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C. NUHRING & W. M. THOMPSON.

FIRE EXTINGUISHING APPARATUS.

APPLICATION FILED APR. 5, 1904.

NO MODEL.

Fig. 1.

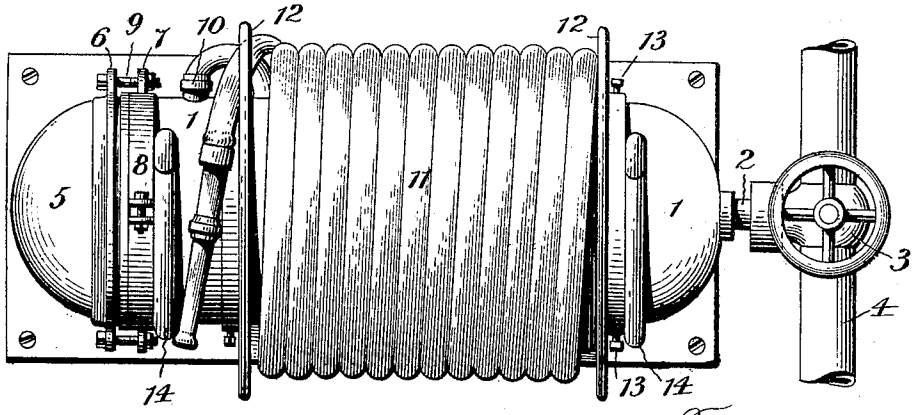



Fig. 2.

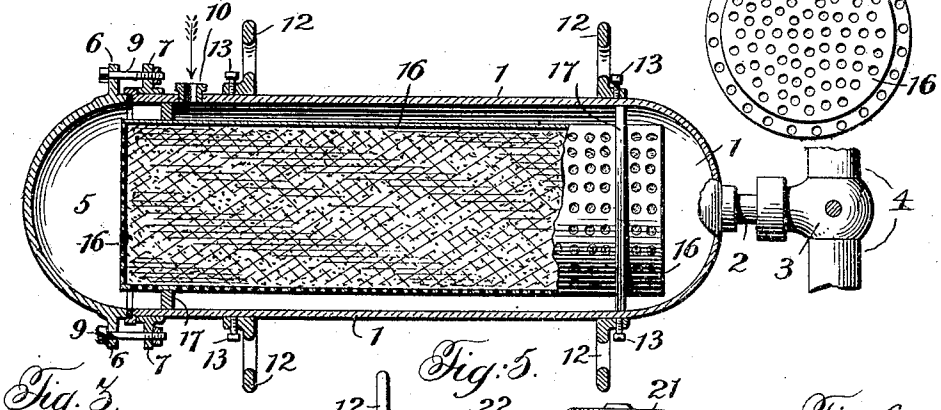



Fig. 4.




Fig. 3.

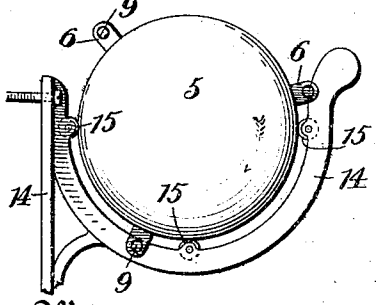



Fig. 5.

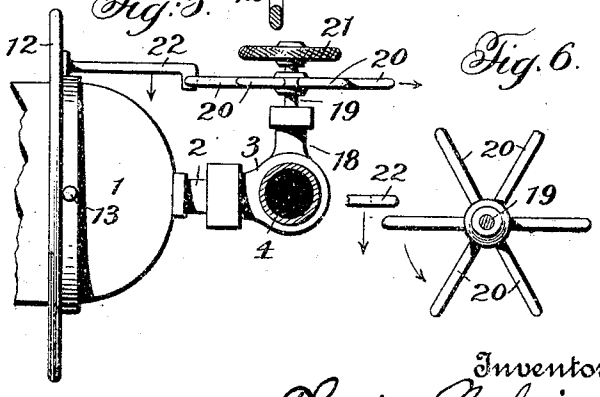



Fig. 6.

