June 12, 1934. E. F. POHL 1,962,695

COMBINED AUTOMATIC FIRE EXTINGUISHER AND ALARM

Filed Oct. 29, 1930

Fig. 1.

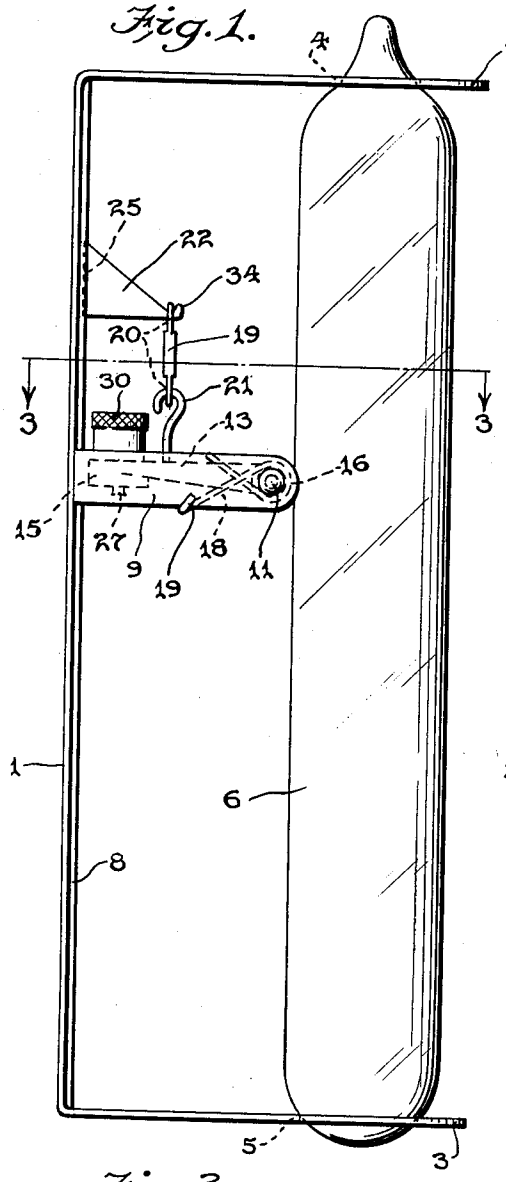


Fig. 2.

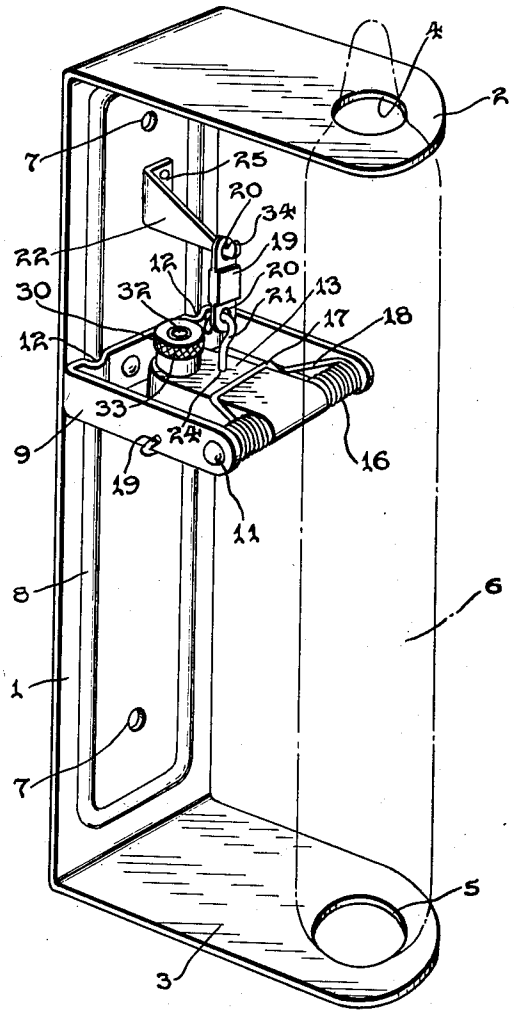


Fig. 3.

