June 13, 1944. P. BESCHERER 2,350,981

DOOR FOR BOMB AND GAS RESISTING SHELTERS, BUILDINGS, AND THE LIKE

Filed May 21, 1942 8 Sheets-Sheet 1

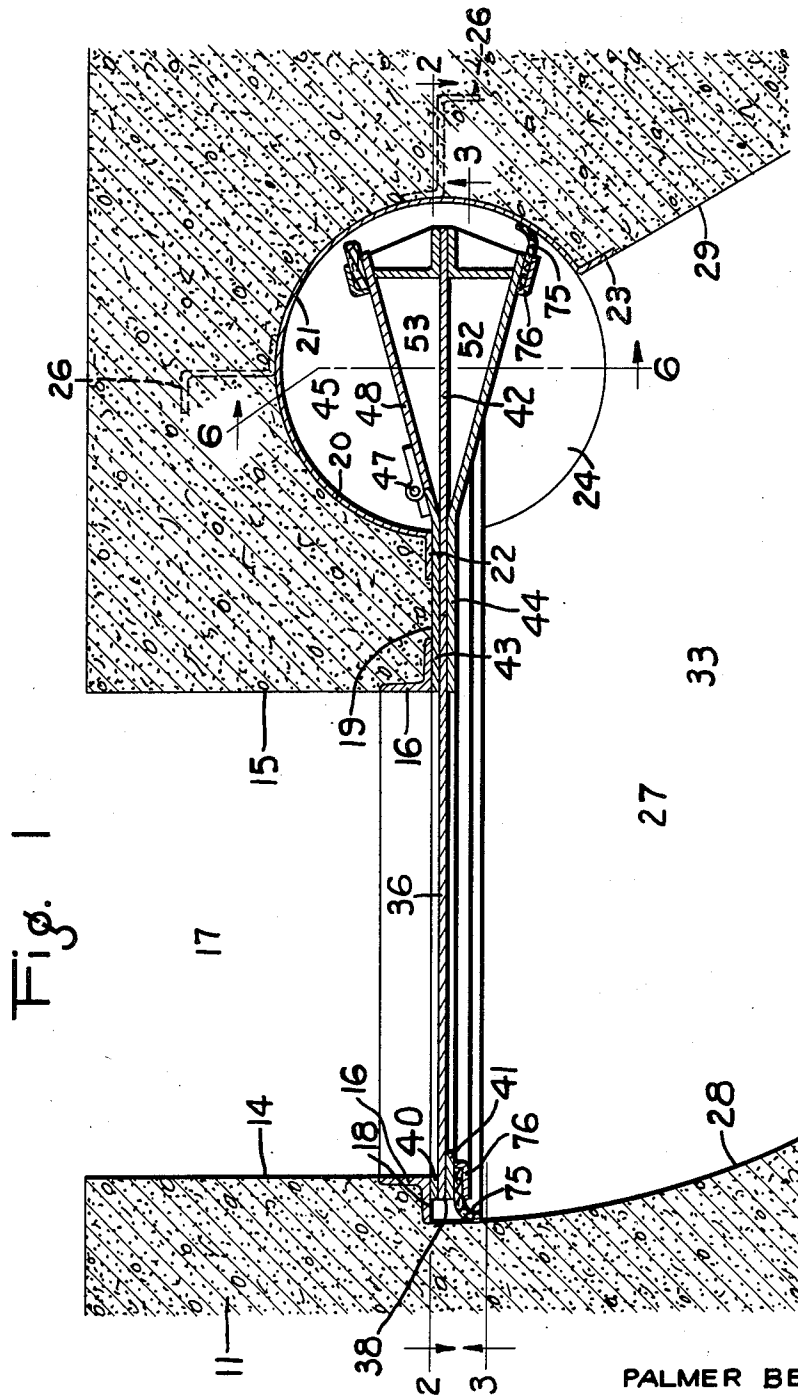


Fig. 1

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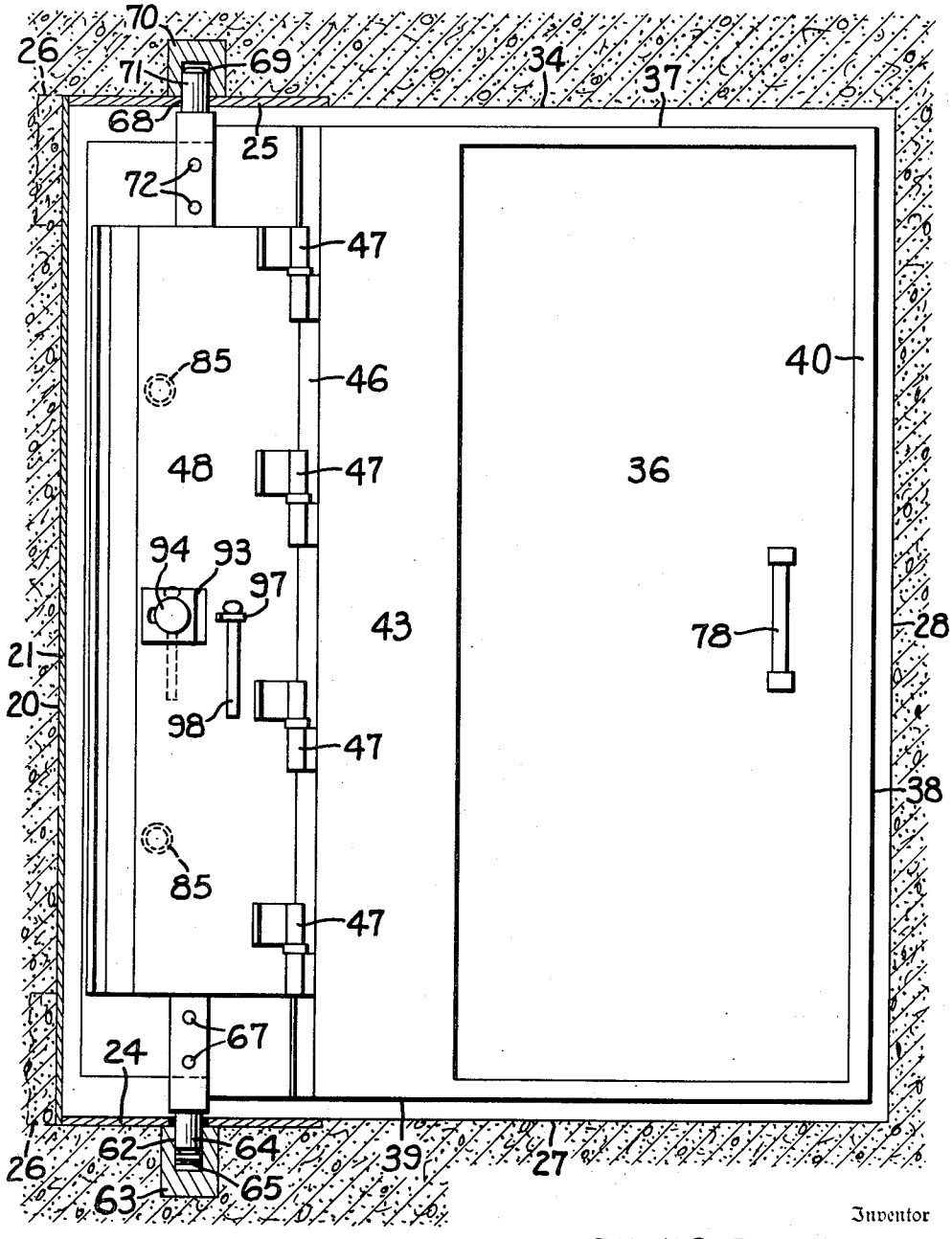
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DOOR FOR BOMB AND GAS RESISTING SHELTERS, BUILDINGS, AND THE LIKE

