Jan. 19, 1926. 1,570,052

O. R. ERWIN

FIRE EXTINGUISHING DEVICE

Filed April 1, 1921 2 Sheets-Sheet 1

Fig. 1.

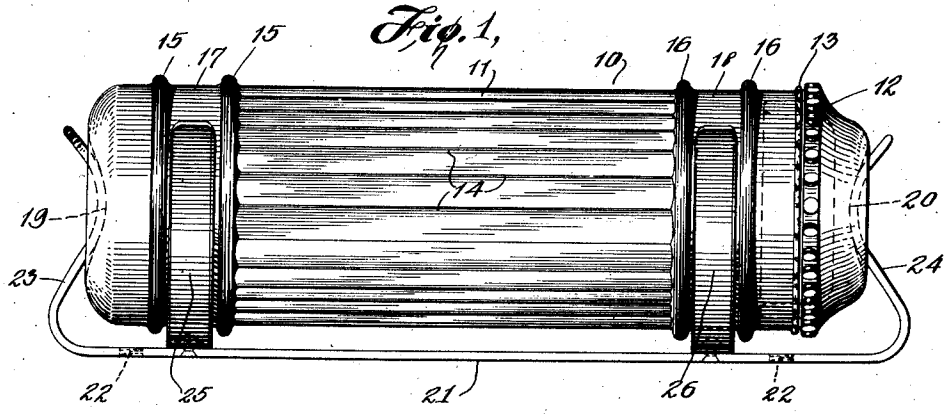


Fig. 2.

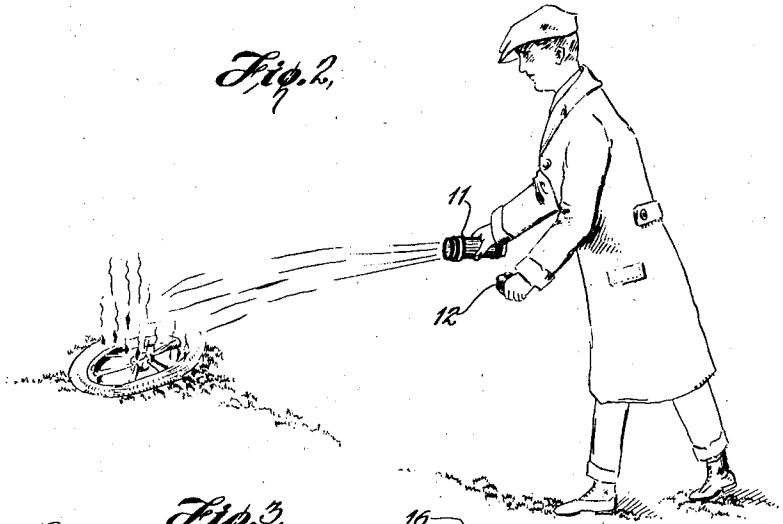
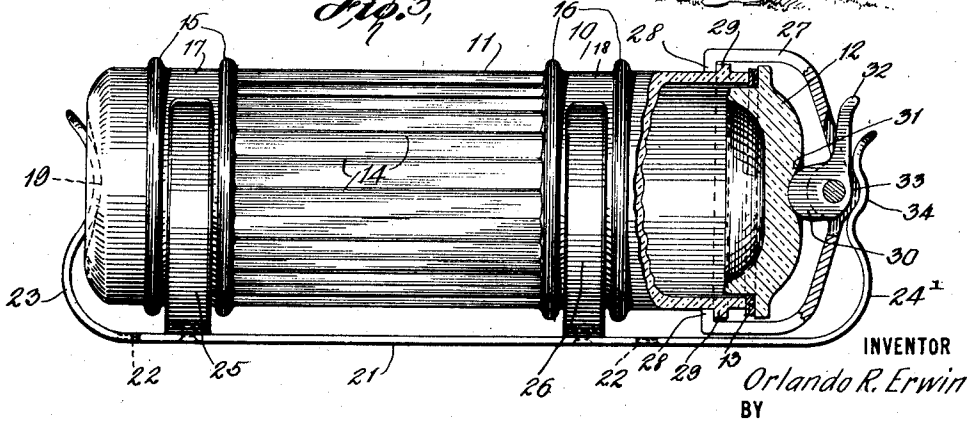


Fig. 3.