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# UNITED STATES PATENT OFFICE.

CHARLES NUHRING, OF CINCINNATI, AND WALTER M. THOMPSON, OF NORWOOD, OHIO.

## FIRE-EXTINGUISHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 773,971, dated November 1, 1904.

Application filed April 5, 1904. Serial No. 201,722. (No model.)

*To all whom it may concern:*

Be it known that we, CHARLES NUHRING, residing at Cincinnati, and WALTER M. THOMPSON, residing at Norwood, in the county of Hamilton and State of Ohio, citizens of the United States, have invented certain new and useful Improvements in Fire-Extinguishing Apparatus; and we do hereby declare the following to be a full, clear, and exact description of the invention.

This invention relates to improvements in fire-extinguishing apparatus, and is more particularly designed as an improvement in apparatus of that type intended for installation in buildings for use in extinguishing fires in their incipient stages.

The main and primary object of the present invention is the provision of apparatus of the character mentioned designed to effect a charging of the stream of water to a greater or less extent with a chemical agent, whereby the extinguishing properties of such stream are greatly increased and which charge is caused to take place during the passage of the stream from the stand-pipe or other source of supply and before the water is delivered to the fire.

The invention also contemplates the provision of apparatus adapted to serve the dual purpose of providing means for impregnating the stream with a chemical extinguishing agent and also providing a reel for the hose, whereby the latter when connected to the apparatus and reeled thereon is always at hand for immediate use and by which the apparatus may be rendered instantly effective by merely unwinding the hose.

The invention further aims to provide apparatus of the character mentioned embodying in its construction a novel and efficient arrangement of the parts to adapt the apparatus when the hose is reeled thereon to accommodate the varying lengths of hose in accordance with the conditions under which the apparatus is expected to serve.

With these general objects in view and others which will appear as the nature of the improvements is better understood the invention consists, substantially, in the novel construction, combination, and arrangement of parts, as will be hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the appended claims.

While the form of the invention herein shown and described is what is believed to be a preferable embodiment thereof, it will of course be understood that the same is susceptible of various changes in the form, proportion, and minor details of construction, and the right is therefore reserved to modify or vary the invention as falls within the spirit and scope thereof.

In the drawings, Figure 1 is a side elevation of a fire-extinguishing apparatus constructed in accordance with the present invention. Fig. 2 is a longitudinal sectional view thereof, the hose being omitted. Fig. 3 is an end elevation of the apparatus. Fig. 4 is a similar view of the cartridge or holder for the chemical extinguishing agent. Fig. 5 is a fragmentary side elevation illustrating the invention as adapted to automatically start the flow of water. Fig. 6 is a top plan view of the water-valve illustrated in Fig. 5.

Referring to the details of the drawings, the numeral 1 designates the body of the herein-described extinguishing apparatus, which is preferably in the form of a cylindrical tank or casing, said tank or casing having one of its ends entirely closed, but from which end projects a nipple 2, forming a swivel connection between the tank or casing 1 and a valve 3, connected to a stand-pipe 4, the latter communicating with a suitable supply of water under pressure. The other end of the tank or casing 1 is entirely open, and removably fitted thereover is a closing-cap 5, said cap having at its peripheral edges a series of perforated lugs 6, designed to register and be alined with a series of perforated lugs 7, carried by a securing-flange 8, which encircles the tank or casing 1 at a point adjacent to the open end thereof, and fitted in said lugs 6 and 7 is a series of securing-bolts 9, whereby through the medium of the lugs 6 and 7 the cap 5 is held upon the tank or casing 1. It

will of course be understood that, if desired, any other means may be employed for securing the cap 5 upon the tank or casing 1, those illustrated being merely a preferred construction. The tank or casing 1 is also provided with an outwardly-extending coupling connection 10, to which a length of hose 11 is attached in an obvious manner, and by reason of the tank or casing 1 being cylindrical and smooth it is apparent that the same forms a perfect drum upon which to wind the hose, so that the latter is free from kinks, breaks, or bends. To properly hold the hose upon the tank or casing 1, wheels or disks 12 are arranged on said tank or casing, said wheels or disks being spaced from each other a suitable distance for the accommodation of the hose, and said wheels or disks are held rigidly in place through the medium of set-screws 13 or their equivalent. Any other fastening means may be employed; but the screws 13 are preferred, inasmuch as they permit ready adjustment of the wheels or disks relatively to each other to enable them being set at any desired point on the tank or casing 1 to accommodate varying lengths of hose.

