(No Model.)

S. D. BALL.

ELEVATOR FIRE GUARD.

No. 545,642. Patented Sept. 3, 1895.

Fig. 1.

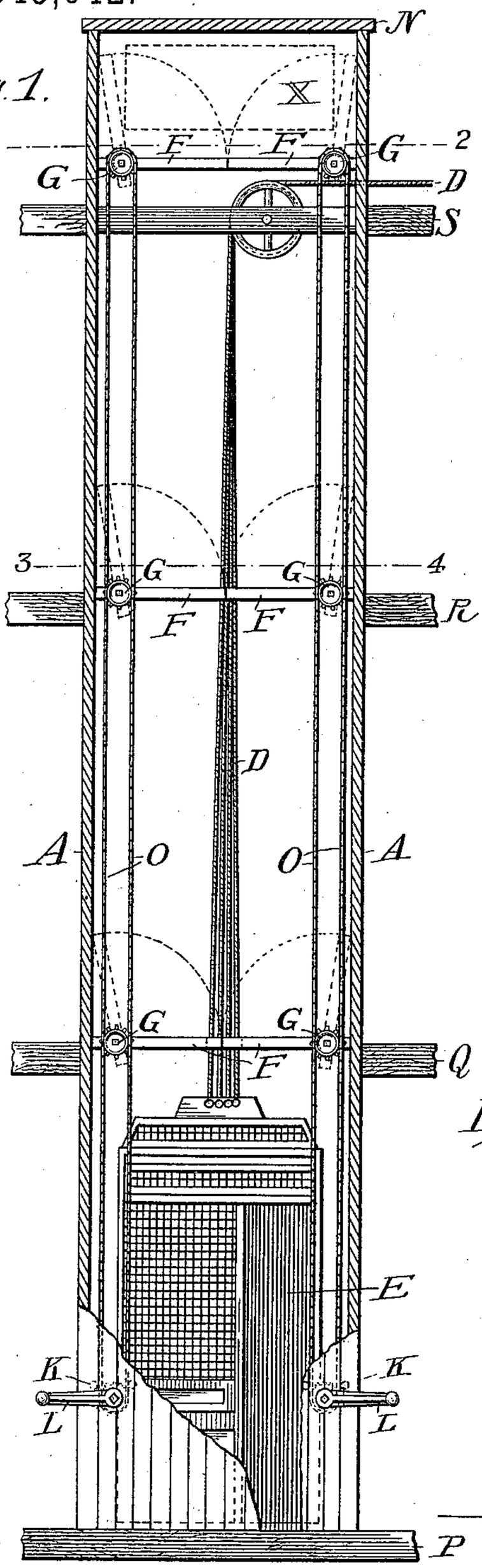


Fig. 2.

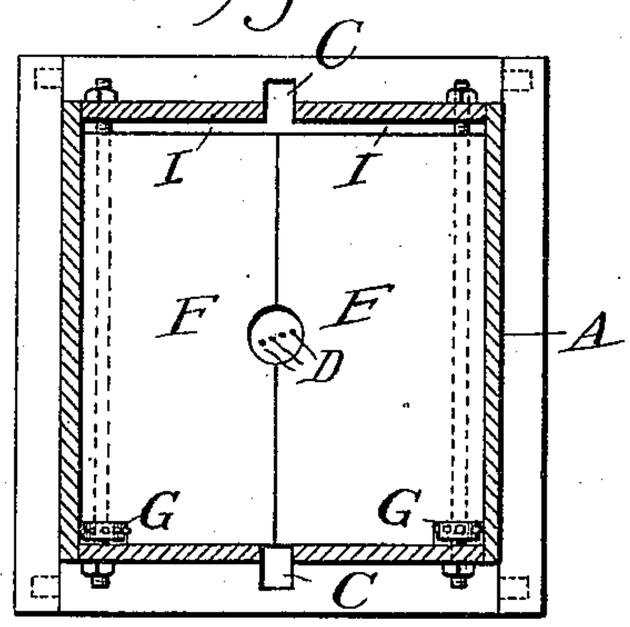


Fig. 3.