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Fig. 4.

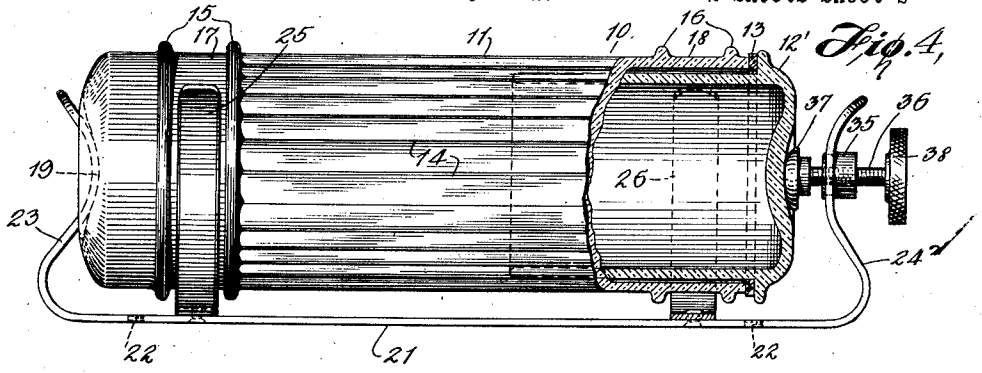


Fig. 5.

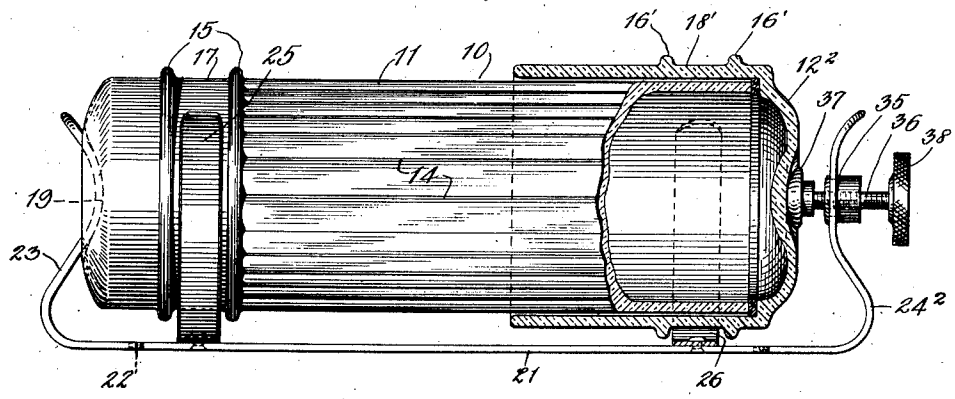
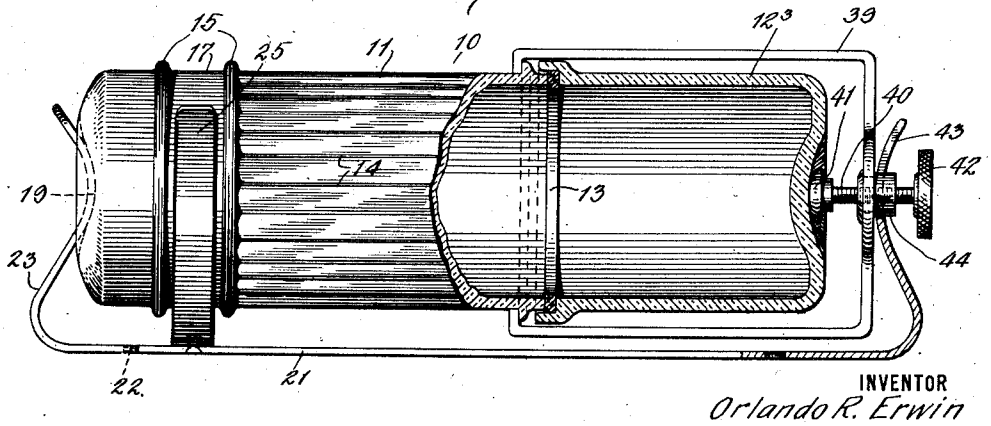


Fig. 6.



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UNITED STATES PATENT OFFICE.

ORLANDO R. ERWIN, OF FOREST HILLS, NEW YORK.

