Jan. 8, 1924. 1,479,788

G. W. COLLIN

FIRE EXTINGUISHER

Filed March 10, 1922

Fig. 1

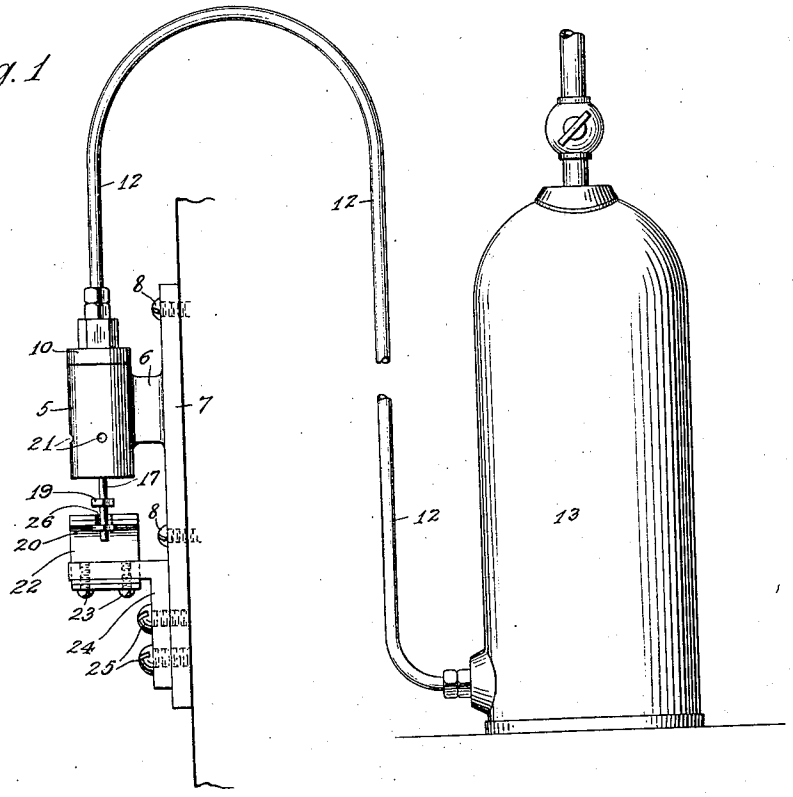
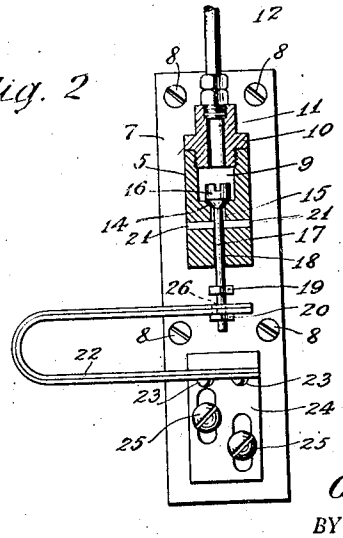


Fig. 2



INVENTOR.

George W. Collin

BY

Chamberlain & Newman ATTORNEYS.

Patented Jan. 8, 1924. 1,479,788

UNITED STATES PATENT OFFICE.

GEORGE W. COLLIN, OF BRIDGEPORT, CONNECTICUT.

FIRE EXTINGUISHER.

Application filed March 10, 1922. Serial No. 542,560.

To all whom it may concern:

Be it known that I, GEORGE W. COLLIN, a citizen of the United States, and resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Fire Extinguishers, of which the following is a specification.

My invention relates to new and useful improvements in automatic fire extinguishers adapted to be applied to the interior of a room.

The invention is adapted to be used in connection with a water supply forming part of which is commonly called a sprinkler system, or may be used in connection with a supply of chemicals, provided in individual containers, or in a larger receptacle having pipe connections with several of my automatically operated outlet valves.

The purpose of the invention is to provide a simple and inexpensive form of thermostatically operated valve mechanism which is adapted to be attached in any convenient place and operated by extreme heat as generated from a fire to which the device is exposed.

I have further especially adapted my improved fire extinguisher for attachment to the side walls or ceilings of rooms so that the water or chemicals when automatically discharged, will be sprayed out in all directions upon the fire which is probably burning below, and the heat from which had previously affected the thermostatic valve in a way to automatically operate the same. The extinguisher is further provided with an adjustable means so that the water or chemical may be discharged at any desired temperature as is obviously required in a device of this sort.

With these and other objects in view the invention resides and consists in the construction and novel combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departure from the spirit or sacrificing any of the advantages of the invention.

