

H. W. DYER.

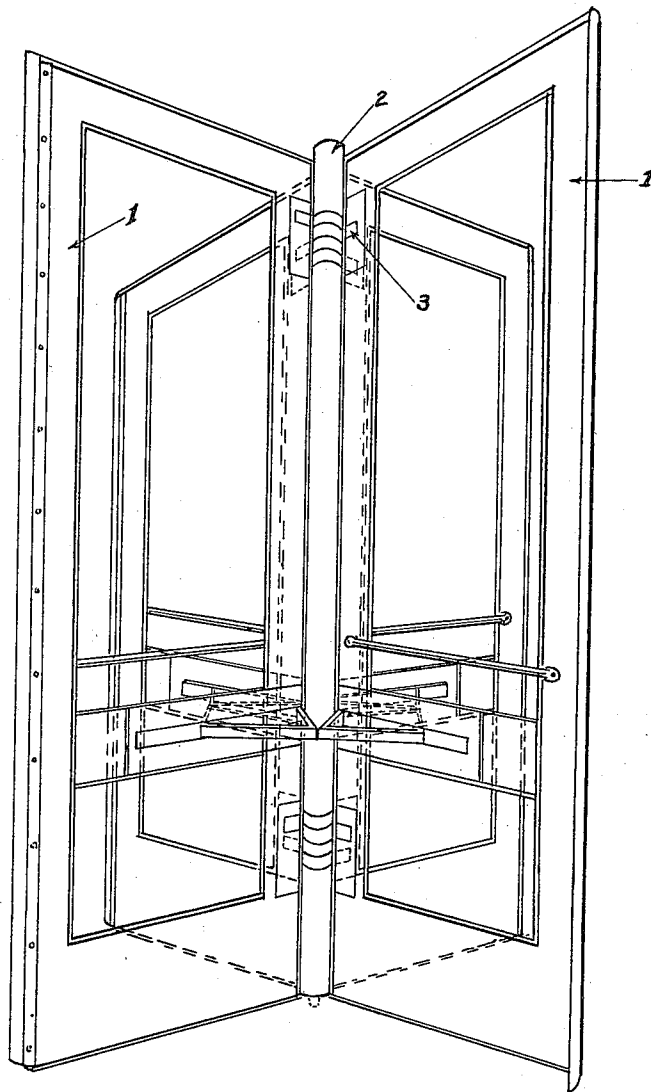
REVOLVING DOOR.

APPLICATION FILED AUG. 10, 1910.

1,045,827.

Patented Dec. 3, 1912.

