Feb. 13, 1940. J. G. BRADLEY 2,190,229

CABINET FOR THE STORAGE OF FILM

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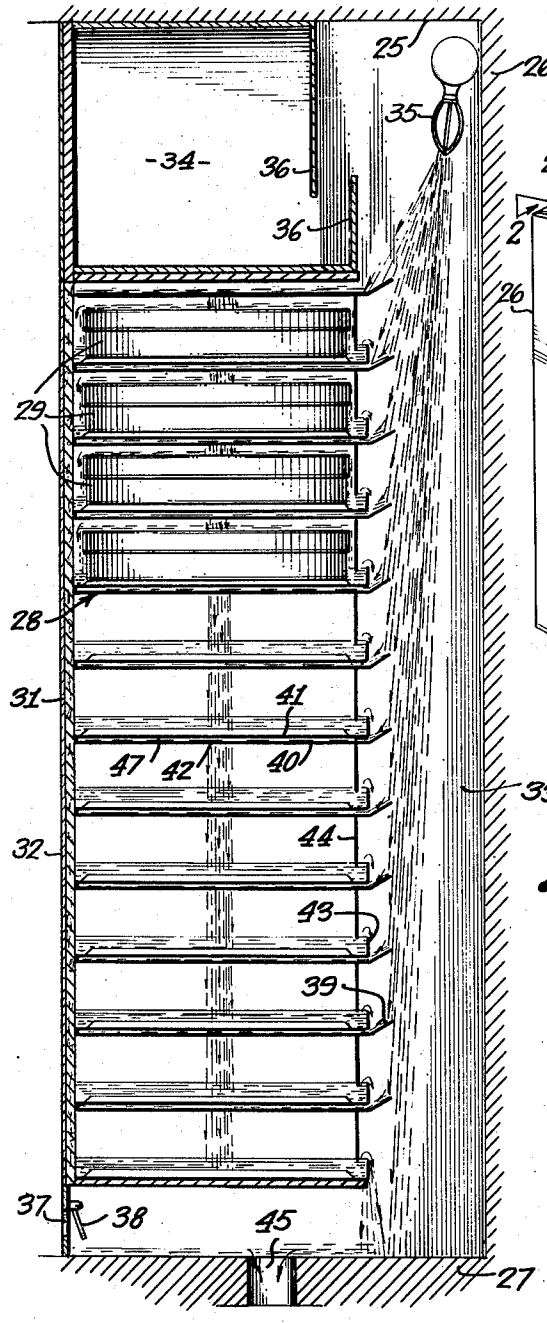


Fig. 2.

Fig. 1.

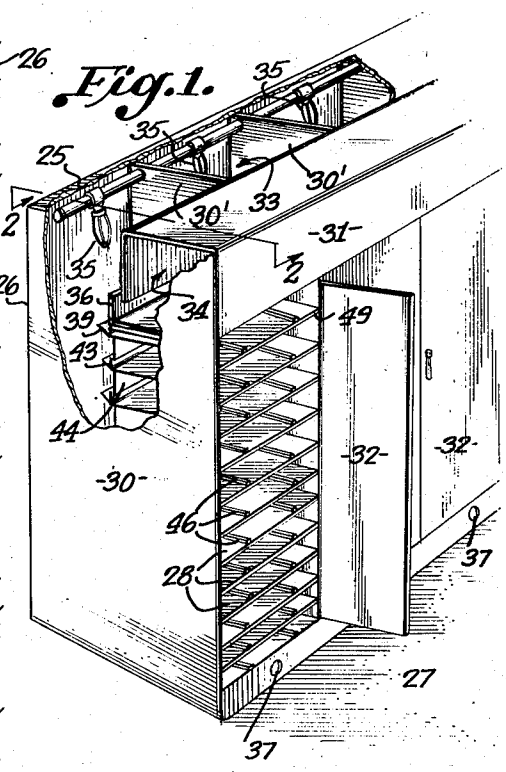
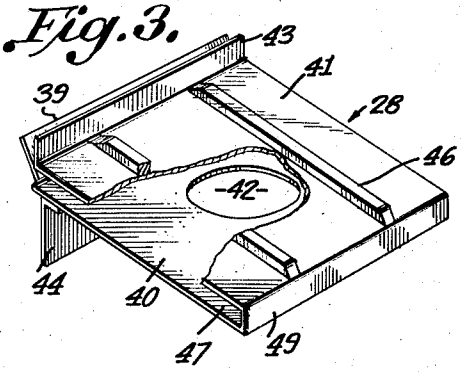


Fig. 3.



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CABINET FOR THE STORAGE OF FILM

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Fig. 4.

