

Aug. 22, 1933.

W. B. BRONANDER

1,923,660

FIRE ALARM AND FIRE EXTINGUISHER DEVICE

Filed Dec. 17, 1930

2 Sheets-Sheet 1

Fig. 1.

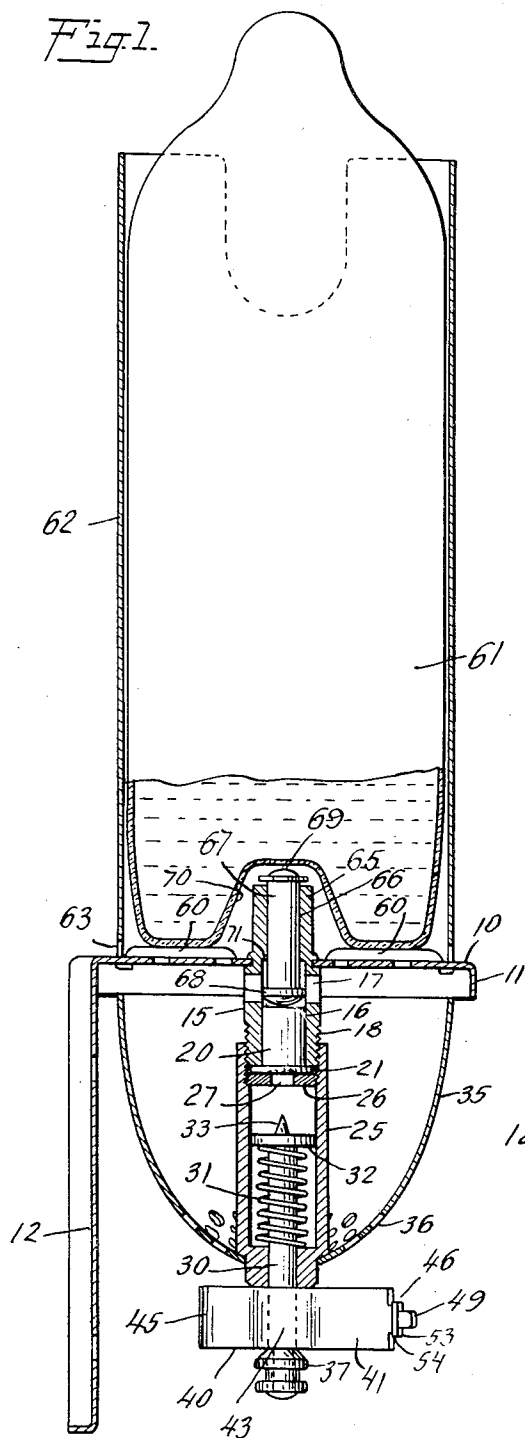


Fig. 2.

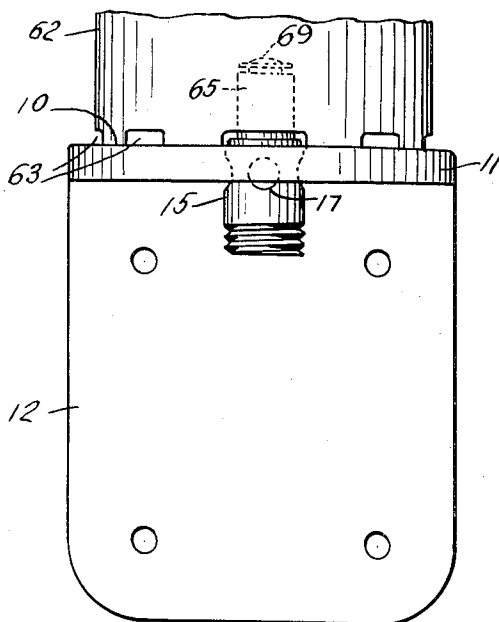
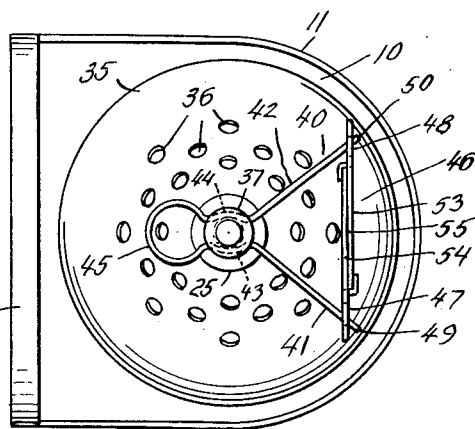


Fig. 3.



