

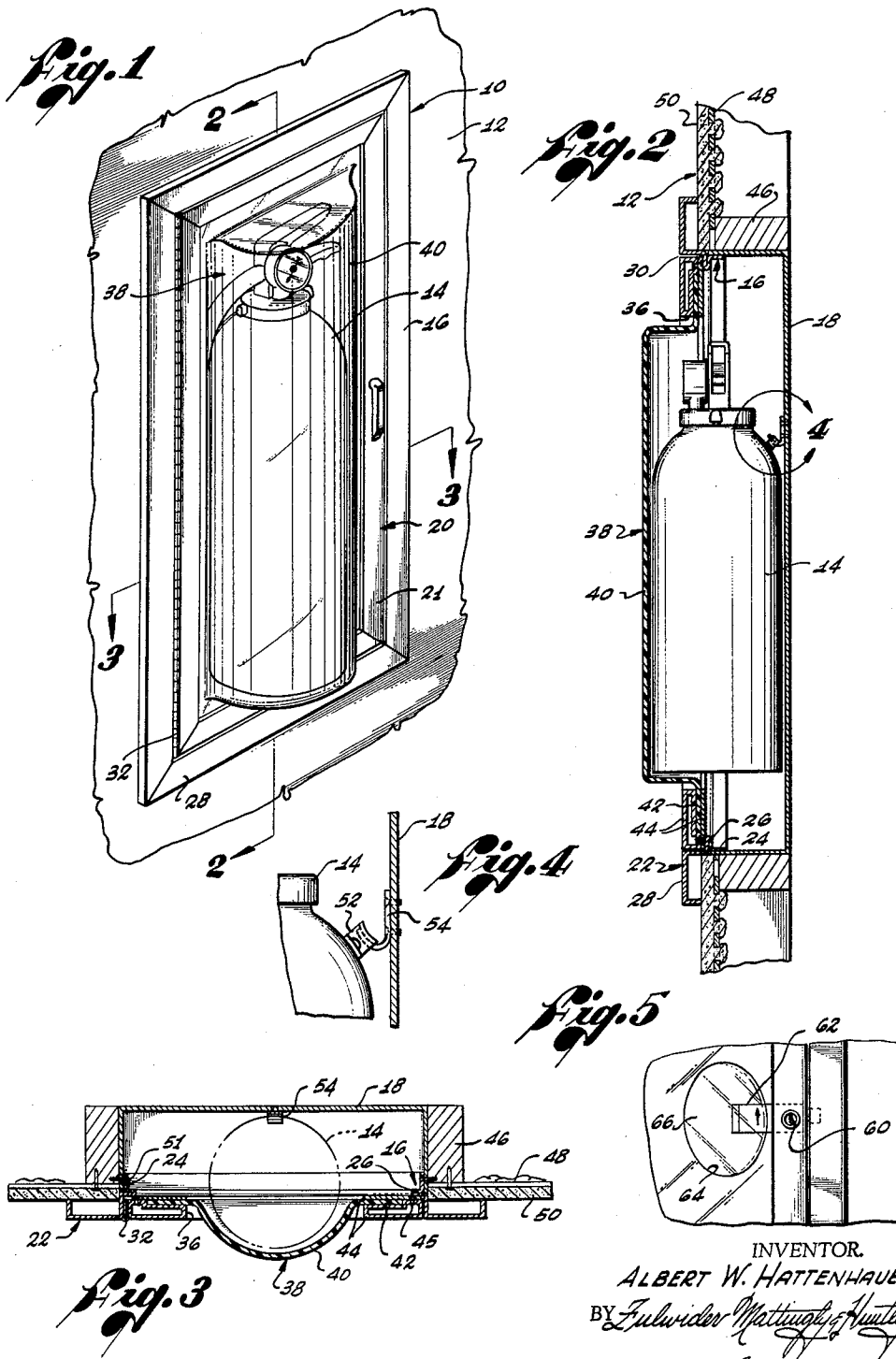
Dec. 11, 1962

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3,067,822

FIRE EXTINGUISHER CABINET

Filed Dec. 18, 1961



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3,067,822

## FIRE EXTINGUISHER CABINET

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Filed Dec. 18, 1961, Ser. No. 159,844

8 Claims. (Cl. 169-1)

This invention relates to cabinets of the type commonly mounted in the corridors of public buildings for housing fire fighting equipment for use in time of emergency, and more particularly to an improved cabinet for housing a fire extinguisher in such a manner that it may be quickly located and put to use.