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Fig. 2



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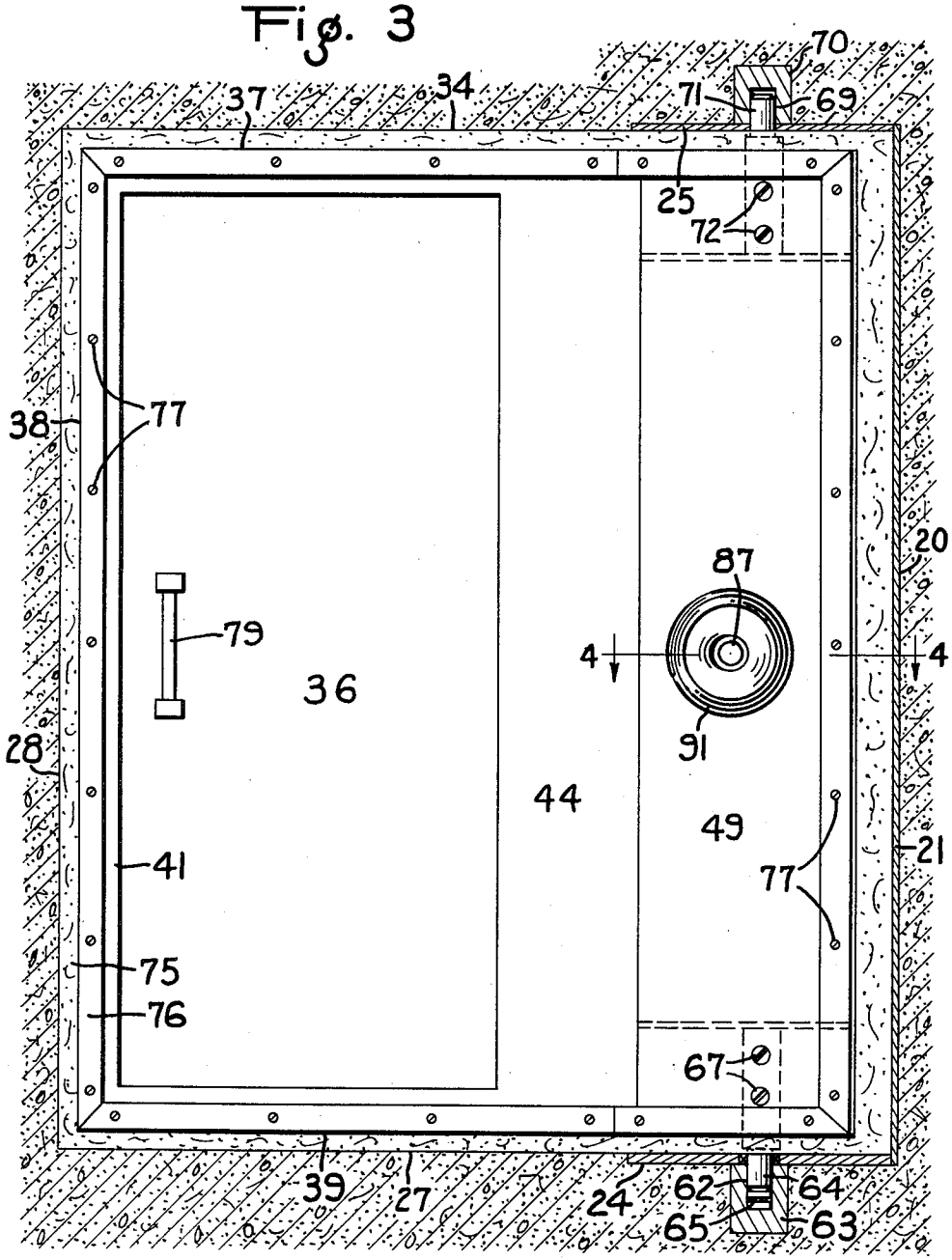
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DOOR FOR BOMB AND GAS RESISTING SHELTERS, BUILDINGS, AND THE LIKE

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Fig. 3



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DOOR FOR BOMB AND GAS RESISTING SHELTERS, BUILDINGS, AND THE LIKE

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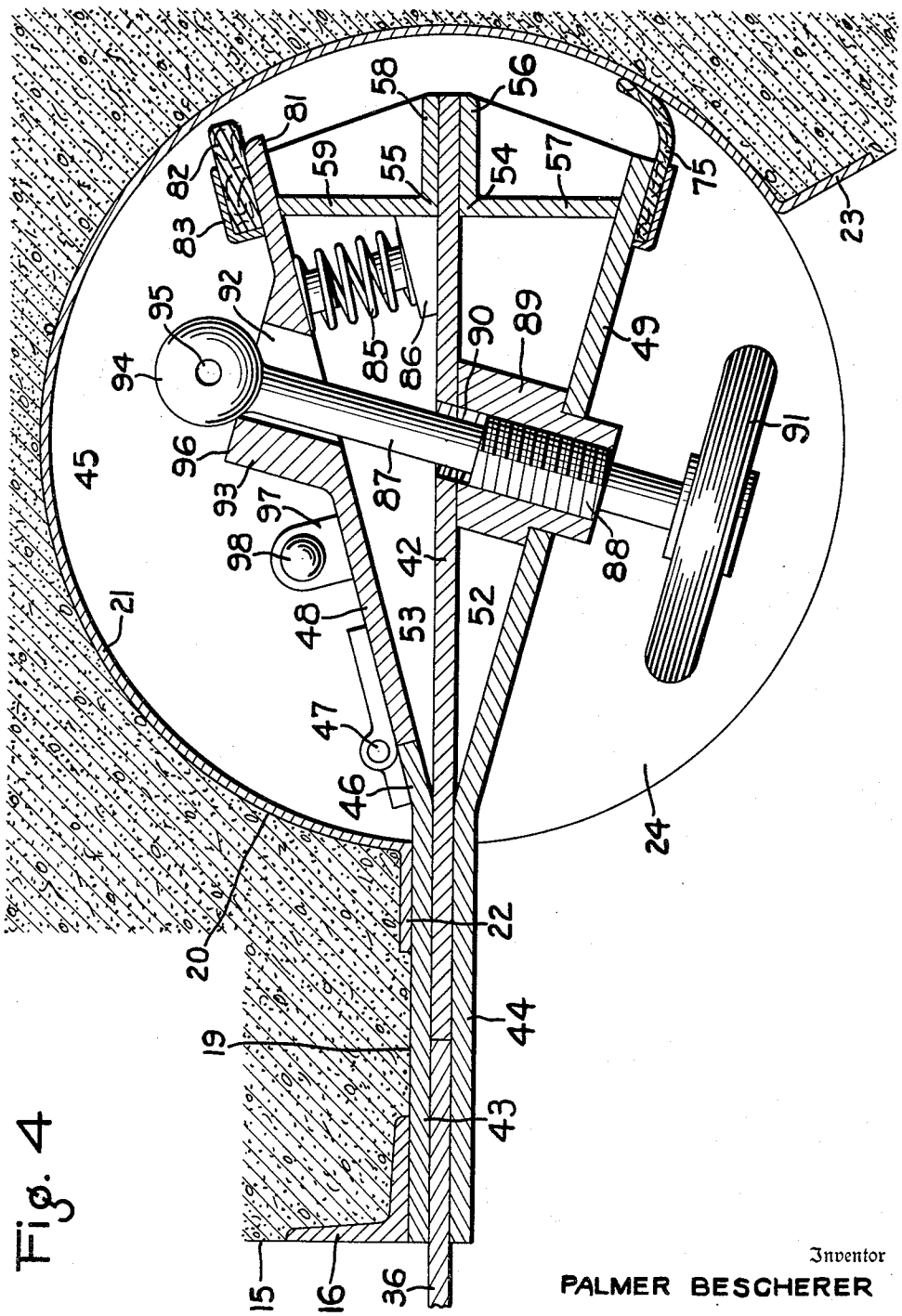