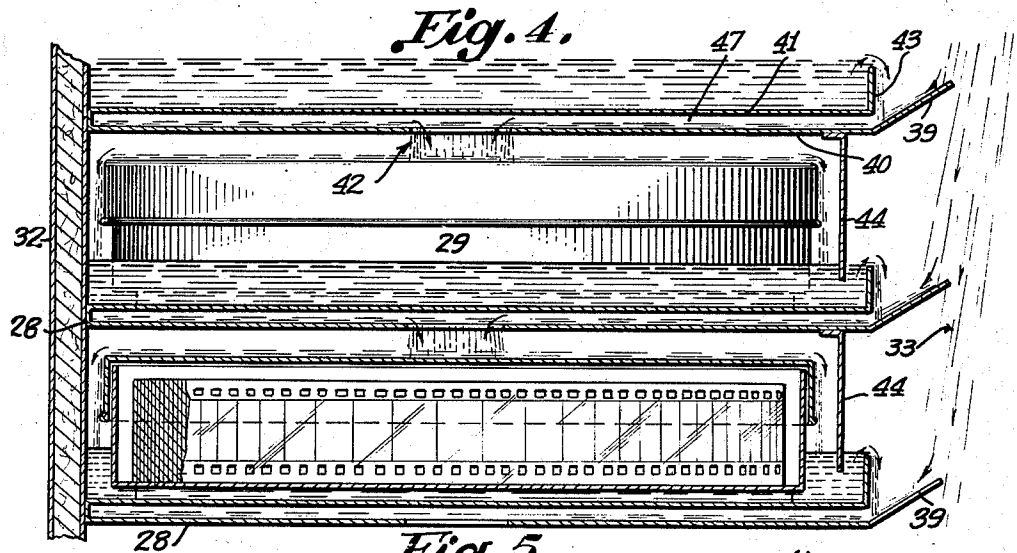
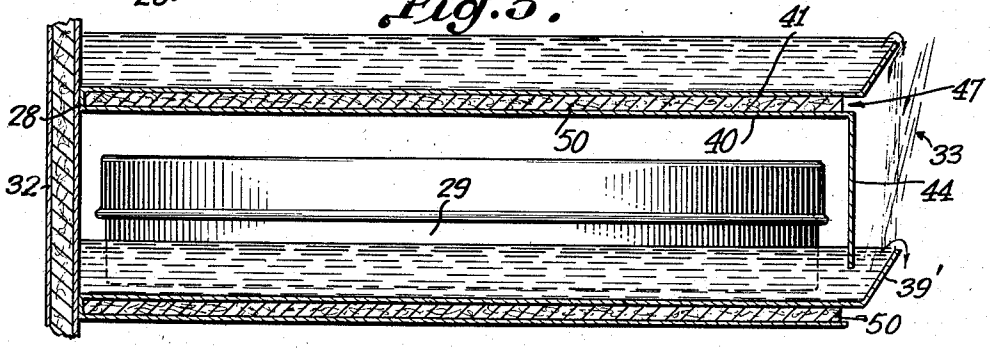


Fig. 5.



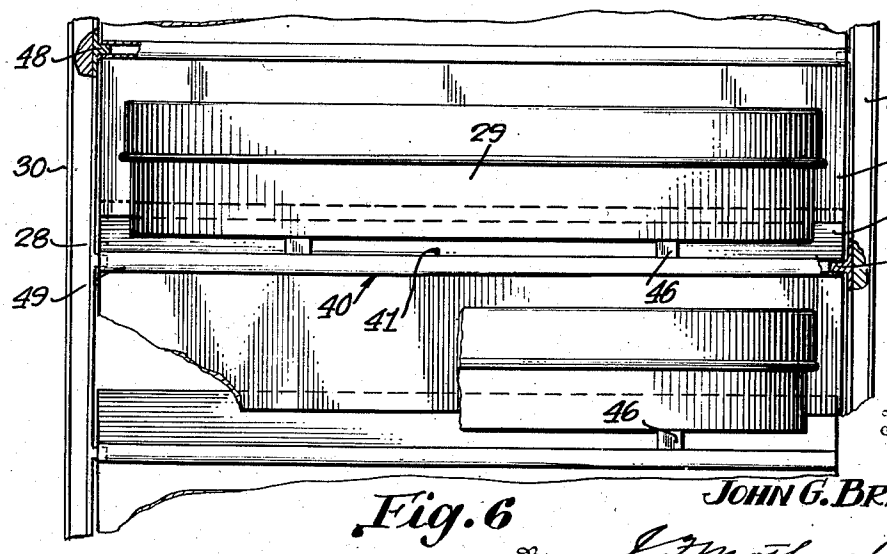


Fig. 6

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CABINET FOR THE STORAGE OF FILM

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Fig. 7.

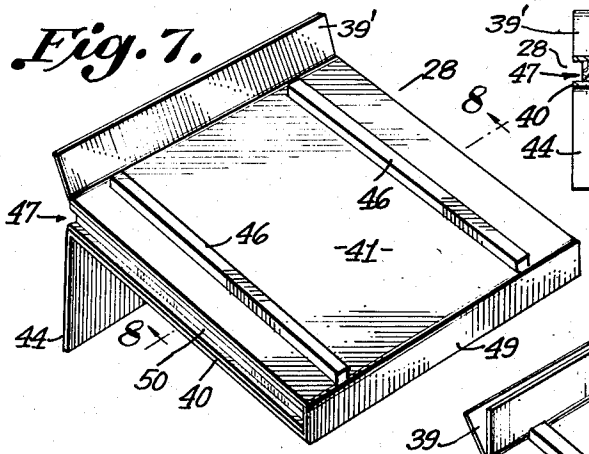


Fig. 8.

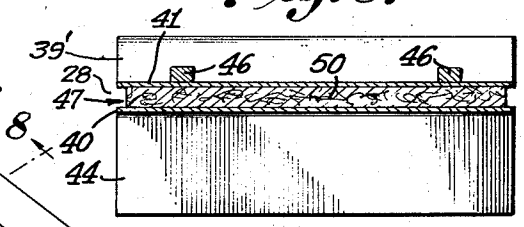


Fig. 9.

