

A. BOMBELLI.
 COLLAPSIBLE DOOR, PARTITION, AND THE LIKE AND OPERATING MECHANISM THEREFOR.
 APPLICATION FILED FEB. 10, 1917.

1,351,229.

Patented Aug. 31, 1920.
 2 SHEETS—SHEET 1.

Fig. 1

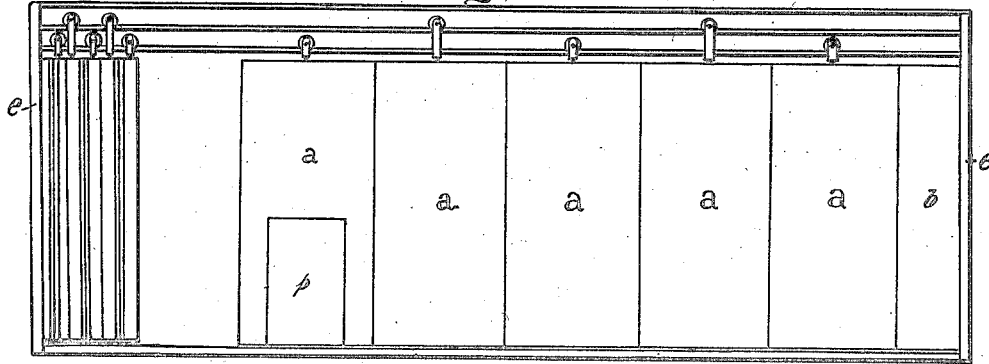


Fig. 2

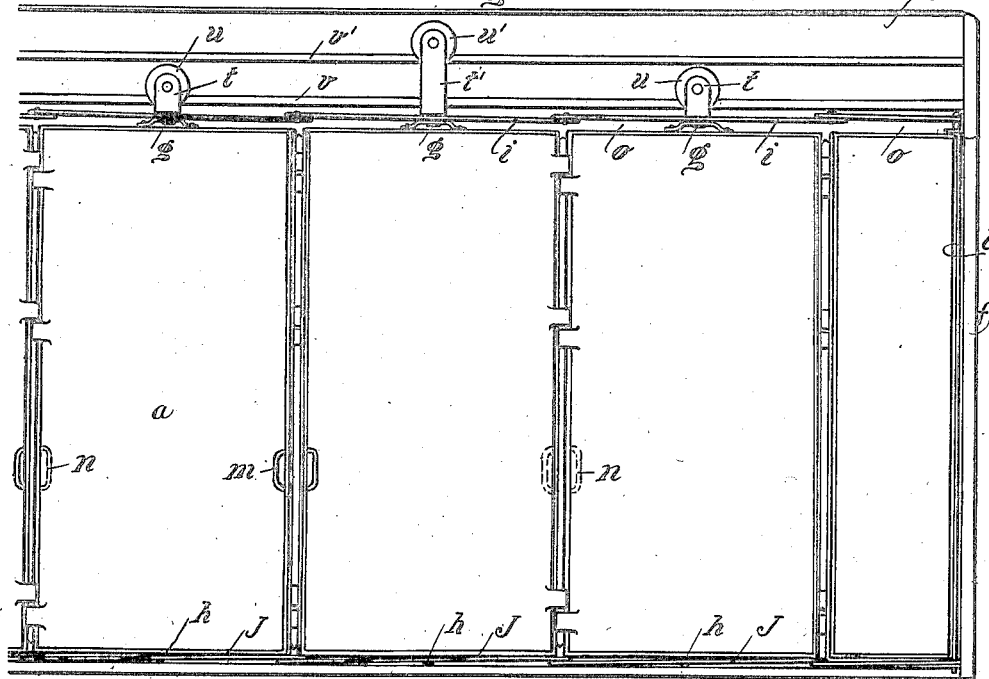
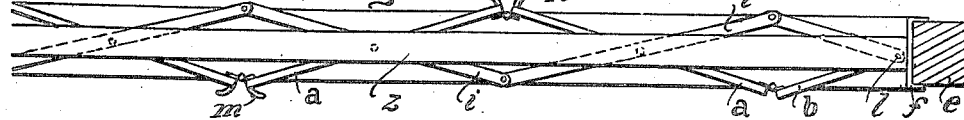


