

S. SQUIRE.
ELEVATOR

No. 176,207.

Patented April 18, 1876.

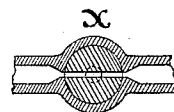
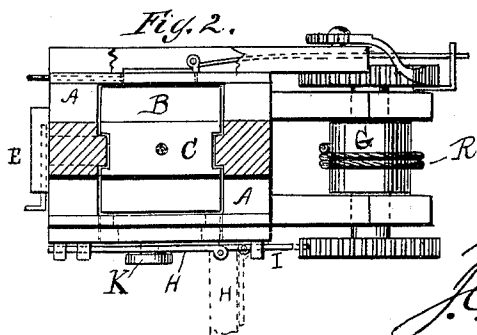
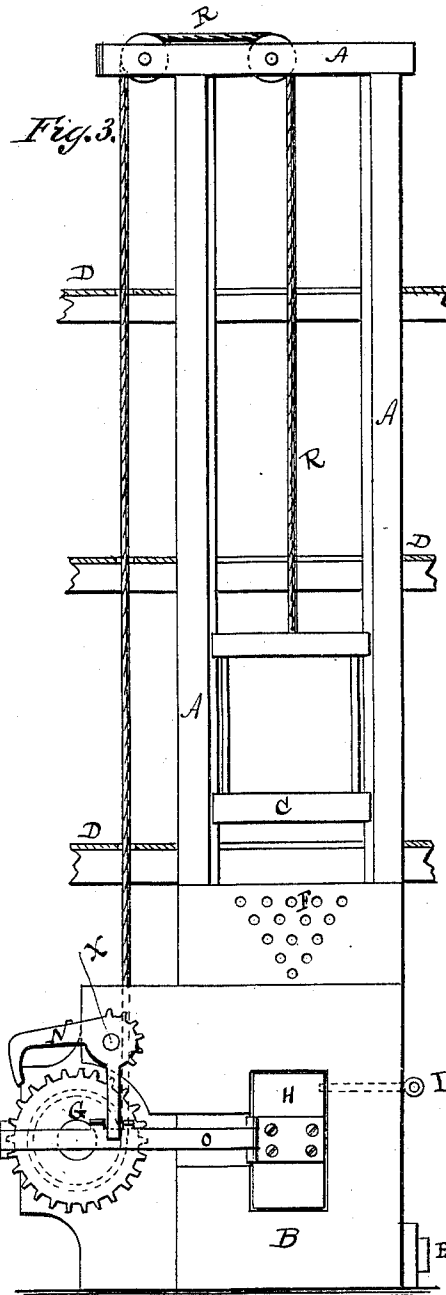
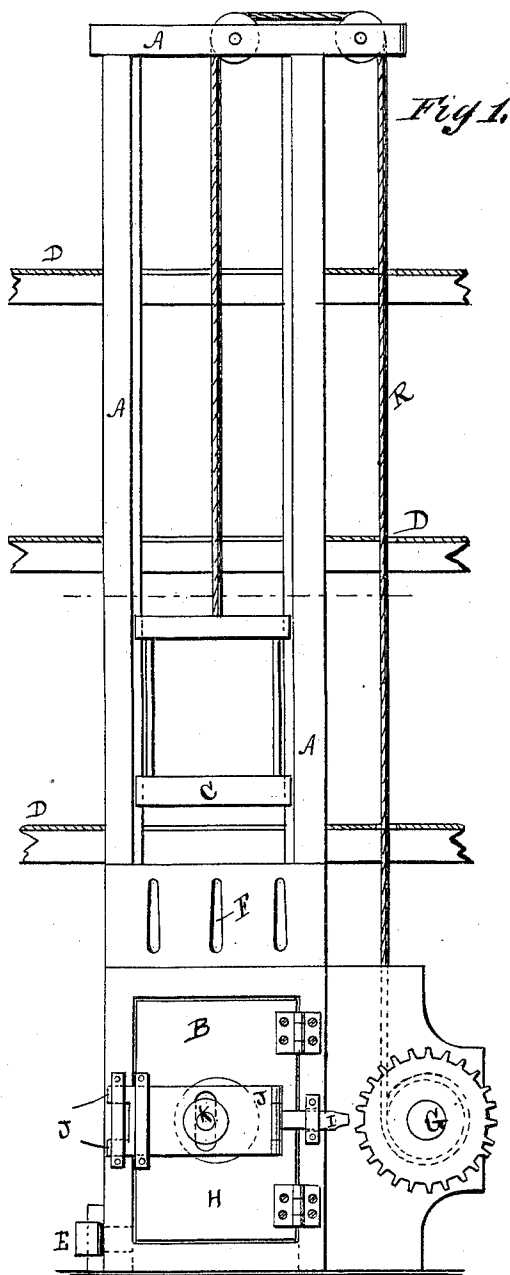


Fig. 4.

