J. MAIER.

DOOR.

APPLICATION FILED DEC. 6, 1907.

902,982.

Patented Nov. 3, 1908.

2 SHEETS—SHEET 1.

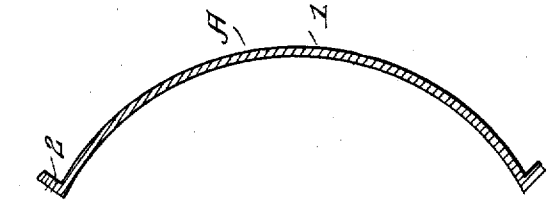
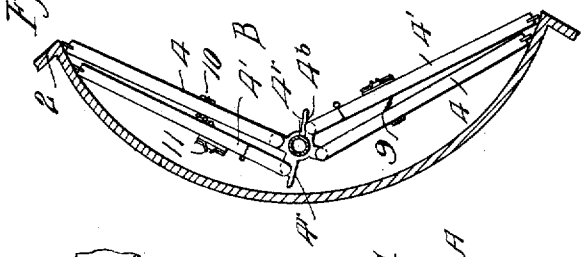


Fig. 8.



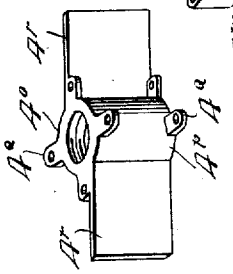


Fig. 6.

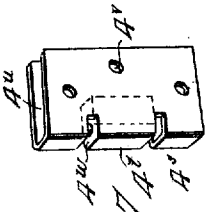


Fig. 7.

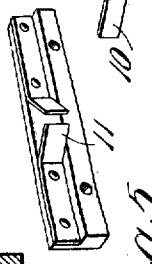


Fig. 5.

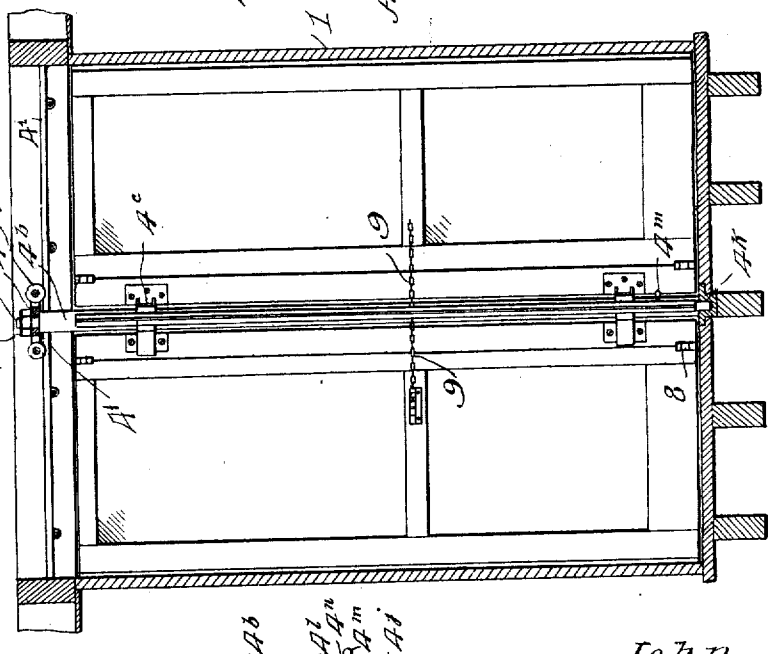


Fig. 1.

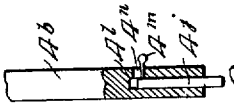


Fig. 9.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 1.

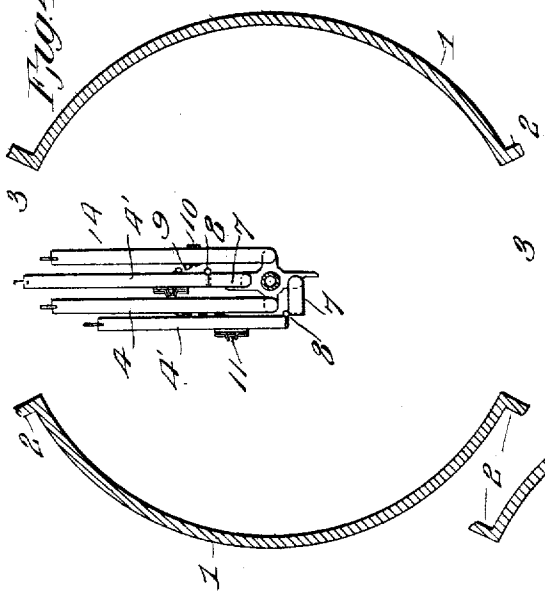


Fig. 2.