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Fig. 4.

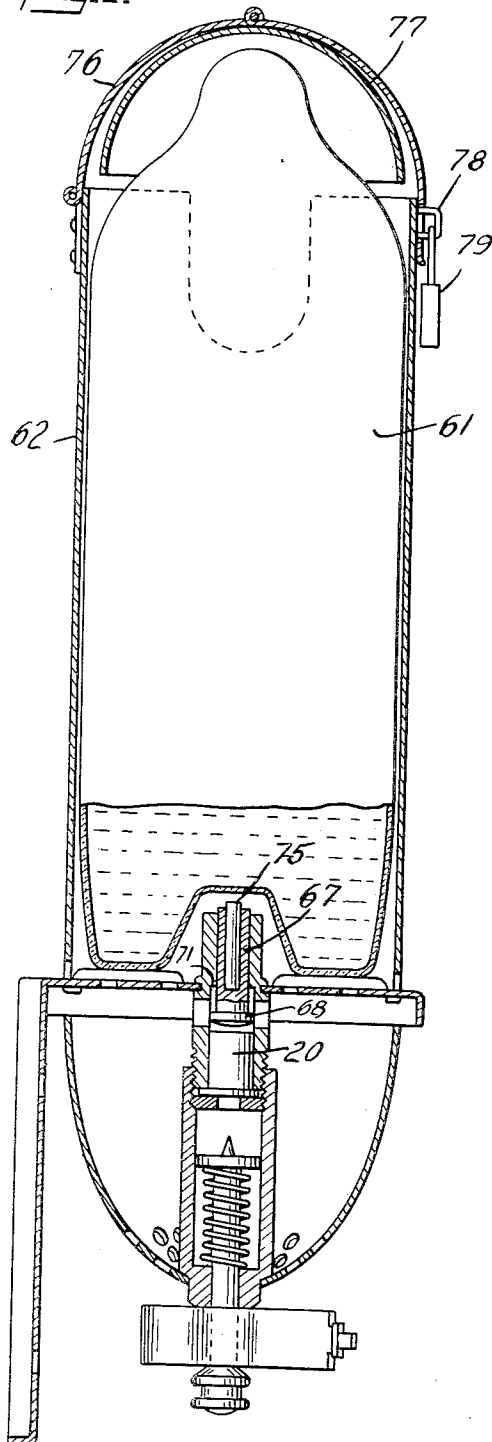
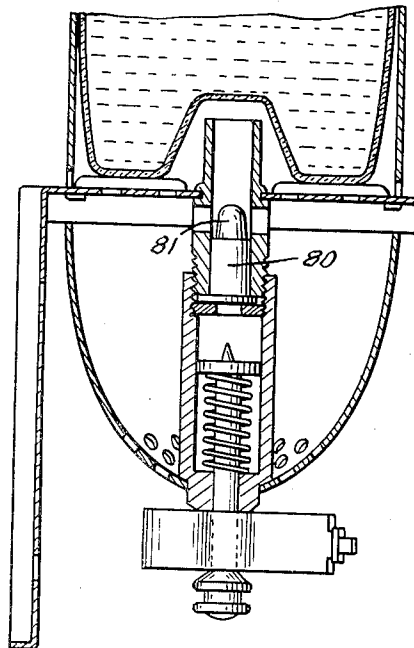


Fig. 5.



