C. T. DAWES.

DOOR.

APPLICATION FILED FEB. 5, 1913.

1,184,725.

Patented May 30, 1916.

Fig. 1.

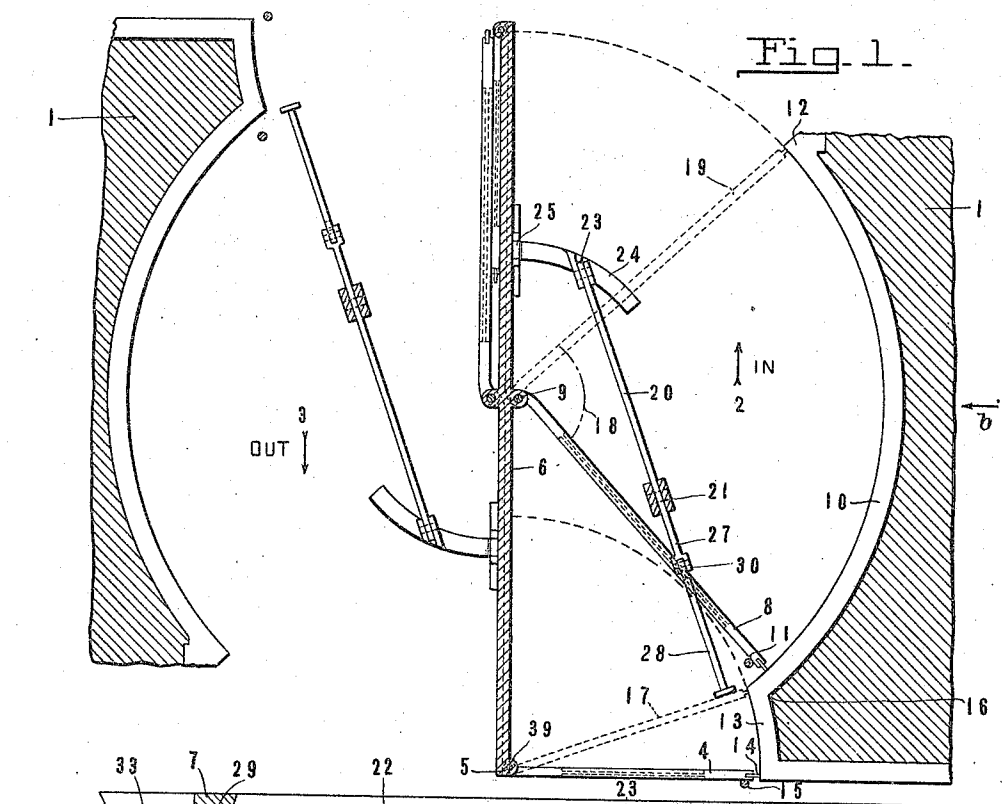


Fig. 2.

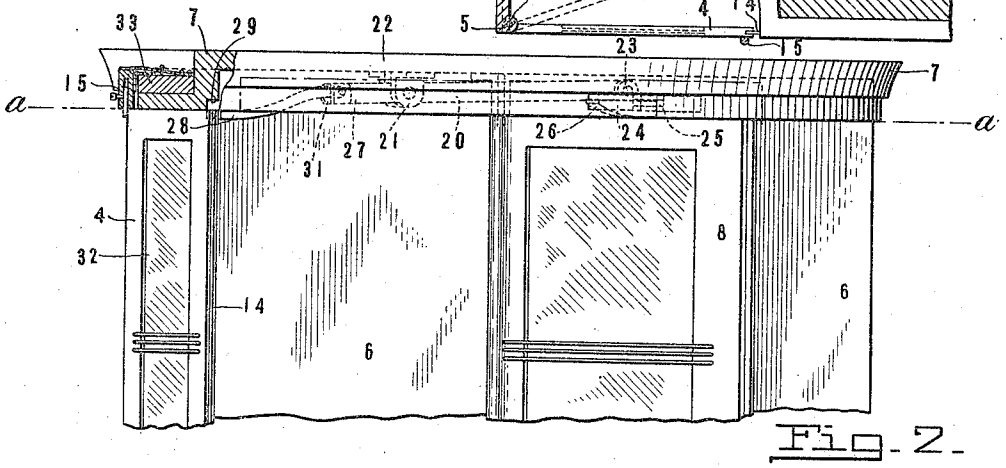
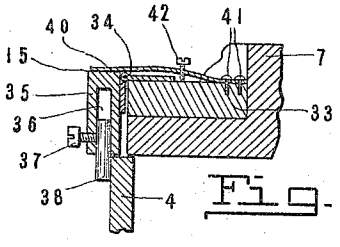


Fig. 3.