4 SHEETS—SHEET 1.



• FIG. 1 •

WITNESSES

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INVENTOR

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BY

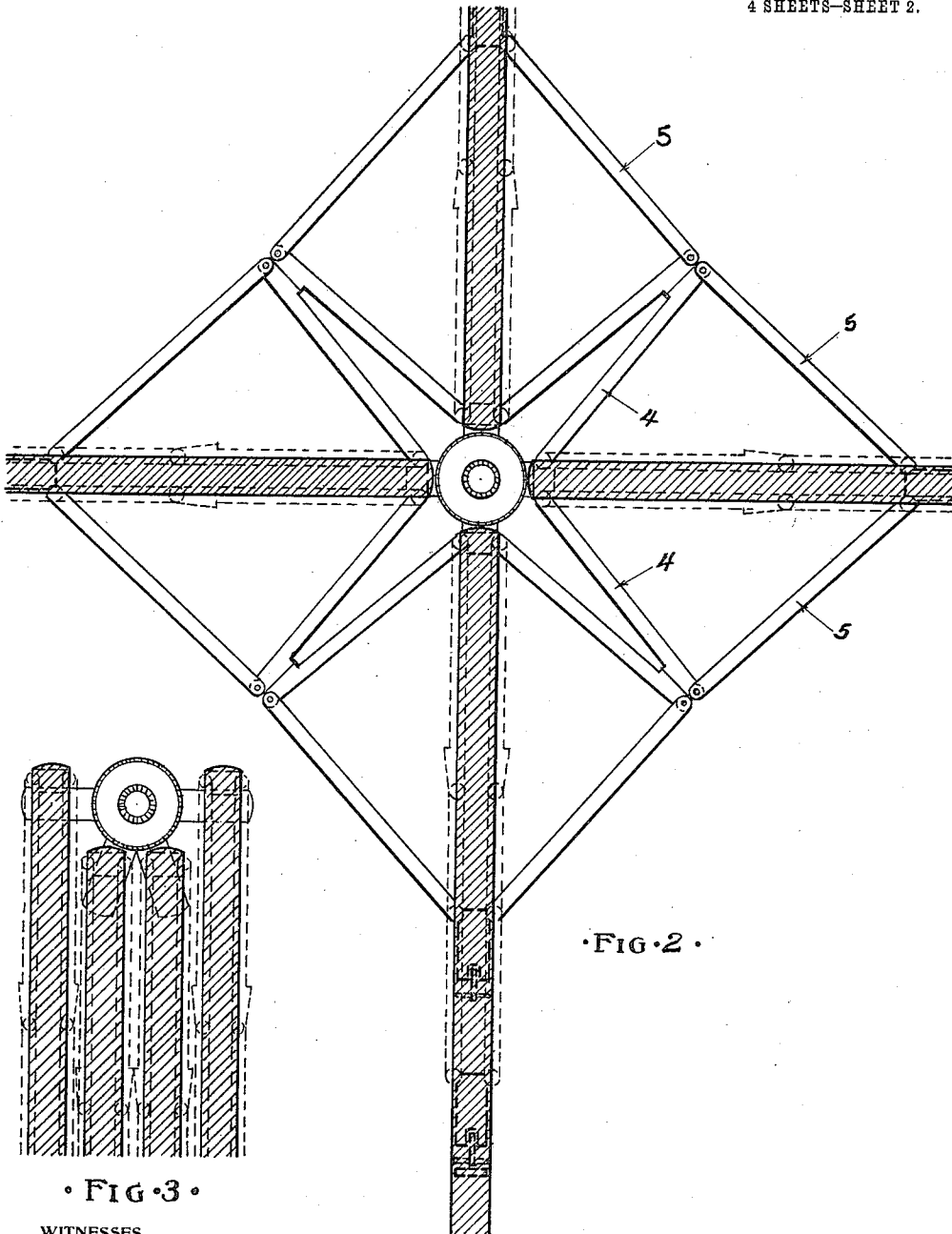
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4 SHEETS—SHEET 2.



• FIG. 3 •

• FIG. 2 •

WITNESSES

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4 SHEETS-SHEET 3.

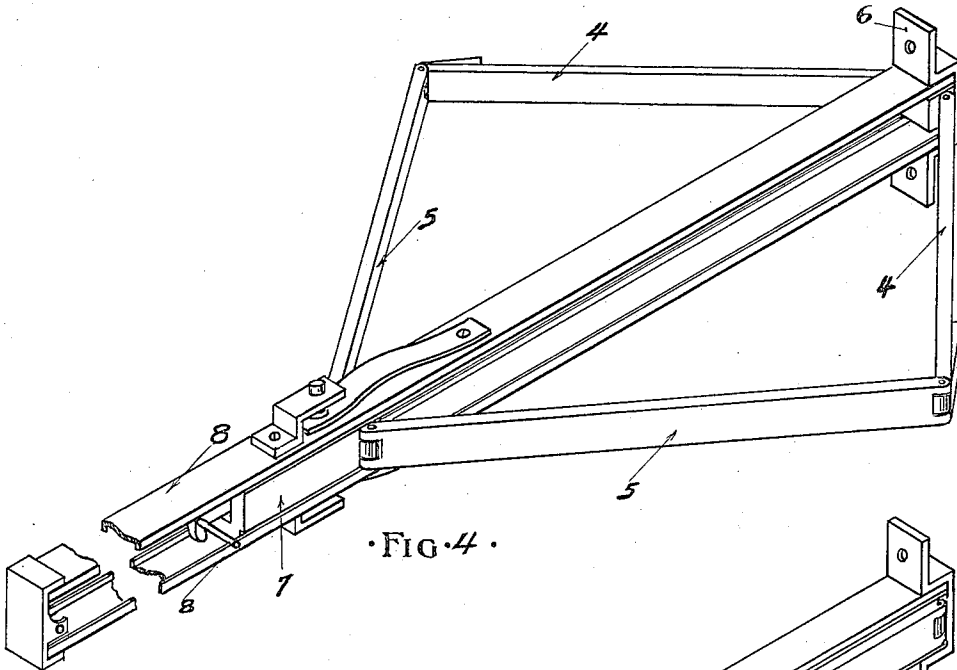


FIG. 4.

