(No Model.)

A. BATAILLE.

FOLDING GATE OR DOOR.

No. 358,956. Patented Mar. 8, 1887.

Fig. 1.

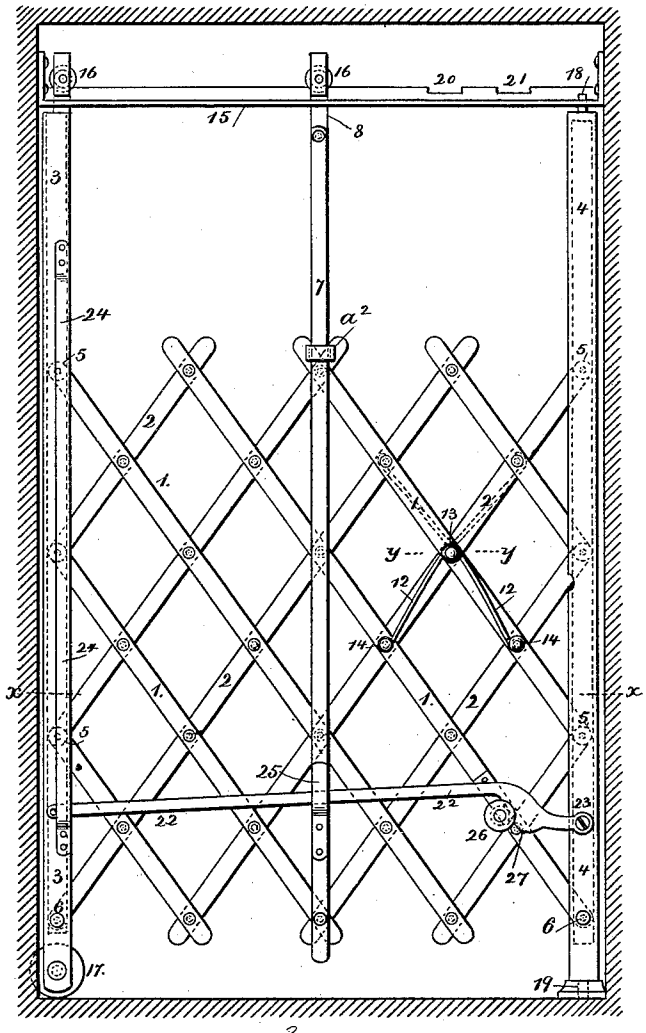


Fig. 3.

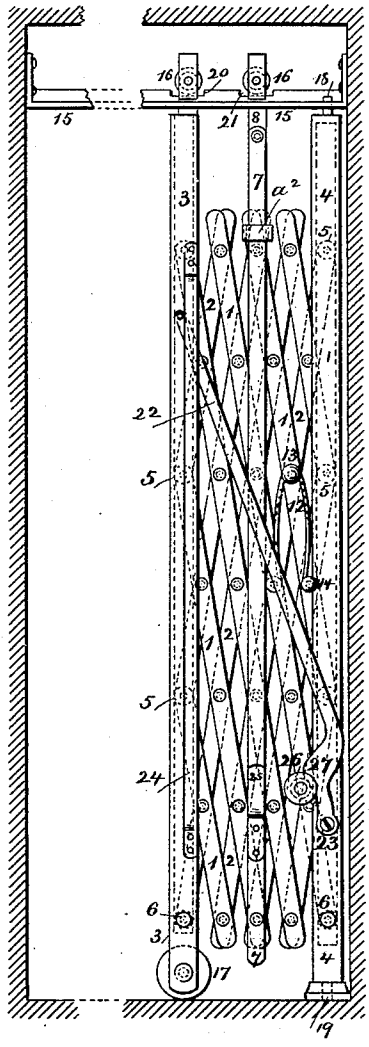


Fig. 2.