Fig. 4

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DOOR FOR BOMB AND GAS RESISTING SHELTERS, BUILDINGS, AND THE LIKE

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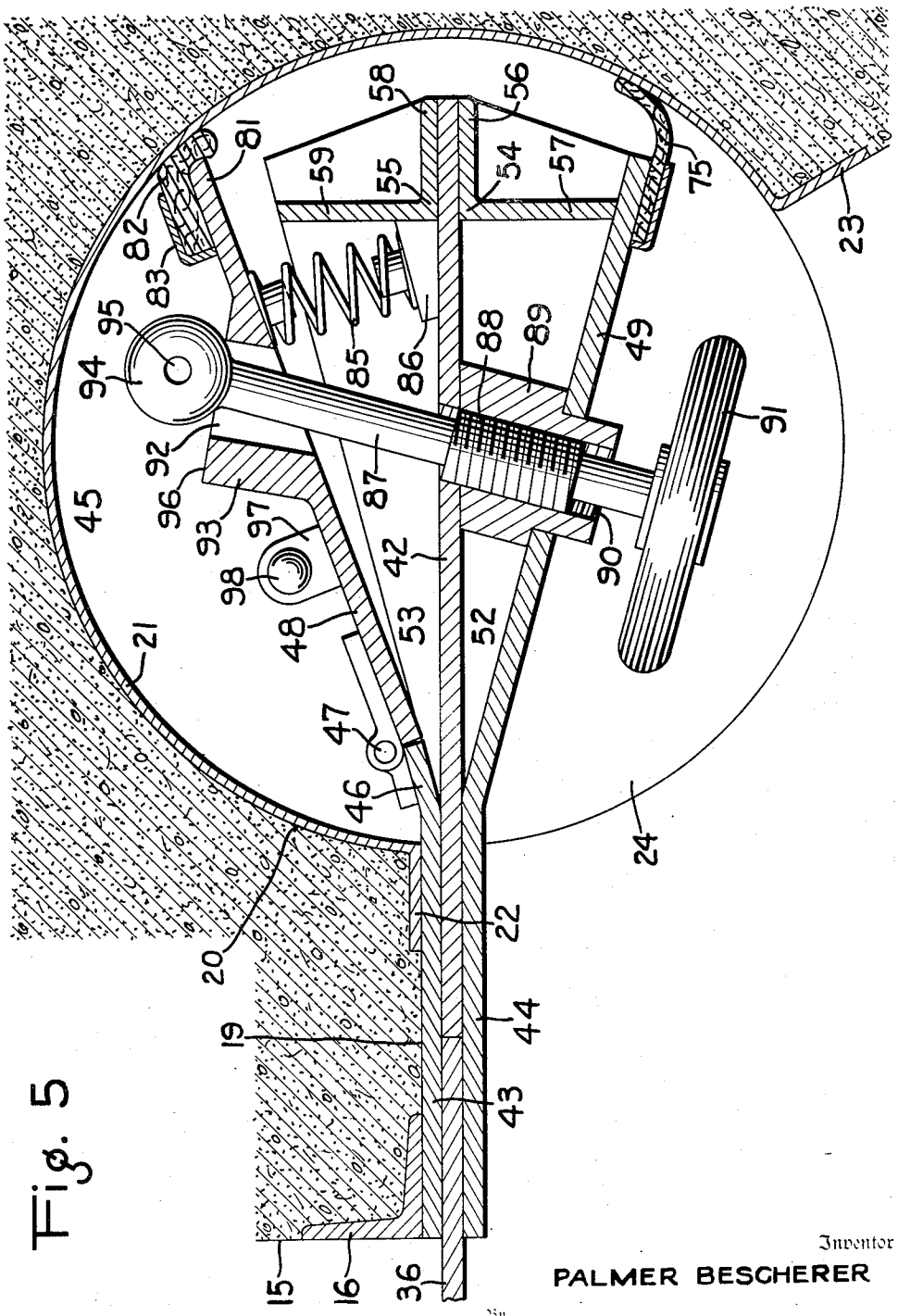