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FIRE ALARM AND FIRE EXTINGUISHER
DEVICE

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Application December 17, 1930
Serial No. 502,979

12 Claims. (Cl. 169—26)

This invention relates to fire alarm device and furthermore to a combined fire alarm and automatically operable fire extinguishing device.

This invention has for its salient object to provide a device that is simple in construction, comprises few parts and can be easily and quickly assembled.

Another object of the invention is to provide an alarm device so constructed and arranged that the parts can be readily and quickly reset after the device has operated.

Another object of the invention is to provide a combined alarm device and automatically operable extinguisher so constructed and arranged that the operation of the alarm mechanism will automatically cause the release of fire extinguishing liquid.

Further objects of the invention will appear from the following specification taken in connection with the drawings, which form a part of this application, and in which

Fig. 1 is a longitudinal, sectional elevation of a device constructed in accordance with the invention;

Fig. 2 is an elevation of the supporting member and parts carried thereby, the portions being broken away;

Fig. 3 is a bottom plan view of the device shown in Fig. 1;

Fig. 4 is a view similar to Fig. 1 showing a slightly modified form of the invention; and

Fig. 5 is a fragmentary, sectional elevation showing a further modification of the invention.

The invention briefly described consists of a supporting member having means thereon for supporting a cartridge and a hammer adapted to explode the cartridge. The hammer is spring actuated and fusible means is provided for holding the hammer in retracted position and against actuation.

The invention further includes means on the supporting member for holding a frangible container of fire extinguishing fluid or liquid and means, positioned for actuation by the explosion of the cartridge, for breaking the container and releasing the fire extinguishing liquid. The alarm device may be used with or without the fire extinguisher support.

In the embodiment of the invention illustrated in the drawings there is shown a main supporting member 10 having a peripheral flange 11 and a plate or bracket 12 which is adapted to be secured to a wall or other suitable supporting surface.

The supporting member 10 has secured thereto a sleeve or boss 15 having a central longitudinally extending opening 16 therein and having lateral openings 17 adjacent the member 10. The boss or sleeve 15 is threaded externally at its outer end, as shown at 18. The boss 15 forms the support or holder for the cartridge 20 which has a flange 21 formed on the head of the cartridge and adapted to rest on the outer end of the boss.

A sleeve 25 is provided with internal threads adapted to engage and fit on the threaded surface 18 of the boss and is provided with a washer 26 having a central aperture 27 therein. A plunger or hammer 30 is slidably mounted in the sleeve and is actuated in the direction of the cartridge by means of a spring 31 which encircles the plunger 30 and engages a washer 32 which seats against the spiked outer end 33 of the hammer or plunger. The sleeve 25 has mounted thereon a cover or dome 35 apertured as shown at 36. The plunger or hammer 30 extends through the sleeve and has a head 37 on its outer end.

In order to hold the hammer or plunger in retracted position a spring 40 is mounted on the hammer between the head 37 and the outer end of the sleeve 25. The spring 40 has a pair of legs 41 and 42 which are curved, as shown at 43 and 44, to embrace the shank of the hammer or plunger and the legs are connected by a loop 45.

The legs 41 and 42 normally tend to spread apart and are held against movement away from each other by means of a fusible link 46 which is provided with openings 47 and 48 at the two ends to receive the lugs 49 and 50 formed on the ends of the legs 41 and 42. The fusible link may be constructed in any desired manner and in the construction shown comprises a pair of strips 53 and 54 which are connected by fusible solder 55.

Attention is called to the fact that the movement of the spiked end 33 of the hammer toward the cartridge is limited by the engagement of the washers 32 and 26 and these parts are so arranged that when the sleeve 25 is screwed on the boss 15 the end 33 of the hammer cannot engage the cartridge and fire the cartridge until the cover or dome 35 is in a position to coact with the flange 11 on the support 10 and substantially enclose the cartridge. The condition just described would be encountered only when the plunger or hammer had not been retracted and held in retracted position by spring 40.

