

(No Model.)

A. J. BALLARD.
SELF CLOSING HATCH COVER.

No. 294,108.

Patented Feb. 26, 1884.

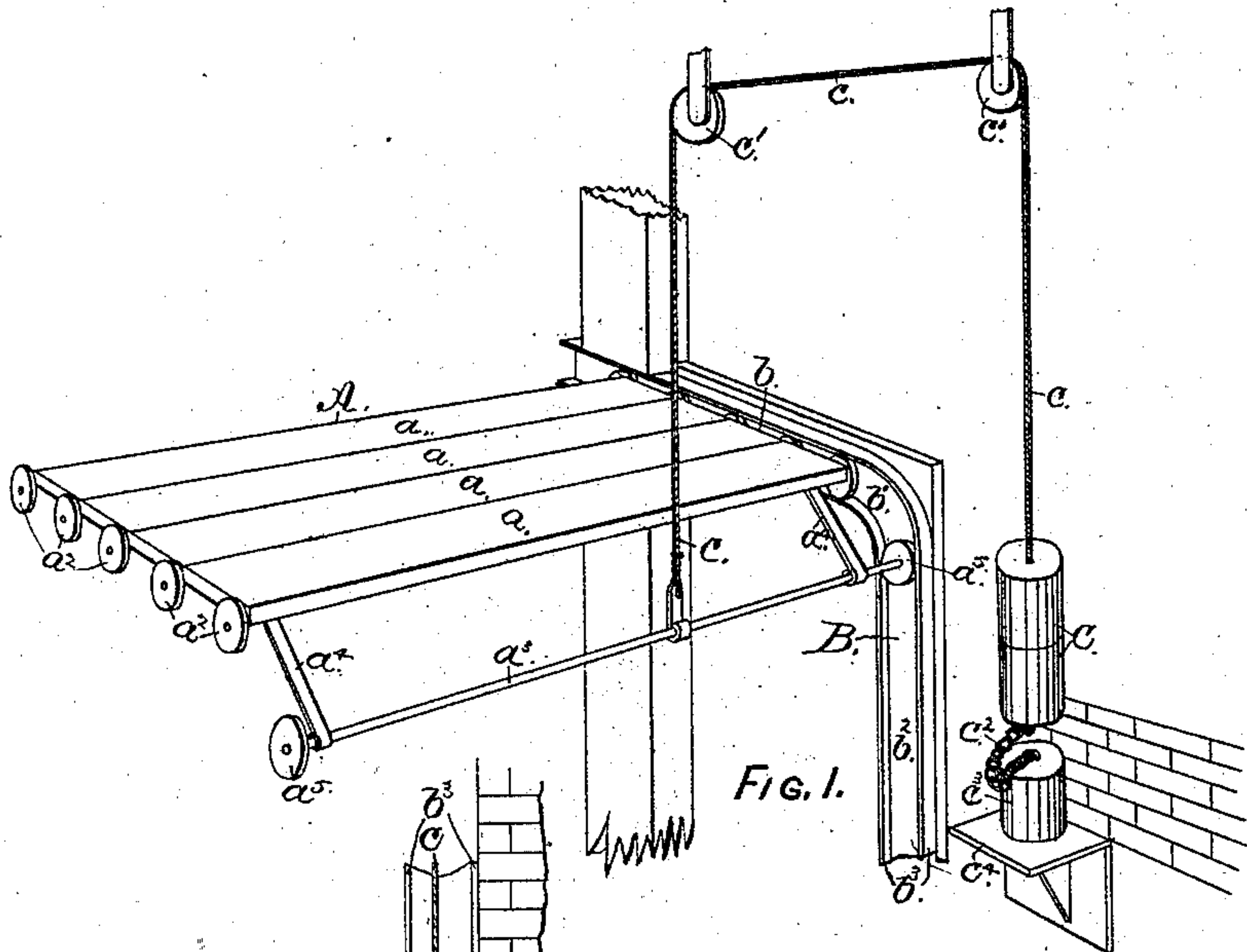


FIG. 1.

