

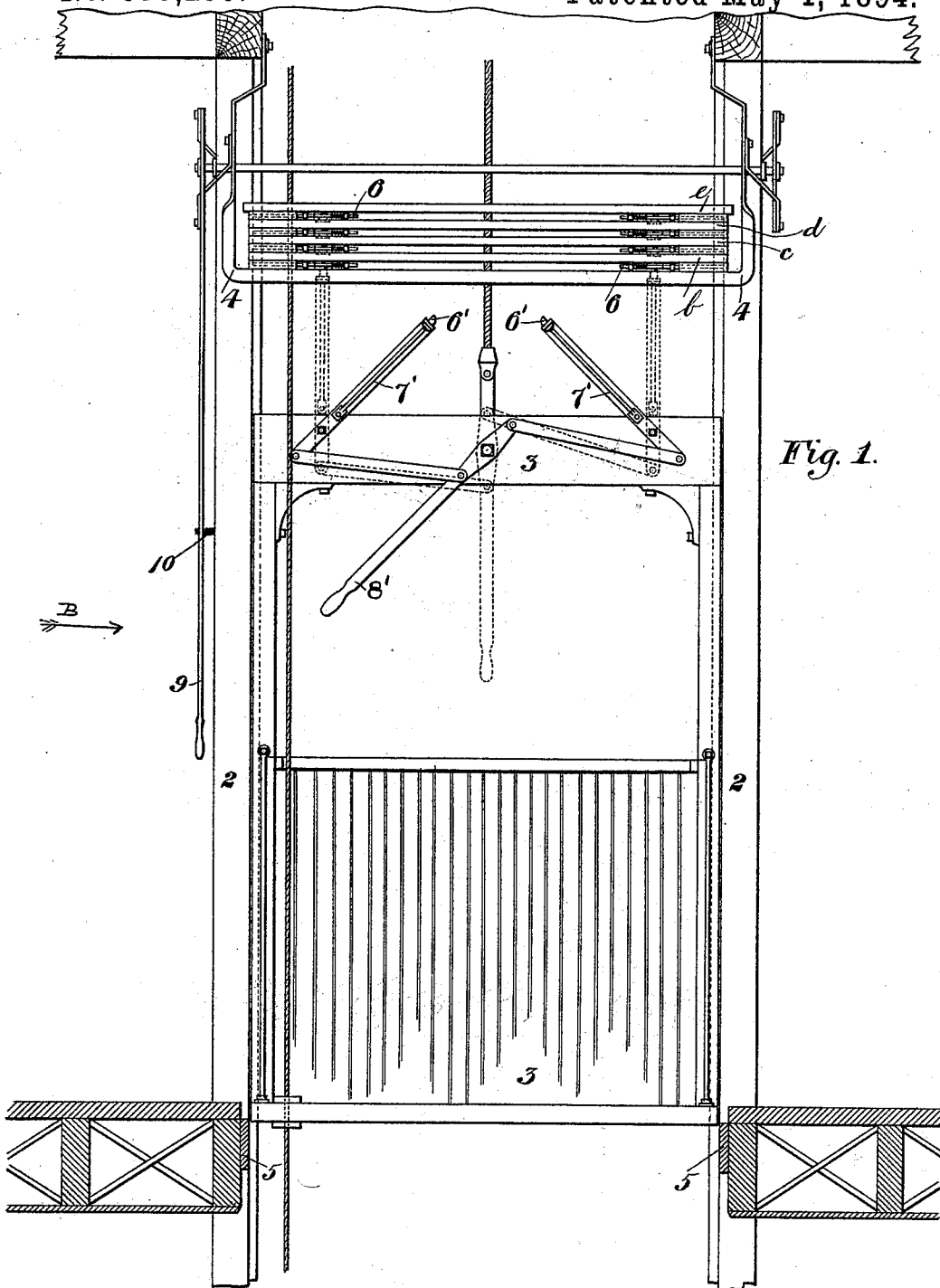
(No Model.)

3 Sheets—Sheet 1.

S. W. BLANCHARD & W. A. LAMBIE.
ELEVATOR HATCH.

No. 519,299.

Patented May 1, 1894.