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DOOR.

1,184,725. Specification of Letters Patent. Patented May 30, 1916.

Application filed February 5, 1913. Serial No. 746,278.

To all whom it may concern:

Be it known that I, CLAUDE T. DAWES, a citizen of the United States, residing at Johnstown, in the county of Fulton and State of New York, have invented certain new and useful Improvements in Doors, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to doors, and with regard to certain more specific features, to an easily operated structure adapted at will to exclude wind, rain, snow, dust, noise, and heat or cold, or to provide at a moment's notice a completely unobstructed passageway.

One object within the contemplation of this invention is to provide a safe, durable and compact door in which the weather-proof qualities of the ordinary revolving door are retained without the many obvious disadvantages and dangers attendant upon the use of such a door.

Another object is to provide an inexpensive and easily constructed instrumentality of the specified nature for positively and effectively insulating the interior of a building or other structure from the various inclement conditions of weather and noise that may exist on the outside of the building.

Another object is to provide an arrangement of parts whereby at any added time and without any labor on the part of anyone, the structure may be transformed from a weather-proof door to one permitting the passage therethrough of a continuous stream of people.

Another object within the scope of the invention is to provide a simple and efficient checking mechanism adapted during normal operation to prevent the movement of a door member beyond a predetermined position, but yieldable upon pressure to allow the door member to swing beyond the ordinary limit of its travel so that in case of fire or panic, a door used normally for entrance only may be instantly made effective as an exit.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claims.

Figure 1 is a horizontal section on the line *a*—*a*, Fig. 2, of one of various possible embodiments of the several features of the invention; Fig. 2 is an elevation, looking in the direction of the arrow *b*, Fig. 1, the door members occupying the dotted-line positions, Fig. 1, and parts being removed to show more clearly the interior structure; and Fig. 3 is an elevation on a larger scale of a preferred form of checking mechanism.

Similar reference characters refer to similar parts throughout the several views of the drawings.

As conducive to a clearer understanding of the advantageous results gained by the features and combinations of features hereinafter enumerated, it may be stated that there has long been need of a safe, convenient and easily operated door which would be substantially weather and noise-proof during normal use and at the same time be capable of sacrificing some or all of its protective qualities whenever occasion requires. The common "revolving door" and other known types if designed to be insulators of heat and noise at all during normal use cannot be instantaneously converted into an unobstructed means of ingress as well as egress for a continuous stream of people, and as a result, such a door instead of accommodating crowds when necessary, constitutes in time of fire or other emergency a barrier all the more dangerous because of its apparent availability as an exit. These and other disadvantages of the known weather and noise-proof doors are obviated by the present invention.

Referring now more particularly to Fig. 1 of the drawings, there is illustrated in the walls 1 of a building or other structure, a door comprising the halves or walled casings 2, 3 designed respectively for inward and outward bound users.

It may here be noted that the terms such as "inward" and "outward" in this specification and in the claims that follow are used interchangeably, and that the advantages attendant upon the use of the present invention are gained whether an equipment comprises one of the halves 2, 3, or two such halves, or a larger number. Since the two halves are substantially identical, it will

be necessary to describe in detail only one of them.

Referring now to the inward half 2, there is shown at 4 a door member hinged as at 5 to the vertical wall or partition 6 extending from the floor (not shown) to the ceiling 7. The partition 6, floor and ceiling 7 may be, and they preferably are, temporary structures adapted to be removed if at any time it is desirable to have an aperture in the building larger than that provided by the passageways in the halves 2, 3. A second swinging door member 8 is hinged as at 9 to the same wall or partition 6 and swings within the arcuate wall or partition 10, preferably also a temporary structure, from a position of rest against the stop 11 to a position as far as need be beyond the inner end 12 of said arcuate partition 10. A similar partition 13 also arcuate in horizontal section conforms to the path described by the outer end 14 of the first door member 4 in its movement from a position of rest against the stop 15 to the intersection at 16 of said path with the first mentioned curved partition 10.