In order to provide effective protection, cabinets housing fire fighting equipment are necessarily positioned throughout the public building in places, where they can be quickly located and put to use. To best achieve this end, it is desirable that such cabinets be visible from considerable distances, even when the intended user is standing adjacent the vertical wall in which they are mounted. That is to say, it is preferred that the cabinets be visible from considerable distances and at all angles throughout a full 180° arc.

Another factor effecting the design of fire extinguisher cabinets of the present type is that an extinguisher of ample capacity to meet fire regulations frequently is of a diameter or thickness greater than that of the available depth of the wall. Therefore, assuming that a wall-recessed type of cabinet is to be used, the difference must be accounted for by some auxiliary means. In the past, the extra cabinet space necessary to house an approved extinguisher in a relatively shallow wall was made available by constructing the cabinet with a heavy metal frame embodying a large trim strip that projected outwardly of the surface of the wall.

Prior cabinets of the type noted above have met considerable objection, particularly by architects, designers, and the like. The basis of this objection was that the projecting trim strip made a noticeable break in the otherwise smooth surface of the wall and greatly detracted from the appearance of the building.

In view of the foregoing discussion, it will be appreciated that to begin with the cabinet must be of sufficient depth to house its associated extinguisher. Bearing this in mind, it is then desirable, from a safety standpoint, that the cabinet be readily identifiable as one housing fire fighting equipment, even at considerable distances and at all angles throughout a full 180° arc. On the other hand, it is desirable, from an esthetic standpoint, that the cabinet blend in as well as possible with the wall and the remainder of the building. In other words, the cabinet must be constructed and mounted so that it can be quickly located and is readily accessible when needed, but should not be offensively conspicuous.

It is, therefore, a primary object of this invention to provide a wall-recessed type fire extinguisher cabinet which may be quickly located and put to use, yet which is not offensively conspicuous.

A related object is to provide a fire extinguisher cabinet of the type described that may be readily seen and identified, even from considerable distances and at all angles through a full 180° arc.

Another object is to provide a wall-recessed cabinet for housing a relatively large fire extinguisher in a relatively shallow wall, this being accomplished without the necessity of providing the cabinet with a frame embodying a large projecting trim strip.

Still another object is to provide a fire extinguisher cabinet in which access to the extinguisher housed therein is normally prevented in order to discourage vandalism,

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but is made available upon breaking of an insert in the door of the cabinet.

A still further object of this invention is to provide an improved cabinet for accomplishing all the above purposes, yet one which is relatively simple in construction and, hence, inexpensive to manufacture.

These and other objects and advantages of the invention will be better understood by referring to the following detailed description taken in conjunction with the accompanying drawings, in which:

FIGURE 1 is a perspective view of a wall-recessed type cabinet constructed in accordance with the invention and housing a fire extinguisher;

FIGURE 2 is a vertical section taken on the line 2—2 of FIGURE 1;

FIGURE 3 is a horizontal section taken on the line 3—3 of FIGURE 1;

FIGURE 4 is a partial section on an enlarged scale, showing the area encircled by the line 4 in FIGURE 2; and

FIGURE 5 is a partial section showing the locking means of the door on a modified form of cabinet.

Referring to the drawings, and in particular to FIGURE 1 thereof, numeral 10 designates generally a wall-recessed cabinet constructed in accordance with the invention and supported in a vertical wall 12. A typical fire extinguisher 14 is illustrated as housed within the cabinet. The basic parts of the present cabinet include a mounting frame 16, a pan or liner 18, and a door 20. The constructions and arrangements of these basic parts are to be described in detail below. Unless otherwise specified, the cabinet parts are preferably constructed of a strong and durable metal and finished to present a pleasing appearance.

The mounting frame 16 is rectangular in overall shape, being made up of a series of connected lengths of suitable framing member 22. As illustrated in FIGURE 3, the framing member 22 includes a mounting flange 24 adapted to be secured to a wall support. Projecting at right angles from the mounting flange 24 is a door-stop flange 26. A trim strip 28 is integral with the door-stop flange 26 and embodies, in series, three flange portions arranged in a generally rectangular configuration.

Secured to the mounting frame 16 is the pan 18 which serves to represent at least some of the cabinet walls including a rear wall, top and bottom walls, and side walls. The pan 18 and mounting frame 16 are secured together by any suitable means as, for instance, by spot welding the pan to the mounting flange 24 of each of the connected lengths of framing member 22 making up the mounting frame 16 at spaced intervals. Besides representing cabinet walls, the pan 18 cooperates with the mounting frame 16 to define a front opening 30. In the illustrative embodiment, the door-stop flange of each framing member 22 and the portion of the trim strip 28 integral therewith form a corner recess adjacent the front cabinet opening 30 for the reception of the door 20.