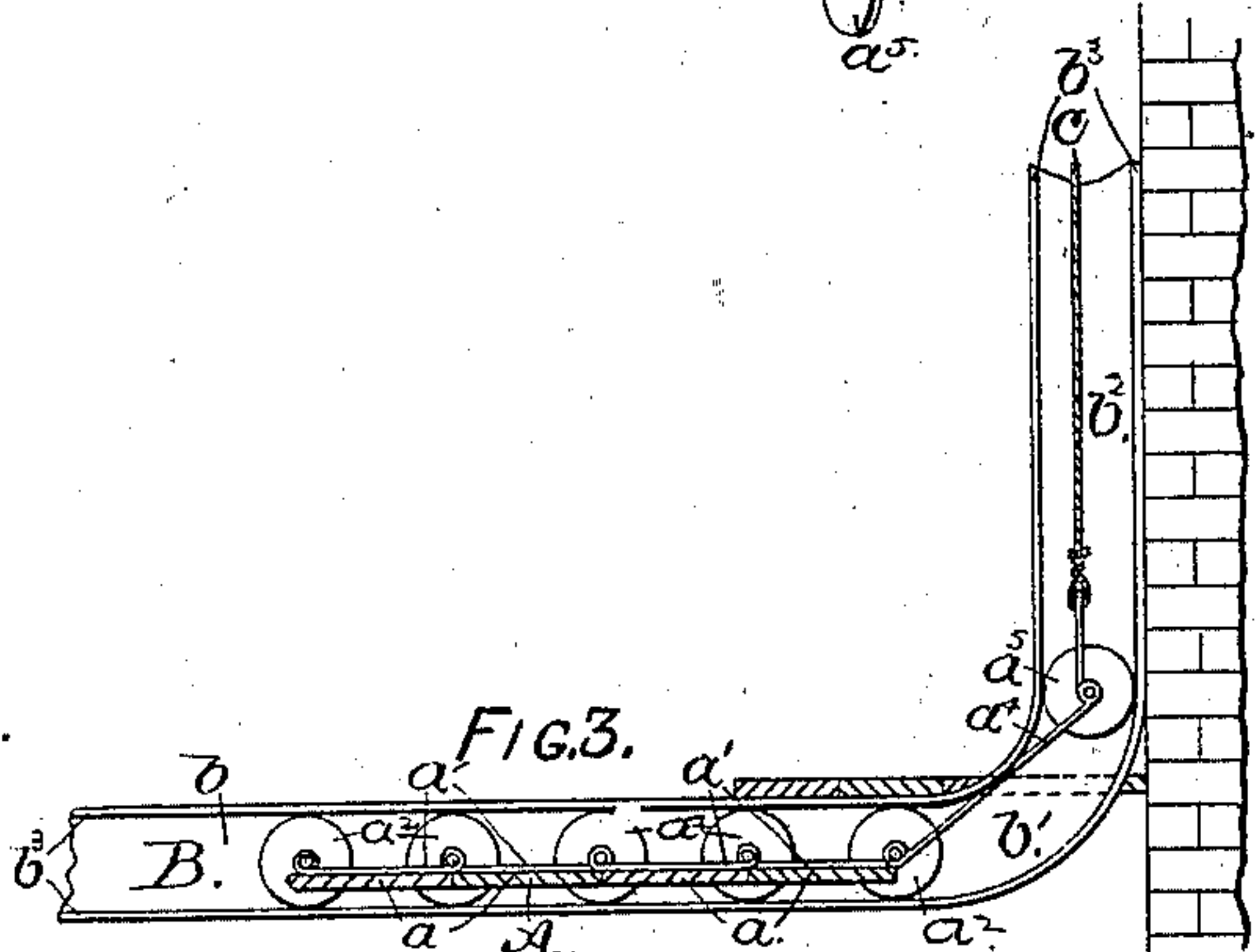


FIG. 3.