Fig. 5

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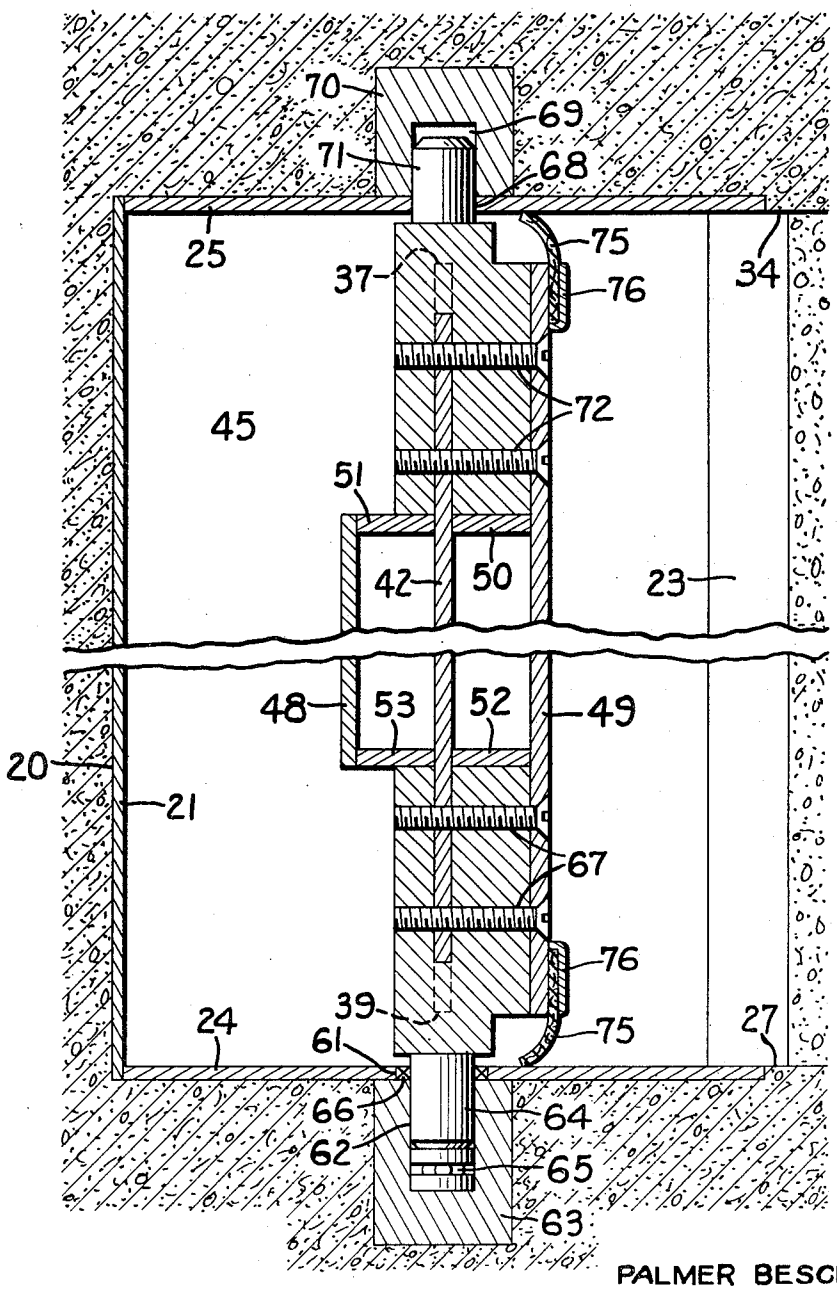
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DOOR FOR BOMB AND GAS RESISTING SHELTERS, BUILDINGS, AND THE LIKE

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Fig. 6



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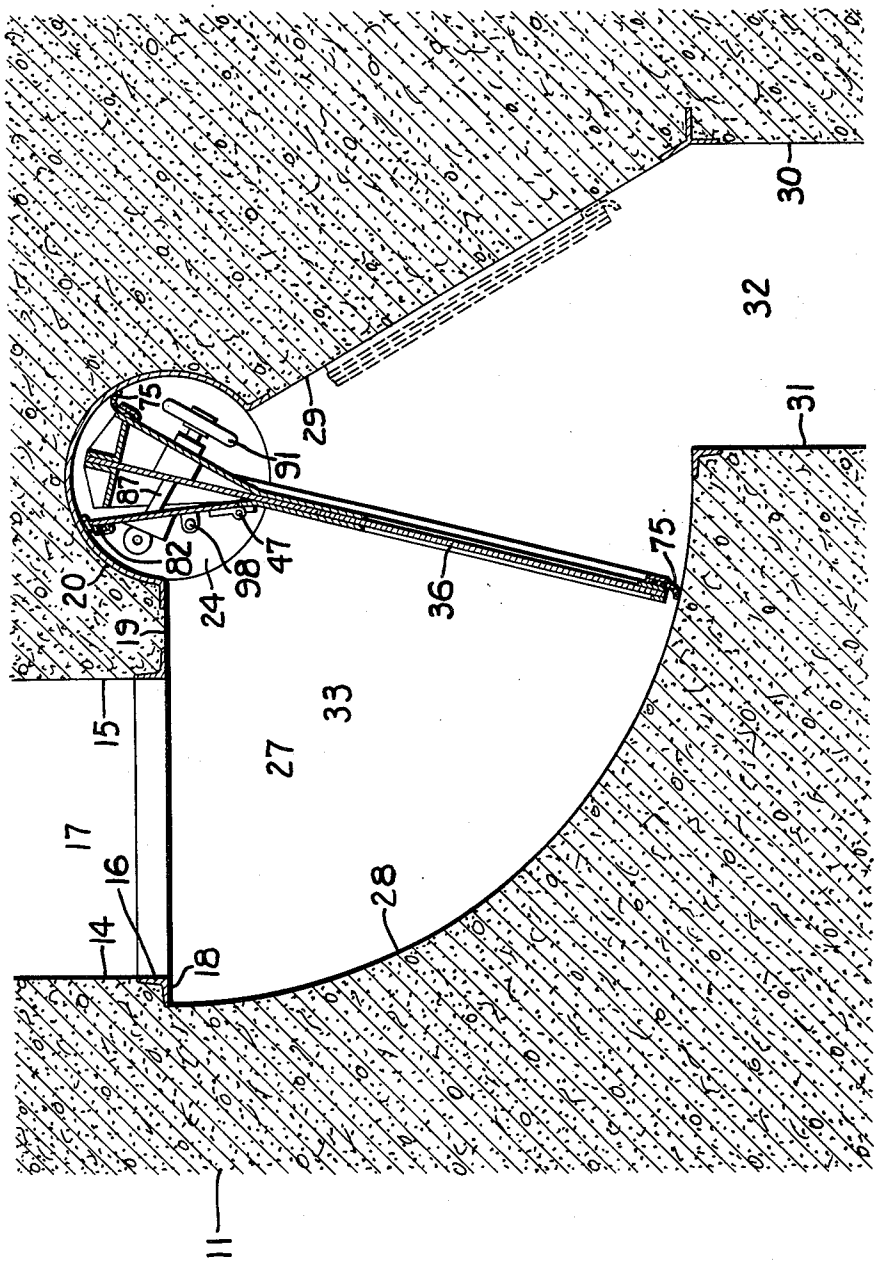