As will be obvious from the description already given, the customer or other person enters the building from the street by pushing inward the first door member 4 as far as necessary beyond the dotted-line position 17, and then, pushing the second door member 8 counterclockwise to a point beyond the end 12 of the partition 10, enters the store or other building. The angle 18 subtended at the axis 9 by the effective portion of partition 10 may be varied within wide limits, as can many other dimensions and relative sizes of the several parts of the structure, but I prefer to have this angle and the ratio of width of the second door member 8 to the first door member 4 sufficiently large so that even with two or three customers entering at once, the first door member 4 will have swung clockwise to a point beyond the position 17 before the second door member 8 opens,—that is, before the second member passes the end 12 of the partition 10. In this way there is at no time a direct way open between the street and the interior of the building.

Now, if a customer should push in the first door member 4 after it has returned clockwise beyond the line 17, but before the previous customer has allowed the second door member 8 to close (*i. e.*, to return beyond the line 19) as by the spring hinge, not shown, another feature of the invention is brought into operation. This comprises a substantially horizontal rod 20 suspended as at 21 from a raised portion 22 of the horizontal partition or ceiling 7 immediately above the door members. Secured to, or placed just below the end 23 of the rod 20 farthest from the first door member 4, is an arcuate strip 24 suspended from another raised portion 22 of the ceiling 7 as by a hinge at 25, and provided adjacent its opposite end with a curved or inclined portion 26, the plane of movement of the top of the second door member 8 passing between the upper and lower limits of the inclined portion 26 in its position of rest. It will be clear without further elaboration that whenever the second door member 8 is pushed open (counterclockwise beyond the line 19), the top of the door member will engage first the inclined portion 26 and then the main body of the strip 24, raising thereby the end 23 of the rod 20 and depressing the other end 27 of said rod. The hinged extension 28 of said rod is by this operation lowered sufficiently from its normal raised position against the stop 29 in the ceiling 7 to engage the first door member 4 near the top thereof and prevent the counter-clockwise movement of said door member beyond the line 17 until the second door member 8 has swung clockwise to a position within the arcuate partition 10. This, as will be obvious, prevents any direct draft of air from entering the building when one customer attempts to enter the building before the previous customer has allowed the second door member 8 to close. The rod 20, for obvious reasons, is substantially perpendicular to the line 17 and is so hung that its extension 28 is normally raised slightly above the top of the first door member, as by contacting with the stop 29. In order that the first door member may close in case it happens to be open when the extension 28 of the rod 20 is depressed, said extension is hinged as shown at 30 to swing upward from a stop 31 projecting from the rod 20. The first door member 4 is engaged by the rod 20 at the position 17 instead of at its position of rest, first, because there is no need of locking the door member until it is about to open, and, second, so that a person unaccustomed to the door, who pushes the first door member some distance (to the line 17) and suddenly finds it blocked, is less liable to think the store is locked than if the door member refused to move at all in the first place; consequently such a person seeing through the glass 32 in the first door member 4 someone entering ahead of him, waits momentarily, for he knows that he ought to get in if his predecessor has, tries again and succeeds, the block meanwhile having been removed by the closing of the second door member 8 beyond the end 12 of the partition 11.

So much for the ordinary operation of the door. Now, if as frequently happens, a number of customers wish to enter the store in rapid succession, it is not necessary as in the case of the common revolving door, for each one or two customers to wait until

the door has gone through a definite portion of its cycle of operations, for it will be obvious by reference to the drawings, that in such a case the door comprised in the present invention acts simply as two serially arranged door members affording an uninterrupted passageway from the street to the interior of the building. It is true that this sacrifices for the moment some of the heat and noise insulating properties of the door, but a merchant would willingly submit to an occasional gust of cold air for the sake of having a stream of customers enter his store without delay; and in the case of the exit doors the present arrangement, allowing an unobstructed passageway, if desired, has additional obvious advantages in case of fire or panic.

The two similar checking mechanisms 11, 15 may be of any approved type, but I prefer to use the mechanism described below, which will normally stop the movement of the door member at a predetermined position but which, upon pressure, will yield and allow the door member to be swung beyond the customary limit of its travel, whereby, for example, a door designed for customers entering a store may be instantly available if necessary as an exit.