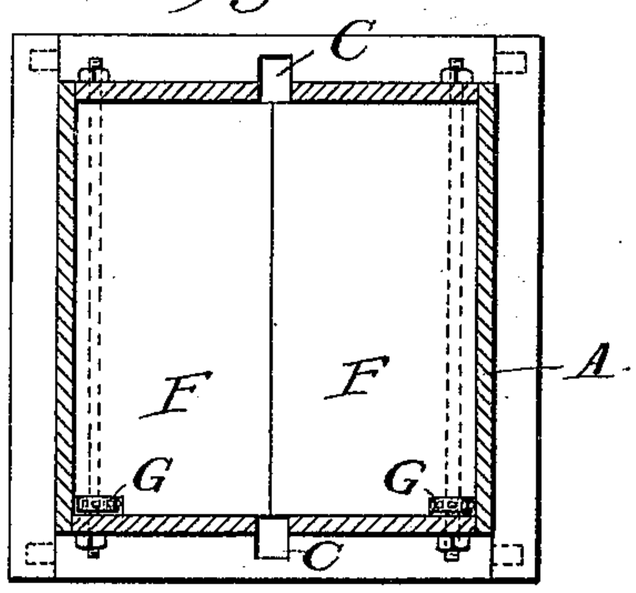
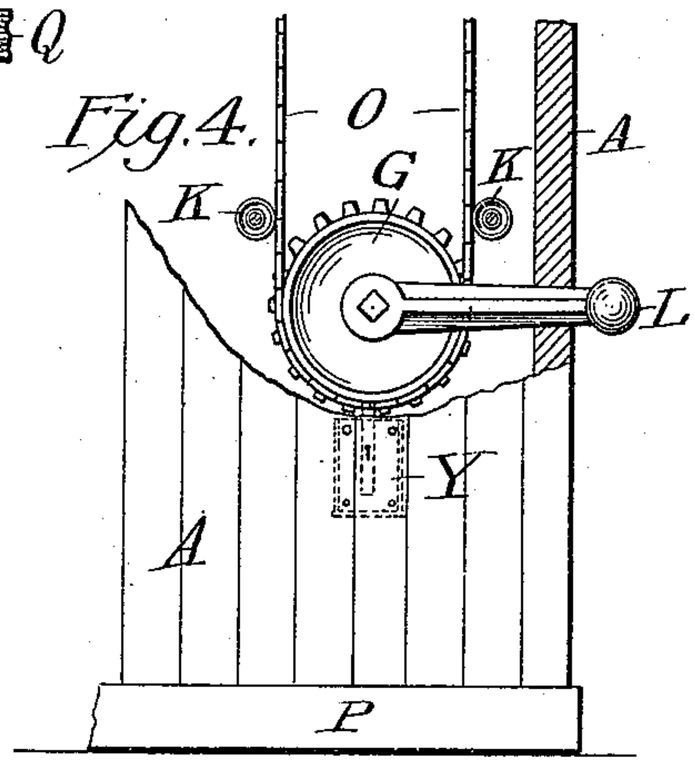


Fig. 4.



Witnesses.
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ELEVATOR FIRE-GUARD.

SPECIFICATION forming part of Letters Patent No. 545,642, dated September 3, 1895.

Application filed March 16, 1895. Serial No. 542,055. (No model.)

To all whom it may concern:

Be it known that I, SEYMOUR D. BALL, a citizen of the United States, residing in the city of Lock Haven, in the county of Clinton and State of Pennsylvania, have invented new and useful Improvements to be Used as Elevator Fire-Guards, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to prevent the upward draft of air in the shaft of an elevator when the elevator is not moving in it by the use of such fire-guards as herein described placed in the shaft.

Figure 1 represents a front vertical section of an ordinary elevator and shaft in a building of a number of stories in height, the most of the front incasing being removed to bring said improvements to view. Fig. 2 is a horizontal view of a section of the shaft through the plane of the dotted line 3 and 4, Fig. 1. Fig. 3 is a horizontal view of a section of the shaft through the plane of the dotted line 1 and 2, Fig. 1. Fig. 4 is a vertical section, on an enlarged scale, of the lower part of the front side of the incasing of the elevator-shaft, the dotted lines showing a common lock or bolt fastened on the inside thereof just below each lower cog-wheel. Above the lock the incasing is removed to show the cog-wheel with a portion of the endless chain on it.

Similar letters represent similar parts.

It is not thought necessary to show the machinery by which the car is moved.

P represents the joist of the lowest floor; Q R S, respectively, the joists of the second, third, and fourth floors of the building in which the elevator is used; E, the car; B, the shaft; A the incasing of the shaft; D the cables for hoisting and lowering the car, and F the fire-guards, each of which closes one-half part of the shaft.