The door 20 comprises a rectangular frame 21 which, in turn, is mounted on the frame 16 and adapted to swing into and out of registry with the front cabinet opening 30 about the pivotal axis of a continuous hinge 32. As shown in FIGURE 3, the hinge 32 has one plate spot welded to the trim strip 28 of the mounting frame 16 and the other plate spot welded to the opposed portion of the door frame 21. The relative proportions of the various members and the hinge mounting are such that when the door frame 21 is in its closed position, it is in abutment with the door-stop flange 26 of each of the lengths of framing member 22 and generally flush with the projecting trim strip 28 of the mounting frame 16. Latching of the frame 21 in its closed position is achieved

by conventional latching means (not shown) on the mounting and door frames 16 and 21, respectively, and adapted to be actuated by the handle 35.

The door frame 21 is comprised of lengths of cooperating pairs of flanges 44 joined together in a manner set forth below, the lengths being connected so as to provide the door 20 with a central open space 36. Since each of the lengths of flange pairs 44 is relatively narrow, the open space 36 comprises the greater portion of the door 20. Secured to the door frame 21 and disposed in its open space 36 is a canopy or panel 38. As illustrated, the panel 38 is convex or arcuate in shape, bowing outwardly away from the rear cabinet wall, when the door frame 21 is swung into its closed position. When in this last mentioned position, the door 20 including the frame 21 and the panel 38 represents the front wall of the cabinet.

In order to afford the door the necessary strength and to make the contents housed within the cabinet visible from the exterior thereof, the panel 38 is formed of a high strength and highly transparent material. Various plastics have been found to be suitable for this purpose, with the thermoplastic methyl methacrylate being preferred. An advantage of the last named thermoplastic is that it can be shaped relatively easily.

In the instant case, the extinguisher 14 to be housed within the cabinet is generally cylindrical in exterior shape. In order to conform to this extinguisher shape, the projecting front portion 40 of the panel 38 is made generally semi-cylindrical. However, it will be understood that, depending upon the shape of the item to be housed within the cabinet, other panel shapes could be used to advantage. In addition to the projecting front portion 40, the panel includes an integral and generally flat marginal edge portion 42 for mounting purposes. Mounting of the panel 38 on the door frame 21 is here achieved by interposing the edge portion 42 of the panel 38 between the pair of flanges 44, the lengths of which are joined together to make up the door frame 21, and then clamping the flanges 44 together by means of screws 45.

The cabinet 10, constructed in the manner set forth, is then installed in a recess in the vertical wall 12. A typical wall construction, illustrated in FIGURE 3, includes studs 46 and lath 48 faced with plaster 50. Installation of the cabinet 10 is achieved by securing the mounting frame 16 to the studs 46 by screws 51 extending through the mounting flanges 24 of the frame and the aligned marginal edge portions of the pan 18. When installed, the trim strip 28 may be seen to abut the exterior surface of the wall. Since the strip is relatively shallow, i.e. it projects outwardly just a small distance beyond the wall surface, it and the aligned door frame 21 are considered to be generally flush with the wall surface. On the other hand, the arcuate front portion 40 of the door panel 38 projects considerably outwardly of that surface.

It will be understood that, depending upon various factors, including the wall space available to receive the pan 18, the shape and size of trim strip desired, and the particular wall construction, various types of mounting frames 16 may be used. Where a wall of ample depth is available, it may be desired to eliminate the projecting portion of the trim strip 28, in which case the pan 18 is recessed farther back into the wall 12, and the door frame 21 is disposed exactly flush with the exposed wall surface. In this latter case, of course, only the arcuate front portion 40 of the panel 38 would project outwardly of the wall surface.

The extinguisher 14 is receivable in the cabinet with its back side adjacent the rear wall thereof. Preferably, the extinguisher 14 is suspended from the pan 18 by means of a pair of associated brackets 52 and 54 (FIGURE 4) secured to the pan 18 and extinguisher 14, respectively. As shown, the diameter of the extinguisher 14 is greater

than the depth of the cabinet from its rear wall to its front opening 30, yet the extinguisher is adapted to be housed entirely within the interior cabinet space by virtue of the projecting door panel 38. When the extinguisher 14 is received in the cabinet and the door 20 is swung to its closed position, as in FIGURE 3, the front portion of the extinguisher projects into the cabinet space defined by the projecting front portion 40 of the panel 38, and is visible through the transparent material. Due to the fact that the front portion of the extinguisher is housed in this projecting front portion 40 of the panel 38, it will be readily appreciated that the former is visible at considerable distances throughout a full 180° arc about the cabinet. That is to say, the extinguisher may be seen and identified from considerable distances, even when the intended user is standing immediately adjacent the vertical wall in which the cabinet is mounted.

