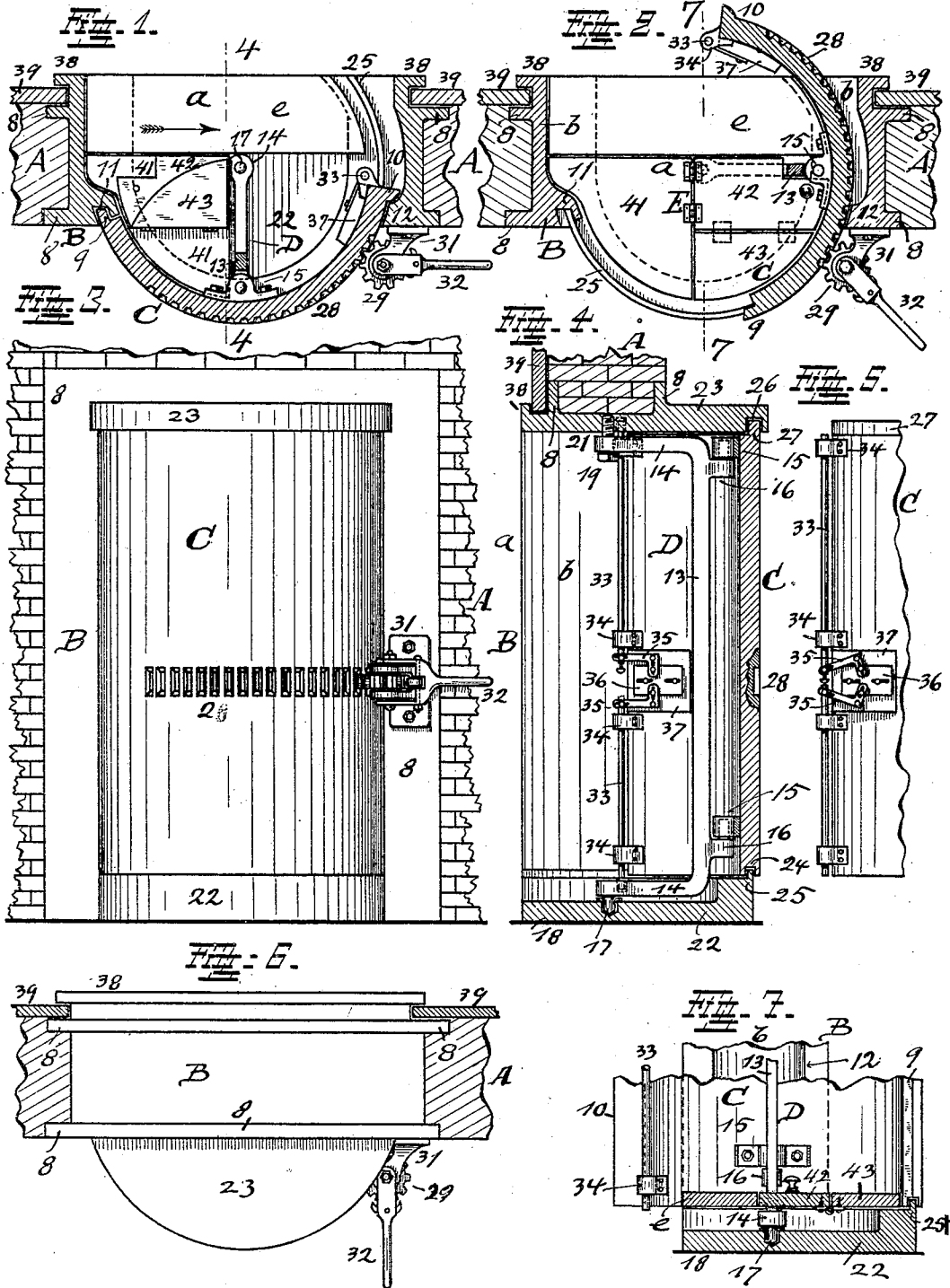


G. A. HATTERSLEY.
VAULT AND STRONG ROOM DOOR.
APPLICATION FILED DEC. 29, 1909.

961,227.

Patented June 14, 1910.



Witnesses.
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UNITED STATES PATENT OFFICE.

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VAULT AND STRONG-ROOM DOOR.

961,227.

Specification of Letters Patent. Patented June 14, 1910.