Similar characters of reference denote like or corresponding parts throughout the several figures of the accompanying drawings forming a part of this specification, and upon which,

Fig. 1 shows a side elevation of my improved automatic fire extinguisher, the same connected by a broken pipe, with a container for fire extinguisher chemical; and

Fig. 2 shows a front sectional elevation of the automatic thermostatic valve device shown in Fig. 1.

Referring in detail to the characters of reference marked upon the drawings, 5 represents a valve body which may be formed integral with a base 6 and wall plate 7 adapted to be attached to either side wall or ceiling of a room in any suitable manner, for instance by screws 8. This body is provided with a central chamber 9, the upper end portion of which is closed by means of a detachable plug 10 having a central hole 11 therethrough, with which the supply pipe 12 is connected. This pipe may be connected with a chemical tank 13, so that the device can be used for dispensing fire extinguishing chemical, or may be connected with a water supply, not shown, so the extinguisher may be used for releasing water instead of chemical. The chamber 9 of the body portion is provided with an annular valve seat 14 surrounding the top edge portion of the port 15 to accommodate the valve 16 and its stem 17. The stem further extends down from the central hole 18 of the lower end portion of the body and is provided upon its outer end portion with adjustable stop nuts 19 and 20.

A series of radially disposed ports 21 extend out in various directions from the port 15 whereby the fluid passing down therethrough will be distributed through said series of ports in relatively fine sprays to equally distribute the extinguishing fluid within the desired radius within the room.

A U-shaped thermo-plate 22 of improved design is employed for operating the before mentioned valve and stem and as will be seen one end portion of said thermo-loop is mounted, as by means of screws 23 upon an L-shaped bracket 24 that is adjustably secured to the before mentioned wall plate 7, by means of screws 25 passing through slots of the bracket and engaging the said

wall plate in a way to firmly hold the bracket in its adjusted position. The free operating end portion of the thermo-loop is preferably slotted as at 26 to accommodate the end portion of the valve stem which extends therethrough. The stop nuts 19 and 20 located upon this valve stem are arranged in spaced apart relation, to permit of a limited free and unoperative movement of the said free end of the thermo-loop without raising the valve and whereby the thermo-loop is permitted to expand a reasonable amount, due to natural conditions, without affecting the valve, but whereby further and excessive expansion necessarily due to a fire, would cause it to engage the top stop 19 to lift the valve in a way to release the liquid therein and discharge it through the several radial ports.

The normal adjustment of the bracket and its thermo-plate with reference to the stops on the lower end of valve stem are such as to cause the free end portion of the thermo-plate to engage the lower stop nut 20 as indicated in the drawings so as to naturally hold the valve down upon its seat, which together with the pressure of the fluid against the top side of the valve would be sufficient to hold it tightly closed.

From the foregoing it will be seen that with the rising temperature and expansion of the thermo U-plate, the free end of the same comes into contact with the nut 19 in a way to raise the valve against the initial pressure which holds it down, and as the temperature further rises the thermo U-plate expands further and a spring action thereof develops, which when overcome by the increased pressure of the U-plate, causes the valve to quickly break from its seat, whereupon all resistance is lost and the spring action of the said thermo U-plate leaves the valve, full open.

My automatic thermo-operated fire extinguishing valve is very simple in construction and is thus an attractive manufacturing proposition since it comprises a relatively few number of parts which may be easily formed, readily assembled, adjusted and installed.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. In a fire extinguisher, the combination with a base plate and chambered body portion having inlet and outlet ports, said outlet port having a valve seat, a valve normally engaging said seat and covering the outlet and provided with an external stem portion carrying longitudinally spaced apart stops, a resilient U-shaped thermo-plate secured at one end to the base plate and having its free end positioned intermediate said stops, being normally spaced from the innermost stop and engaging the outermost stop under pressure to yieldingly maintain the valve on its seat, and adapted to engage the innermost stop to raise the stem and its valve upon a predetermined expansion of said thermo-plate.

2. In a fire extinguisher, the combination of a base plate, a valve body mounted thereon and including a chamber having a fluid inlet and a vertically disposed outlet, said outlet having a valve seat at its inner end and a series of lateral ports at its outer end, said valve body being also provided with a valve stem passage extending coaxially of the vertical outlet, a valve normally engaging said seat and covering the outlet and having a stem portion which projects through said guide passage beneath the valve body, a resilient thermo-plate secured to said base plate at one end and connected at its other end to said stem, whereby it normally maintains said valve upon its seat under pressure and is adapted upon expansion to raise the stem and valve.

3. The invention as in claim 1, further characterized by said thermo-plate being adjustably mounted on said base plate to vary the pressure of the thermo-plate upon said valve in the closed position thereof.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 9th day of March, A. D. 1922.

GEORGE W. COLLIN.

Witnesses:
C. M. NEWMAN,
LILLIAN M. ALLING.