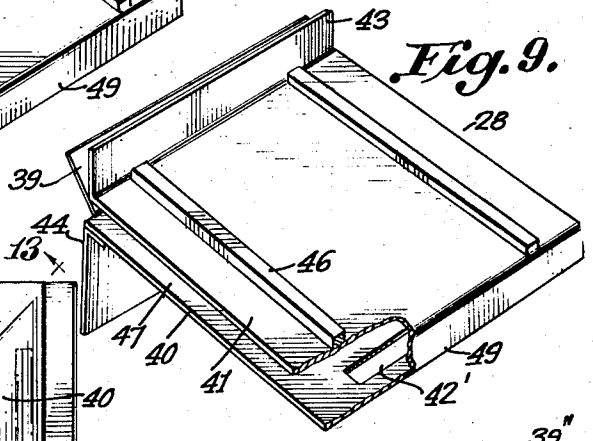


Fig. 10.

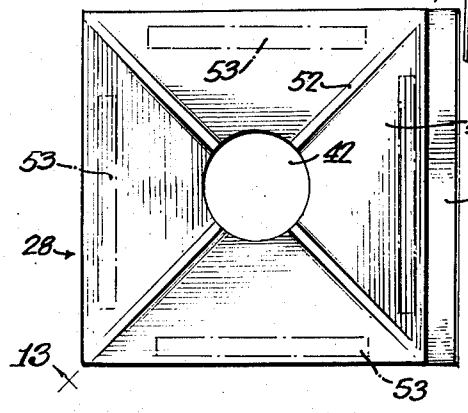


Fig. 12.

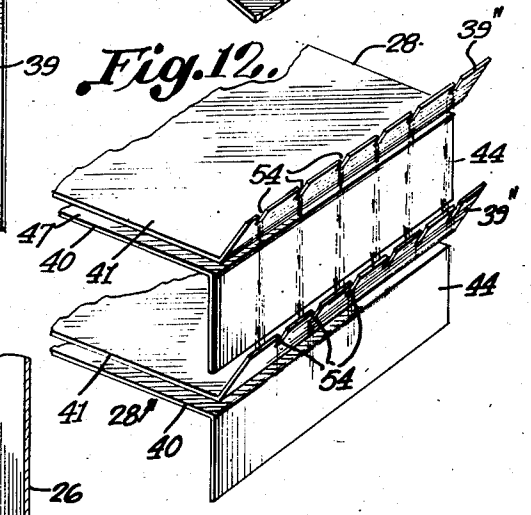


Fig. 11.

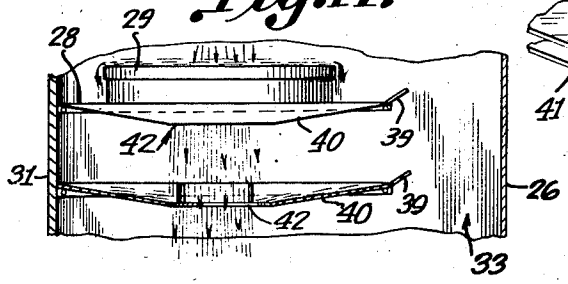
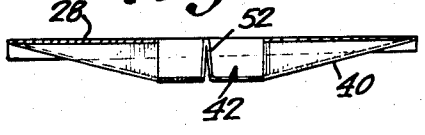


Fig. 13.



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CABINET FOR THE STORAGE OF FILM

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Fig. 14.

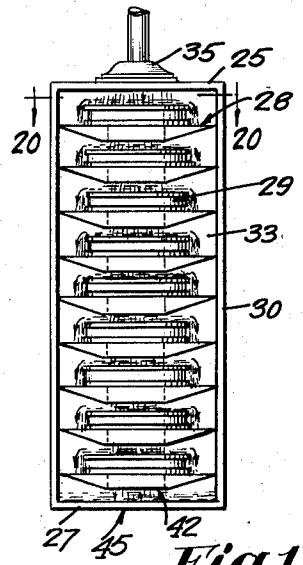


Fig. 16.

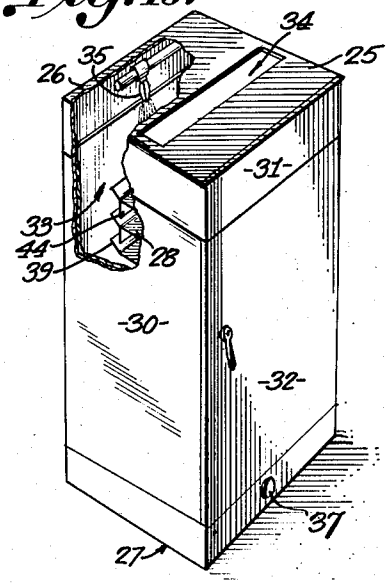


Fig. 15.

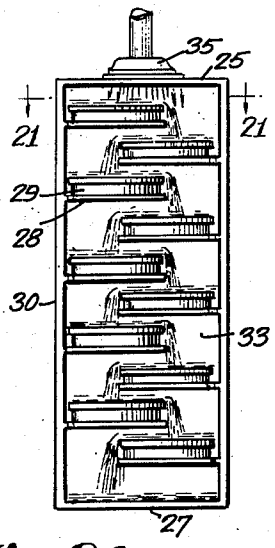


Fig. 17.