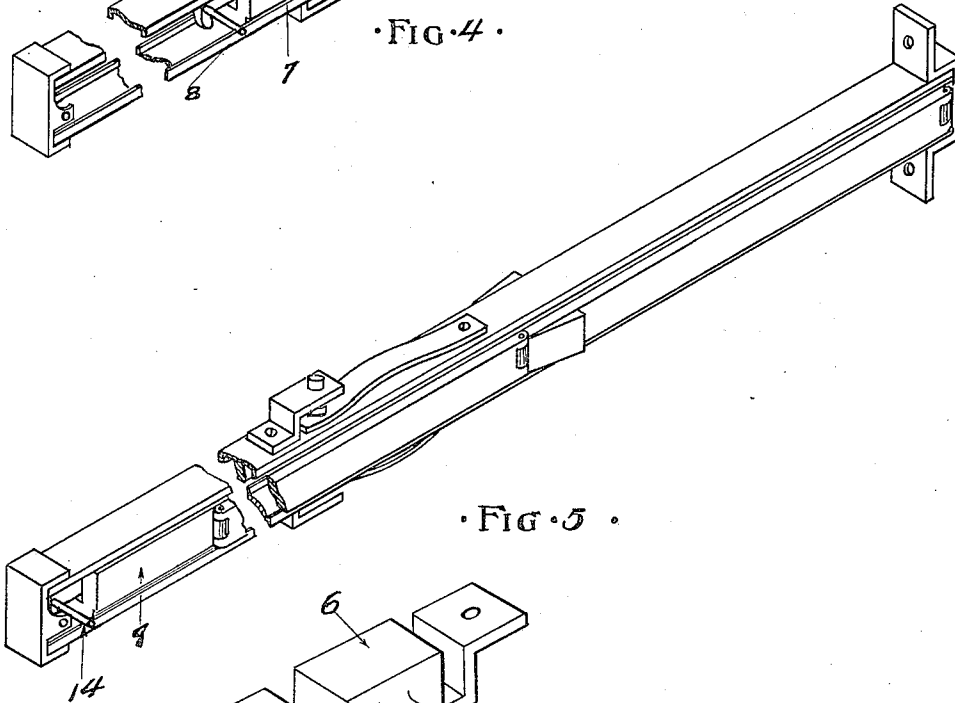


FIG. 5.

WITNESSES

Attest
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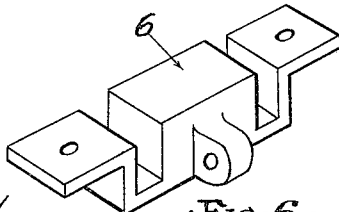


FIG. 6.

INVENTOR

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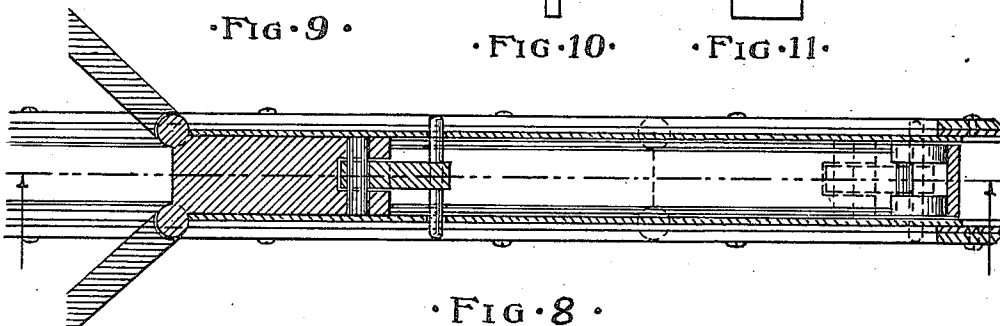
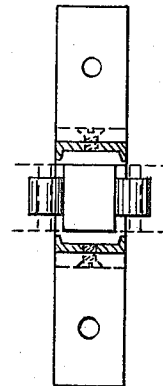
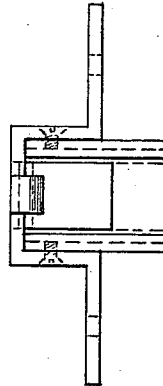
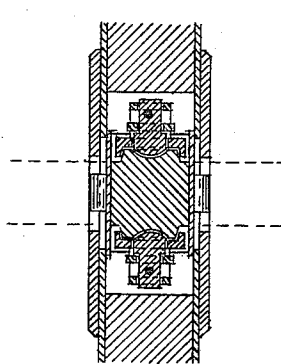
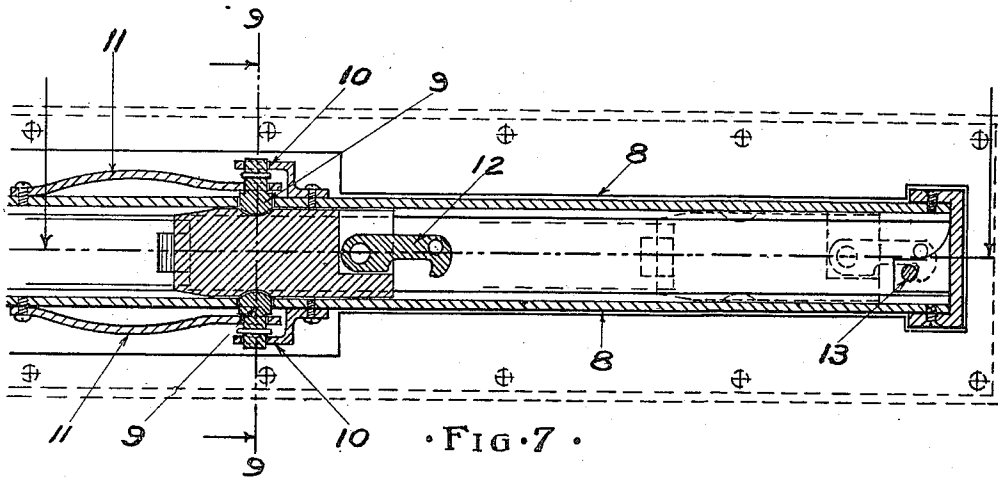
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4 SHEETS—SHEET 4.