The construction above described can be used separately as an alarm device or conjointly with a fire extinguisher in a manner to release the

extinguishing liquid. When the alarm device is used alone it will be evident that in case of fire the heat will cause the fusible link to give way thus releasing the plunger or hammer 30 and permitting the spring 31 to actuate the end 33 of the hammer into engagement with the cartridge thus firing the cartridge.

In the form of the invention illustrated the supporting member 10 has a plurality of radially extending offset ribs 60 on which a frangible fire extinguisher 61 is adapted to rest. An annular casing 62 is also carried by the member 10 and extends upwardly therefrom for the purpose of surrounding and holding the container 61. The casing 62 has a plurality of openings 63 adjacent the upper surface of the supporting member 10 to permit the fire extinguishing liquid to escape.

A boss 65 extends upwardly from the member 10, the axis of the boss coinciding with the axis of the boss 15. A central opening 66 in the boss 65 forms a bearing for a slidably mounted pin 67 having a head 68 disposed in the boss 15 and in engagement with the open end of the blank cartridge 20. The opposite end of the pin 67 has a head 69 which is disposed in an indented portion 70 of the fire extinguisher container 61. The movement of the pin toward the container is limited by a shoulder 71 which forms a stop for the movement of the head 68 of pin 67.

When the fire extinguisher container is positioned and the cartridge is fired the pin 67 will be actuated by the force of the explosion and will cause the frangible container to break thus releasing the fire extinguishing liquid.

In the form of the invention illustrated in Fig. 4, the construction is similar to that shown in Fig. 1 but differs therefrom in that the pin or plug 67 has slidably mounted therein a smaller pin 75. Also, the casing 62 is provided with a hinged cover 76 in which is supported a curved shield or baffle plate 77. The cover may be secured in closed position by means of a loop or staple 78 on which there is shown a padlock 79.

When the cartridge 20 is exploded, the pin or stud 67 will be forced upwardly until the flange 68 encounters the shoulder 71 and the pin 75 will then be carried upwardly by its momentum to more thoroughly shatter the frangible container 61. The shield 77 forms a stop for the pin 75.

In Fig. 5 the construction shown is the same as that illustrated in the preceding figures except for the fact that the cartridge 80 is loaded with a bullet 81 which is fired by the cartridge and breaks the frangible container.

From the foregoing description it will be seen that in case of fire the cartridge will be exploded thus giving an alarm and at the same time the force of the explosion will cause the frangible container to be broken releasing the fire extinguishing liquid.

Although one specific embodiment of the invention has been particularly shown and described, it will be understood that the invention is capable of modification and that changes in the construction and in the arrangement of the various cooperating parts may be made without departing from the spirit or scope of the invention, as expressed in the following claims.

What I claim is:

1. A fire alarm device, a flanged supporting member, a cartridge support carried thereby, a sleeve adapted to be removably connected to the cartridge support, a cover member carried by the sleeve and adapted to coact with the flanged sup-

porting member to enclose the cartridge support, said cartridge support having an outlet disposed within the cover member and flange, a hammer carried by the sleeve, a spring for actuating the hammer in a direction to fire the cartridge, and means including a fusible element for holding the hammer in retracted position.

2. A fire alarm device, a flanged supporting member, a cartridge support carried thereby, a sleeve adapted to be removably connected to the cartridge support, a dome carried by the sleeve and adapted to coact with the flanged supporting member to enclose the cartridge support, said cartridge support having an outlet within the dome and flange, a hammer carried by the sleeve, a spring for actuating the hammer in a direction to fire the cartridge, and means including a fusible element for holding the hammer in retracted position.

3. A fire alarm device comprising a supporting member, a cartridge carried thereby, means on said supporting member for removably holding a frangible container, a frangible container carried by said holding means, said container being freely accessible for manual removal, means for firing the cartridge, means, separate from the cartridge but positioned for actuation by the explosion of the cartridge for breaking the frangible container and means for limiting the movement of said breaking means toward the container.