A pair of the fire-guards is placed in the shaft about the level of each floor of the building, and a pair of them is placed in the shaft above the machinery and attachments used in the shaft, as shown in Fig. 1. Above the upper pair of fire-guards the top or cover of the shaft N is permanently fastened to the incasing, with openings X (shown by dotted lines) for ventilation, one opening in the front side and one in the rear side of the incasing below the top or cover N and above said upper pair of fire-guards, which fire-guards open against the other sides of the shaft. The cover N may be composed more or less of glass, as may be desired, to light up the shaft.

When all the fire-guards are brought together and fastened in the shaft, resting horizontally on stops fastened firmly to the inside of the incasing of the shaft each pair will close the whole shaft, as shown in Figs. 1, 2, and 3, whereby the updraft of air through the shaft is completely cut off and prevented, and the spread of fire through the shaft is also prevented as long as the fire-guards are thus kept closed.

G represents the cog-wheels, one of which is rigidly fastened to one end of each fire-guard F, so that the outside face of the cogs will be near to the parallel incasing of the shaft. The fire-guards F, as shown, are hung and hinged on a round iron rod fastened rigidly at each end to the incasing of the shaft, which rod passes in a line parallel to the face of the cogs through a hole a little larger than the rod in the center of the cog-wheel, across the fire-guards F, and through a like hole in a fastening on the side of the fire-guard opposite to the cog-wheel, so that each fire-guard may be easily turned on the hinged joint so formed, and when turned back against the incasing will so remain, the center of gravity being thrown back of the base.

I I indicate openings made by cutting away part of one end of the lower fire-guards F, one each side of the elevator-guide C, through which openings the counterweight and gas-tubes of the car pass. An opening is made in the center of the lower fire-guards for the car-cables.

The axles on which the two lowest cog-wheels G G turn, one on each side of the elevator, in front, are firmly fastened to the incasing of the shaft near a convenient elevator-landing low down in the building and within easy reach of the operator of the elevator. Each of these two cog-wheels has a lever and handle L, Fig. 1, rigidly fixed to it, by which it is turned either forward or back by the operator to close the fire-guards F across the shaft to prevent the updraft therein or to open

them and place them out of the way of the car in its passage up and down the shaft, which is effected by the endless chains O or their equivalents. The chains pass tautly around the lower part of the lowest cog-wheels, and up tautly over the highest cog-wheels, Fig. 1, and in passing the links come in contact and fit on opposite sides of the intervening cog-wheels, all of which are vertically above the lowest cog-wheels, firmly fixed, as aforesaid, to the several fire-guards F, the chains being held on the cogs by the rollers K, Fig. 4, so that a turn of either of the lowest cog-wheels by the operator will turn every cog-wheel and fire-guard above it in the same series alike. The chain may be kept on the cogs on the side next to the incasing of the shaft by fastening the cog-wheels on the fire-guards so close to the incasing as not to leave space between the face of the cog-wheels and the incasing wide enough to allow the links to slip off the cogs.

The bolt of the lock Y, Fig. 4, is forced by a key into a link of the endless chain O and between the next two cogs of the wheel, as shown by the dotted lines, whereby the chain and the cog-wheels attached are all fastened and kept securely in their places, either open or closed, as the operator may desire. The bolt may be made to slide or move by the hand of the operator, and thus effect the same result. One or more of said fire-guards below the uppermost pair may be dispensed with, if not deemed necessary for protection from fire.

These fire-guards and attachments may be used in any vertical shaft in a building.

I do not claim as my invention the use of the ordinary hatches as heretofore constructed and used with elevators on the floors of buildings; but

I do claim as my invention and ask to secure by Letters Patent—

1. The combination with the walls of an elevator shaft, of a pair of fire-guards hung in said shaft, above the course of the car, and all its machinery; a cog-wheel on the shaft of each guard, lower cog-wheels, each provided with a lever and handle, and endless chains, connecting the upper cog-wheels with the lower ones, all substantially as shown and described.

2. The combination with the walls of a tightly incased elevator shaft, of a tight top or cover, having ventilating openings; a pair of fire-guards hung therein above the machinery, a cog-wheel attached to each shaft, lower cog-wheels furnished with levers and handles; endless chains connecting said cog-wheels, and locks or fastenings for said chains, all substantially as shown and described.

3. The combination with the walls of an elevator shaft, of a tight top, or cover, provided with openings for ventilation; pairs of fire-guards hung in the shaft, one pair above all the machinery therein, and one at each floor of the building; a cog-wheel on the shaft of each fire-guard; a cog-wheel provided with a lever and handle below each set of cog-wheels and an endless chain connecting all the cog-wheels of each series, substantially as shown and described.

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