FIRE-EXTINGUISHING DEVICE.

Application filed April 1, 1921. Serial No. 457,797.

To all whom it may concern:

Be it known that I, ORLANDO R. ERWIN, a citizen of the United States, and resident of Forest Hills, in the county of Queens and State of New York, have invented certain new and useful Improvements in Fire-Extinguishing Devices, of which the following is a specification.

My present invention relates to a fire extinguishing device and more particularly to a combined holder and container for holding a fire extinguishing charge; and has special reference to the provision of a holder and container of the character referred to especially adapted to be mounted on a vehicle such as an automobile or motor truck and especially intended for use with the character of fires occurring in this type of vehicle.

In the fighting of fires occurring in automobiles, motor trucks, motor boats, aeroplanes, and similar vehicles, a number of factors must be taken into consideration in providing a fire extinguishing unit especially adapted for service in such vehicles. Automobile fires may be characterized as hot and quick fires which spread with great rapidity. It is therefore essential to utilize a fire extinguishing medium best suited to such fires and to use a fire extinguishing unit which may be brought into active service without any complexity of operative movements and which can be brought into activity substantially immediately. My invention comprehends the provision of a fire extinguishing unit which combines simplicity of operation with rapidity of use and which embodies a fire extinguishing charge especially adapted for the type of fire incident to motor vehicles.

Another requirement or desideratum in the production of a fire extinguishing unit of the nature here referred to lies in the production of a device which is inexpensive and small space consuming. A fire extinguishing device to be readily accessible should be mounted on some exposed portion of the vehicle within easy reach of the operator, such as for example on the dash board of an automobile. Vehicle space, however, is considerably limited, necessitating the provision of an extinguishing unit which can be put into a relatively small compass for simple mounting and easy accessibility. To render loss due to theft entirely a negligible factor, and to minimize theft, an extinguishing unit which is extremely simple and inexpensive should be provided. My invention further comprehends the provision of such an extinguisher which is extremely simple in construction and cheap to produce and which may be mounted in small confines and for easy access in a convenient part of the vehicle structure.

Other desiderata which may be characterized as essential requirements include the production of an extinguishing device which shall be durable and little affected during long storage use, an extinguisher which shall effectively withstand shock and vibration due to vehicle transit and which shall be anti-rattle and anti-leak proof when used in such vehicle, one in which the character and the amount of charge in the extinguisher shall be always visible and being subject to simple inspection; and one in which a minimum of loss of charge is experienced during fire extinguisher use of the device. My invention comprehends the fulfillment of all such desiderata.

The principal objects of my invention therefore includes, besides the provision of an extinguishing device having the characteristics and fulfilling needs above enumerated, the provision of a device holding a liquid fire extinguishing charge; the provision of a combined container and holder therefor which may be transported, shipped or handled as a unit; the provision of such a combined container and holder in which the holder, besides resiliently supporting the container to permit easy mounting and removal of the container on and from the holder, also cooperates with the parts of the container to prevent leakage of the liquid charge contained therein, especially after long storage use; the cooperation of the parts also effecting an anti-rattle device; the provision of a device of this characteristic in which the looseness of parts incident to long service or use is compensated for to further effect an anti-leak extinguisher; and the general provision of such an extinguisher which shall be subject to very simple manufacturing operations and which shall be composed of a minimum of parts to provide an inexpensive unit.

To the accomplishment of the foregoing and such other objects as may hereinafter

appear, my invention consists in the elements and their relation one to the other, as hereinafter particularly described and sought to be defined in the claims, reference being had to the accompanying drawings which show preferred embodiments of my invention and in which—

Figure 1 is an elevational view of my fire extinguishing device showing a combined container and holder,

Figure 2 is a view showing the manner of use of my device, and

Figures 3 to 6 are views of modified forms of my device.

Referring to Figure 1 of the drawings, I provide a container generally designated as 10 for holding a fire extinguishing charge, such as carbon tetrachloride, the container 10 comprising a glass receptacle 11 having a wide mouth and having preferably unbroken and straight lateral walls, the receptacle 11 being provided with a glass top or cover 12, a gasket such as a cork gasket 13 being provided for the purpose of effecting a sealed closure between the top 12 and the receptacle 11. The receptacle 11 is preferably provided with a corrugated outer surface 14 for the purpose of providing a suitable gripping means on the receptacle, the said receptacle being further provided with pairs of beads 15 and 16; the said beads defining therebetween annular recesses 17 and 18 respectively, such recesses being provided for the purpose of receiving suitable supporting means, as will appear hereinafter. The receptacle 11 is also preferably provided at its bottom with a support receiving cavity or depression 19, a similar depression 20 being provided in the top or cover 12.