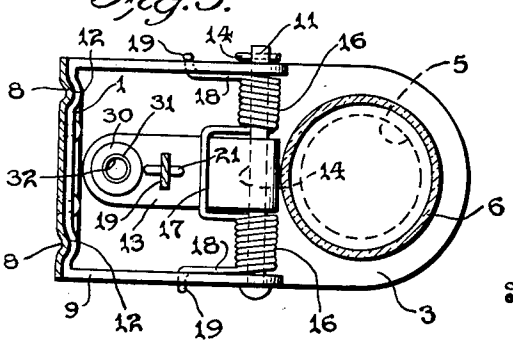
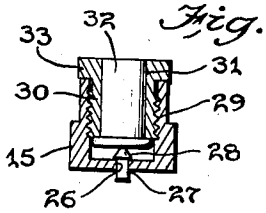


Fig. 4.



Inventor

Ernest F. Pohl,

By

Attorney

Patented June 12, 1934

1,962,695

UNITED STATES PATENT OFFICE

1,962,695

COMBINED AUTOMATIC FIRE EXTINGUISHER AND ALARM

Ernest F. Pohl, St. Louis, Mo., assignor to Automatic Fire Extinguisher and Alarm Corporation, St. Louis, Mo., a corporation of Missouri

Application October 29, 1930, Serial No. 491,975

7 Claims. (Cl. 169—26)

The invention relates to a combined automatic fire extinguisher and alarm.

The object of the present invention is to provide a simple, practical and comparatively inexpensive automatic fire extinguisher and alarm of great strength, durability and power, adapted to be readily installed in a house or other place and equipped with a fusible member adapted in event of a fire, to be fused by the heat thereof for releasing a spring actuated hammer carrying a cartridge or other concussion fired explosive and capable when released of simultaneously firing such explosive and of positively breaking simultaneously a hermetically sealed glass container containing a fire extinguishing liquid such as carbon tetrachloride.

With these and other objects in view, the invention consists in the construction and novel combination and arrangement of parts hereinafter described, illustrated in the accompanying drawing, and set forth in the claims hereto appended, it being understood that various changes in the form, proportion and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

In the drawing:—

Figure 1 is a side elevation of an automatic fire extinguisher and alarm constructed in accordance with this invention.

Fig. 2 is a perspective view of the same, the hermetically sealed glass container being illustrated in dotted lines.

Fig. 3 is a horizontal sectional view taken substantially on the line 3—3 of Fig. 1.

Fig. 4 is an enlarged detail sectional view through the hammer head illustrating the construction of the firing mechanism.

In the accompanying drawing in which is illustrated the preferred embodiment of the invention, the automatic fire extinguisher and alarm comprises in its construction a supporting bracket constructed of heavy sheet metal or other suitable material and consisting of a vertical body portion provided at its upper and lower ends with horizontal supporting arms 2 and 3 and having openings 4 and 5 for the reception of the end portions of a hermetically sealed glass container 6 designed to contain carbon tetrachloride or other suitable fire extinguishing fluid which is adapted to be converted into a gas by the heat of the fire and to smother or extinguish the same in the usual manner. Any suitable fire extinguishing substance may, of course, be employed.

The upper and lower ends of the glass container extend into the openings 4 and 5 of the arms 2 and 3 which are sufficiently resilient to enable the container to be readily placed in position, and the metal is sufficiently strong to firmly support the container in an upright position, as clearly illustrated in Fig. 1 of the drawing, but the combined fire extinguisher and alarm may be arranged in any other suitable position as the position of the device will not affect its operativeness.