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To all whom it may concern:

Be it known that I, GEORGE A. HATTERSLEY, a citizen of the United States, and a resident of Norwood, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Vault and Strong-Room Doors; and I do declare the following to be a clear, full, and exact description thereof, attention being called to the accompanying drawing, with the reference characters marked thereon, which forms also a part of this specification.

This invention relates to certain improvements in the construction of doors for vaults and strong rooms, the particular feature concerning the manner of supporting such a door, so that it may be conveniently manipulated.

In the following specification and particularly pointed out in the claims at the end thereof will be found a full description of my invention, together with its manipulation, parts and construction which latter is also illustrated in the accompanying drawing, in which:—

Figure 1, is a horizontal section through such a door and the frame to which it is fitted, the door being shown in closed position. Fig. 2, is a similar view and shows the door open. Fig. 3, is a front-view of the door in its closed position and as it appears in Fig. 1. Fig. 4, is a vertical section through the door and its frame, taken on a line 4-4 of Fig. 1, and looking in the direction of the arrow shown there. Fig. 5, shows part of the inner side of the door at its rear edge with the locking-means thereat. Fig. 6, is a top-view of the door. Fig. 7, is a section taken on line 7-7 of Fig. 2, the lower part only of the door being shown.

A shows part of the front wall of a vault or strong-room, a door-opening *a* being provided to permit access. B is a door-frame preferably rectangular and set into this opening in the wall, its opposite upright sides *b-b* of the frame forming the jambs of the door. C is the door fitted to this frame and movably supported so that it may prevent passage through the opening surrounded by the frame when closed and permit it in either direction when open. The construction of the door and of its frame is so devised that either or each of them may be made in form of a casting, which may be of non-machineable metal like man-

ganese steel for instance. Flanges 8-8 extending outwardly from the frame are provided which receive between them the masonry of wall A and thereby serve to hold the door-frame securely seated in the wall-opening.

The door is in form of a rectangular slab of solid metal, convex between its longer, upright edges, so as to form in substance a segment of a cylinder. It is provided on one of its upright edges with a lip 9 and on its other edge with a shoulder 10.

In the closed position of the door as shown in Fig. 1, its lip 9 enters a groove 11 and its shoulder 10 which projects outside of the periphery of the door abuts against shoulder 12 which projects inwardly from the door-jamb. A tight closure is thus obtained which prevents the introduction of explosives at the upright edges of the door. The door has a swinging movement for opening or closing, it moving horizontally in its own plane as best shown in Fig. 2. It is carried for such purpose on a hinge-frame D, consisting of an upright part 13 parallel to the inside of the door and co-extensive in length with the height thereof, and of angular parts 14-14 extending rearwardly from the ends of this upright part into the space surrounded by the frame. The door is hingedly connected to this frame by means of pins seated in lugs 15-15 on the door and in complementary lugs 16-16 on said frame. These lugs may be either connected, or integral projections on the parts named. The hinge-frame is supported to swing horizontally between vertically spaced pivots, one 17, seated in sill 18 and the other 19 being seated in the lintel 21 of the door-frame, the ends of parts 14 of the frame engaging these pivots. In order to render the closure complete when the door is closed, it is necessary to extend the horizontal parts of the door-frame to meet the horizontal edges of the outwardly curved door. Accordingly sill and lintel are extended forwardly as shown at 22 and 23. The meeting edges are fitted to each other in a manner which prevents the introduction of explosives in liquid form and for which purpose tongues and complementary grooves are provided at these edges. The grooves are arranged to be inverted so as to be incapable of receiving and retaining liquid explosives and to prevent also the accumulation of dust and dirt. For such purpose a groove 24 is

provided in the lower edge of the door, to receive a tongue 25 which projects upwardly from the front edge of the extended sill. Above, a groove 26 is provided in the under-
 5 side of the forwardly extended part of the lintel to which is fitted a tongue 27 at the upper edge of the door. It will now be noted, by observing Fig. 4, that upwardly open joints are avoided by this arrangement
 10 which would favor the introduction of explosives in liquid form.