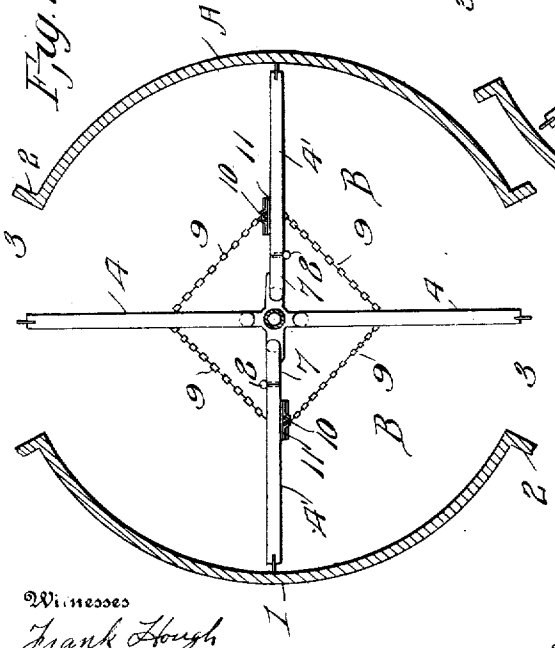
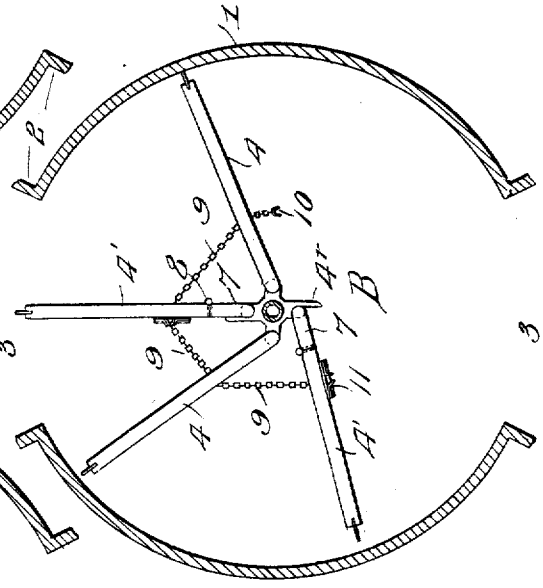


Fig. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

JOHN MAIER, OF CLEVELAND, OHIO.

## DOOR.

No. 902,982. Specification of Letters Patent. Patented Nov. 3, 1908.

Application filed December 6, 1907. Serial No. 405,411.

*To all whom it may concern:*

Be it known that I, JOHN MAIER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Doors, of which the following is a specification.

This invention relates to revolving doors and it has for its object to provide a revolving door of simple and improved construction in which the leaves of the door shall be free to fold in an outward direction when subjected to unusual stress or strain, as in case of excitement caused by fire or other panic, thus forcing the several leaves of the door to automatically swing in an outward direction to an unobstructing position so that the escape of people from a building equipped with the door will not be hindered.

With these and other ends in view which will appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will hereinafter be fully described and particularly pointed out in the claims.

In the accompanying drawing has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the invention may be resorted to when desired.

In the drawings:—Figure 1 is a side elevation of a revolving door constructed in accordance with the invention, the casing of the door being shown in section. Fig. 2 is a top plan view of the revolving door, the door casing being shown in section. Fig. 3 is a top plan view of the revolving door showing the leaves in the action of being collapsed or folded in an outward direction, the door casing being shown in section. Fig. 4 is a sectional view of the door and casing, the leaves of the door being collapsed or folded to unobstructing position. Fig. 5 is a perspective detail view of a catch or connecting device used in connection with the invention. Fig. 6 is a detail perspective view of one of the hinge members. Fig. 7 is a detail perspective view of the other hinge member, and Fig. 8 is a sectional view illustrating the position of the door when not in use.

Corresponding parts in the several figures are denoted by like characters of reference.

The door casing A is of the customary and well known construction comprising the curved or segmental side walls 1 having divergent wings 2—2 between which are formed the passage ways 3—3 that constitute respectively the inlet and outlet according to the position of the door and the direction or passage.