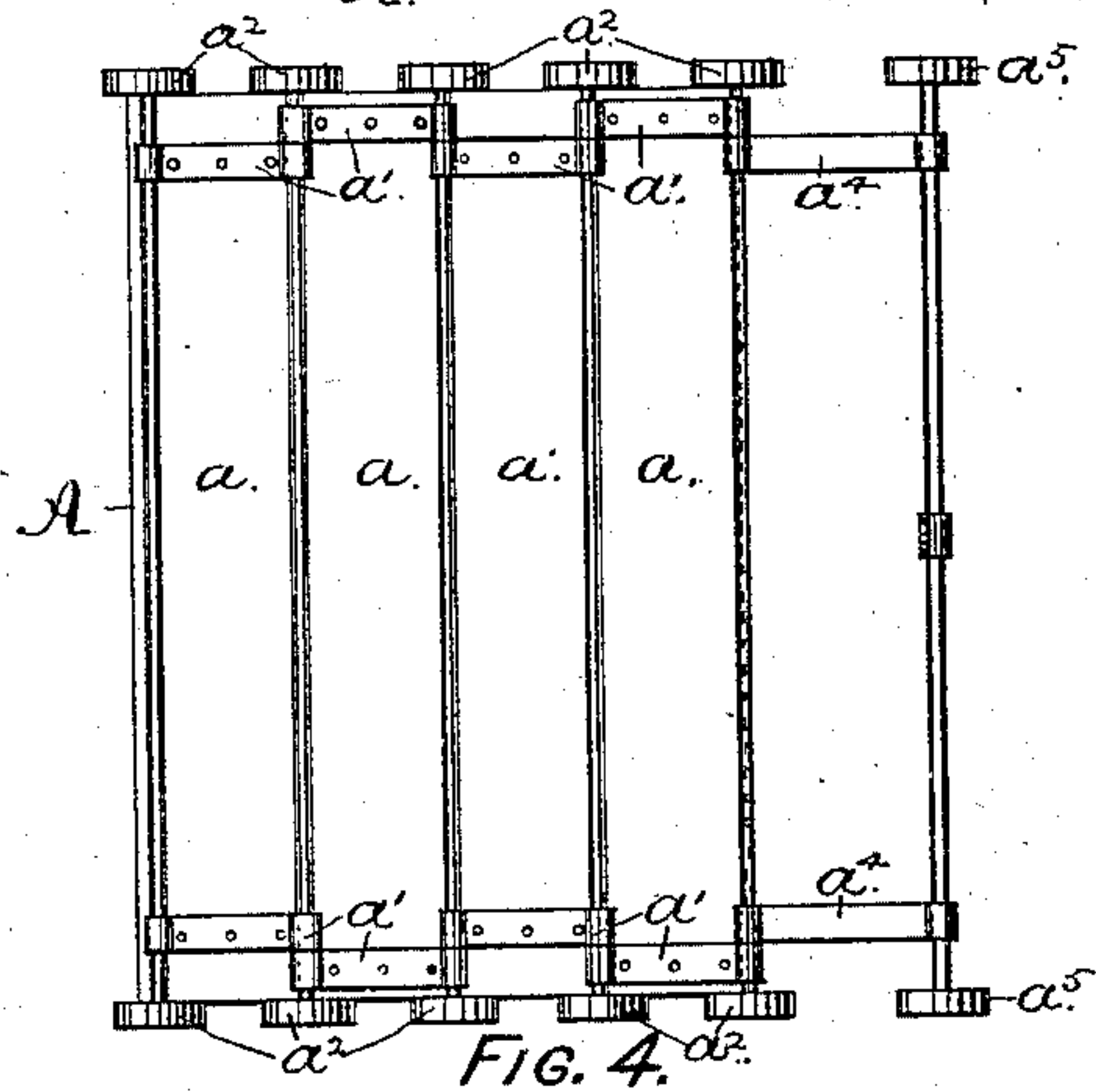


FIG. 4.