4. In combination, a support, a casing carried thereby and having an open upper end, a frangible fire extinguisher container carried by said casing and freely removable through the upper end thereof, the casing having openings to permit the escape of fire extinguishing liquid, and means for breaking said container including a cartridge, means for firing the cartridge, means, separate from the cartridge but adapted for actuation by the explosion of the cartridge for striking the container and means for limiting the movement of said striking means toward the container.

5. In combination, a supporting member having openings therethrough, means carried by said member and extending upwardly therefrom for removably holding a frangible fire extinguisher container, said container being freely accessible for manual removal, a support carried by and extending below said supporting member and arranged to hold a cartridge, and heat controlled means for firing the cartridge, and a plunger supported for limited movement by the explosion of said cartridge and disposed in alignment with the container for breaking said container.

6. In combination, a supporting member, a boss carried thereby and extending therethrough, said boss having an opening extending longitudinally therethrough, means carried by said supporting member, in alignment with the boss and extending in one direction therefrom for supporting a frangible fire extinguisher container, means carried by the boss and disposed on the other side of the supporting member from the container support for supporting a cartridge in communication with said boss, means arranged for actuation by said cartridge explosion for breaking the container, and means for firing said cartridge.

7. In combination, a supporting member, a boss carried thereby and extending therethrough, said boss having an opening extending longitudinally therethrough, means carried by said supporting member, in alignment with the boss and

- extending in one direction therefrom for supporting a frangible fire extinguisher container, means carried by the boss and disposed on the other side of the supporting member from the
- 5 container support for supporting a cartridge in communication with said boss, means for firing said cartridge, and means in said boss in alignment with the cartridge and with the container for breaking said container when the cartridge
- 10 is fired.
8. In combination, a supporting member, a boss carried thereby and extending therethrough, said boss having an opening extending longitudinally therethrough, means carried by said
- 15 supporting member and extending in one direction therefrom for supporting a frangible fire extinguisher container in alignment with said boss, means carried by the boss and disposed on the other side of the supporting member from
- 20 the container support for supporting a cartridge in alignment with said boss and in communication therewith, means for firing said cartridge, means in the path of the cartridge arranged to be actuated thereby to strike and break the container and a perforated inverted dome surrounding the cartridge supporting means, said supporting member having perforations to permit the fire extinguishing liquid to drain into the dome when the container is broken.
- 30 9. In combination, a supporting member having openings therethrough, means carried by said member and extending upwardly therefrom for removably holding a frangible fire extinguisher container, said container being freely accessible
- 35 for manual removal, a support carried by and extending below said supporting member and arranged to hold a cartridge, heat controlled means for firing the cartridge, said container being supported in alignment with the cartridge, means
- 40 in the path of discharge of said cartridge for striking and breaking the container and a perforated cover carried by the boss and surrounding the cartridge holding portion thereof.
10. In combination, a bracket, a supporting member carried thereby and having perforations therethrough, a cylindrical shell mounted on and extending upwardly from said member for supporting a fire extinguisher, said shell being open at the top, a cartridge holder carried by and disposed below said member and in alignment with the container, means in the path of discharge of the cartridge arranged to be actuated thereby to strike and break the container, and means for firing the cartridge.
11. In combination, a bracket, a supporting member carried thereby and having perforations therethrough, a cylindrical shell mounted on and extending upwardly from said member, said shell being open at the top, a hollow boss carried by said member and extending therethrough and in alignment with said shell, a cartridge carried by said boss, means in the path of discharge of the cartridge for breaking the container and heat controlled means carried by the boss for firing the cartridge.
12. In combination, a bracket, a supporting member carried thereby and having perforations therethrough, a cylindrical shell mounted on and extending upwardly from said member, said shell being open at the top, a hollow boss carried by said member and extending therethrough and in alignment with said shell, a cartridge carried by said boss, means in the path of discharge of the cartridge for breaking the container, heat controlled means carried by the boss for firing the cartridge, and a shield carried by the boss and surrounding the cartridge.
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