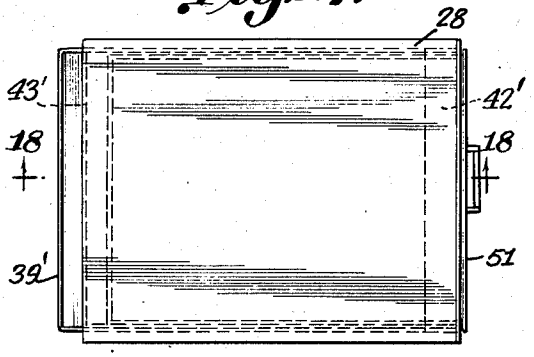


Fig. 20.

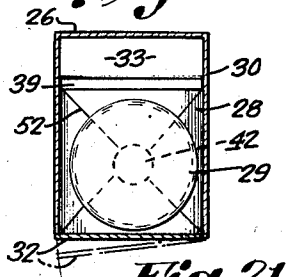


Fig. 21.

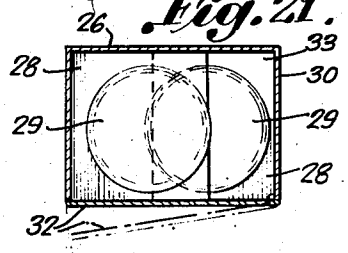


Fig. 18.

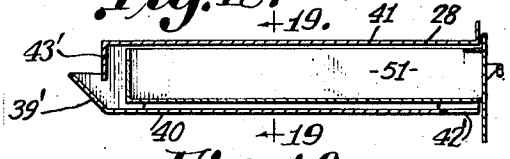
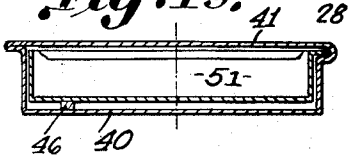


Fig. 19.



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Patented Feb. 13, 1940 2,190,229

UNITED STATES PATENT OFFICE

2,190,229

CABINET FOR THE STORAGE OF FILM

John G. Bradley, Willisville, Ill.

Application August 4, 1939, Serial No. 288,362

20 Claims. (Cl. 109—29)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government of the United States for governmental purposes without the payment to me of any royalty thereon, in accordance with the provisions of the act of April 30, 1928 (ch. 460, 45 Stat. L. 467).

This invention relates to fireproof filing cabinets for storing such combustible and explosive material as photographic film, paper records and the like. The general purpose of the invention is to provide a safe, economical and convenient means for storing such materials against loss and damage both from fire and excessive heat.

Another object of the invention is to provide sufficient means of escape for the heat, smoke and gases generated by such stored materials to the exterior of the building wherein such equipment is used to prevent explosion thereof and to prevent damage therefrom in all cases. Another object is to provide means for preventing in the case of internal fire—that is, a fire inside the cabinets—a spread of heat in such quantity as to cause serious combustion of or damage to adjacently stored material in the same equipment.

Still another object of the invention is to provide means for preventing, in the case of an external fire—that is, a fire outside the cabinets—any losses of or damage to the stored material from combustion or excessive heat.

Another object is to provide means for preventing damage to stored material by water or any other cooling agent from sprinklers or other means.

Still other objects of the invention are to provide shelves comprising individual compartments within unit cabinets wherein material may be stored in showerproof containers easily accessible either for insertion or removal; to provide means by insulation or otherwise for separating such compartments; to provide means in case of an internal fire for the carrying off to the exterior of smoke, gases and heat; to provide means in case of an internal fire for diverting smoke, gases and heat so generated to a common flue or to a series of flues leading to the exterior; to provide means for protecting unaffected sprinkler heads or similar devices from excessive heat; to provide means for protecting unaffected compartments from excessive heat radiation; to provide means whereby the heat generated by combustion will actuate a sprinkler head or other device as a source of a cooling agent within a minimum amount of time; to provide means whereby such cooling agent will enter all the individual compartments directly and simultaneously by means of a spray and/or indirectly as a result of an overflow of the cooling agent from one compartment or container to another; to provide means for forming a reservoir of the cooling agent around the bottom of the storage containers; to provide means whereby the spray of the cooling agent will cool the heat and filter and dilute the smoke and gases resulting from combustion; to provide means whereby air will circulate through the cabinets; to provide means for preventing smoke, heat and gases from entering work areas of the building; and to provide means for quick and easy disassembly of the parts of the cabinet for cleaning, repair, and any other purpose.

Other objects and functions will become apparent from the following description and accompanying drawings, it being understood that the above statement is intended generally to explain the invention without limiting the same in any manner.