The body portion of the supporting bracket is provided with suitable perforations 7 for the reception of screws or other suitable fastening devices for securing the bracket to a wall or other suitable support and the bracket is preferably reinforced by a bead or rib 8 pressed into the vertical body portion from the rear face thereof, thereby forming the reinforcing rib at the front face and providing a strengthening and reinforcing of the vertical body portion without interfering with the flat rear face of the body portion which fits against the wall or other support.

Mounted upon the vertical body portion of the supporting bracket is a horizontally disposed bearing bracket 9 of approximately U-shape composed of a transverse attaching portion 10 and forwardly projecting arms which carry a horizontal pivot 11.

The attaching portion 10 of the bearing bracket preferably extends entirely across the vertical body portion of the supporting bracket, as clearly illustrated in Fig. 3 of the drawing, and it is provided at its inner or rear face with grooves 12 arching the ribs 8 and preferably formed by curving or bending the transverse portion 10 as shown, but the vertical body portion of the bracket may be reinforced in any other suitable manner and the transverse attaching portion of the bearing bracket may be arranged at either face of the body portion of the supporting bracket and be secured to the same by any suitable means.

The pivot or spindle 11 upon which is mounted a swinging rotatable hammer 13 preferably consists of a pin provided at one end with a head and detachably secured in the bearing bracket at its other end by a cotter pin 14. The pivot upon which the hammer is mounted may be of any other desired construction as will be readily understood.

The hammer 13 which consists of a straight piece is provided at its inner end with an opening 14 through which passes the pivot 11 and the outer end of the hammer is provided with a striking head 15 adapted to be thrown by a spring 16

into contact with the container with sufficient force to positively shatter the same and throw the contents thereof a considerable distance from the supporting bracket. The spring, which may be considerably varied in construction, preferably consists of spaced coils disposed on the pivot 11 and connected at their inner ends by a loop 17, which bears against the rear face of the hammer and which straddles the latter.

The terminals 18 of the spring are extended to the arms of the bearing bracket and are provided with hook-shaped ends 19 for engaging the same at one of the side edges of each of the said arms. The hammer is adapted to be swung or rotated on the pivot to place the spring under tension and to set the fire extinguisher and alarm. The hammer is held in its set or retracted position by means of a fusible link 19 provided at its ends with openings 20 which are engaged with a hook 21 of the hammer and a fixed hook 22 of the supporting bracket. The hook 21 is provided with a threaded shank 23 which engages a threaded opening 24 in the hammer and the hook 22 is rigidly and adjustably secured to the upper portion of the body of the supporting bracket at a point above the bearing bracket. The hook 22 is provided with an attaching flange 25 which is secured by suitable fastening devices to the body portion of the supporting bracket at the front face thereof and any suitable means may be provided, if desired, for enabling the rigidly mounted hook 22 to be adjusted to vary the tension of the spring. The spring may also be increased in tension by rotating the hammer one or more times around the pivot to tighten the coils and in practice the spring will have sufficient strength to positively shatter the glass receptacle in which the fire extinguishing liquid is contained.

The head of the hammer is provided with a central opening 26 in which is arranged a firing pin 27 provided at its inner end with a conical head 28 arranged within a threaded socket 29 formed integral with the head of the hammer and extending rearwardly therefrom.

The integral socket which is formed by a cylindrical extension receives a threaded cartridge carrying sleeve 30 having a bore 31 for the reception of a cartridge 32. The cartridge 32 which is preferably a centre-fire cartridge has its head arranged at the inner end of the sleeve which is screwed inwardly sufficiently to carry the cartridge into contact with an apex of the conical head of the firing pin. The cartridge carrying sleeve is provided at its outer end with a flange 33 having a milled or checkered surface by means of which it may be readily grasped and rotated to screw it into and out of the socket of the hammer.