For holding the tank or casing in operative position supporting-brackets 14 are employed, the bodies of said brackets being substantially U-shaped and having suitable antifriction-bearings 15, by means of which the tank or casing 1 may be rotated in said brackets with a minimum degree of resistance. As the brackets 14 are substantially U-shaped, it will also be seen that the tank or casing 1 may be readily disconnected and removed therefrom at will.

As before premised, it is the primary object of the present invention to provide a fire-extinguisher designed to effect charging of the stream of water with a chemical agent to increase the extinguishing properties of such stream, and to the accomplishment of this end the tank or casing 1 is provided with an internal removable cartridge or holder 16, adapted to receive a dry chemical agent either in crystal or powder form and which the water will attack as it passes through the tank or casing 1. To facilitate the water gaining free access to the chemical agent contained in the cartridge or holder 16, the latter is constructed, preferably, of perforated metal or wire-netting, and said cartridge or holder is also of less diameter than the interior of the tank or casing 1 approximately one-half inch, so that the water will not be entirely obstructed by the cartridge or holder, but will be impeded sufficiently to insure its entrance to and attack upon the chemical agent contained in the cartridge or holder 16. The latter is also provided with a series of annular bearing flanges or collars 17, which are also perforated, and through the medium of said flanges or collars the cartridge or holder is maintained axially in the tank or casing 1 in a manner to prevent its falling or striking from side to side when said tank or casing is being rotated.

In use the apparatus is set up as illustrated in Fig. 1. The cap 5 being removed the cartridge or holder 16, containing the chemical agent, is introduced into the tank or casing 1 and the cap 5 replaced, when the extinguisher is fully equipped for service. Should a fire occur, the hose 12 is grasped and unreeled from the tank or casing 1, the latter freely rotating as the hose is drawn therefrom. The valve 3 being opened, the water under pressure will rush into and through the tank or casing 1 from the pipe 4, attacking the chemical agent in the holder 16 and passing on out through the coupling 10 into the hose 12; but during its passage through the tank or casing 1 the water will be charged with the chemical agent, so that as the water issues from the hose-nozzle the same will be in the form of a chemicalized stream having greater extinguishing properties than the stream of water, and consequently being of higher value as a factor in extinguishing fires in their incipient stages.

If desired, the apparatus may be constructed to automatically start the flow of the water from the pipe 4 simultaneously with the initial unwinding of the hose. To provide for this, the construction illustrated in Figs. 5 and 6 is employed and in which the numeral 18 designates an angle-valve, which may be connected to the stand-pipe 4 or other water-supply, the stem 19 of said valve having arranged thereon a series of radially-extending arms 20 for operating said stem, the latter also being provided above said arms 20 with a hand-wheel 21 for manually closing the valve. A tappet or striker 22, carried by the wheel or disk 12 next adjacent to the valve 18, is designed to contact with one of the arms 20 at each rotation of the tank or casing 1 when unreeling the hose 12 therefrom, thus causing the valve 18 to be automatically opened. In this connection it will be observed that in opening the valve the arms 20 will gradually rise with the stem 19, so that when the valve reaches its open position said arms will be above the point of contact of the tappet or striker 22, and consequently the tank or casing 1 is free to continue its rotation to complete the unreeling of the hose. Thus it is obvious that when a fire occurs and the hose is unreeled from the tank or casing 1 the initial rotations of said tank or casing cause the valve 18 to be opened for the water to flow to the chemical agent within the cartridge or holder, the valve being closed manually by operating the hand-wheel 21.