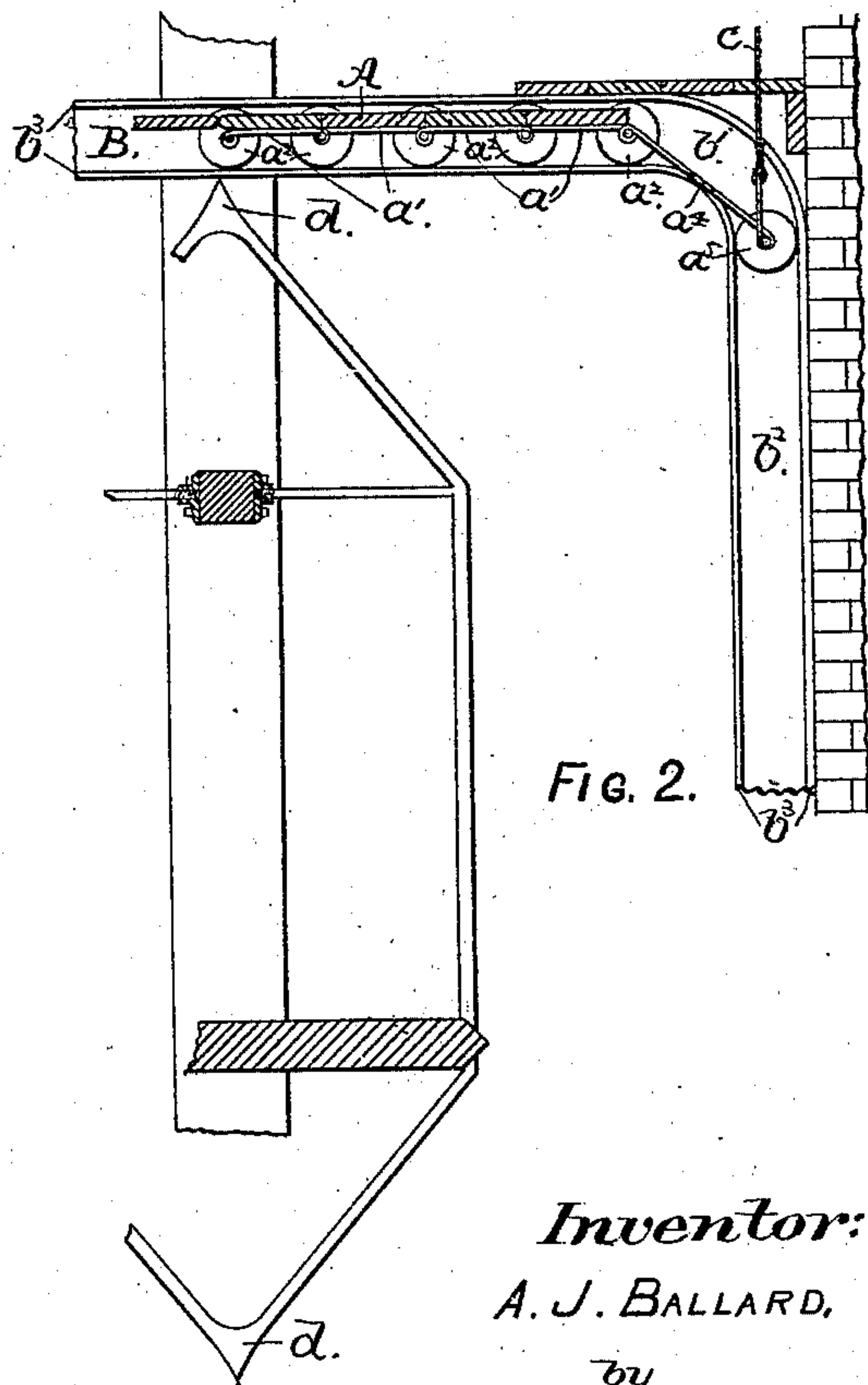


FIG. 2.

Witnesses:

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UNITED STATES PATENT OFFICE.

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SELF-CLOSING HATCH-COVER.

SPECIFICATION forming part of Letters Patent No. 294,108, dated February 26, 1884.

Application filed June 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. BALLARD, of Cohoes, in the county of Albany, in the State of New York, have invented certain new and useful Improvements in Self-Closing Hatch-Covers, of which the following is a specification.

My invention relates to improvements in self-closing hatch-covers.

10 The object of my invention is to provide an efficient self-closing cover for a hatchway that is located so closely to the side of a building that the ordinary inflexible covers, which are adapted to slide horizontally, and which are
15 commonly used for self-closing hatch-covers, cannot be employed; and to this end my invention consists in constructing said hatch-cover of separate narrow planks, which are connected together by means of hinge-joints,
20 so as to form, in effect, a flexible platform, the said platform being provided at its opposite edges with friction-rollers that are adapted to run in tracks which are provided with suitable curves for changing the direction of travel
25 of said friction-rollers from a horizontal to a vertical line, so as to produce a corresponding deflection of the planks composing the platform, as hereinafter described.

30 In the accompanying drawings, which form part of this specification, and to which reference is made herein, Figure 1 is a perspective view of my improved hatch-cover with the nearest track removed, so as to show the underlying parts; Fig. 2, a vertical section of
35 same at the line X X; Fig. 3, a like section with the curved portion of the tracks reversed to deflect the flexible platform upwardly, and Fig. 4 an inverted plan view of my jointed hatch-cover.

