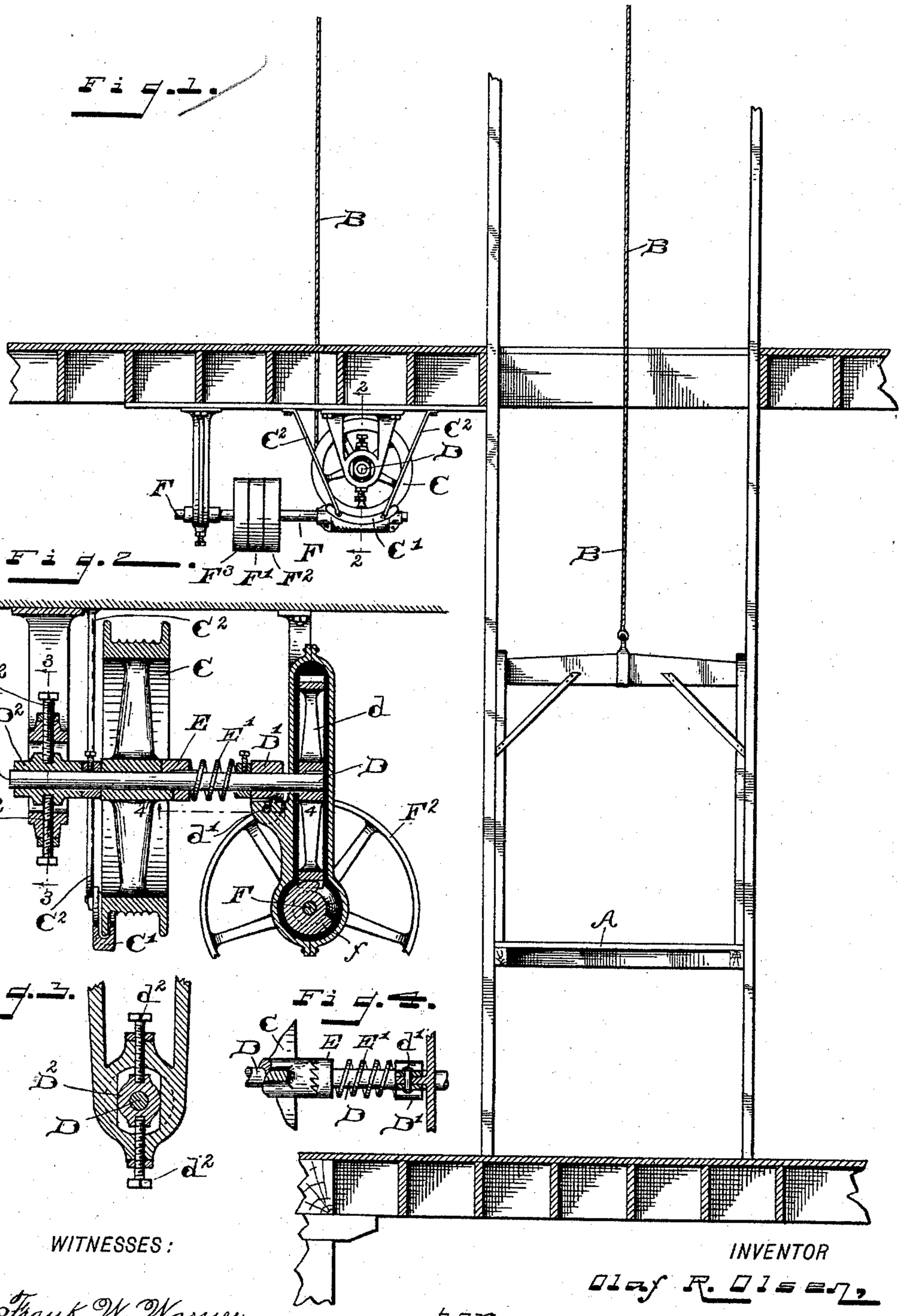

Fig. 2.

Fig. 3.

Fig. 4.

WITNESSES:

Frank W. Warner,

J. A. Walsh.

INVENTOR

Olaf R. Olsen,

per

Chester P. Bradford,

ATTORNEY.

UNITED STATES PATENT OFFICE.

OLAF RYE OLSEN, OF INDIANAPOLIS, INDIANA.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 495,598, dated April 18, 1893.

Application filed October 14, 1892. Serial No. 448,825. (No model.)

To all whom it may concern:

Be it known that I, OLAF RYE OLSEN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Elevators, of which the following is a specification.

The object of my said invention is to cause the operating mechanism of an elevator to cease moving whenever any obstruction causes the elevator cage or platform to cease descending.

It consists of such a construction and arrangement of parts that the hoisting or winding drum will automatically fall into contact with a brake whenever this occurs, stopping it from further revolution, while at the same time a spring-engaged clutch will permit the shaft to continue to revolve without moving the drum.