WITNESSES

Sidney Sutherland.
Hannah C. Owens.

INVENTOR

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UNITED STATES PATENT OFFICE.

HARRY W. DYER, OF EAST ORANGE, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO VAN KANNEL REVOLVING DOOR COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

REVOLVING DOOR.

1,045,827.

Specification of Letters Patent.

Patented Dec. 3, 1912.

Application filed August 10, 1910. Serial No. 576,515.

To all whom it may concern:

Be it known that I, HARRY W. DYER, a citizen of the United States, residing in East Orange, in the county of Essex and State of New Jersey, with post-office address at No. 30 Midland avenue, have invented certain new and useful Improvements in Revolving Doors, of which the following is a specification.

This invention relates to revolving doors and especially to the type of revolving door known in the trade as "panic proof", by which is meant a door comprised of a plurality of wings or leaves normally held at approximately right angles, but so secured that when subjected to unusual pressure, as when a number of persons try to crowd through the door in the same direction on both sides of the axis, the devices for securing the leaves in position will yield and permit the leaves to fold into a position of parallelism.

The present invention has for its primary object, the production of a door of this kind which is characterized by extreme simplicity of design, certainty of operation, cheapness of construction and durability in service.

The invention also contemplates a door of this character which is so constructed that the leaf securing devices are readily accessible at all times for adjustment or repair.

In the accompanying drawings, I have illustrated one embodiment of the present invention, as it will be understood that the same distinguishing features may be embodied in doors differing greatly in details of construction.

In the drawings Figure 1 is a perspective view of a complete door (the housing not being shown) embodying the present invention; Fig. 2 is a horizontal section through the central portion of the door, taken in a plane just above the leaf securing devices, the leaves being shown in normal position; Fig. 3 is a horizontal sectional view showing the leaves folded, the plane of the view being similar to that of Fig. 2; Fig. 4 is a detail view in perspective showing the securing devices for one leaf of the door in normal position; Fig. 5 is a view in perspective of the structure shown in Fig. 4, but showing the parts in folded position;

Fig. 6 is a detail view in perspective of the fixed bracket for the leaf securing arm; Fig. 7 is a vertical section through the forward part of one of the leaf securing devices, showing the locking mechanism; Fig. 8 is a horizontal section through the structure shown in Fig. 7; Fig. 9 is a transverse section on the plane 9-9 of Fig. 7, and Figs. 10 and 11 are detail views of the bracket shown in Fig. 7 and the parts associated therewith.

Referring to the drawings by reference characters, the door leaves are each designated 1 and are secured on a central axis 2 by hinges 3 of suitable construction, these hinges being arranged in pairs as shown in Fig. 3, so that the leaves may fold flat. The door leaves are held normal, as shown in Fig. 2, by means of securing devices which consist essentially of two toggle joints provided on each door leaf and so proportioned that when set in normal position, as shown in Fig. 2, the toggle joints on adjoining leaves abut solidly against each other and hold the door leaves with sufficient rigidity to prevent collapse in ordinary use. The toggle joints in each door leaf each comprise an inner arm 4 with an outer arm 5. The inner arms 4 are pivoted to lugs extending from the sides of fixed brackets 6, one of which is provided at the inner edge of each door leaf. The outer arms 5 are pivoted to slides 7 arranged in suitable guides 8 which are mounted within the door leaves and fixed at their inner ends to the bracket 6. The guides 8 may be conveniently made out of channel strips, as best shown in Figs. 4, 5 and 9. The slides 7 which are arranged to work in these guides have laterally projecting lugs for the pivotal attachment to the outer leaf securing arms 5.

