June 6, 1933. M. H. SMITH 1,913,006

PORTABLE FIRE EXTINGUISHER AND SPRAYER

Filed Aug. 15, 1932

FIG. 1

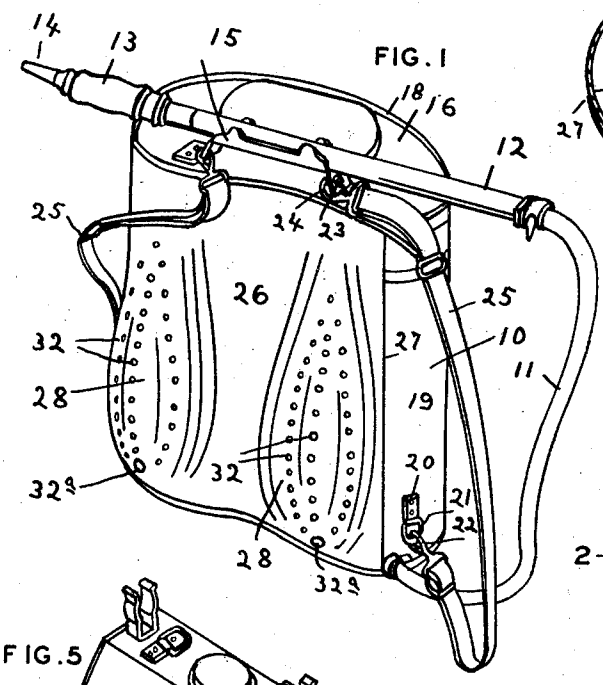


FIG. 2

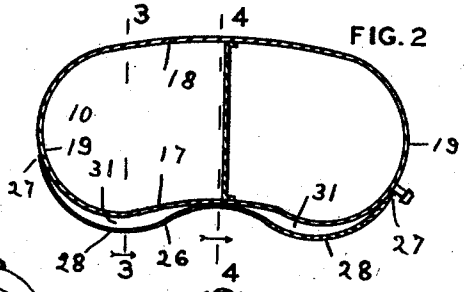


FIG. 4

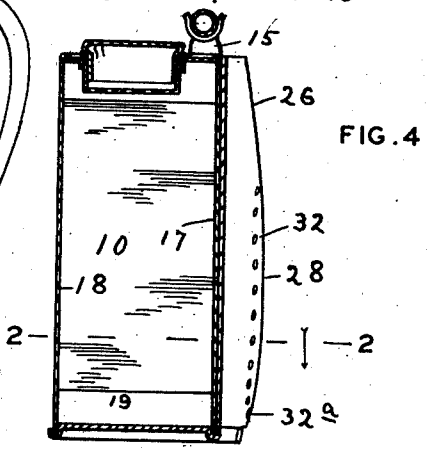


FIG. 5

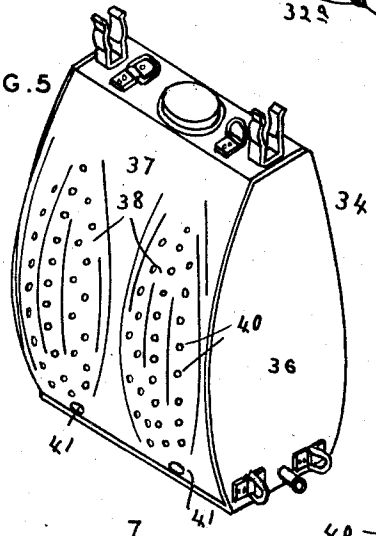


FIG. 7

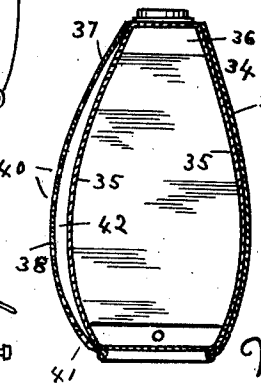


FIG. 3

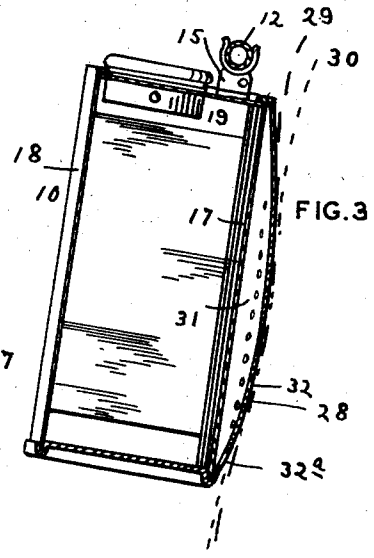
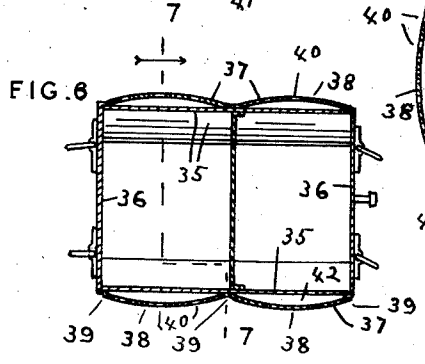


FIG. 6



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Patented June 6, 1933 1,913,006

UNITED STATES PATENT OFFICE

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PORTABLE FIRE EXTINGUISHER AND SPRAYER

Application filed August 15, 1932. Serial No. 628,801.