In the accompanying drawings illustrative of embodiments having the characteristics of my invention and by which the same may be practiced—

Figure 1 is a perspective view of a built-in cabinet system, broken away to illustrate interior features and arrangements of my invention;

Figure 2 a vertical section taken at 2—2 of Figure 1;

Figure 3 a removable shelf in perspective;

Figure 4 a detail of vertical section of Figure 2;

Figure 5 a vertical section of an alternate construction of Figure 4;

Figure 6 a detail front view of Figure 2 broken away;

Figure 7 a perspective detail of shelf shown in Figure 5;

Figure 8 a section of Figure 7 taken at 8—8;

Figure 9 a perspective view of a modification of the shelf shown in Figure 3;

Figure 10 a plan view of shelf of modified cabinet shown in Figure 14;

Figure 11 a detail vertical section of Figure 14, front to rear;

Figure 12 a rear perspective of a modification of the shelf shown in Figure 7;

Figure 13 a section of Figure 10 taken at 13—13;

Figure 14 a front view of a modified cabinet;

Figure 15 a front view of another modified cabinet;

Figure 16 a perspective view of one unit of a sectional form of cabinet;

Figure 17 a plan view of a modified or drawer type of shelf;

Figure 18 a section taken at 18—18 of Figure 17;

Figure 19 a section taken at 19—19 of Figure 18;

Figure 20 a horizontal section taken at 20—20 of Figure 14; and

Figure 21 a horizontal section taken at 21—21 of Figure 15.

In order to more fully explain my invention, reference is first made to the built-in type of cabinet illustrated in Figures 1 and 2 as distinguished from the sectional unit or portable type of cabinet illustrated in Figures 14, 15 and 16. In this, the former type of cabinet, the ceiling 25, the wall 26, and the floor 27 of a storage room may be utilized, respectively, as the top, back and bottom of the cabinet, while in the type of cabinet shown in Figures 14, 15 and 16, those walls are a part of the cabinet rather than of the storage room.

Superposed shelves 28 for the support and housing of vented yet showerproof storage containers 29 are removably supported at their sides upon the vertical side walls 30 or partitions 30' which extend from the ceiling or top of the cabinet 25 to the floor or bottom of the cabinet 27 with one side edge joining or abutting the back wall 26. A cabinet front 31, provided with doors 32, also extends from the top to the bottom of the cabinet in contact with the front edges of the shelf-supporting walls 30 or partitions 30'. While doors may be provided for each compartment or for each tier, a large door for several tiers may be desirable. The inner faces of the doors are preferably lined with a fireproof insulation to provide a relatively tight seal between the door and the edges of the shelves and partitions.

The shelves, to be more fully described hereinafter, are so maintained on the walls 30 or partitions 30' as to bring their front edges in contact with the cabinet front 31 and/or doors 32 when closed. A vertical flue 33, communicating with the spaces between the shelves is provided along the rearward edge of each tier of shelves. These flues are formed by the back wall 26 and the vertical shelf supporting members, and lead into a common horizontal flue 34 extending to the exterior of the building. A fusible or otherwise heat actuated means, such as a sprinkler head 35, for controlling a cooling agent, and/or an extinguishing agent, is connected to a source of supply and positioned in the upper portion of each of the vertical flues 33. To prevent the undue exposure of sprinkler heads 35 located in vertical flues of adjacent or unaffected tiers, the common horizontal flue 34, which carries the heat, etc., from affected compartments past unaffected tiers, is provided with overlapping baffles 36 which shield the sprinkler heads of unaffected tiers, although other suitable means may be provided for protecting unaffected sprinkler heads such as direct extension of each vertical flue to the exterior. For the same reason the shelf-supporting members separating the tiers of shelves, extend from front to rear and upward to the top of the vertical flues 33, thus segregating each sprinkler head.

In order to provide a constant movement of air throughout the cabinets, intake ports, apertures or registers 37 are provided at the base of each tier of shelves, and in order to prevent smoke, heat and gases from entering work areas, gravity traps 38, or other suitable closure means, are provided for the intakes 37.

The shelves 28 are so constructed as to collect and direct the cooling medium, when expelled from the sprinkler heads, over and around the waterproof storage containers 29. They are also so constructed as to cause a continuing fresh supply of the cooling medium to continuously flow over and around the containers. From an inspection of the form of shelf shown in Figures 1, 2, 3, 4, 9 and 16, it will be seen that the rear edges of the shelves are provided with a flange 39 that projects on an incline into the vertical flue and continues into a flat carrier plate 40 extending beneath the supporting surface 41 of the shelves. The flanges 39 serve to divert heat into the vertical flues and also to collect the sprayed or overflowing cooling agent and divert it to the carrier plate 40 beneath the supporting surface of the shelf, from whence the agent is permitted to flow through an appropriately located aperture 42 in the carrier plate 40, and thence down onto the top of the storage container 29 on the shelf beneath. To form a reservoir of the cooling agent around the bottom the storage containers, a floodgate 43 is provided on the rear edge of the supporting surface 41 of the shelf. This floodgate serves as a baffle which, with baffles 44 projecting downwardly from the carrier plate 40, prevents heat radiation from the vertical flue 33 to the shelf compartments and storage containers. It is important to note that the tops of the floodgate 43 be on a line sufficiently below the lip of the lid of the storage container to prevent the cooling agent from flowing or being sucked into the container such as when there is a sudden contraction of air as a result of contact with the cooling agent. The overflowing quantity of the agent is caught by the flange 39 of the shelf beneath and the process continued to the bottom of the cabinet. Drain apertures 45 located at the base of the tiers are provided for the escape of the excess liquids.

In order further to protect the stored material in an unaffected tier or compartment against heat in an adjacent tier or compartment, runners 46 are provided on the surface of the shelf to form an air space beneath the container.