WITNESSES

Warren W. Swartz
J. M. Corwin

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Silas Wright Blanchard
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by W. B. Randall & Sons
their Attorneys

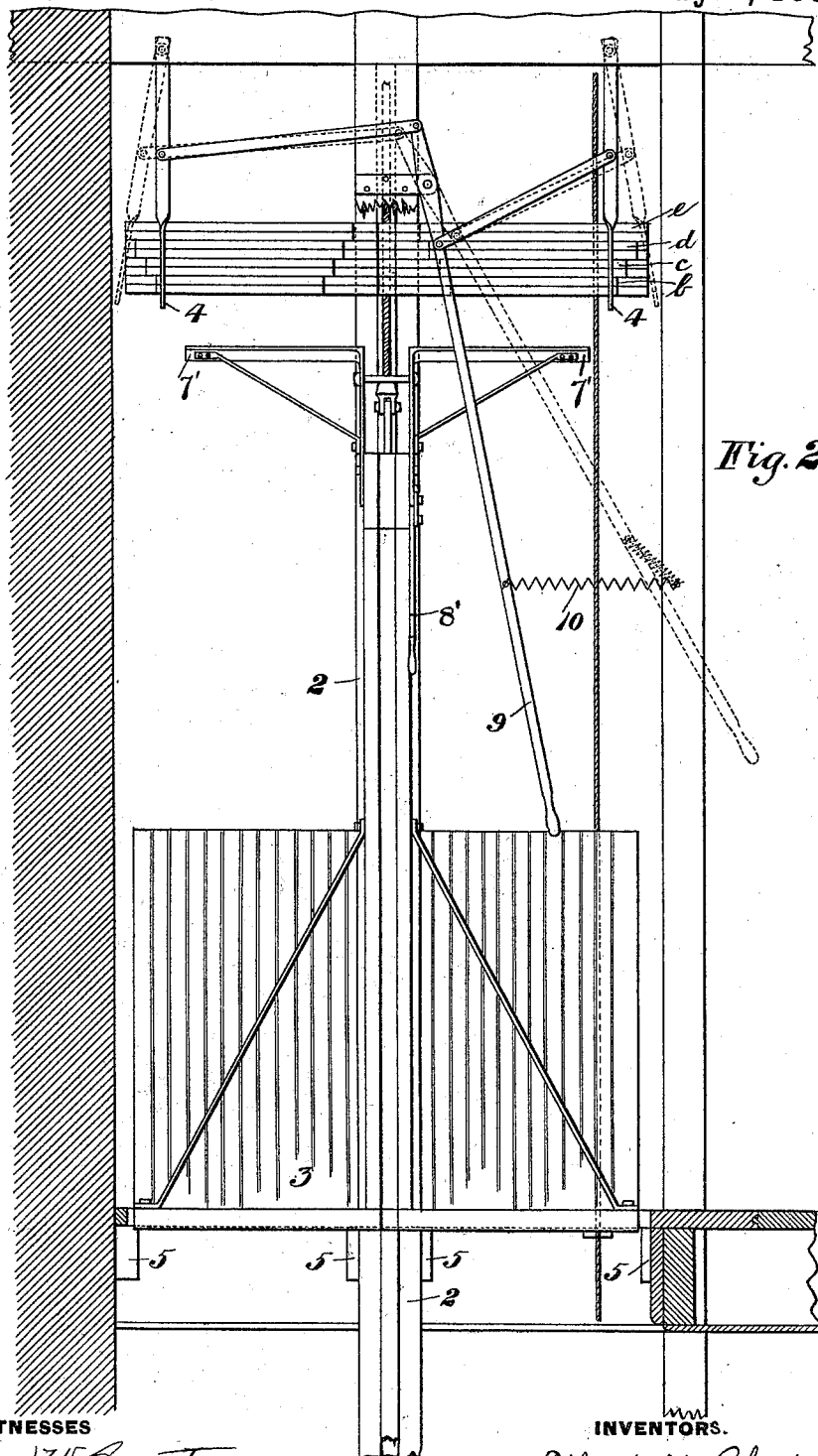
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3 Sheets—Sheet 2.

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Patented May 1, 1894.



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(No Model.)

3 Sheets—Sheet 3.

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Fig. 3.