In practice the loop of the spring and the hammer will be rotated slightly less than a complete revolution and carry the hook of the hammer in position adjacent the fixed projecting arm 22 and the fusible link is then engaged with the hook-shaped terminal 34 of the arm 22 and with the hook of the hammer. This will securely maintain the hammer in a retracted position and in event of a fire, the heat will fuse the link and release the hammer which will be swung around the pivot 11 by the spring with tremendous force and will be carried by the spring into contact with the container, thereby firing the cartridge and shattering the container. This will sound the alarm simultaneously with the operation of the fire extinguisher. While a cartridge is perhaps the most effective form of explosive for sounding an alarm, any other explosive which may be fired by concussion, may, of course, be employed. When the cartridge carrying sleeve is placed in the socket the firing pin projects slightly from the front face of the hammer head so as to be carried into contact with the container when the hammer is released and is actuated by the spring.

What is claimed is:

1. A combined fire extinguisher and alarm comprising a supporting bracket, a frangible container supported by the bracket and adapted to contain a fire extinguishing liquid, a pivotally mounted hammer carried by the supporting bracket and arranged to be swung into engagement with the container, a spring for actuating the hammer to forcibly spring the same into contact with the container, explosive means and a firing pin mounted on the hammer and arranged to be carried by the same into contact with the container, whereby the firing pin is actuated for exploding an explosive means.

2. A combined fire extinguisher and alarm comprising a supporting bracket, a frangible container supported by the bracket and adapted to contain a fire extinguishing liquid, a pivotally mounted hammer carried by the supporting bracket and arranged to be swung into engagement with the container, a spring for actuating the hammer to forcibly spring the same into contact with the container, a firing pin mounted on the hammer and arranged to be carried by the same into contact with the container for operating the firing pin when the container is shattered, and cartridge holding means also mounted on the hammer for holding a cartridge in position to be engaged by the firing pin.

3. A combined fire extinguisher and alarm comprising a supporting bracket, a frangible container supported by the bracket and adapted to contain a fire extinguishing liquid, a pivotally mounted hammer carried by the supporting bracket and arranged to be swung into engagement with the container, a spring for actuating the hammer to forcibly spring the same into contact with the container, a firing pin mounted on the hammer and arranged to be carried by the same into contact with the container for operating the firing pin when the container is shattered, and a cartridge holding sleeve threaded into the hammer and arranged to be engaged to hold a cartridge in position to be engaged by the firing pin.

4. A combined fire extinguisher and alarm comprising a supporting bracket, a frangible container supported by the bracket and adapted to contain a fire extinguishing liquid, a spring actuated hammer pivotally mounted on the supporting bracket and arranged to engage and shatter the container, said hammer being provided with a head having a rearwardly opening socket and provided with a firing pin opening extending from the socket to the front of the hammer head, a firing pin arranged in the firing pin opening and adapted to be carried into engagement with the container, a sleeve detachably secured within the said socket and provided with a cartridge receiving bore adapted to hold a cartridge in position to be engaged by the firing pin, and fusible means for holding the hammer in a retracted position.

5. A combined fire extinguisher and alarm comprising a supporting bracket, a frangible container containing a fire extinguishing preparation mounted on said bracket, a movable hammer carried by said supporting bracket and having at-

tached thereto a firing means and an explosive means, means for normally holding said hammer in an inoperative position and means for releasing same, means for forcibly actuating said hammer and its attached means when released so as to strike said frangible container, thereby breaking the same and simultaneously therewith sounding an alarm by means of said firing means and explosive means.

6. In a fire extinguisher, operating means comprising a spring actuated hammer, a cartridge carried thereby, a firing pin carried by the hammer and heat controlled means for holding the hammer in inoperative position and an extinguisher part disposed in the path of movement of the firing pin and hammer.

7. In combination, a bracket, a fire extinguisher supported thereon, a hammer pivoted on the bracket, a spring for actuating the hammer toward the extinguisher, a cartridge and firing pin carried by the hammer, and heat controlled means for holding the hammer against actuation by said spring.

ERNEST F. POHL.