While the invention is primarily designed for use in buildings, it is also capable of use upon hose-wagons, in which case the supply of water would be taken from the usual sources, such as a fire-engine or fire-plug. When ap-

plied to a hose-wagon, the apparatus would be placed, preferably, under the seat, the end with the removable cap 5 projecting through the side of the wagon, so as to be freely accessible for removal to introduce new supplies of the chemical agent to the tank or casing 1. The invention may also be used for disinfecting purposes by simply changing the chemicals contained in the cartridge or holder 16.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In an apparatus of the class described, the combination with a cylindrical tank or casing adapted to be connected to a suitable water-supply, of a cartridge or holder arranged in said tank or casing and adapted to receive a chemical agent for charging the water as the latter passes through the tank or casing, the exterior of said tank or casing forming a drum upon which to wind a hose, and wheels or disks mounted upon the exterior of said tank or casing and adjustable longitudinally thereof to accommodate varying lengths of hose.

2. In an apparatus of the class described, the combination with a cylindrical tank or casing adapted to be connected to a suitable water-supply, of a cartridge or holder arranged in said tank or casing and adapted to receive a chemical agent for charging the water as the latter passes through the tank or casing, said cartridge or holder being of smaller diameter than the interior of said tank or casing, a series of perforated bearing flanges or collars carried by the cartridge or holder for supporting the latter within the tank or casing to maintain its position therein, the exterior of the tank or casing forming a drum upon which to wind a hose, and wheels or disks mounted upon the exterior of said tank or casing and adjustable longitudinally thereof to accommodate varying lengths of hose.

3. In an apparatus of the class described, the combination with a cylindrical tank or casing adapted to be connected to a suitable water-supply, of a cartridge or holder arranged in said tank or casing and adapted to receive a chemical agent for charging the water as the latter passes through the tank or casing, said cartridge or holder being of smaller diameter than the interior of said tank or casing, a series of perforated bearing flanges or collars carried by the cartridge or holder for supporting the latter within the tank or casing to maintain its position therein, the exterior of the tank or casing forming a drum upon which to wind a hose, wheels or disks mounted upon the exterior of said tank or casing and adjustable longitudinally thereof to accommodate varying lengths of hose, and open brackets in which said tank or casing is seated, said brackets embracing and partially surrounding the body of the tank or casing to hold the same in operative position but permit the tank or casing freely rotating.

4. In an apparatus of the class described, the combination with a stand-pipe connected to a suitable water-supply, of a tank or casing swiveled to said stand-pipe to be rotatable relatively thereto, a cartridge or holder arranged in said tank or casing and adapted to receive a chemical agent for charging the water as the latter passes through the tank or casing, said tank or casing being cylindrical to serve as a drum upon which to wind the hose, a series of wheels or disks mounted upon said tank or casing and adjustable longitudinally thereof, whereby said wheels or disks are adapted to accommodate varying lengths of hose, and a valve for controlling the flow of water from said stand-pipe to the tank or casing.

5. In an apparatus of the class described, the combination with a stand-pipe connected to a suitable water-supply, of a tank or casing swiveled to said stand-pipe to be rotatable relatively thereto, a cartridge or holder arranged in said tank or casing and adapted to receive a chemical agent for charging the water as the latter passes through the tank or casing, said tank or casing being cylindrical to serve as a drum upon which to wind the hose, a series of wheels or disks mounted upon said tank or casing and adjustable longitudinally thereof, whereby said wheels or disks are adapted to accommodate varying lengths of hose, a valve for controlling the flow of water from said stand-pipe to the tank or casing, radially-arranged arms carried by the stem of said valve, a tappet or striker carried by one of the wheels or disks of the tank or casing for actuating said valve through the medium of said arms, and a hand-wheel also connected to the stem of said valve for manually closing the latter.

In testimony whereof we affix our signatures in the presence of two witnesses.

CHARLES NUHRING.
WALTER M. THOMPSON.

Witnesses:
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J. T. MCROBERTS.