Fig. 7

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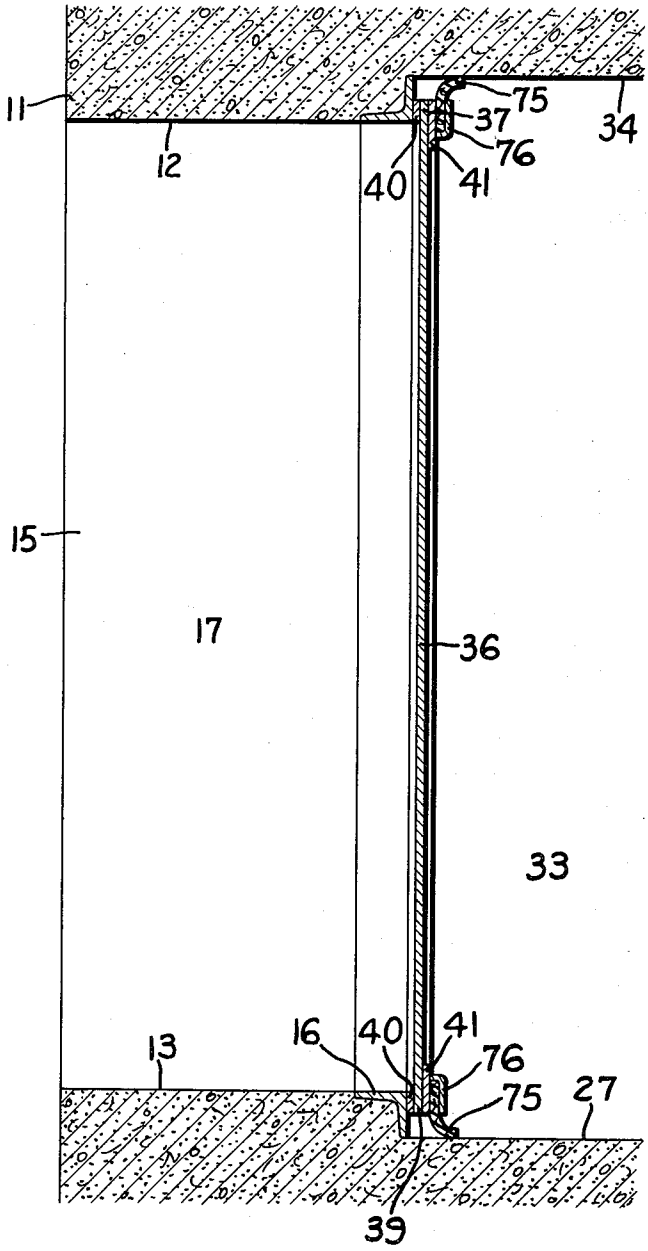
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DOOR FOR BOMB AND GAS RESISTING SHELTERS, BUILDINGS, AND THE LIKE

Filed May 21, 1942 8 Sheets-Sheet 8

Fig. 8



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Patented June 13, 1944 2,350,981

UNITED STATES PATENT OFFICE

2,350,981

DOOR FOR BOMB AND GAS RESISTING SHELTERS, BUILDINGS, AND THE LIKE

Palmer Bescherer, York, Pa., assignor to York Safe and Lock Company, York, Pa., a corporation of Delaware

Application May 21, 1942, Serial No. 443,890

8 Claims. (Cl. 20—16)

This invention relates to doors and more particularly to doors of the type adapted to provide closures for bomb and gas resisting shelters, buildings, and the like.

An object of the invention is to provide an improved door for bomb and gas resisting shelters and the like, in which means are provided for permitting free swinging movement of the door under ordinary conditions, said means being adapted, when a blast or other abnormal pressure is expected on the exterior of the structure to which the door is applied, to permit the door to swing through an arc of safety without the blast tearing the door apart from the structure or otherwise damaging the door and without effecting movement of the door to the position in which the door opening in the structure is opened so that gases or other matter from the blast can enter the interior of the structure.

Another object of the invention is to provide means for retarding the movement of a door of a bomb and gas resisting shelter, by which the door is permitted to swing through a limited arc when struck by a blast from a bomb or other explosive element.

Another object of the invention is to provide improved means for swingingly mounting a door, in which the usual hinges are dispensed with.

Another object of the invention is to provide an improved means for sealing the openings of bomb and gas resisting shelters and the like, so that the penetration of gases, etc. into the shelters is prevented, even when the doors are swung through a considerable arc.

With the foregoing and other objects and advantages in view, the invention consists in the preferred construction and arrangement of the several parts which will be hereinafter more fully described and claimed.

In the accompanying drawings:

Fig. 1 is a horizontal section of a door structure embodying the present invention;

Fig. 2 is a vertical transverse section taken on the line 2—2 of Fig. 1, looking at the outside of the door;

Fig. 3 is a vertical transverse section taken on the line 3—3 of Fig. 1, looking at the inside of the door;

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 3, showing the brake off;

Fig. 5 is a view similar to Fig. 4, showing the brake on;

Fig. 6 is a vertical transverse section taken on the line 6—6 of Fig. 1;

Fig. 7 is a view similar to Fig. 1, on a smaller scale, showing the door in another position; and

Fig. 8 is a section taken on the line 8—8 of Fig. 1.

During air raids in time of war it is the custom for the populace to take shelter, when possible, in specially designed buildings known as air raid shelters. In order to protect the occupants of such buildings, by the present invention, it is proposed to provide an improved type of door adapted to be so mounted in an entrance of the building that it will resist the blasts of bombs falling in close proximity to the shelter or building.

It has been found that exploding bombs dropped in proximity to air raid shelters having steel doors of the usual type, ripped the doors free of their fastenings and otherwise damaged the doors. The damages to the doors resulted from the fact that the doors were firmly locked in closed position in the usual manner with steel fasteners and bolts and had no flexibility. Thus, the blasts from exploding bombs blew the doors into the shelters or buildings. Even when the doors of air raid shelters were constructed of heavy materials, were mounted on heavy hinges, and were held in closed position by heavy and strong bolts, or other fastening means of the usual type, when such doors were struck by blasts from bombs, the doors were found to be only as strong as the hardware used in fastening them to the buildings, irrespective of the thickness of the door plate.

According to the present invention, buildings which may function as air raid shelters in time of war, are adapted to be formed with walls of substantial construction, such as indicated at 11, in the drawings.

The structure 11 may be constructed of suitable masonry materials, such as reinforced concrete, stone, brick and the like. In the present instance only a portion of a wall of the building is shown, and such wall is depicted as being constructed of reinforced concrete. Since the building as a whole forms no part of the present invention, it has not been deemed necessary to show more than the small portion thereof herein described, because the building may have any size and configuration desired.

At a suitable point, the structure 11 or wall of the building, is formed with an entrance opening or passageway having, in plan view, the configuration shown in Fig. 7.

From the exterior of the structure 11, inwardly for a suitable distance, the entrance opening or passageway is formed with a ceiling 12, a floor 13, and side walls 14 and 15.

At the inner end this outer portion 17 of the passageway has mounted therein a rectangular frame 16, formed from angle members in well known manner. This frame forms a wall, abutment, or jam 18, against which the door is positioned when closed.

The floor 27 of the main portion of the passageway which is occupied by the door is at a slightly lower level than the level of the floor 13,

and the portion 27 of the floor may be substantially in the same horizontal plane as the floor of the building. The floor 27 should be constructed as nearly flat as is possible, for a purpose to be hereinafter more fully described.

Extending laterally from the portion of the frame 16 adjacent to the wall 15 is a vertically disposed wall 19.