Shelf supporting runways 48 (see Figure 6) projecting from the sides of the walls 30 or partitions 30' are provided for the support of the shelves. These runways pass into the space 47 between the supporting surface 41 and plate 40 and are cut back from the front edge of the partition or side wall a distance approximately the thickness of the sheet metal of which the shelf is constructed whereby the returning front edge 49 of the shelf may be brought into abutment with the ends of the runways 48 and yet be flush with the front edges of the partitions 30'. This arrangement also serves for holding the shelves in position for contact with the doors and serves as a stop for preventing the shelves from being pushed back into the flues 33.

Figures 5, 7, and 8 illustrate a modification of the shelves shown in the figures previously described. In this modification, insulation 50 is inserted between the supporting surface 41 of the shelf and the plate 40 therebeneath as an added precaution against the spread of heat from one shelf compartment to another. In the construction of these figures the floodgate 39' is inclined and serves the same additional purpose as the diverting flange 39 in the construction shown in detail in Figures 3, 4 and 9. In this insulated type of shelf no aperture 42 is provided in the

under plate 40 of the shelf, in which event the cooling agent is not permitted to flow down on the top of the storage container but is flooded about the base thereof by the diverting flange and floodgate 39'.

In the alternate plan of shelf construction shown in Figures 17, 18 and 19 an opening is provided in the front edge 49 of the shelf whereby a drawer 51 may be housed between the plates 40 and 41 of the shelf. In this form of shelf the under plate 40 is provided with an aperture 42', as in Figures 9, 17 and 18, and the runners 46 are placed on the under plate 40 rather than on the surface plate 41, to provide a space beneath the drawer for air or the cooling agent. Otherwise the shelf is similar in construction with that shown in Figure 3, etc., since the diverting flange 39' is on the under plate 40. This flange 39' on the lower plate of the drawer type shelf, however, serves also as a floodgate, as in Figure 5, and the floodgate 43 on the top plate 41 of the Figure 3 construction is converted in this drawer type shelf into a baffle 43' serving the same purpose as baffle 44 of Figure 3 by being bent downward instead of upward.

Another alternate design of cabinet, as well as the shelves, is shown in Figures 10, 11, 13, 14 and 20. In this design the cooling agent source 35 may be located in any convenient place in a supply line above the cabinet. The shelves of this modification are designed to decline (see Figure 10) from their edges toward a centrally located aperture 42. Ribs 52 having a planar surface are provided for the support of storage containers. These shelves may be provided with a diverting flange 39 projecting into the flue 33 and the cooling agent flows down over the container, down the declining surfaces of the shelf between the ribs 52, and then through the aperture 42 onto the container beneath. A modified form of flue is shown in broken lines in Figure 10 as slits 53 through the shelves.

In still another design of my invention, as shown in Figures 15 and 21, a flue as such may be omitted altogether using the interior of the cabinet itself for flue purposes. In this design the sprinkler head or cooling agent source 35 is located above and directly over the center of the cabinet. The heat generated from combustion in any container 29 rises and actuates the cooling agent device so that the cooling agent falls on the first container after which it cascades back and forth and downward until all containers within the unit are covered with a film or curtain of the cooling agent as shown.

An alternate provision for the overflow of the cooling agent is illustrated in the flange floodgate 39'' (Figure 12) with notches 54 in successive shelves arranged in staggered position so that the overflowing cooling agent from one compartment falls within the inside of the edge and between the notches of the next flange below it.

It will be noted from the drawings that the shelves 28 are extremely simple in construction which contributes to the economy of the invention; that the heat caused by the combustion of the contents of one or more storage containers is diverted from the shelves containing such containers; confined to the vertical flue of the tier; and forced past the sprinkler head in its passage to the exterior of the building through the horizontal or other type of flue. The arrangement described provides for the operation of the sprinkler head or other suitable device in a minimum amount of time and retards a vertical spread of heat from one compartment to another.

It will be apparent to those skilled in the art that a readily accessible, economical, and efficient storage cabinet has been provided, which will prevent a spread of heat from initial fires, protect the unaffected and adjacently stored material from excessive temperatures, and protect the health of those who must work with photographic film and the like. It will be further apparent that the invention possesses uses and advantages not mentioned specifically herein rather than being restricted to the illustrative disclosures hereof, and that the invention may be variously changed, used, and modified, all without departing from the spirit of the invention or sacrificing the advantages thereof.

What I claim is:

1. A cabinet for the storage and protection of materials, comprising enclosure members forming an enclosed storage space, article supports providing storage areas within said space, a valve-provided intake automatically operable to admit air into said space and automatically operable to prevent the escape of gases and the like from said space, a vent leading from said storage space, normally inoperative means adapted to be actuated by abnormal heat for dispensing a fire extinguishing cooling medium, means for diverting the dispensed medium simultaneously into each of said areas, and a drain port leading from said storage space.

2. A cabinet for the storage and protection of materials, comprising enclosure members forming an enclosed storage space, a vent leading from said storage space, storage compartments within said space, normally open intercommunicating passageways within said space communicating with said compartments and vent, normally inoperative cooling agent dispenser means adapted to be actuated by abnormal heat from any of said compartments, and means for directing the dispensed agent simultaneously into all compartments and shieldingly about articles within said compartments.