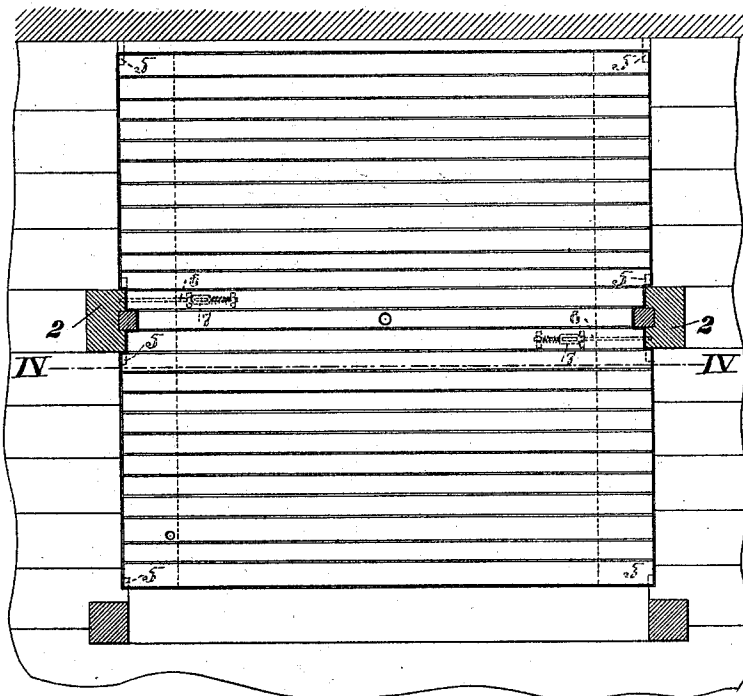


Fig. 4.

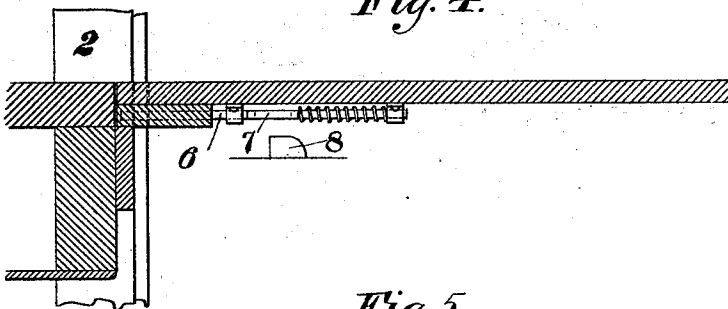
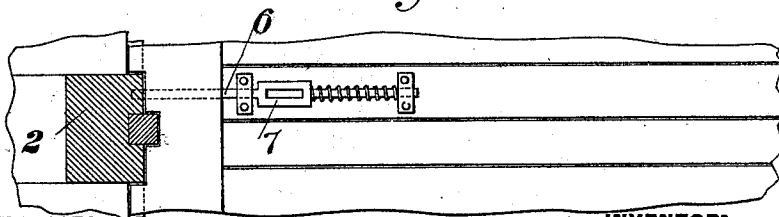


Fig. 5.



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UNITED STATES PATENT OFFICE.

SILAS W. BLANCHARD AND WILLIAM A. LAMBIE, OF PITTSBURG, ASSIGN-
ORS OF ONE-THIRD TO GEORGE WASHINGTON PORTER, OF ALLEGHENY,
PENNSYLVANIA.

ELEVATOR-HATCH.

SPECIFICATION forming part of Letters Patent No. 519,299, dated May 1, 1894.

Application filed September 24, 1892. Serial No. 446,784. (No model.)

To all whom it may concern:

Be it known that we, SILAS WRIGHT BLANCHARD and WILLIAM ALLEN LAMBIE, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Elevator-Hatches, of which the following is a full, clear, and exact description.

The object of our invention is to provide improved safety-hatch guards, which can be set in place at the levels of the floors in an elevator-shaft. Such hatchguards are especially desirable as means for protection against fire, since the open-elevator-shaft constitutes a draft-flue, creating in the building an up-draft, which augments greatly the danger of fire. Devices have been suggested heretofore in which hatchguards are provided for each floor, and are adapted to be carried up and down with the elevator in its every trip, but the weight of the hatchguards and other causes have rendered such appliances too clumsy and objectionable for general adoption.