At the end of the wall 19 farthest from the opening 17, the structure 11 has formed therein a vertically disposed arcuate wall 20. The wall 20 extends into the concrete structure 11, and the structure 11 is comparatively thick so that the opening formed therein by the wall 20 will not be injured by bomb explosions.

In order to construct the arcuate wall 20 in the concrete material used in forming the structure 11, a shell 21 may be employed. The shell 21, formed from sheet metal of the desired gauge or thickness, is shaped to provide the arcuate wall 20, and the vertical edges at each end of the sheet forming the shell 21 are bent to form flanges 22 and 23, respectively.

The bottom of the shell 21 encircles a portion of a circular plate 24 which is set into the floor 27.

The top of the shell 21 likewise encircles a portion of a circular plate 25, similar to the plate 24.

The plates 24 and 25 are shown best in Figs. 2 and 6, and the shell 21 is shown best in Figs. 4 and 5.

If so desired the exterior of the shell 21 may have a plurality of anchors 26 (see Figs. 1 and 2) mounted thereon, which anchors may be embedded in the concrete of the structure 11 in well known manner so as to retain the shell in position in said structure.

The adjoining edges of the shell 21 and the plates 24 and 25 may be connected by welding, so as to provide a unitary structure.

With the center of the plates 24, 25 as a center and with a radius extending from the center of said plates to the far end of the wall 18, the opening or entrance 33 is formed with a vertical arcuate side wall 28. The wall 28 extends from the wall 18 inwardly of the structure 11 in the manner shown in Fig. 7.

The wall 28 forms one side of a passageway, of which the other side is formed by a wall 29.

The wall 29 extends from the flange 23, inwardly of the structure 11 for a suitable distance, and terminates in a wall 30 which is arranged substantially in parallel relationship with the wall 15, but which is offcet with respect to said wall 15.

The inner end of the wall 28 terminates at a point distant from the wall 30 an amount approximately equal to the distance between the walls 14, 15, and extending inwardly from the inner end of the wall 28, is a wall 31 which parallels the wall 30.

Between the walls 30 and 31 there is a passageway 32 which extends into the interior of the structure 11.

As shown in Fig 7, the inner passageway 32 is offset with respect to the outer passageway 17, and said inner and outer passageways are connected by the intermediate passageway 33 having the arcuate wall 28.

The walls 14 and 15 are disposed at an angle of approximately 120 degrees with respect to the wall 29. In other words, between the inner edges of the flanges 22, 23, the shell 21 has an opening extending through an arc of approximately one-third the circumference of the shell. When moved from closed to open position and vice versa, the door can be swung through the above referred to angle of approximately 120 degrees.

The center of curvature of the shell 21 and the center of curvature of the plates 24 and 25 is the center of the pivotal connection of the door with the structure.

The door is preferably constructed of metal and the door proper consists of a rectangular sheet of steel of suitable thickness, indicated by the reference numeral 36.

The outside periphery of the door on three sides, that is to say, the dimensions of the door are such that the upper edge 37, the outer edge 38, and the bottom edge 39 are spaced a slight distance from the walls 34, 28 and 27, respectively, as shown in Figs. 2, 3 and 8. However, when the door is in closed position, as shown in Figs. 1 and 8, the peripheral edges of said door abut against the jam or abutment 18.

The outer face of the door 36 is formed around the periphery with a finishing strip 40 and the inner face of the door has a similar finishing strip 41 around its periphery (see Figs. 2, 3 and 8).

For the purpose of rotatably supporting the door 36 so that the same can swing about the vertical axis, the portion of the door which is disposed within the circular cavity 45 provided by the arcuate wall 20, is formed in the manner to be hereinafter described.

At the pivotal side or inner vertical edge of the door there are three plates 42, 43 and 44.

The inner vertical side edge of the door plate 36 is disposed, when the door is in the closed position shown in Fig. 1, at a point approximately midway the breadth of the wall 19.

Forming a continuation of the plate 36 and extending into the circular cavity 45, is the plate 42.

The plate 43 is disposed on the outer face of the plates 36 and 42, and extends from the wall 15, when the door is in the closed position shown in Fig. 4, to a point a suitable distance within the cavity 45. A portion of the plate 43 which is disposed within the cavity 45 is bent along a vertical line at an angle away from the outer face of the plate 42, as indicated at 46, Fig. 4.

Likewise, one face of the plate 44 abuts the inner faces of the plates 36 and 42, and said plate 44 extends from a point in alinement with the wall 15, into the cavity 45. The portion of the plate 44 which is disposed within the cavity 45 is bent along a vertical line so that said plate has a portion 49 disposed at an angle with respect to the plate 42.

The construction is such that the plates 36 and 42 are clamped between a portion of the plates 43 and 44, and the several plates may be united together to form a unitary structure by any suitable means, such as by welding or by means of screws, bolts, or other suitable fastening elements, not shown.

Pivotally connected to the inner vertical edge of the portion 46 of the plate 43, by means of hinges or similar pivoting elements, 47, is a plate 48.

As shown in Fig. 6, the height of the portion 49 of the plate 44 is somewhat greater than the height of the plate 48.

Extending outwardly from both sides of the plate 42 at points adjacent to the upper and lower edges of the plate 48, are upper and lower horizontally disposed plates 50, 51, 52 and 53.

The plates 50, 51, 52 and 53 constitute horizontal webs, which in plan are of triangular shape, as shown in Fig. 4, and in order to further reinforce the structure and to also retain the end portions of said plates in position, use is made of a pair of vertically arranged angle members 54 and 55.

The angle member 54 has a side wall 56 which lies against the face of the plate 42 and a side wall 57 which is arranged substantially at right angles to the side wall 56 and extends outwardly to the portion 49 of the plate 44.

The angle member 55 has a side wall 58 which lies against the face of the plate 42 and a side wall 59 which is arranged substantially at right angles to the side wall 58 and extends outwardly to the outer angularly disposed edge portions of the webs 51 and 53.

The angle member 54 may be rigidly secured to the plates 42, 49, 50 and 52, by welding, or by any other suitable means.

The angle member 55 should be rigidly secured to the plates 42, 51 and 53.

The member 48 is not secured to the edges of the plates 51, 53, nor is said member secured to the edge of the side wall 59 of the angle member 55.

From the foregoing it will be noted that the portion of the door which is disposed within the cavity 45 includes splayed plates, which are arranged as shown in Figs. 1 and 4 somewhat in the form of a fish tail.

As shown in Fig. 6, the center of the bottom plate 24 is formed with an opening 61, and disposed on the underside of said plate and having a vertical bore 62 arranged in alinement with the opening 61, is a block 63.

The block or member 63 constitutes a journal for a trunnion 64 carried by the bottom portion of the door structure, the lower end of said trunnion being mounted in a thrust bearing 65 disposed in the bore 62.

Mounted in the opening 61 and surrounding the trunnion 64, is a packing 66 adapted to prevent dirt and other foreign matter from entering the bore 62 and the bearing 65 mounted therein.

