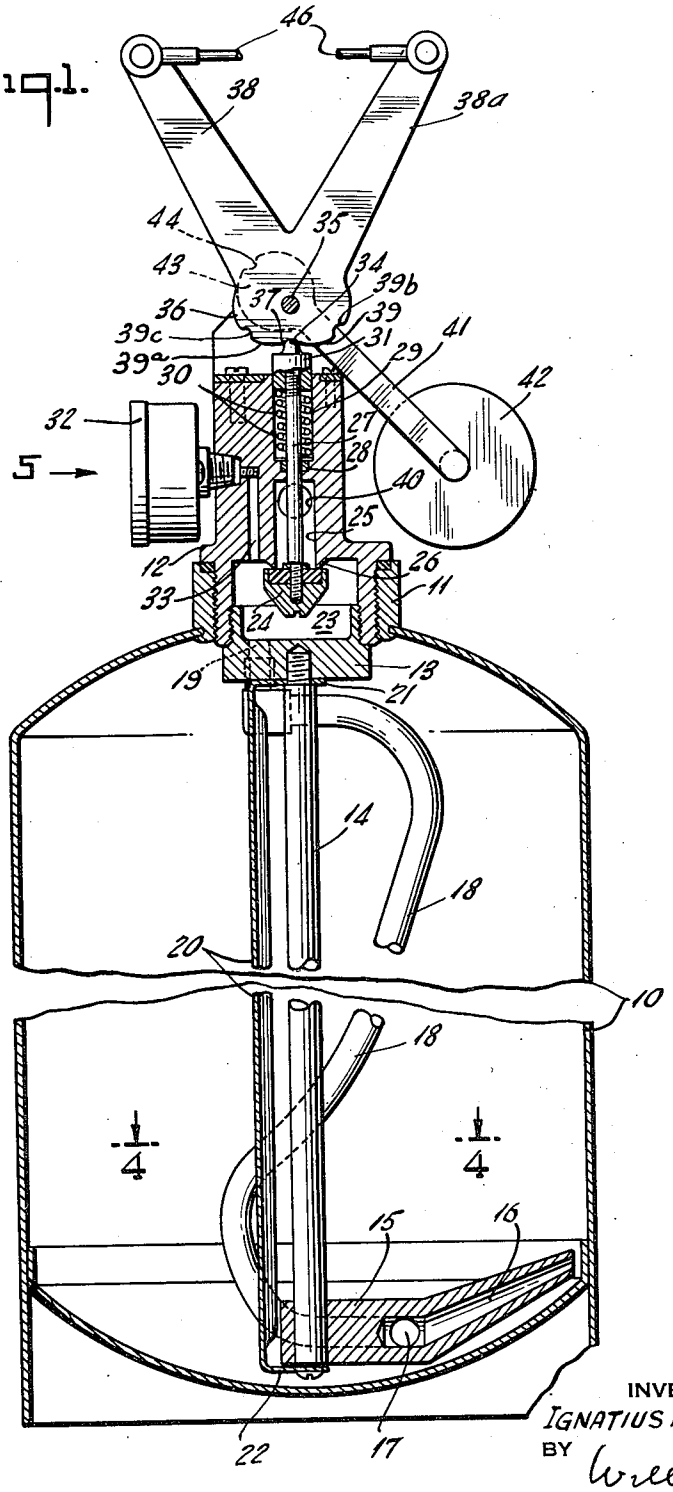
May 17, 1955 I. NURKIEWICZ 2,708,482

FIRE EXTINGUISHER

Filed Dec. 17, 1952 2 Sheets-Sheet 1

Fig. 1.



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FIRE EXTINGUISHER

Filed Dec. 17, 1952 2 Sheets-Sheet 2

Fig. 2.

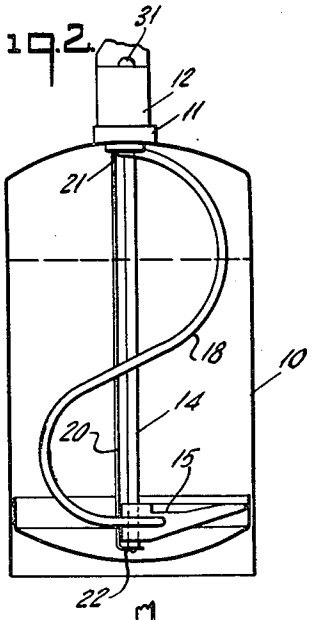


Fig. 3.

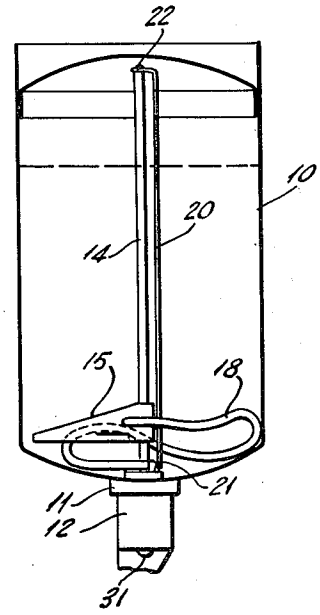


Fig. 5.