Our improved apparatus is so constructed that normally the hatchguards are upheld at the top of the elevator-shaft, and it is only in times of danger, or when the elevator is not in use that they need be lowered into position at the various floors.

Our improved apparatus is simple in construction, reliable in action, not apt to get out of order, and does not impede the ordinary operation of the elevator.

The devices for locking the hatch guards to the several floors when the hatches are closed, although described in the present application, are claimed in a companion application filed October 30, 1893, and given Serial No. 489,447.

In the accompanying drawings, Figure 1 shows in side elevation an elevator provided with my improved safety-hatch guards, the elevator-shaft being shown in vertical section through the floor of the building. Fig. 2 is a similar view of another side of the elevator, viewed in the direction of the arrow B in Fig. 1. Fig. 3 is a horizontal section through the

elevator-shaft, showing one of the safety-doors or hatch guards in position at the floor. Fig. 4 is a vertical section on the line IV—IV of Fig. 3. Fig. 5 is a bottom plan view of the holding-bolt of one of the doors.

In the drawings, 2 represents the upright guide-pieces of an elevator-shaft, and 3 is a lift or elevator set therein and adapted to be moved vertically from one floor of the building to another. In the case illustrated by the drawings, the building has four floors above the first, at each of which the elevator-shaft is to be closed by means of a hatch guard or door. In Figs. 1 and 2, we show the four hatch guards *b c d e* resting one on top of the other at the top of the elevator-shaft, upheld by means of pivoted yokes 4 fitting under the lowest one of the hatch guards, the rope of the elevator passing through a central hole in each hatch guard. When in this position, the elevator may be moved up and down in the usual manner without in any way affecting the hatch guards, but the elevator is provided with means by which, when the hatch guards are released from their supporting-yokes, they may be supported by the elevator and lowered with it. At each floor there is a device adapted to engage and hold the then uppermost one of the hatchguards and to permit the others to pass on, so that when the elevator reaches the bottom of the shaft, it will have left one of the hatch guards at each floor. For the purpose of thus upholding the hatchguards at the several floors, we provide the elevator-shaft with projections 5, adapted to engage the margins of the proper one of the hatch guards, the other hatch guards being recessed as indicated in Fig. 2, so as to permit each hatch guard to pass until it reaches the proper projection adapted to uphold it. It is desirable also, in addition to supporting the hatch guards at the several floors, to hold them there in position by positively acting means, so that they may not be displaced by upward drafts through the elevator-shaft occasioned by the occurrence of fire in the building. To this end we provide each hatch guard on its under

side with spring-backed bolts 6, having head-
 portions 7, adapted to be engaged by a cam-
 projection and to be retracted thereby. Each
 of the three lower hatch guards has on its
 5 upper side such cam-projection 8, which nor-
 mally engages the head 7 of the bolt above it
 and holds it in retracted position, as indicated
 in Fig. 1. The bolts of the lowest hatch guard
 are adapted to be retracted by cam-projections
 10 6' on the ends of lever-arms or frames 7',
 which may be operated by a hand-lever 8', so
 as to bring them into vertical position, as
 shown by dotted lines in Fig. 1. When in
 this position, if the elevator be raised to its
 15 highest point, the cam-projections will engage
 the heads 7, and will automatically retract
 the bolts of the lowest hatch guard, holding
 them retracted so long as the projections re-
 main in contact with the bolt-heads. The
 20 yokes 4 are provided with lever-mechanism
 9, by which they may be swung from the po-
 sition shown by full lines in Fig. 2, in which
 they uphold the hatch guards, to the position
 shown by dotted lines in that figure, in which
 25 they will release the hatches.