The door B is in the nature of a turnstile having four wings or leaves 4—4 and 4′—4′, the inner edges of which are hingedly mounted upon a vertical shaft $4^b$ by means of hinges $4^c$. The upper end of the shaft $4^b$ is reduced to provide a journal $4^d$, which is mounted in a bearing $4^e$ of a plate $4^f$. The journal $4^d$ is secured in the bearing $4^e$ by means of a nut $4^g$. The plate $4^f$ is carried by rollers $4^h$, which are mounted on a track $4^i$. The lower end of the shaft $4^b$ is provided with a retractable journal $4^j$, which is mounted in a bearing $4^k$, let into the bottom of the door casing. The journal $4^j$ is mounted in a socket $4^l$ in the shaft and is provided with an operating rod $4^m$ which projects beyond the shaft through an opening $4^n$. When the journal is in the bearing $4^k$, the shaft $4^b$ turns freely to permit a person to pass through the door opening. When it is not desired to use the door, the journal $4^j$ is withdrawn from the bearing $4^k$ and each of the leaves 4 is folded into contact with one of the leaves 4′, and then the door is moved into the position illustrated in Fig. 8 of the drawings. As the door is supported on the rollers $4^h$, it may be readily and quickly moved into this position or in position for use. In practice, the ceiling of the door casing will be provided with a slot to permit the door to be moved on the track $4^i$. The hinge member $4^o$ consists of an internally threaded barrel $4^p$ adapted for threaded engagement with the shaft $4^b$, a plurality of pairs of relatively spaced laterally projecting perforated lugs $4^q$ and oppositely projecting webs or plates $4^r$. The hinge member $4^s$ consists of a body portion $4^t$ from which projects relatively spaced plates $4^u$ adapted to receive between them the edge of one of the wings of the door, said plates being provided with openings $4^v$ through which suitable fastening means are passed to secure the hinge member to the door leaf. The body portion $4^t$ is adapted to be received between one pair of the lugs $4^q$, and is provided with an opening $4^w$

through which and the perforations of the lugs passes the hinge pintle.

Two of the wings or leaves 4′—4′ which are disposed at diametrically opposite sides are provided at their inner edges with cleats 7 connected therewith by means of hinges 8; said cleats forming means whereby the wings or leaves 4′ are connected with the hinges 5; said cleats are to be of a width sufficiently exceeding the thickness of the door leaves to permit the wing or leaf 4′ to fold to the position indicated in Fig. 4 of the drawing.

The wings or leaves 4′ abut against the webs or plates 4ʳ so that pressure applied to these wings or leaves in one direction will cause the door to be revolved.

The door wings or leaves 4′—4′ are connected with each other by means of flexible connecting members such as chains 9; said chains are detachably connected with the leaves or members 4′ upon the sides opposite to the hinges 8 by means such as arrow heads 10 engaging suitably constructed resilient catches 11 which, while the parts will be thereby connected with sufficient security for all practical purposes, will be capable of yielding under any unusual or extraordinary stress or strain, thus permitting the leaves of the door to fold in the direction in which abnormal pressure is exerted and thus causing the several wings or sections to swing automatically in the proper direction to afford exit from the building obstructed by the door.

The advantages of this invention will be readily understood and appreciated. Rotary doors of ordinary construction are regarded as dangerous in times of panic and excitement for the reason that they will permit of the passage of but a limited number and what is worse, they are liable to be completely obstructed by persons laboring under excitement and attempting to escape in the wrong direction. By the present invention the door will automatically yield to any abnormal or extraordinary pressure, and the leaves will of necessity swing or fold in the proper direction to afford unobstructed exit.

Having thus described the invention, what is claimed as new, is:—

1. A revolving door including a revolubly mounted shaft, and a hinge member threadedly engaging the shaft, said hinge member being provided with pairs of relatively spaced lugs and laterally projecting plates or webs.

2. A revolving door comprising a revolubly mounted shaft, a plurality of leaves hingedly mounted upon the shaft for movement independently thereof in two directions, a plurality of cleats hingedly mounted upon the shaft for movement independently thereof in one direction only, leaves hingedly mounted upon the cleats, and means connecting the leaves together against independent movements when the door is rotated in one direction only.

3. A revolving door comprising a revolubly mounted shaft, a plurality of leaves hingedly mounted upon the shaft for movement independently thereof in two directions, a plurality of cleats hingedly mounted upon the shaft for movement independently thereof in one direction only, leaves hingedly mounted upon the cleats, catches secured to the leaves mounted upon the cleats, connecting members secured to the other leaves, and heads carried by the connecting members, said heads being adapted to be detachably received by the catches.

4. A revolving door comprising a revolubly mounted shaft, hinges secured thereto and provided with plates or webs, a plurality of leaves mounted upon the hinges, a plurality of cleats mounted upon the hinges, said plates or webs preventing the movement of the cleats in one direction, leaves mounted upon the cleats, and means adapted to connect the leaves together against independent movements when the door is rotated in one direction only.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN MAIER.

Witnesses:
G. D. McGwinn,
A. A. McCaslin.