Referring now to Fig. 3, wherein is illustrated on a larger scale the construction of the checking mechanism 15, there is shown at 33 a bar or beam forming part of, or suitably secured to, and parallel with the ceiling partition 7; hinged as at 34 to said bar is the depending element 35 adapted as by the longitudinal groove 36 and clamping device 37 to hold adjustably the stop 38, the three parts 33, 35 and 38 being preferably constructed of iron. The first door member 4 after being pushed inward by the customer returns under the force exerted by spring hinges or other suitable means, indicated at 39, Fig. 1, to the stop 38 where its motion is ordinarily arrested by virtue of the pressure upon the top of the supporting element 35 of a strong leaf spring 40 secured to the bar 33 as by the screws 41 and bearing on the upper surface of the depending element 35 with a pressure adjustable by means of the set-screw 42. If, however, the door member 4 is pressed or pushed against the stop 38 with a force somewhat greater than that due to the spring hinges 39, the leaf spring 40 will yield and allow the door member 4 to swing the stop 38 about the horizontal pivot at 34 until the top of the door member passes beyond the lower end of the stop 38, after which time the door member may be freely moved until limited by some other agency, such as the angular range of the hinges 39. The work required in pushing the door member 4 past the stop 38 may be readily adjusted by tightening or loosening the set-screw 42 threaded through on the leaf spring 40 or preferably by moving the stop 38 up or down with respect to the clamping device 37 in the supporting element 35. The parts are preferably so proportioned that the stop 38 if raised up into the groove 36 will be clear of the top of the door member 4. As the checking mechanism 11 is constructed in the same way and operates similarly to the checking mechanism 15 above described, it is considered unnecessary to describe or illustrate in detail the former. Nor is it necessary to explain that this checking mechanism has a wide range of usefulness not limited to any particular construction of door or other closure.

When, as in the summer-time, or in moving furniture, the door members 4 and 8 are to be held out of the way, it is simply necessary to swing the first door member 4 inward to a position against the vertical partition 6 and to move the second door member 8 past the checking mechanism 11 (after raising the stop 38 therein up out of the way of the door member 8) until the door member 8 stands adjacent and substantially parallel to the first door member 4, where it may be retained in position by any suitable device, leaving an entirely open passageway as indicated in the half 3, Fig. 1. This change can, of course, be done in a moment at any time by anyone and the door members may be returned just as easily to operative position.

In case of fire or panic, or if for any reason the half 2, which is normally used for entrance, is needed as an exit, it is only necessary that the person first passing outward through the half 2 push the second door member 8 sufficiently to overcome the opposition of the checking mechanism 11 and then swing outward the first door member 4 in a similar manner by forcing this door member past the device 15. From this it will be seen that the door may be instantly converted into an unobstructed passageway available for travel in the direction opposite to the normal direction of travel therethrough, thus facilitating the emptying of a crowded building.

From the foregoing description and without further elaboration, it will be clear that there is provided apparatus in which the several objects of this invention are achieved and in which the above and other advantages are obtained.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention, which, as a matter of language, might be said to fall therebetween.

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

1. In a device of the character described, in combination, a casing having open ends, a door member openable toward one of said open ends, a second door member openable toward the same open end, and means under the control of said second door member effective to allow a certain range of movement of said first door member when said second door member is opened, but limiting the movement of said first door member to such an amount as will prevent a person from passing by the same at such a time.

2. In a device of the character described, in combination, a casing having top and side walls, a partition member intermediate said side walls, a door member hinged to one edge of said partition member and adapted to engage one of said side walls throughout a portion of its path of movement, a second door member hinged to said partition member at substantially the center thereof and adapted to engage said side wall throughout a portion of its path of movement, means controlled by said second door member near its limit of movement to allow a certain range of movement of said first door member, but limiting said movement to such an amount as will prevent a person from passing by said first door member.

3. In a device of the character described, in combination, a casing having top and side walls, a partition member intermediate said side walls, a door wing hinged to one edge of said partition member and adapted to engage one of said side walls throughout a portion of its path of movement, a second door wing pivoted on said partition member at substantially the center thereof, and adapted to engage said side wall throughout a portion of its path of movement, a member mounted upon said casing and adapted to be engaged by said second door wing near its limit of movement, mechanism associated with said member, and a device actuated by said mechanism for limiting the movement of said first door wing when said second door wing engages said member.

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

CLAUDE T. DAWES.

Witnesses:
JEREMIAH KECK,
F. CUTHELL CALDERWOOD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."