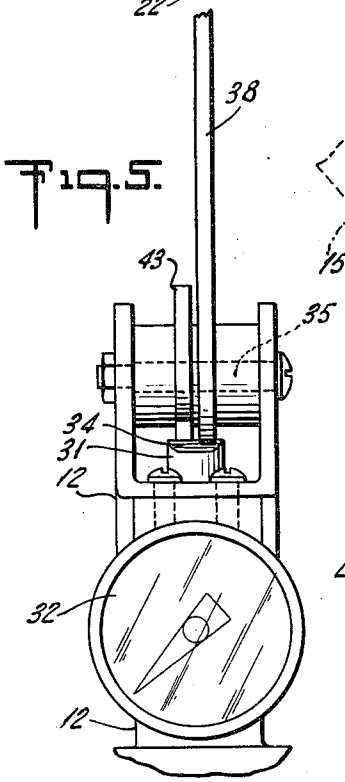
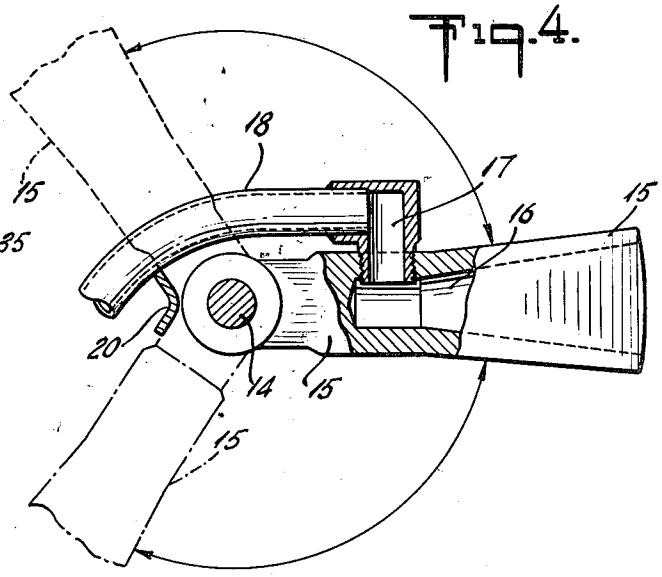


Fig. 4.



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2,708,482

FIRE EXTINGUISHER

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Application December 17, 1952, Serial No. 326,415

4 Claims. (Cl. 169—31)

This invention relates to a tank fire extinguisher.

It is an object of this invention to provide an extinguisher having a tank which will discharge its entire contents when operated, no matter what the physical position of the tank may be.

It is a further object to provide an extinguisher having a self-positioning siphon tube, which in the preferred form is connected to the dicharge by a flexible tube, in a manner not to interfere with the self-positioning of the intake.

It is a further object to provide an extinguisher adapted to be filled with an extinguishing fluid under gaseous pressure, which will provide a self-positioning siphon tube intake connected to the discharge by a flexible tube in a manner to prevent escape of the pressurizing gas while permitting the intake to position itself without interference with the tube.

It is a further object to provide an extinguisher of the type described, with a discharge valve, which will hold the pressure without leakage, and yet which may be operated from a plurality of different directions, without interference with each other.

It is a further object to provide an extinguisher of the character described with a valve mechanism that may be held open for charging, and then released, by a gravity controlled mechanism, independent of the normal valve operating mechanism.

The invention is illustrated in the accompanying drawings, in which Fig. 1 is a central longitudinal section through the device; Fig. 2 is diagrammatic section to show the disposition of the siphon tube and intake while the container is resting on its bottom end. Fig. 3 is a similar view showing the disposition while the container is upside down. Fig. 4 is a detail of the intake construction on a plane transverse to the axis of the container. Fig. 5 is a detail of the valve operating mechanism.

In the drawings the numeral **10** shows a container for holding the fire extinguishing substance, which may be either an organic halide, such as carbon tetrachloride, or chlorobromethane, commonly referred to as C. B. M., or it may be a powder as prepared carbonate. The container is charged with a pressurizing gas, as will be understood. The particular valve construction here illustrated is particularly intended for carbon tetrachloride, or C. B. M.

The container is provided at its upper end, as seen in Fig. 1, with a nipple **11**, into which is screwed a valve body **12**, into which in turn is screwed a plug **13**. A rod **14** is screwed into the plug **13**, to extend along the axis of the container, extending to the other end thereof.

Slidably mounted on rod **14** is a nozzle block **15**, extending to the wall of the container, and having a bore **16** in its outer end communicating with a side outlet **17**. This block serves as a gravity controlled inlet nozzle for a flexible siphon tube **18**, attached to and in communication with the outlet **17**. This tube is a little longer than the container and has its other end attached to the plug **13**, and in communication with bore **19** through the plug.