3. A cabinet for the storage and protection of materials, comprising enclosure members forming an enclosed storage space, a vent leading from said storage space, storage compartments within said space and each having a top and bottom, normally open intercommunicating passageways within said space communicating with said compartments and vent, normally inoperative cooling agent dispenser means adapted to be actuated by abnormal heat from any of said compartments, and means for directing the dispensed agent flowingly over the exterior surfaces of the tops of said compartments, the interior and exterior surfaces of the bottoms thereof and across said communicating passageways.

4. In a cabinet for the storage and protection of materials, having enclosure members forming an enclosed storage space, a vent leading from said storage space, storage compartments within said space, normally open intercommunicating passageways within said space, communicating with said compartments and vent, fixed diverting means adapted to divert heat, fire, gases and the like emitted from affected compartments from entry into unaffected compartments, normally inoperative cooling agent dispenser means adapted to be actuated by abnormal heat from any of said compartments, and means for directing the dispensed agent shieldingly about articles within said compartments, the improve-

ment comprising means associated with each of said compartments to accumulate in each compartment a reservoir of the agent received therein to a depth sufficient to close the otherwise normally open passageway of each compartment.

5. A cabinet for the storage and protection of materials comprising enclosure members forming an enclosed storage space, article supports providing storage areas within said space, a valve provided intake and a vent leading, respectively, into and from said storage space, normally inoperative means adapted to be actuated by abnormal heat for dispensing a fire extinguishing cooling medium into said space, means for flowingly cascading the dispensed medium simultaneously over the storage areas and articles therein.

6. In combination with a cabinet, shelves supported therein, a flue communicating with said shelves for the escape of heat, gases and the like therefrom, and heat actuated dispenser means connected to a source of supply of cooling medium, said dispensing means being operatively associated with said shelves whereby it may be operatively affected by heat flowing from any of said shelves to continuously dispense the medium, and means for directing the dispensed medium to flowingly and simultaneously envelope articles positioned on the various shelves.

7. In combination with a cabinet, for the storage of such as combustible and inflammable materials, having a top, bottom, sides and front, and an access opening and closure means therefor, the improvement comprising an upright passageway within said cabinet, a tier of superposed shelves supported within said cabinet and forming shelf compartments communicating with said passageway, a heat actuated dispenser of cooling medium within said cabinet, and means for causing the medium dispensed from said dispenser to flow in a continuously refreshed sheet simultaneously across each compartment communication and simultaneously across the compartments immediately adjacent the under surfaces of the shelves.

8. A cabinet having an access opening and closure means therefor, a plurality of tiers of superposed shelves providing shelf compartments within said cabinet, upright partitions separating said tiers, spaced shelf supporting means on said partitions, and an upright flue for and communicating with each tier of shelf compartments, in combination with a common exhaust flue with which said upright flues communicate, heat actuated dispenser means within said upright flues, said dispenser means being connected to a source of supply of a cooling medium and positioned within the effective heat range of the compartments of each tier whereby the dispenser of a tier may be operatively affected by heat from any compartment of the tier, shielding means for shielding the dispenser means of unaffected tiers from the heat of affected tiers, diverting means for diverting heat from one compartment into the upright flue past other compartments of the tier and also for directing the cooling medium dispensed from said dispenser simultaneously into the compartments.

9. In combination with cabinets having a plurality of superposed shelves forming shelf compartments, the improvement comprising a flue having an intake and exit and normally communicating with said compartments for the circulation of air and for the exhaustion of heat, gases and the like generated in any compartment, shielding means for protecting unaffected compartments from fire, gases, heat and the like of an affected compartment comprising a baffle and a floodgate in overlapping arrangement at the flue entrance to said compartments, means for automatically supplying a cooling medium to said compartments upon the generation of abnormal heat in any compartment comprising a heat actuated dispenser positioned in the effective heat range of said compartments and connected to a source of cooling medium, and means for directing the dispensed medium into said compartments.

10. A cabinet having a plurality of compartments for the storage and protection of articles, material and the like of combustible or inflammable character, each compartment comprising superposed shelves forming the top and bottom walls of said compartment, side members supporting said shelves and forming the side walls of said compartment, and a door in contact with the front edges of said shelves and with the side members and forming the front wall of said compartment, a flue at the rear of said compartments, a baffle at the rear of each compartment projecting downwardly from the top thereof, and a floodgate projecting upwardly from the bottom of each compartment and rearwardly of said baffle to a plane above the plane of the bottom edge of said baffle, a passageway between the baffle and floodgate of each compartment communicating with said flue, heat actuated dispenser means operable upon the generation of heat in one or more of said compartments to dispense a cooling agent, means for directing the agent into said compartments where it may be built up by said floodgates to a depth sufficient to contact the end of the downwardly projected baffles and close said passageway.

11. A cabinet having a plurality of compartments for the storage and protection of articles, material and the like of combustible or inflammable character, said compartments comprising superposed shelves forming the top and bottom walls of said compartments, side members supporting said shelves and forming side walls of said compartments, and a door in contact with the front edges of said shelves and with the side members and forming the front wall of said compartments, a flue at the rear of said compartments, baffles projecting downwardly from the rear edges of the shelves and floodgates projecting upwardly therefrom, the baffles and floodgates of the shelves which form the top and bottom of each of the compartments being in slightly overlapping arrangement with passageways therebetween from said compartments into said flue, normally inoperable means though operable upon radiation of abnormal heat from any of said compartments to dispense a liquid cooling agent, means for directing the dispensed agent simultaneously into all compartments where it may be held within said compartments by said floodgates to a depth sufficient to contact the end of the downwardly projected baffles, and means for diverting surplus quantities of the delivered agent from one compartment to another.