The trunnion 64 may be detachably secured to the bottom portion of the door structure by means of screws, bolts, or other suitable fastening means, indicated at 67, Fig. 6.

Likewise, the center of the top plate 25 is formed with an opening 68 and mounted on top of the plate 25 and having a vertical bore 69 disposed in vertical axial alinement with the opening 68, is a block 70.

The block or member 70 constitutes a journal for a trunnion 71 carried by the upper portion of the door structure. The trunnion 71 is detachably connected to the door members 42, 49, by means of screws, bolts, or the like 72.

Since the blocks 63 and 70 are embedded in the concrete which forms the wall structure 11, said blocks will be rigidly anchored in place and the plates 24 and 25 provide means for protecting said blocks from being damaged.

By providing the vertically disposed trunnions 64, 71, the door will be free to swing from closed to open position and vice versa, and by locating the trunnions at a point remote from the door opening 17, the likelihood of said trunnions becoming damaged as the result of blasts from exploding bombs will be reduced to a minimum, since the trunnions are protected by a thickened portion of the wall structure 11.

Arranged around the periphery of the door, is a gasket or flexible sealing strip 75.

The sealing strip or gasket 75 may be mounted on the finishing strip 41, being securely fastened thereto by means of a binding strip 76 which may be attached to the periphery of the door by means of screws 77, as shown in Fig. 3.

The sealing strip or gasket 75 is adapted to bear at all times against the surfaces provided by the walls 27, 34, 26 and 28, so as to thoroughly seal the joints between the structure 11 and the door, in order to prevent gases and other obnoxious fumes, etc., from entering the shelter or building.

Due to the manner in which the gasket or sealing strip 75 is operatively associated with the structure 11, a slight frictional resistance of the movement of the door will be had. However, this frictional resistance to the free swinging movement of the door will not be excessive, and any person can readily swing the door by grasping either the handle 78 on the outside of the door or the handle 79 on the inside of the door.

In order to provide means for locking the door in closed position without employing the usual locking bolts, latches, or the like fastening elements, the member 48, along its vertical outer edge portion 81, is formed with a gasket or flexible strip 82, as shown best in Figs. 4 and 5.

The gasket 82 is arranged on the outer face of the member 48, being secured to said member by means of a binding strip 83 in a manner similar to the manner in which the binding strip 76 retains the gasket 75 on to the door.

The gasket 75, as well as the gasket 82, may be constructed of suitable flexible material, such as rubber composition, or any other material found suitable for use as flexible gaskets. However, the body of the gasket 82 should be somewhat thicker than the body of the gasket 75 in order to withstand hard usage and heavy strains.

The gasket 82 constitutes a pad which is adapted to be moved into engagement with the wall of the arcuate shell 21 so as to provide means by which rotation of the door on its trunnions 64, 71, is retarded. In other words, when the member 48 is disposed in the position in which the pad 82 engages the wall of the shell 21, means are provided for braking the rotative movement of the door, irrespective of the position of the door in the passageway.

Constituting a part of the braking means for retarding the rotation of the door, is a plurality of expansible coil springs, 85.

As shown in Fig. 2, the springs 85 are suitably spaced apart, and as shown in Figs. 4 and 5, said springs are located adjacent to the angle member 55.

One end of each spring 85 bears against a block 86 carried by the plate 42, and the other end of each spring bears against the inner face of the member 48. The springs 85 normally urge the member 48 away from the stops provided by the horizontal webs 51 and 53.

In order to position the plate 48 so that the pad 82 will not engage with the surface of the shell 21, that is to say, in order to release the braking means so that the door will be free to swing on the pivots provided by the trunnions 64, 71, an actuator 87 is provided.

The actuator 87 comprises a rod having a portion thereof formed with screw threads 88, which screw threaded portion is mounted in a block 89 secured in the door structure, 42, 49, and having a bore 90 formed with screw threads.

One end of the actuator rod 87 is provided with

a hand wheel 91, which hand wheel is located on the inside of the door, so that when the door is in the closed position shown in Fig. 1, the hand wheel will be conveniently disposed for ready manipulation by an air raid warden or operator, in order to effect movement of the actuator so as to apply the braking means, as will be hereinafter more fully described.

The actuator rod 87 also extends through an elongated opening 92 formed in the member 48 and also formed in a boss 93 on the outer face of said member.

At its outer end, the rod 87 is formed with an enlarged portion or head 94 having an opening 95 formed therein for a purpose to be hereinafter described.

The head 94 of the actuator rod 87 bears against a shoulder or abutment 96 provided by the outer surface of the boss 93 and in doing so retains the member 48 from swinging outwardly as the result of forces exerted by the expansible coil springs 85 against the opposite face of said member, which forces urge the member 48 to swing on the hinges 47 in a direction away from the plate 42.

Mounted on the outer face of the member 48, in a position adjacent to the boss 93, is a bracket 97 having an opening formed therein for receiving the shank of a headed pin or rod 98, as shown best in Fig. 2.

When the door is not in use, the actuator 87 retains the plate or member 48 in the position shown in Fig. 4, in which position the member 48 lies against the horizontal webs 51, 53. The springs 85 are thus compressed. With the member 48 thus positioned, the pad 82 will be disengaged from the shell 21, thereby enabling the door to freely rotate on its trunnions except for the slight frictional resistance of the engagement of the gasket 75 with the walls 21, 28, the ceiling 34, and the floor 27.

Assuming that the door is installed at an opening in an air raid shelter and an air raid warning signal has been sounded, the door is placed in the dotted line position shown in Fig. 7, so that the passageway or entrance to the air raid shelter is unobstructed. After persons seek shelter in the building, the air raid warden or other person in charge, moves the door from the open position shown by the dotted lines in Fig. 7 to the closed position shown in Fig. 1. The hand wheel 91, which is now disposed in a readily accessible position at the mouth of the cavity 45, as shown best in Figs. 4 and 5, is turned in the direction in which the headed end 94 of the rod 87 is moved outwardly or away from the boss 93. Since the member 48 is hingedly mounted on the door structure, the springs 85 force said member 48 outwardly in a direction away from the plate 42. The hand wheel 91 should thus be operated so as to permit the springs 85 to move the member 48 a distance sufficient for the pad 82 to bear tightly against the shell 21. When this operation has been completed the frictional engagement of the elongated pad 82 with the surface of the shell 21 will retain the door firmly in its closed position.

Due to the construction of the door and the manner in which said door is arranged in the passageway, when a blast from a bomb or other explosive element occurs at some place on the exterior of the building, the forces expended by the blast against the exposed surface of the door defined by the outer passageway 17, upon striking the door may force the door to swing inwardly against the frictional resistance provided by the engagement of the pad 82 with the wall of the shell 21. However, since the wall 28 presents a surface of considerable breadth, the door can be forced by blasts to swing through an arc of approximately 90 degrees without breaking the seal of the gasket 75 with the surfaces of the passageway in which the door is disposed.