A bar **20** V-shape in cross section, is fastened at one end to plug **13**, at **21**, and at the other, to the end of rod **14**, at **22**, whereby the nozzle block **15** cannot slide off the end of the rod, and whereby, also, its rotary motion around the rod of the block **15** is limited to less than a complete revolution, so that the tube **18** cannot be wound tightly around the rod **14**, so as to prevent the block from falling lengthwise of the rod, from one end to the other. As shown, the outer end of the block **15** is bent away from the bottom end of the tank in order to conserve the room within the tank. The outer end of this intake nozzle is preferably flattened out in a plane, transverse to the container, and its mouth may conform substantially to the shape of the container wall, in order that the entire contents of the container may be rapidly discharged before the gas pressing can escape.

The valve body has a chamber **23** at its inner end, with which the bore **19** communicates, and a valve head **24** lies within this chamber. The body has a central bore **25**, terminating at the inner end in a valve seat **26**, against which the valve head **24** operates. A valve rod **27** extends upwardly through bore **25**, through a bearing **28** into a spring chamber **29**. A spring **30** is compressed within the the spring chamber **29**, against a button **31** screwed on to valve rod **27**.

With this construction the valve head **24** is held against the seat not only by the force of the spring **30**, but also by the pressure of the gas within the container. Since the pressure within the cylinder is essential to the readiness of the device to function, a pressure gauge **32** is carried on the valve body **12**, communicating with the chamber **23**, through the channel **33**.

The button **31** is provided with a ridge **34**, and, mounted adjacent to the head pivoted on an axis **35**, transverse to the axis of the valve stem, is a cam **36**, having a central recess **37** in which the ridge **34** may easily rest when the valve head **24** is firmly pressed against the seat. This cam may be provided with two operating arms **38** and **38***a* which are integral with each other but which have extensions in different directions in order to provide conveniently located points of attachment for operating cords coming from different directions. This cam **36** is so shaped that as the arms **38** and **38***a* are tilted in either direction cam surfaces **39** and **39***a*, adjacent to the recess **37**, will depress the button **31** to open the valve. Thus, the extinguisher may be opened by moving either arm **38** or **38***a*, in either direction. If desired shallow recesses **39***b* and **39***c* may be cut in the cam surface **39** and **39***a* to allow the cam to rest in the open position on being opened by arms **38** or **38***a*.

The bore **25** is provided with a lateral discharge port **40**, through which the contents are expelled.

For the purpose of filling the container a gravity controlled valve operator **41** is also pivoted at **35**, and this cam operator has a controlling weight **42** on one end, and a cam surface on the other having a recess **44** into which the ridge **34** may rest and be held in the open position, this recess being defined by a swell at each side thereof to hold the cam in position with the valve open but the remainder of the cam **43** is of small diameter insufficient to engage therein any portion of the button **31**. As here shown the cam is circular but eccentrically mounted thus when the cam is moved to carry the recess away from the ridge, the valve may close. The weight **42** is sufficient to move the operator **41** to valve closing position as soon as the ridge is freed from its recess **44**.

The arms **38** and **38***a* may be operated in any desired manner, as by means of cords **46**, attached to them.

With the above construction it will be clear that, whatever position the container is held, the nozzle block **15** will fall downwardly until its intake is on the lowest side of the container. Similarly, if one end of the container is

tilted up, the block will slide down to the lowest end, so that, so long as there is any substantial quantity of liquid in the container the intake will be submerged. Thus, there is no danger of the pressurizing gas blowing out the container before the liquid is discharged.

The foregoing description is intended as illustrative of one embodiment of my invention, the scope and nature of which is shown in the following claims.

I claim:

1. An extinguisher comprising a cylinder having a discharge outlet in one end, having a valve provided with an intake cavity therein, a guide rod supported by said valve and extending along the axis of said cylinder substantially to the other end of said cylinder, a block slidable on said rod having a nozzle having an intake orifice thereon, said block and said nozzle being shaped to permit said intake orifice to slide clear from one end thereof to the other, a bar mounted parallel to said rod in position to limit the angle of rotation of said block around said rod and a flexible conduit connecting said intake orifice with the intake cavity of said valve.

2. A device according to claim 1 in which the intake orifice lies in a cylindrical surface closely adjacent to the inner surface of said cylinder.

3. An extinguisher valve mechanism for use with a pressure cylinder comprising a valve head having a valve seat facing the cylinder position, a valve within said head spring pressed to bear against said seat and having a stem extending upwardly through said head, said head having a discharge opening shut off from said cylinder by said valve, a lever for depressing said valve, a charging lever pivoted adjacent to the upper end of said valve stem having a recess into which the upper end of said stem may enter, said charging lever having a cam surface in position to depress said valve as said charging lever is moved, said surface terminating in a recess engageable by said valve stem in the open position to hold said charging lever in valve-open position, and means to urge said charging lever to valve-closed position as soon as said valve stem passes out of said recess, whereby said cylinder may be charged without being disconnected with the line, and when charged the charging lever will be retained in inoperative position until again required.

4. A device according to claim 3 in which the means urging the charging lever to inoperative position is a weight on said lever.

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