The container 10 is adapted to be charged with a fire extinguishing medium such as carbon tetrachloride, the charged container being adapted to be transported and sold and mounted in a vehicle in the charged state, and to this end I combine the container with a unitary holder therefor, the combined container and holder being handled as a unit. Accordingly, I provide a bracket 21 which is adapted to be mounted on any convenient portion of a vehicle such as the dashboard of an automobile, suitable apertures 22 being provided in the bracket for the purpose of receiving securing means, the said bracket 21 being a unitary bracket and being provided with opposed resilient arms 23 and 24 respectively, the said arms being suitably contoured to engage the bottom and cover of the container 10, depressions 19 and 20 in the bottom and cover respectively of the container functioning to seat the suitably contoured arms 23 and 24, the cooperation of these parts providing means for retaining the container in the holder against endwise movement, thus effecting an anti-rattle device, the resiliency of the arms 23 and 24 also effecting opposed pressure on the bottom and cover of the container for the purpose of holding the cover 12 on the receptacle 11 in effectively sealed condition. Bracket 21 is also provided with U-shaped clamping means 25 and 26; the said clamping means being intended to receive the receptacle, the annular depressions 17 and 18 being provided for this purpose. It will be apparent that after charging the container 10 with the fire extinguishing medium, the container may be inserted in the bracket or holder 21 and may be held therein against rattling and leaking, the combined container and holder being easily handled as a unit. In time of fire the container 10 is removed from the holder 21 as by grasping the receptacle at the corrugated surface thereof, the holder 21 permitting removal of the container in one direction. After removal of the container from the holder the cover 12 is removed and the receptacle 11 is ready for discharge, as by pouring or dashing the contents thereof directly onto the fire, as shown in Figure 2 of the drawings. By providing a receptacle such as 11 with unbroken walls the receptacle may be used in the nature of a dispensing cup, this having been found very desirable for fire extinguishing purposes. By the provision of such unbroken walls and the wide mouth of the tank or receptacle 11 the fire extinguishing charge may be dashed onto the fire without any loss of the charge during the transit from the receptacle onto the fire. Furthermore, by the provision of such a receptacle the container may be grasped by the right hand of the operator in removing the same from the holder 21, the receptacle being retained in the right hand by removal of the cover with the left hand as shown in Figure 2 of the drawings, and the dispensing of the charge being continued with the right hand of the operator. In this manner the extinguishing device may be used without any complexity of movement on the part of the operator, the device being brought into activity almost immediately, these being features highly desirable in a device of this type. By providing a receptacle which is transparent, the container being made of glass, the character and amount of fire extinguishing charge in the container is always visible by simple inspection, the condition of the fire extinguishing device being thus always known to the operator.

Referring to Figure 3 of the drawings, I have shown a modified form of my device in which, in addition to the parts shown in Figure 1, I provide means for holding the cover 12 on the receptacle 11 independent of the bracket 21, such means being pro-

vided for the purpose of retaining the cover on the receptacle when the container 10 is removed from the holder 21. Such means may conveniently take the form of a gripping element 27 provided with opposed gripping fingers 28 adapted to cooperate with an annular flange 29 formed integral with the receptacle 11, the said gripping element 27 being provided with a cam clamp 30 adapted to cooperate with a depression 31 in the cover 12, the cam clamp being also provided with an integral operating handle 32, the gripping elements 27 being suitably constructed and contoured as at 33 to seat in a complementally contoured portion 34 of the arm 24′ in the holder 21. It will be apparent that when the container 10 is removed from the holder 21 in this form of my device, that the cover 12 will remain in intact condition on the receptacle 11, operation of the cam clamp 30 effecting release of the cover 12, the cover and the gripper 27 being then removable to permit the fire extinguishing use of the receptacle 11. The gripper and cam clamp also serve the purpose when the container is mounted in the holder 21, of effecting an anti-leak and anti-rattle fire extinguishing unit. To prevent rattling the cam clamp 30 may be tightened by rotation, this operation increasing the end pressure of the cover 12 and causing a movement of a portion 33 of the gripper against the resilient arm 24, cooperation of these parts effecting an anti-rattle device. Furthermore, due to the end pressure exerted on the cover 12 by the cooperation of these elements, an anti-leak device is assured, this being a desideratum in an extinguisher of this kind using a liquid fire extinguishing charge and mounted in a vehicle subject to vibration and shock, as is the case in motor vehicles.