12. A cabinet having a plurality of compartments for the storage and protection of articles and the like of such character as combustible or inflammable materials, said compartments comprising superposed shelves forming the top and bottom walls of said compartments, side members supporting said shelves and forming the side walls of said compartments, a door in contact with the

edges of said shelves and with the side-members and forming the front wall of said compartments, and a passageway rearwardly of and normally communicating with said compartments through a normally open opening in the rear thereof, in combination with shielding means at the rear of said compartments for diverting heat, fire, gases and the like from affected compartments past the normally open compartment opening of unaffected compartments and into said passageway, dispenser means for automatically dispensing a cooling medium upon the abnormal generation of heat in any one of said compartments, means for collecting and retaining within said compartments a continually refreshed reservoir of the cooling medium dispensed from said dispenser to a depth sufficient to close said compartment opening, and means for diverting surplus quantities of the cooling medium from one compartment to another.

13. In combination with cabinets having a plurality of superposed shelves forming shelf compartments, the improvement comprising a flue having an intake and exit in normally open communication with said compartments for the circulation of air and for the exhaustion of heat, gases and the like generated in any compartment, shielding means for protecting unaffected compartments from fire, gases, heat and the like of an affected compartment, means for automatically supplying a liquid cooling medium and other means for directing the same simultaneously to said compartments upon the generation of abnormal heat in any compartment, and means for utilizing the dispensed medium for closing the otherwise normally open flue communication of each compartment.

14. Shelves for a cabinet for the storage and protection of articles, material and the like of combustible or inflammable character, said shelves each comprising a surface for the support of articles to be stored, means at the rear of the shelf for diverting heat, fire, gases and the like past the shelf and simultaneously for the collection and direction of a cooling medium onto the shelf, a baffle at the rear of the shelf cooperating in an overlapping manner with the diverting means of another shelf to form with a collected quantity of cooling medium a closure to the storage space between the shelves.

15. Shelves particularly adapted for use in connection with the type of cabinet described and claimed, comprising a surface member, spaced supporting means for supporting articles on and slightly elevated from said surface member, supporting means associated with said surface member for supporting the shelf within the cabinet, diverting means associated with an edge of said surface member to divert foreign gases, fire, heat and the like flowing past the edge of the shelf away from articles positioned on the shelf, to direct such damaging elements emitted from articles on said shelf away from superposed shelves, and yet to collect and divert a dispensed fire extinguishing cooling agent onto said surface about said supporting means and articles thereon.

16. Shelves of the character described each comprising associated members forming superposed surfaces, means on the upper surface for supporting articles, means projecting upwardly from an edge of said upper surface member adapted to serve as a floodgate for a liquid cooling agent delivered to said upper surface, inclined deflecting means projecting upwardly from an edge of the under surface member beneath said floodgate to collect a dispensed cooling agent as well as the overflow thereof from the floodgate of an upper shelf, and to divert the collected agent underneath the upper surface member of the shelf, said under surface member having an outlet opening through which said agent may pass and be delivered to the upper surface member of a shelf beneath and articles thereon.

17. Shelves of the character described each comprising associated members forming superposed surfaces, means on the upper surface for supporting articles, means projecting upwardly from an edge of said upper surface member adapted to serve as a floodgate for a liquid cooling agent delivered to said upper surface, inclined deflecting means projecting upwardly from an edge of the under surface member beneath said floodgate to collect a dispensed cooling agent as well as the overflow thereof from the floodgate on the upper surface of the shelf, and to divert the collected agent underneath the upper surface member of the shelf, said under surface member having an outlet opening through which said agent may pass and be delivered to the upper surface member of a shelf beneath and articles thereon, and a baffle projecting downwardly from said under-surface member adapted to inwardly overlap the floodgate of a shelf beneath.

18. Shelves of the character described each comprising an article supporting surface, means for retaining a reservoir of liquid cooling medium on said surface, insulating means insulating articles on one shelf from abnormal heat generated from articles on adjacent shelves, an inclined floodgate at the edge of said surface for catching a dispensed medium and the overflowing quantity thereof from an upper shelf, the height of said floodgates governing the depth of the cooling medium on the shelf.

19. Shelves of the character described each comprising an article supporting surface, means for retaining a reservoir of liquid cooling medium on said surface, insulating means insulating articles on one shelf from abnormal heat generated from articles on adjacent shelves, an inclined floodgate at the edge of said surface for catching a dispensed medium and the overflowing quantity thereof from an upper shelf, the height of said floodgates governing the depth of the cooling medium on the shelf, and a baffle projecting downwardly from each shelf and adapted to overlappingly cooperate with the floodgate of the shelf beneath and form a closure with said medium to the space between adjacent shelves.

20. Shelves of the character described each comprising associated members forming superposed surfaces, a drawer operably supported between and housed by said surfaces, a passageway through said under surface member, means projecting upwardly from an edge of said under surface member adapted to collect a dispensed cooling agent and divert the same about said drawer and through said opening from whence it may be delivered to the top surface of a shelf beneath, and a baffle projecting downwardly from said upper surface member to a plane within and below the plane of said collecting and diverting means.

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