By making use of this projecting panel to house a portion of the extinguisher, it is possible to construct the pan 18 of a shallower depth than would otherwise be necessary. Accordingly, the present cabinet is adapted to be mounted in a recess in a relatively shallow wall. This is an important feature of the present invention, since, as noted above, extinguishers which are approved from a safety standpoint are frequently of a greater thickness or diameter than the depth of the available wall. As suggested above, still another feature of the present cabinet is that it makes it possible to house a large size extinguisher in a relatively shallow wall without using a large projecting trim strip which detracts from the overall appearance of the building. Instead, essentially only the relatively small size arcuate front portion of the transparent panel projects outwardly of the exposed wall surface. Such a cabinet may be quickly located and put to use, yet by virtue of essentially only the front panel projecting, the cabinet blends in with the building and its furnishings.

A modified form of the cabinet of the invention is illustrated in FIGURE 5. In some environments, as for example in schools, it is desirable in order to discourage vandalism, to equip the door frame with a slightly different type of latching means. Instead of the conventional handle-actuated latching means of the previous embodiment, a key lock 60 is provided on the door frame. The lock may be released from the exterior of the cabinet, as when servicing the extinguisher, with the aid of a suitable key. On the other hand, in order to afford access to the cabinet in time of emergency, a latch 62 is provided on the interior of the cabinet for releasing the lock 60. Access to the latch is gained through an opening 64 in the door panel 38 which is here generally circular in shape. As illustrated in FIGURE 5, this opening 64 is normally closed by a relatively breakable insert 66 formed of glass or the like press fitted in the opening.

As will be understood from the foregoing description, when it is desired to open the cabinet of FIGURE 5 in time of emergency, the breakable insert 66 is simply broken out, whereupon the user may reach in and actuate the latch 62 to release the lock 60 and open the door 20. After use, the cabinet will be ready for subsequent use by simply fitting another insert 66 into the access opening 64.

Although certain embodiments of the invention have been illustrated and described in considerable detail, it will be understood that this was only by way of example and that numerous changes in the details of the construction and arrangement may be made without departing from the spirit and scope of the invention.

I claim:

1. A fire extinguisher cabinet, comprising:

a mounting frame;

a pan secured to and extending inwardly from said mounting frame and providing rear, top and bottom, and side cabinet walls and cooperating with said mounting frame to define a front opening;

a door frame hingedly mounted on said mounting

- frame and having a central open space, said door frame being pivotal into and out of a closed position wherein it is disposed in said front opening;
- a fire extinguisher mounted in said cabinet with a portion extending outwardly beyond said frame; 5
- and a panel formed of a transparent material mounted on said door frame to close said central space, said panel being convex in shape, bowing outwardly from said frame and away from said rear cabinet wall to enclose said extinguisher when said door frame is in its closed position; whereby said extinguisher is visible throughout said arc of 180 degrees around said panel. 10
2. A fire extinguisher cabinet adapted to house a fire extinguisher which is generally cylindrical in shape, said cabinet comprising: 15
- a rectangular mounting frame;
- a rectangular pan secured to and extending inwardly from said mounting frame and providing rear, top and bottom, and side cabinet walls and cooperating with said mounting frame to define a front opening, the distance between said front opening and said rear cabinet wall being less than the diameter of the extinguisher; 20
- a door frame movably mounted on said mounting frame and having a central open space, said door frame being movable into and out of a closed position wherein it is disposed in said front opening;
- a fire extinguisher mounted in said cabinet with a portion extending outwardly beyond said frame; 30
- and a panel formed of a highly transparent and rigid plastic material and mounted on said door frame to close said central space; said panel being arcuate in shape, bowing outwardly from said frame and away from said rear cabinet wall to enclose said extinguisher when said door frame is in its closed position, whereby the extinguisher is housed in the interior of the cabinet with one side thereof adjacent said rear wall and its opposite side projecting forwardly or outwardly beyond said frame into the outer cabinet space afforded by said panel when said door frame is in its last mentioned position. 40
3. A fire extinguisher cabinet mounted in a recess in a generally vertical wall, comprising:
- a mounting frame secured to a wall support, said frame including a trim portion disposed generally flush with the exposed surface of the surrounding wall; 45
- a rectangular pan secured to and extending inwardly from said mounting frame and providing rear, top and bottom, and side cabinet walls and cooperating with said mounting frame to define a front opening; 50
- a rectangular door frame hingedly mounted on said mounting frame and having a central open space, said door frame being movable into and out of a closed position wherein it is disposed in said front opening generally flush with the exposed surface of the surrounding wall; 55
- a fire extinguisher mounted in said cabinet with a portion extending outwardly beyond said frame and said wall; 60
- and a panel formed of a highly transparent plastic material mounted on said door frame to close said central space, said panel being arcuate in shape, bowing outwardly away from said rear cabinet wall and projecting outwardly beyond the surface of the exposed surface of the surrounding wall to enclose said extinguisher when said door frame is in its closed position. 65
4. A fire extinguisher cabinet mounted in a recess in a generally vertical wall, comprising: 70
- a mounting frame secured to a wall support, said frame including a trim portion disposed generally flush with the exposed surface of the surrounding wall; liner means extending inwardly from said mounting 75