40 As represented in the drawings, A is the flexible hatch-cover, B the tracks, and C weights for counterbalancing the weight of the hatch-cover.

45 The hatch-cover A is composed of separate pieces or planks a , which are connected together by means of the hinges a' , whose pivotal centers are arranged to coincide with the joints between the pieces a . The pivotal pins of said hinges are extended outwardly, to serve
50 as axles for the friction-wheels a^2 to revolve on. The cross-bar a^3 , to which the weights C

are connected, as hereinafter described, is flexibly connected to the hinge of the outer piece a by means of the links a^4 , and upon each end of said cross-bar the friction-wheels a^5 are placed, so as to engage and run in the tracks B, in the manner hereinafter set forth. The tracks B are each composed of a horizontal portion, b , curved portion b' , and vertical portion b^2 , and the latter may be arranged in relation to the portion b to stand either downwardly, as shown in Figs. 1 and 2, or upwardly, as shown in Fig. 3. The said tracks are made with two projecting flanges, b^3 , which are arranged parallel to each other at sufficient distance apart to receive the diameter of the friction-wheels a^2 , so as to form a trough or guide by which the direction of the travel of the friction-wheels will be governed. The weights C are connected, by means of a rope or chain, c , which runs over suitable guide-pulleys, c' , to the cross-bar a^3 . The said weights I preferably arrange in two or more divisions, that are connected by means of the chain or rope c^2 in such manner that in the closing movement of the hatch-cover the lower weight, c^3 , will be caught on a bracket or shelf, c^4 , so as to relieve the hatch-cover of that portion of the counter-weight. The slack of the chain c^2 permits the said lower weight to remain in a state of rest on the bracket c^4 , while the balance of the weights, which remain suspended by the rope c , continue to exert their power to force the hatch-cover A inwardly to close over the hatchway. The entire cover for the hatchway is usually made in two principal divisions which meet in the middle of the hatchway, and are adapted to slide in opposite directions. Commonly one of said principal divisions is made inflexible, so as to slide in a straight horizontal track, and the closing movement of that division is readily effected by means of weights, in a manner too well known to require a description; but when occasion requires my improvement can be applied to both divisions. The platform or car of the hoisting apparatus is provided, both above and below, with suitable points, d , which are adapted to enter into the joint between the principal divisions of the hatch-cover, and to push the two parts far enough asunder to permit the car or platform to pass freely, either upwardly or downwardly,

through the hatchway. As the cover A is moved backward from over the hatchway, the cross-bar a^3 is pushed downward into the vertical portion b^2 of the tracks B, first against the resistance of the upper portion of the weights C, and then, when the slack of the chain c^2 is exhausted so as to suspend the weight c^3 , against the resistance of all the weights. When the body of the platform or car has passed through the hatchway, the weights C will cause the inner edge of the cover A to bear against and follow the angled sides of the points d , and effect the closing movement of said cover as rapidly as the angles of said points will permit. The effect of the links a^4 , when arranged in relation to the cross-bar a^3 and tracks B as herein shown and described, is to give to the weights C a more perfect control over the cover A when the latter is near the termination of its closing movement.

I claim as my invention—

1. The combination, with a flexible cover, A, for a hatchway, the said cover being connected together by means of hinge-joints a' , and provided with a series of friction-wheels, a^2 , as herein described, of the tracks B, each

being composed of a horizontal portion, b , curved portion b' , and vertical portion b^2 , the said tracks being adapted to receive the friction-wheels a^2 in such manner as to govern the direction of the travel of the cover A, as herein specified.

2. The combination, with a flexible cover, A, for a hatchway, the said cover being jointed together and provided with friction-wheels a^2 , as herein described, of the tracks B, composed of horizontal portion b , curved portion b' , and vertical portion b^2 , as herein set forth, and the weights C, all being constructed and arranged to operate substantially as herein specified.

3. The combination, with a flexible cover, A, for a hatchway, the cross-bar a^3 , flexibly connected to said cover by means of the links a^4 , and the weights C, connected to said cross-bar, of the tracks B, composed of horizontal portions b , curved portions b' , and vertical portions b^2 , all being constructed and arranged to operate substantially as herein specified.

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Witnesses:

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