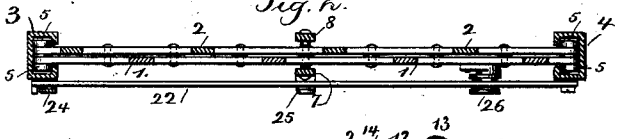
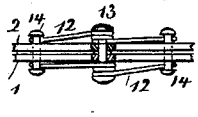


Fig. 4



Witnesses

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UNITED STATES PATENT OFFICE.

ACHILLE BATAILLE, OF NEW YORK, N. Y.

FOLDING GATE OR DOOR.

SPECIFICATION forming part of Letters Patent No. 358,956, dated March 8, 1887.

Application filed February 15, 1886. Serial No. 191,931. (No model.)

To all whom it may concern:

Be it known that I, ACHILLE BATAILLE, of the city and State of New York, have invented an Improvement in Folding Gates or Doors, of which the following is a specification.

This invention is especially available for the doors made use of in connection with elevators for buildings, wherein it is important to close the door and to retain the same in its closed position in order that accidents may not occur from the door being left open through carelessness.

I make use of folding diagonal bars hinged together and pivoted to upright bars or frames, and rollers for supporting the weight, and a spring or springs to close the door, and a bar is swung automatically to stiffen the door or gate and prevent the same from yielding to lateral pressure. In connection with doors or gates formed of ranges of parallel bars crossing each other diagonally a horizontal stiffening-bar has been made use of; but it has been placed in position or removed by hand, and hence was not adapted to the rapid opening and closing of elevator-doors.

In the drawings, Figure 1 is an elevation of the door or gate in its closed position. Fig. 2 is a horizontal sectional plan below the line *x x*. Fig. 3 is an elevation of the gate in its folded condition, and Fig. 4 is a sectional plan below the line *y y*.

The parallel bars 1 and 2 are in two ranges crossing each other diagonally, and they are riveted together at the points of intersection, so that they can be spread out or folded in the manner usual in gates of this class.

3 and 4 are the vertical side bars of the gate. These are made hollow and rectangular in section and slotted vertically at one side to receive the rollers 5 upon the ends of the cross-bars 1 and 2, as seen in Fig. 2. The lower ends of the diagonal cross-bars 1 2 are permanently attached to the side bars, 3 and 4, by the rivets 6 at their lower ends, so that the diagonal cross-bars swing together upwardly as the gate is opened by folding the bars.

I usually employ the vertical center frame composed of the bars 7 and 8, and the cross-bars 1 and 2 are attached at the bottom to this central frame, and there is a slide, a^2, at the upper part of the cross-bars 1 and 2 that moves up and down upon the central frame, 7 and 8, as the gate is folded and unfolded.

The first part of my improvement relates to the combination, with the aforesaid folding gates, of one or more springs, 12, that act to unfold or spread the gate and close the same. Each spring is made as a coil around the bolt or rivet 13, and the coil is retained in place by the head of the rivet or bolt, and the arms of the spring act against the rivets or bolts 14; hence as the door or gate is folded together the spring is compressed, and as the spring expands it spreads or unfolds the door to close the same.

I have shown a spring at each side of the folding cross-bars; but it will be apparent that any desired number of these springs can be applied to the door or gate for accomplishing the desired object, and these springs occupy but little space, and are not likely to become caught or broken. Should it be desired to make use of these springs for opening the gate, the same may be effected by placing the springs in the manner indicated by dotted lines, so that their ends or arms press in the opposite direction to what they do when in the positions shown by the full lines.

In order to guide the door or gate in opening and closing, I make use of the head-bar 15, over which the upper ends of the bars 3 and 7 are hooked, and it is preferable to employ a roller at 16 to roll upon this head-bar 15 and sustain the weight of the parts, and I have also shown the roller 17 at the bottom of the side bar 3, to roll upon the floor or a track.

The side frame 4 is provided with pivots 18 and 19 at the top and bottom ends, so that the entire gate or door may be swung upon these pivots to open the doorway to its fullest extent, as is sometimes necessary, and in order to allow of this being done the head-bar 15 is notched at 20 and 21, to allow the hooked ends of the bars 3 and 7 to be swung clear of the bar 15 when the gate is open or closed. This feature of improvement is especially advantageous for allowing safes or other large articles to be passed through the doorway.