- frame and providing rear, top and bottom, and side cabinet walls, said means cooperating with said mounting frame to define a front opening;
- a door having a central open space and removably received in said front opening with its exterior surface generally flush with the exposed surface of the surrounding wall;
- a fire extinguisher mounted in said cabinet with a portion extending outwardly beyond said frame and said wall;
- and a panel formed of a transparent material mounted on said door frame to close said central space, said panel being shaped so as to project outwardly away from said door frame beyond the exposed surface of the surrounding wall when said door frame is in its closed position, said door frame and said panel cooperating to provide a front cabinet wall enclosing a portion of said extinguisher which is visible throughout an arc of 180 degrees around said panel.
5. A fire extinguisher cabinet mounted in a recess in a generally vertical wall and adapted to house a fire extinguisher which is cylindrical in shape, said cabinet comprising:
- a rectangular mounting frame secured to and extending inwardly from a wall support, said frame including a trim portion disposed generally flush with the exposed surface of the surrounding wall;
- a rectangular pan secured to said mounting frame and providing rear, top and bottom, and side cabinet walls and cooperating with said mounting frame to define a front opening; a cylindrical fire extinguisher mounted in said pan, the distance between said front opening and said rear cabinet wall being less than the diameter of the extinguisher, the extinguisher being mounted in said pan with a portion projecting therefrom;
- a rectangular door frame hingedly mounted on said mounting frame and having a central open space, said frame being pivotal into and out of a closed position wherein it is disposed in said front opening;
- and a panel formed of a highly transparent plastic material mounted in said door frame to close said central space, said panel being generally semi-cylindrical in shape, bowing outwardly away from said door frame and projecting beyond the exposed surface of the surrounding wall to enclose said extinguisher when said door frame is in its closed position, and said door frame and said panel cooperating to provide a front cabinet wall, whereby the extinguisher is housed in the interior of the cabinet with one side thereof adjacent said rear wall and its opposite side projecting forwardly beyond said surrounding wall into the cabinet space afforded by said panel when said door frame is in its last mentioned position.
6. A fire extinguisher cabinet, comprising:
- a mounting frame;
- a pan secured to and extending inwardly from said mounting frame and providing at least some cabinet walls and cooperating with said mounting frame to define a front opening;
- a door frame with a central open space and removably received in said front opening;
- a fire extinguisher mounted in said pan with a portion extending outwardly beyond said frame;
- and a panel formed of a highly transparent material mounted on said door frame to close said central open space, said panel being shaped so as to project outwardly from said frame and away from said pan to enclose said extinguisher when said door frame is received in said front opening, whereby said extinguisher is visible throughout an arc of 180 degrees around said panel.
7. A fire extinguisher cabinet, comprising:
- a mounting frame;

a pan secured to said mounting frame and representing rear, top and bottom, and side cabinet walls and cooperating with said mounting frame to define a front opening;

a door frame hingedly mounted on said mounting frame and having a central open space, said door frame being pivotal into and out of a closed position wherein it is disposed in said front opening;

a fire extinguisher mounted in said pan with a portion extending outwardly beyond said frame;

a panel formed of a transparent and relatively non-breakable material mounted in said door frame to close said central space and cooperating with said door frame, when the latter is in its closed position, to provide a front cabinet wall enclosing said extinguisher, said panel being arcuate in shape, bowing outwardly away from said rear cabinet wall, there being an access opening in said panel;

lock means on said door frame and on said mounting frame for releasably maintaining said door frame in its closed position;

latch means operatively associated with said lock means for releasing said lock means of said cabinet, said latch means being disposed in the interior of said cabinet as defined by said cabinet walls and being accessible from the exterior thereof through said access opening;

and an insert removably mounted on said panel to temporarily close said access opening.

8. The subject matter of claim 7 further characterized in that said insert is formed of a highly transparent and relatively breakable material press-fitted in said access opening.

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