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IMPROVEMENT IN ELEVATORS.

Specification forming part of Letters Patent No. **176,207**, dated April 18, 1876; application filed July 27, 1875.

To all whom it may concern:

Be it known that I, SAMUEL SQUIRE, of New York city, N. Y., have invented certain new and useful Improvements in Elevators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

Figures 1 and 3 are elevations of opposite sides of an elevator. Fig. 2 is a plan of same. Fig. 4 is a detail section of a plug-cock.

This invention chiefly consists in providing the shaft of a goods or passenger "elevator" or "lift" with an air-chamber at its lower end, so that if, by any accident, the platform should fall, the air in said chamber would act as a cushion, gradually take up the motion or momentum, and prevent injury to the platform or its load.

The drawings illustrate one mode in which this invention may be advantageously constructed.

A represents the frame-work which forms the shaft of the elevator; B, the air-chamber, which, in this case, is made in prolongation of the shaft in which the platform C ascends and descends. D are the floors of the several stories through which the elevator passes. E is a slide, at the bottom of air-chamber C, adjusted by trial, and secured in proper position to regulate (in connection with the leakage around the platform) the velocity of descent through the air-chamber, and is for the purpose of avoiding reactionary concussion. F are a series of openings in the upper part of chamber B, for the purpose of graduating the resistance to the impact of the falling platform. G indicates the drum or motor by which the rope R raises the platform.

Where it is convenient to have a special air-chamber sunken below the lowest working-floor, the said chamber may be a mere pit; but where goods or passengers are taken into the air-chamber itself it is desirable to have doors which should be so arranged that whenever the door is open the motor shall be locked, so that the platform cannot be moved. There are many obvious ways in which this may be done.

In Fig. 1 the door H opens outward, and is provided with a sliding dog, I, hinged to a slide-bolt, J, operated by a crank-knob, K, so that when the door is open the dog engages the motor G (by shooting into the cogs of a wheel or in any equivalent manner) and locks its motion. When the door is closed the dog becomes disengaged, and the motor is free to act. The center of the sliding dog coincides with the center of the door-hinges, so that when the door is open the dog cannot be moved.

In Fig. 3 the door H is shown as opening inward. In this case the door is held tight by a bolt, L, or other suitable means. When the door is closed it actuates the hinged lever O so as to raise the dog N and set free the motor G; when the door is opened dog N is released from lever O and takes into the teeth of motor G and locks it. The bolts in each case would, in practice, be operated from the inside.

One important feature of my invention is, that the act of opening the door shall lock the motor, or shut off steam from the operating-engine. A plug-cock, X, can be operated in any suitable way by a lever connected with the door, so as to shut off the steam from the engine—for instance, the cock, Fig. 4, may be attached directly to the shaft X of lever N.

The operation of my invention, and its advantages, are too obvious to need further description.

Whenever the elevator is in use, the doors of the air-chamber are closed. If, by any accident, the platform should fall, when it reached the mouth of the air-chamber it would encounter atmospheric resistance, gradually increasing until the platform nearly reaches the bottom of the chamber, the effect of such increasing resistance being to gently yet rapidly retard the descent until weight and resistance become equal, and the platform is brought to rest. As this action is taking place the compressed air gradually escapes through slide E, so as to prevent any upward concussion of the platform with its load.

I claim—

1. In an elevator provided with an air-chamber at the bottom of the shaft, a door in such air-chamber, arranged and operating to stop

or lock the motor, by the act of unbolting or opening such door, substantially as and for the purposes set forth.

2. In an air-chamber at the bottom of an elevator-shaft, the openings F, arranged to graduate the escape of the air when the platform first enters the air-chamber, substantially as and for the purposes set forth.

3. In an air-chamber at the bottom of an elevator-shaft, the slide E, to regulate the outlet of compressed air, substantially as and for the purposes set forth.

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