I make use of the stiffening-bar 22, which is pivoted at 23 upon the side bar 4 of the gate, and its outer end is behind the guide-rod 24 between the same and the side bar 3, and

when this stiffening-bar 22 occupies nearly a horizontal position it passes behind the hook 25 upon the vertical bar 7, and thereby prevents any lateral motion at the middle part of the gate. This stiffening-bar 22 is rendered automatic by the roller 26 upon the cross-bars of the gate, which acts against the cam portion 27 of said bar 22, so that as the gate is folded the roller 26 presses beneath the cam 27 and swings the bar 22 upwardly, and the shape of the cam 27 is such that the outer end of the stiffening-bar 22 slides up behind the guide-rod 24 and projects but slightly beyond it as the gate is folded and opened, and the reverse movement takes place when the gate is unfolded and closed.

In cases where the door or gate does not swing upon pivots the stiffening-bar 22 may be pivoted to the door-casing.

I am aware that lazy-tongs have been made of bars crossing each other and riveted at the intersections, and that these have been used in fire-extinguishers, gates, and other structures, and also that springs have been employed to partially counterpoise the weight of the parts. Therefore I do not claim any of these parts separately.

I claim as my invention—

1. The combination, with the horizontally-moving door or gate having diagonal folding cross-bars 1 and 2 pivoted at their intersections, of the vertical side bars, 3 and 4, to which the cross-bars are connected, the spring 12, having a coil around one of the pivots, and arms acting against the diagonal cross-bars, substantially as and for the purposes set forth.

2. The combination, with the horizontally-moving door or gate having diagonal cross-bars 1 and 2 pivoted together at their intersections, and the vertical side bars, 3 and 4, of the central frame, formed of the bars 7 and 8, the rollers 16, the head-bars 15, notched at 20 and 21, and the pivots at the top and bottom ends of the bar 4, on which the gate can be swung when folded, substantially as set forth.

3. The combination, with the horizontally-moving door or gate having diagonal cross-bars 1 and 2 pivoted together at their intersections, of the vertical hollow rectangular side bars, 3 and 4, the rollers upon the ends of the diagonal cross-bars and within the hollow side bars, the vertical central frame composed of the bars 7 and 8, and the head-bar 15, or track to suspend the gate, substantially as set forth.

4. The horizontally-moving door or gate having diagonal folding cross-bars pivoted at their intersections, in combination with the side bars, 3 and 4, the pivots to connect the cross-bars to the side bars, the head-bar or track for suspending the gate, and the vertical frame composed of the bars 7 and 8, substantially as set forth.

5. The folding diagonal cross-bars 1 and 2, pivoted together, and the side bars, 3 and 4, receiving the ends of the cross-bars, in combination with the movable stiffening-bar pivoted at one end to the side bar 4, and swinging upwardly as the door is folded, substantially as set forth.

6. The combination, with the diagonal folding cross-bars and the side bars pivoted together, of the stiffening-bar pivoted at one end to the side bar 4, and the guide-rod upon the bar 3, behind which the other end of the stiffening-bar moves, substantially as set forth.

7. The stiffening-bar 22, having a cam, 27, in combination with a folding gate or door having folding cross-bars and side bars, a pivot at one end connecting the stiffening-bar to one of the side bars, and a roller upon one of the cross-bars to act against the cam and move the stiffening-bar as the door is opened, substantially as specified.

8. The combination, with the door or gate having the folding cross-bars and the vertical bars 3 4 7 8, of the stiffening-bar 22, pivoted at one end to the bar 4, the guide-rod 24, behind which the other end moves, and the hook 25 on the bar 7, behind which the stiffening-bar passes, the head-bar 15, and rollers 16, substantially as set forth.

Signed by me this 5th day of February, A. D. 1886.

ACHILLE BATAILLE.

Witnesses:
GEO. T. PINCKNEY,
WILLIAM G. MOTT.