Said invention will be first duly described, and the novel features thereof then pointed out in the claims.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 is a view of a hatch-way containing the usual elevator guides and cage or platform, alongside which the driving mechanism is shown in side elevation; Fig. 2 a central sectional view on an enlarged scale looking toward the left from the dotted line 2 2 in Fig. 1; Fig. 3 a transverse sectional view of the shaft and its outer bearing, on the dotted line 3 3 in Fig. 2, and Fig. 4 a detail under side view, partly in plan and partly in section, as seen when looking upwardly from the dotted line 4 4 in Fig. 2.

In said drawings the portions marked A represent an ordinary elevator cage or platform; B the hoisting cable; C the hoisting drum; D the shaft upon which said drum is mounted; E a clutch also on said shaft by which the hoisting drum is driven, and F the driving shaft carrying the belt pulleys.

The elevator shown, is, in many of its features, similar to other elevators. As will be readily understood, when the mechanism is set in motion to wind up the hoisting cable B, it raises the elevator cage or platform A; and when it is set in motion to unwind said cable, said cage or platform will descend. The shaft F is driven by belts running over loose and tight pulleys F′ F² F³ thereon, in an ordinary and well known manner, and, by means of the screw gears *f* mounted thereon, and gear *d* mounted on the shaft D, drives said shaft D and its clutch and the hoisting drum, as will be readily understood. These parts A and B and the general operation of the elevator, therefore, need no further description.

The shaft D is so mounted in its boxes D′ D², however, that when the drum C is relieved from the lifting pull of the hoisting cable, it with said drum will descend slightly. The construction shown by which this is effected, consists in a pivot support *d′* for the box D′ which enables it to tip as occasion may require, while the box D² is provided with adjustable supports and stops *d²*. As shown in Fig. 2, when the upward pull of the hoisting cable on the drum is relieved, it and the shaft are permitted to descend slightly, when it (the box D²) will rest upon the lower one of the stops *d²*, instead of being pulled into close contact with the upper one of said stops, as shown in said figure. When this is done a flange or other surface portion of the hoisting drum will drop into contact with a stationary friction brake C′ which is secured rigidly to adjacent structure, (by means of supporting and bracing rods C², or otherwise,) and is held firmly to one position, said position being such that the drum will be free from it when raised up by the pull of the hoisting cable, but in contact therewith when for any reason said pull is relieved. The hoisting drum, of course, is so mounted as to revolve on the shaft D and to permit such shaft to revolve independently thereof, except when the two are locked together by means of the clutch-part E. Said clutch-part E is so mounted on the shaft D as to have a limited longitudinal movement thereon, but it cannot revolve independently thereof. A spring E′ is interposed between said clutch part and a collar *e*, which latter is secured to the shaft D alongside the box D′. The clutch is by this means always held into contact, except in case when the shaft D is revolving in that direction that it moves when the elevator cage is descending. If the drum is by any means stopped from revolving, the clutch-part E (which is secured to the shaft D) will, as will be readily understood, slip backward over

the part attached to or forming part of the hub of the drum C. Thus, when, by accident, anything intercepts the path of the descending cage, and the pull on the drum is thus relieved, it will fall into contact with its brake, and there will be no further unwinding of the hoisting cable. In such a case, of course, it is expected that the operator will at once shift the belts, stopping the entire mechanism, but in case this is not done, no further harm will result from the continued revolution of the mechanism than some wear upon the clutch-teeth.

As shown in Fig. 2, the space between the support d^2 and the bottom of the socket into which it enters, in the under side of the box D^2, is quite small, and it is only necessary that the movement of this mechanism on the pivot d' should be sufficient to throw the adjacent surface of the hoisting drum into and out of contact with the brake C'. Indeed, the pivot d' may be wholly dispensed with, if the bearing of the shaft D' in its box D is made somewhat loose; but I have shown a pivoted box as being a better construction.

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

1. The combination, in an elevator mechanism, of a shaft carrying a hoisting drum, and a brake held in close relation thereto, said shaft having vertically moving bearings and said hoisting drum being adapted to drop into frictional contact with said brake whenever the pull of the cage on the hoisting cable is relieved.

2. The combination, in an elevator mechanism, of the shaft D, the bearings D' and D^2 said bearings being capable of slight movement, a hoisting drum mounted on said shaft, a spring-actuated clutch also mounted on said shaft, and adapted to engage with and drive said drum, and a brake secured in close proximity to said drum or a flange thereon, substantially as shown and described.

3. The combination, in an elevator mechanism, of a brake for the hoisting drum, said hoisting drum, its shaft, a pivoted bearing D' therefor at one end, a movable bearing therefor at the other end, said hoisting drum being loosely mounted on said shaft and provided with a clutch-face, another clutch part mounted on said shaft and adapted to engage with the clutch-part on said drum, and a spring whereby said last-named clutch-part is ordinarily held forward into engagement, but which permits the same to be forced back out of engagement upon occasion, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 10th day of October, A. D. 1892.

OLAF RYE OLSEN. [L. S.]

Witnesses:

CHESTER BRADFORD,

JAMES A. WALSH.