Referring to Figure 4 of the drawings, I show a further modification of my device, this modified form including a cover 12′ in the form of a cup, the body walls of the cup being insertible in the receptacle 11. With this form of my device either the cup or the receptacle 11 or both can be used to dash the liquid contents upon the fire. In this form of my device I also prefer to provide the holder 21 with means in addition to the resilient arms 23 and 24^2 for securely clamping the container 10 in the holder 21 against endwise movement to effect an anti-rattle and anti-leak structure. To this end I provide the resilient arm 24 with a boss 35, the boss being adapted for the reception of a threaded rod 36, the said threaded rod being provided at one end with a cover engaging head 37 and at its other end with an operating head such as a knurled thumb piece 38. As will be apparent, effective sealing of the cover 12′ onto the receptacle 11 may be provided by adjustment of the threaded rod 36, an anti-rattle and anti-splash proof extinguisher being effected in this manner and being operative at all times during long storage use.

Referring to the form of my device shown in Figure 5 of the drawings, the cover 12^2 also takes the form of a dispensing cup, the lateral walls of this dispensing cup being capable of slipping over the lateral walls of the receptacle 11. This form of my device may be also provided with adjustable means for providing end pressure on the container for compensating for rattling and leaking of the device, such means being similar to that shown in Figure 4 of the drawing and comprising the threaded rod 36 provided with cover engaging head 37 and a knurled thumb piece 38. In this form of my device the annular depression 18′ receiving the clamp 26 is provided on the cup 12^2 instead of on the receptacle 11, sufficient clearance being supplied between the beads 16′ and the clamp 26 to permit relative movement of the cover 12^2 with respect to the receptacle 11.

In Figure 6 of the drawings I have shown a still further modified view of my invention. In this form of my device the cover 12^3 takes the form of a dispensing cap mounted on the mouth of the receptacle 11, this construction providing an extinguisher of somewhat larger capacity or in the alternative permitting easy manipulation of cup shaped receptacle 11 and cup 12^3, both for dispensing the fire extinguishing charge onto the fire. I also prefer to provide in this form of my device a means for retaining the cover 12^3 on the receptacle 11 after the container is removed from the holder 21, such means comprising the gripper 39, the said gripper being further provided with end pressure adjusting means 40 having the cover receiving head 41 and a knurled handle 42. The bracket or holder 21 in this form of my device is provided with a forked bearing 43, a boss 44 forming part of the gripper 39 and receiving the threaded rod 40 seating in the bearing provided by the forks 43, this construction permitting facility of removal of the container from the holder in time of fire and providing relatively simple means for effecting adjustable endwise pressure on the container 10 to secure an anti-leak and anti-rattle device.

The operation and use of my apparatus will be apparent from the above detailed description thereof. It will be apparent that I have provided an inexpensive extinguisher which may be placed within small confines in the limited space available in a vehicle of the motor type, the extinguisher being adapted to be brought into activity substantially immediately without any complexity of movements on the part of the operator. The extinguisher is designed

especially for use with a fire extinguishing charge such as carbon tetrachloride, which has been found to be very efficacious in motor vehicle fires. The extinguisher in the charge is durable during storage use, the nature and the amount of the charge contained in the extinguisher being always visible to the operator. The combined container and holder therefor comprising my extinguisher may be handled and transported as a unit without fear of leakage and may be mounted in a vehicle of the motor type, rattling and leakage of the device being provided against. During fire extinguishing use the extinguisher may be handled as a dispensing cup and the contents thereof dashed onto the fire without any loss of charge during transit.

While I have shown my device in the preferred form, it will be obvious that many changes and modifications may be made in the structure thereof, without departing from the spirit of the invention, defined in the following claims.