Fig. 3



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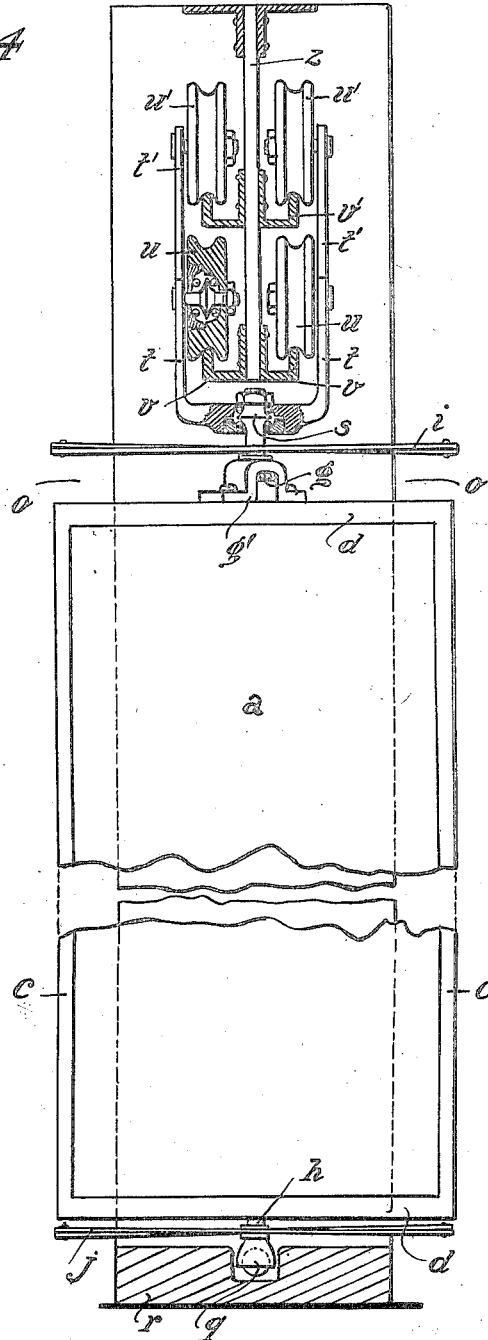
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2 SHEETS—SHEET 2.

Fig. 4



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UNITED STATES PATENT OFFICE.

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COLLAPSIBLE DOOR, PARTITION, AND THE LIKE AND OPERATING MECHANISM THEREFOR.

1,351,229.

Specification of Letters Patent. Patented Aug. 31, 1920.

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To all whom it may concern:

Be it known that I, ANGELO BOMBELLI, a subject of the King of Italy, residing at 21 Viale Monza, Milan, in the Kingdom of Italy, have invented certain new and useful Improvements in Collapsible Doors, Partitions, and the like and Operating Mechanism Therefor, of which the following is a specification.

This invention relates to collapsible doors, partitions and the like and operating mechanism therefor and is more particularly intended for closing high or wide openings or both high and wide openings of premises such as hangars, garages, warehouses, etc., which enables the closing and opening to be effected more easily and quickly, at the same time insuring the strength and rigidity of the parts and of the whole door structure.

It is particularly suitable for cases where a fluid tight closure excluding air and moisture is not required, as in the case of hangars. Fluid-tightness can also be obtained, if necessary, by the aid of suitably arranged supplementary closures.

The accompanying drawing shows, by way of example, a movable door or partition for closing the doors of a hangar, comprising two parts slidable in opposite directions, each of which may be closed up into a narrow space near the side posts of the door.

Figure 1 shows the partition in elevation in two parts, one part being shown in the open position and the other part in the closed position.