It will thus be noted that although the braking means provided by the engagement of the pad 82 with the wall of the shell 21 may offer a resistance sufficient to prevent swinging movements being imparted to the door by ordinary forces, when heavy blasts from bombs or other explosive elements strike the surface of the door exposed to such blasts, the braking means are flexible enough to permit the door to swing on its trunnions without damaging or otherwise disrupting the pivotal mounting of the door in the structure 11.

Due to the manner in which the door is pivotally mounted in the building 11, and also due to the arrangement of the hand wheel 91, should the door be swung to a position in which the hand wheel 91 is inaccessibly disposed in the cavity 45, the pin or rod 98 can be removed from the bracket 97 and inserted in the opening 95 of the head 94. The rod 98 can then be used to rotate the actuator rod 87 so as to disengage the pad 82 from the shell 21, thereby releasing the braking means, so that the door can be readily moved.

The construction hereinbefore described provides improved means by which, during bombardments in time of war, the door of an air raid shelter or the like, can be retained in closed position under pressures sufficient for the door to resist average blasts without movement. In the event of close or extremely heavy blasts, the blast pressure on the door will compress the springs 85 sufficiently for the door to move, rather than for the door or its hinges to be damaged. This spring pressure is adapted to brake the inward swing of the door and check such swinging movement within a predetermined arc of safety (compare Fig. 1 with Fig. 7). After which the spring brake may be released by turning the hand wheel 91, the door moved back to its closed position, and the brake again applied in the manner heretofore described.

In addition to being applicable for installation in bomb and gas resisting shelters, the improved door herein described is susceptible for use in other types of buildings and structures, such as in chemical plants, refrigeration and packing plants, fortifications, explosive manufacturing plants, etc. In some of its applications the door may be installed in the walls of buildings so as to prevent fumes, gases, or other fluids from readily passing from one room to another room, or from passing from the interior of a building to the exterior thereof.

Having thus described my invention, what I claim is:

1. An air raid shelter comprising a wall having an entrance opening formed therein, a door for closing said entrance opening, said door being arranged within the wall and having pivotal connections mounted in said wall in spaced relation to said entrance opening, means for sealing the joints between the periphery of said door and the surfaces of said entrance opening, means carried by said door and engageable with said wall for frictionally retarding the swinging movement of the door, a plurality of springs act-

ing against said retarding means for urging said retarding means into frictional engagement with said wall, and means for operating said retarding means for retaining said retarding means disengaged from said wall to permit free swinging movement of the door when desired, said retarding means being adapted, when blasts from exploding bombs strike the exposed surface of the door, to permit said door to swing through a limited angle in the entrance opening without opening the seal between the door and the walls of said entrance opening.

2. A building structure of the class described having an entrance opening formed therein, a door jamb formed in said entrance opening, a wall extending laterally from and substantially in alinement with said door jamb, a cavity formed in said structure at the end of said lateral wall farthest from said entrance opening, a door extending across the entrance opening, the lateral wall and the cavity and adapted to abut the door jamb and the lateral wall to close the entrance opening, means disposed in said cavity for pivotally supporting the door in the structure, and means carried by said door and engageable with the wall of said cavity for retarding the swinging movement of said door.

3. A building structure of the class described having an entrance opening formed therein, a door jamb formed in said entrance opening, a wall extending laterally from said door jamb, a cavity formed in said structure at the end of said lateral wall farthest from said entrance opening, a door extending across the entrance opening, the lateral wall and the cavity and adapted to abut the door jamb and the lateral wall to close the entrance opening, means disposed in said cavity for pivotally supporting the door in the structure, means carried by said door and engageable with the wall of said cavity for retarding the swinging movement of said door, and mechanism for operating said retarding means for rendering the same inoperative.

4. A building structure of the class described having an entrance opening formed therein, a door jamb formed in said entrance opening in spaced relation to the outer end thereof, a wall extending laterally from and substantially in alinement with said door jamb, a cavity formed in said structure at the end of said lateral wall farthest from said entrance opening, said cavity having a vertical arcuate wall extending from said lateral wall to a second wall arranged at an angle with respect to said lateral wall, a closure element for closing said entrance opening, said closure element having pivotal connections arranged concentric with the vertical center of said cavity and adapted to lie along the face of said lateral wall and abut said door jamb when in position to close said entrance opening, and a plate hingedly connected to said closure element and having an edge portion engageable with the wall of said cavity for retarding the swinging movement of said closure element.

5. A building structure of the class described having an entrance opening formed therein, a door jamb formed in said entrance opening in spaced relation to the outer end thereof, a wall extending laterally from and substantially in alinement with said door jamb, a cavity formed in said structure at the end of said lateral wall farthest from said structure entrance opening, said cavity having a vertical arcuate wall extending from the inner end of said lateral wall, a door for closing said entrance opening, journals projecting from the bottom and the top of said door and mounted in bearings disposed, respectively, in the center of curvature of the bottom and the top of said cavity for pivotally supporting said door at a point remote from the entrance opening in the structure, and means disposed within said cavity and pivotally mounted on said door in offset relationship to said door journals and engageable with the wall of said cavity for retarding the swinging movement of said door.

6. A building structure of the class described having an entrance opening formed therein and including side walls, a top, and a bottom, a door jamb formed in said entrance opening in spaced relation to the outer end thereof and including a top higher than the top of the entrance opening, a bottom lower than the bottom of the entrance opening, and laterally extending walls, one lateral wall having a width greater than the width of the other lateral wall, a cavity formed in said structure at the end of the lateral wall of greatest width, a door for closing said entrance opening, means disposed in said cavity for pivotally supporting the door in said structure, said pivot means being located in spaced relation to an edge of said door in said cavity, and means disposed within said cavity and pivotally mounted on said door in offset relationship to said door pivot means and engageable with the wall of said cavity for retarding the swinging movement of said door.

7. A building structure of the class described having an entrance opening formed therein, a door jamb formed in said entrance opening in spaced relation to the outer end thereof, a wall extending laterally from and substantially in alinement with said door jamb, a cavity formed in said structure at the end of said lateral wall farthest from said entrance opening, a door extending across the entrance opening, the lateral wall and the cavity and adapted to abut the door jamb and the lateral wall to close the entrance opening, means disposed in said cavity for pivotally supporting the door in the structure, and a plate hingedly connected to said door and having an edge portion adapted to engage the wall of said cavity for retarding the swinging movement of said door.

8. In a structure of the class described, a wall having an entrance passageway formed therein, a cylindrical cavity formed vertically in said wall in spaced relation and offset with respect to said passageway, a ledge formed in said structure between the passageway and said cavity, a closure element for closing said entrance passageway, said closure element having pivotal connections with said wall arranged concentric with the vertical center of said cavity, said ledge limiting the swinging movement of said closure element in one direction, and a plate pivotally carried by said closure element and movable independently with respect to said closure element and having a portion engageable with the wall of said cavity for retarding the swinging movement of said closure element.

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