I claim:

1. Fire extinguishing apparatus comprising a container of the same internal dimensions throughout and entirely open at one end, a cap for the open end, and a holder for the container releasably engaging the same and released by movement of the container away from the holder in one direction, the holder engaging the cap to maintain the same in sealed condition, the release of the container from the holder releasing the cap.

2. A fire extinguishing device, in combination, a container for holding a liquid fire extinguishing charge, said container of the same internal dimensions throughout and entirely open at one end, and a closure for the open end, a unitary holder supporting the container, said unitary holder being provided with resilient means on the opposite ends thereof engaging and retaining the container against endwise movement in the holder; said means being operative on the closure to maintain the same in effectively sealed condition on the receptacle.

3. A fire extinguishing device, in combination, a transparent container for holding a liquid fire extinguishing charge, said container of the same internal dimensions throughout and entirely open at one end to permit an unimpeded discharge of the fire extinguishing charge and a closure for the open end, a unitary holder supporting the container, said unitary holder being provided with means for engaging and supporting the lateral walls of the container; said means permitting lateral movement of the container from the holder in one direction and being provided further with opposed resilient end means yieldingly engaging the bottom of the receptacle and the closure for retaining the container against endwise movement in the holder, said last mentioned means being operative on the closure to maintain the same in effectively sealed condition on the receptacle.

4. A fire extinguishing device, in combination, a container for holding a liquid fire extinguishing charge, said container of the same internal dimensions throughout and entirely open at one end, whereby to permit an unimpeded discharge of the fire extinguishing charge and a closure for the open end, a unitary holder supporting the container, said unitary holder being provided with resilient means on the opposite ends thereof engaging and retaining the container against endwise movement in the holder; said means being operative on the closure to maintain the same in effectively sealed condition on the receptacle, and adjustable provisions for adjusting endwise pressure on the container whereby an anti-rattle and anti-leak fire extinguishing device is effected.

5. A fire extinguishing device, in combination, a transparent container for holding a liquid fire extinguishing charge, said container of the same internal dimensions throughout and entirely open at one end, whereby to permit an unimpeded discharge of the fire extinguishing charge and a closure for the open end, a unitary holder supporting the container, said unitary holder being provided with means for engaging and supporting the lateral walls of the container; said means permitting lateral movement of the container from the holder in one direction and being provided further with opposed resilient end means yieldingly engaging the bottom of the receptacle and the closure for retaining the container against endwise movement in the holder, said last mentioned means being operative on the closure to maintain the same in effectively sealed condition on the receptacle, and adjustable provisions for adjusting endwise pressure on the container whereby an anti-rattle and anti-leak fire extinguishing device is effected.

6. In a fire extinguishing device, in combination, a container for holding a liquid fire extinguishing charge, said container of the same internal dimensions throughout and entirely open at one end, whereby to permit an unimpeded discharge of the fire extinguishing charge and a closure for the open end, a unitary holder supporting the container, said unitary holder comprising a U-shaped bracket, the parallel arms of the U comprising resilient elements engaging the bottom and top of the container for retaining the same against endwise movement in the holder; said elements being operative on the closure to maintain the same in effectively sealed condition on the receptacle.

7. In a fire extinguishing device, in com-

bination, a container for holding a liquid fire extinguishing charge, said container of the same internal dimensions throughout and entirely open at one end, whereby to permit an unimpeded discharge of the fire extinguishing charge and a closure for the open end, a unitary holder supporting the container, said unitary holder comprising a U-shaped bracket, the parallel arms of the U comprising resilient elements engaging the bottom and top of the container for retaining the same against endwise movement in the holder; said elements being operative on the closure to maintain the same in effectively sealed condition on the receptacle, and provisions for adjusting the endwise pressure exerted by the resilient elements whereby an anti-rattle and anti-leak fire extinguishing device is effected.

8. Fire extinguishing apparatus comprising a container of the same internal dimensions throughout and entirely open at one end, a cap for the open end, and a holder for the container releasably engaging the same and released by movement of the container away from the holder in one direction, the holder having means to engage the cap to maintain the same in sealed condition, and released from the cap by the release of the container from the holder.

Signed at New York, in the county of New York and State of New York this 31st day of A. D. 1921.

ORLANDO R. ERWIN.