Yieldable devices are provided for securing the slides 7 in normal position. These devices are best shown in Figs. 7 and 9. The slide 7 is recessed on its top and bottom surfaces, as shown in Fig. 7, and round headed plungers 9 normally sit in these recesses. These plungers extend through openings in the guides 8 and their stems work through registered openings in brackets 10. Leaf springs 11 serve to hold the plungers in engagement with the slides. The plungers 9 are so placed that when they

are in engagement with the recesses in the slides 7, the toggle joints formed by the arms 4 and 5 abut against each other, as best shown in Fig. 2. It will be noted on examination of this figure that the arms in the toggle joints are so proportioned that the toggle joints do not form exact right angles when the inner arms are in abutment, but the outer arms 5 in adjacent joints are slightly disaligned so that when force is applied to oppositely placed door leaves in the same direction there will be a small amount of force acting on the outer arms 5 to force the slides 7 outward. This force will result in the disengagement of the plungers 9 from the recesses in the slides and the toggle joints will at once collapse in the position shown in Fig. 3 and Fig. 5. The collapse of the toggle joints will force the slides 7 outward into position shown in dotted lines in Fig. 7. As the slides reach this position, pivoted hooks or latches 12 provided for that purpose on the slides will engage with transverse pins 13 provided in the door leaves adjacent to the ends of the guides 8, thus securing the toggle joints in collapsed position, as shown in Fig. 5. To release the latches 12 when it is desired to restore the toggle joints to normal position, it is only necessary to lift the latch 12 which may be done by means of a pin 14 which extends through each latch and projects beyond the face of the door leaves where it is readily accessible.

The operation of the leaf securing devices having been indicated in the course of the foregoing description of my improved door, no further description of their operation appears necessary.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a revolving door, a combination of a plurality of hinged leaves, leaf securing arms mounted on each leaf arranged so that they normally abut against each other to hold the leaves in position, but arranged to yield when the leaves are subjected to heavy pressure and permit the leaves to turn upon their hinges.

2. In a revolving door, the combination with a plurality of pivoted door leaves, of a pair of toggle joints arranged on these door leaves and yieldable means for normally holding said toggle joints so as to abut against each other and hold the door leaves in position.

3. In a revolving door, the combination

with a plurality of door leaves, of a pair of toggle joints mounted on each door, a slide to which the outer arms of each pair of toggle joints are pivoted and yielding devices for securing said slide in position to hold said toggle joints in normal position.

4. In a revolving door, the combination with a plurality of pivoted door leaves, of a pair of leaf securing arms pivoted on each door leaf near its inner edge, the arms of each door leaf being adapted to abut against the arms on adjacent door leaves and devices yieldable under heavy pressure applied against said door leaves to hold said securing arms in normal position.

5. A revolving-door having in combination, a plurality of hinged leaves, each leaf being provided with a pair of jointed arms, one arm of each pair being pivoted to a slidable-member, and means, yieldable under pressure, for holding the arms in position to hold the leaves in radially extended position.

6. A revolving-door having in combination, a plurality of hinged leaves, each leaf being provided with a pair of jointed arms, one arm of each pair being pivoted to a slidable-member, and spring-pressed bolts, yieldable under pressure, for holding the arms in position to maintain the leaves in radial position.

7. A revolving-door having in combination, a plurality of hinged leaves, each leaf being provided with a pair of jointed-arms arranged to abut against the arms of the adjacent leaf, so as to hold the leaves in radial position, one arm of each pair being pivoted to a slidable member, and means for holding the arms in position to maintain the leaves in radial position, said means being yieldable under abnormal pressure.

8. In a revolving-door, the combination with a plurality of hinged leaves, of devices for holding the leaves in radial position, said devices comprising pairs of jointed arms, one arm of each pair being pivoted to the leaves and the other arm of each pair pivoted to a slidable member, the arms of each pair being so arranged that adjacent pairs will abut against each other, and means for holding the leaves in radial position, said means being yieldable under pressure.

In testimony whereof, I have signed my name hereto in the presence of witnesses.

HARRY W. DYER.

Witnesses:

BAXTER MORTON,
SIDNEY M. SUTHERLAND.