Suitable means to manipulate the door, to open and close it may be provided, a knob being sufficient in most cases, since the door readily swings on its hinged connection to
 15 the hinge-frame which permits it to adjust itself to the guide-ways so as to readily follow them. Or a rack 28 may be provided on the outer side of the door, into which a pinion 29 is fitted which is supported on a
 20 bracket 31, connected to adjacent parts of the door-frame. A handle 32 is provided, preferably detachable, whereby the pinion may be rotated.

Means to hold the door in closed position, usually one or more bolts, are provided to be actuated and controlled by suitable locking-mechanism, a time-lock preferred. I provide
 25 two bolts 33 for this purpose and mount them in a vertical position on the inside of the door and so as to be capable of a sliding movement in a vertical direction, bearings
 30 34 being provided for this purpose on the door. Sockets, not visible, are provided in the door-frame and so located as to be opposite the ends of these bolts when the door is
 35 in closed position. The bolts are moved by angle-levers 35 which are actuated by a slide 36 operated by a time-lock 37.

When the door and its frame are made of non-machinable metal, as before alluded to, I provide for inserts of machineable metal which are placed during the casting of these
 40 parts, to permit machine and hand-tool work where such is necessary, as for instance to provide for the sockets which receive the ends of the locking bolts, for the attachment of their bearings and operating
 45 parts, also for the lugs which support the door on the hinge-frame, if not made integral, for the formation of rack 28 and for the connection of bracket 31. Grinding is resorted to for all other work like finishing
 50 of the door and of its frame and for fitting of the edges of the former into this latter.

The edges of the door-frame on the inside of the vault are extended outwardly all around, to form an attaching flange 38 which permits connection with a vault-lin-
 60 ing 39.

I provide for a level passage-way through the door-opening by means of a floor E, consisting of a stationary section 41, of a section 42 hinged to it and of an additional
 65 section 43 hinged to section 42. The hinged

connection permits this floor to be folded up as shown in Fig. 1, to prevent interference with the manipulation of the door. When the door is open, the sections are opened out as shown in Fig. 2 and meet the
 70 permanent floor *e*.

I am familiar with the construction of a related device described and claimed in an application, serially numbered 491,551. Said application being prior to mine, the scope
 75 of my claims should be construed accordingly and so as not to include any of the matter claimed in said prior application.

Having described my invention, I claim as new:

1. In door-construction for vaults, the combination of a door in shape of a cylindrical segment, a door-frame with complementary guide-ways for it, a hinge-frame comprising an upright member parallel to
 80 and co-extensive in length with the height of the door and arms extending rearwardly from the ends of this upright member whereby this frame is pivotally connected within the door-frame and means whereby the door
 85 at its inside is hingedly connected to the upright member of the hinge-frame and so as to move in its guideways.

2. In door-construction for vaults, the combination of a rectangular door-frame
 90 with door-guide-ways in its horizontal members, a hinge-frame consisting of an upright and of two angularly arranged members, pivots seated in opposite sides of the door-frame which engage the ends of the angular
 95 members of the hinge-frame, a door in shape of a cylindrical segment fitted to this frame and complementary lugs on the concave side of the door and on the outside of the upright member of the hinge-frame whereby
 100 the former is hingedly connected to the latter and supported while moving in its guideways.

3. In door-construction for vaults, the combination of a rectangular door-frame
 110 having circular door-guide-ways in its horizontal members and with bolt-sockets, a door in shape of a cylindrical segment fitted at its horizontal edges to these guide-ways so as to move between them, bolts provided on
 115 the inside of the door and locking mechanism carried on the door and adapted to actuate the bolts with reference to the bolt-sockets in the manner and for the purpose described.

4. In door-construction for vaults, the combination of a door in shape of a cylindrical segment, a door-frame having upright members connected by a sill and a lintel to which the door is movably fitted in a man-
 120 ner in which it may occupy positions permitting passage through the door-frame, or preventing it, sill and lintel of the door frame being extended outwardly so as to meet the horizontal edges of the door when
 130

the same closes passage through the door-
frame so as to complete the closure, a hinge-
frame having upper and lower members
whereby the door at its inside is connected
5 respectively to sill and lintel and a foldable
floor consisting of hinged-sections provided
on the sill of the door-frame adapted for ad-
justment to cover the lower horizontal mem-

ber of the hinge-frame when the door is open.

In testimony whereof, I hereunto affix my 10
signature in the presence of two witnesses.

GEORGE A. HATTERSLEY.

Witnesses:

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T. LE BEAU.