Fig. 2 is an elevation drawn to an enlarged scale of the closed part shown in Fig. 1. Fig. 3 is a plan of Fig. 2. Fig. 4 is a cross section drawn to an enlarged scale of one of the door-plates. The constructional details may vary from those shown without departing from the nature and scope of the present invention.

Referring to the drawing a, a, a are screens hinged together along their vertical sides so as to form a sort of draft screen foldable along a broken line. Another screen b , corresponding in breadth to half of one of the screens a is hinged to a post e , which is suitably provided with an iron section f .

Each of the screens a is provided with a pivot g at the top and a pivot h at the bottom, which pivots pass through the central

points of rods i, j jointed together at their extremities and forming, with the screens a , a collapsible lazy tongs arrangement the links of which are pivoted at g and h .

The links adjacent to the post are mounted on a vertical pivot l adjacent to the screen b , so that by rotating the screen b about the said pivot l the links, when opening and closing, cause rotation of the screens about their pivots, and consequently they approach or recede from the posts with a speed that increases in passing from the screen nearest to the post that is from screen b to that farthest away.

In order to facilitate operating, the screens may be provided inside or outside the partition with handles m, n .

The sections or screens a are preferably given a greater width than would be necessary in order to cover the opening to be closed by the door, so that the door, when fully closed, has a corrugated appearance as shown in Fig. 3, and is therefore better able to withstand the pressure of the wind.

A small door p , may be provided in one of the screens, so as to allow of access to the hangar without it being necessary to open the door.

The lower pivot h of the screens a is provided with a part q adapted to carry a pulley, roller, or a ball that rolls movable in a guiding groove cut in the door sill r .

Each pivot g is rotatably mounted in its bracket g' which it supports and carries a forked support t or t' , said supports being arranged in alternate sequence as shown in Fig. 2. In the supports t and t' are mounted sets of pulleys u, u and u', u' respectively, arranged to run on guides v, v' respectively, the guides v, v' being suitably supported above the door and extending between the door posts on each side of the hangar, or other premises.

In order to economize space the supports t and t' are made in different lengths while the tracks or guides v, v' are situated at different heights. See Figs. 2 and 4.

As shown at the left hand side of Fig. 1, the screens may, in the open position, be arranged at right angles to the door sill, without the adjacent pulleys fouling one another and preventing the complete opening of the door or partition.

The guides v, v' may be mounted laterally on an architrave z .

If desired either or both sets of rods *i, j* may be employed each set being jointed and forming a lazy tongs arrangement connected to the screens.

5 Instead of consisting of two leaves capable of contracting and designed to approach and recede from one another, the door or partition may consist of a single leaf extending right across the opening and being, when in
10 the closed state, folded against one of the posts. In the case of small doors or partitions consisting of a limited number of screens the assembling links might also be omitted.

15 What I claim and desire to secure by Letters Patent of the United States is:—

1. The combination, with a frame having two vertical side posts and two horizontal tracks arranged at different levels near the
20 top of said frame, of a folding door comprising a plurality of sections pivoted to one another along their vertical edges, one of said sections having one vertical edge pivoted to said frame, a series of pivoted levers con-
25 nected with the frame and with the individual door sections in such a manner as to form therewith a system of lazy tongs, guid-

ing means pivotally connected with each door section at its point of attachment to the pivoted levers, said means including rollers
30 engaging said tracks, the rollers engaging one track alternating with the rollers engaging the other track.

2. The combination with a frame having two vertical side parts and two horizontal
35 tracks arranged at different levels near the top of said frame, of a folding door comprising a plurality of sections pivoted to one another along their vertical edges and having each section of such a width that the door
40 when fully closed is only partially unfolded and one of said sections having one vertical edge pivoted to said frame, of a series of pivoted levers connected with the frame and with the individual door sections in such a
45 manner as to form therewith a system of lazy tongs, of guiding means pivotally connected with each door section at its point of attachment to the pivoted levers, said means including rollers engaging said tracks, the
50 rollers engaging one track alternating with the rollers engaging the other track.

In testimony whereof I affix my signature.
ANGELO BOMBELLI.