The operation of the device is as follows:—
 Suppose that all of the hatch guards are
 upheld by the yokes 4 at the top of the ele-
 vator-shaft, as shown in Figs. 1 and 2, and
 30 that it be desired to lower the several hatch
 guards to their positions at the floors, either
 because a fire has occurred, or because at the
 end of the day's work the operator wishes to
 insure safety of the building by shutting the
 elevator-shaft. For this purpose, he raises
 35 the lever-arm 7' to the upright position
 shown by dotted lines in Fig. 1, and causes
 the elevator to ascend to the top of the shaft.
 When the elevator reaches this position, the
 40 upright-arms 7' engage the lowest hatch guard,
 and its projections 6' retract the bolts there-
 of; then a slight farther ascent of the ele-
 vator will lift the hatch guards from the
 supporting-yokes, whereupon a spring 10 at-
 45 tached to the lever 9, will swing said yokes
 back into the position shown by dotted lines,
 the yokes being free to move by their release
 from frictional contact with the hatch guards.
 A weight may be substituted for the spring
 50 10. Then the elevator may be caused to de-
 scend, and as it does so it will carry with it
 the hatch guards supported upon the ends of
 the upright-arms 7'. When the top hatch
 guard comes to the position of the next floor of
 55 the building, it is retained by the projections,
 as above described, and as the other lower
 hatch guards move down away from it, its
 bolts 6 being released from the retraction of
 the cam-projections of the hatch guard be-
 60 low, spring forward into suitable recesses or
 keepers in the elevator floor and are held
 thereby. In like manner as the elevator con-
 tinues its descent, each of the hatch guards
 is left at its proper floor in bolted position.
 65 To perform this operation, it will be noticed

that it is not necessary that the operator of
 the elevator should ride with it to the top,
 since he may stand at the bottom of the shaft
 and from that point may govern the motion
 of the elevator. This is of importance in case
 70 of fire in the building. When it is desired to
 lift the hatch guards again and to suspend
 them at the top of the elevator-shaft, as
 shown in Figs. 1 and 2, the operator raises
 the arms 7' to upright position, and then
 75 causes the elevator to ascend. As it reaches
 the first floor of the building, the projections
 6' on the lever-arms engage the heads of the
 bolts, retract and disengage them from their
 keepers or recesses, thus freeing the hatch
 80 guard and lifting it on the arms in the far-
 ther ascent of the elevator. When the ele-
 vator reaches the floor next above, the cam-
 projections on the first hatch guard retract
 and free the bolts of the next hatch guard,
 85 and then the latter is lifted, and so on until
 all the hatch guards are raised to the top of
 the elevator-shaft, superposed one upon the
 other. The lever 9 is then moved by hand
 so as to bring the yokes 4 into supporting po-
 90 sitions under the hatch guards, and then the
 elevator may be caused to descend, leaving
 the hatch guards suspended by the yokes in
 the manner first above explained. Until it
 is desired again to lower the hatch guards to
 95 the various floors, the lever-arms 7' are moved
 into their lower positions, as shown in Fig. 1,
 so that in the ordinary use of the elevator
 they shall not come in contact with the hatch
 guards.

Modifications in construction and general
 arrangement of the parts of the apparatus
 may be made by those skilled in the art with-
 out variance from our invention as stated in
 the following claims, since we believe that
 105 we are the first broadly to devise the combi-
 nations of means therein set forth, irrespec-
 tive of the precise mechanical construction.

We therefore claim—

1. The combination of an elevator car, a se-
 110 ries of hatch-guards above the same and
 adapted to be carried thereby, means for up-
 holding the hatch-guards respectively at the
 several floors, a hatch-guard-upholder at the
 top of the elevator-shaft, and automatic
 115 means for retracting the hatch-guard-up-
 holder when the hatch-guards are lifted there-
 from; substantially as described.

2. The combination of an elevator car, a se-
 120 ries of hatch-guards above the same and
 adapted to be carried thereby, means for up-
 holding the hatch-guards respectively at the
 several floors, and swinging yokes at the top
 of the elevator-shaft adapted to fit under and
 uphold the hatch-guards and means for re-
 125 tracting the yokes automatically; substan-
 tially as described.

3. The combination of an elevator car, a se-
 ries of hatch-guards above the same and
 adapted to be carried thereby, means for up- 130

holding the hatch-guards respectively at the
several floors, yokes for upholding the hatch-
guards at the top of the elevator-shaft, and
automatic means for retracting the yokes
5 when the hatch-guards are lifted therefrom
by the elevator; substantially as described.
In testimony whereof we have hereunto set

our hands this 22d day of September, A. D. 1892.

SILAS W. BLANCHARD.
WILLIAM A. LAMBIE.

Witnesses:

JOHN S. KENNEDY,
CLARENCE BYRNES.