This invention relates to portable fire extinguishers and sprayers.

The purpose of my present invention is to provide a new and improved form of portable fire extinguisher and sprayer of the type where a liquid-containing tank is carried upon the back of the operator more or less after the manner of a knapsack and the liquid is pumped from the tank by a pump either held in the hands of the operator and connected by a hose to the tank or by a pump attached or otherwise connected to the tank.

A serious difficulty with articles of this class heretofore has been that when cold water or other liquid is placed in the tank the low temperature of such a body of liquid is at least uncomfortable against the back of the user and in many cases this low temperature gives the operator a chill and sometimes produces more or less serious and permanent physical ailments. For instance, when these fire extinguishers and sprayers are being used by men fighting forest fires or field fires or other fires early in the spring or late in the fall and the tanks are filled as usual from adjacent streams, brooks or ponds of water, the temperature of the water is very low, often from forty-five even down to thirty-five degrees Fahrenheit and the placing of five or six gallons of water at such low temperature closely against the backs of men who may be already heated from physical exertion is very apt to cause the physical injuries above mentioned to the men. A more or less similar situation arises where the fire extinguishers are used in case of fire around farm buildings or houses or where the sprayers are used to spray insecticide liquid because the water used in such cases is usually cold.

The main purpose of this invention is to provide portable fire extinguishers and sprayers that will overcome or obviate the above disadvantages, and to provide a fire extinguisher and sprayer of the type suggested with a shield or false side that will hold the tank proper a short distance from the back of the operator and which shield with the air space created thereby forms a heat insulating means between the tank proper and the adjacent portion of the body of the user.

Further purposes are to provide such a shield or false side that is securely and permanently fastened to the tank of the device so as to surely be in place when required and to have such shield of metal or other rigid material that will not be damaged by water and yet may be securely fastened to the tank by means commonly used in the making of the tank and further to have the said shield provided with numerous perforations or apertures so that the space between said shield and the adjacent front side of the tank will form a ventilated air space and also to have certain of said perforations or apertures located at the lowermost point of the chamber between the shield and the tank so as to quickly allow water to drain out of the chamber as soon as the tank is placed upright in case water has entered such air chamber incident to dipping the whole tank in a stream or pond or through water slopping over when poured into the tank from a pail or other source of supply.

Preferably also the shield or false side will be in the form of two vertically disposed rounding projections or form-fitting bulges that will be comfortable against the opposite sides of a man's back and present no sharp edges or angles to engage his body and preferably also so arranged that the shield will not press directly against the center line of his back, that is, opposite the man's back bone.

Further purposes and advantages of the invention will appear from the specification and claims herein.

Fig. 1 is a perspective view of a fire extinguisher and sprayer of one ordinary knapsack type embodying this invention.

Fig. 2 is a horizontal sectional view through the tank and shield on line 2—2 of Fig. 4.

Fig. 3 is a vertical sectional view on line 3—3 of Fig. 2 and showing the tank and shield in two positions they may occupy when carried against the back of a user.

Fig. 4 is a vertical sectional view on line 4—4 of Fig. 2.

Fig. 5 is a perspective view of another form of tank of a fire extinguisher or sprayer to which my invention has been applied.

Fig. 6 is a horizontal sectional view of the tank of Fig. 5 showing a shield such as used in the embodiment of my invention applied to both broad sides of the tank.

Fig. 7 is a vertical sectional view on line 7—7 of Fig. 6.

Referring to the drawing in a more particular description and first more especially to the form of the device shown in Figs. 1 to 4, it will be seen that the fire extinguisher and sprayer comprises a tank 10, a flexible hose 11 leading from the bottom of the tank to the rear end of the cylinder pump 12, the pump operating handle 13 and therebeyond the usual nozzle 14. Suitable brackets or holders 15 are usually provided upon the top of the tank for holding the cylinder of the pump when the device is not being used. In the top 16 of the tank there is provided any desired form of filling aperture with removable closure therefor. The details of such cap or of the pump are not relevant to this invention and need no further description.

In the form of the device shown in Figs. 1 and 2 the tank has an inwardly curved or convex front side 17 adapted to comfortably fit against the back of the operator carrying the device while the back 18 of the tank curves outwardly and the said front and rear sides of the tank are connected by continuous curved narrow ends 19. Ordinarily the hose 11 is connected to one of the narrow ends 19 close to the bottom thereof.

Towards the lower portion of each end 19 there is secured to the tank a clip 20 pivotally holding a ring 21 whereby a spring snap or hook 22 may be removably attached to the device. Suitable means such as an aperture 23 in the brackets 15 on the top 16 of the tank are provided for detachably connecting other spring hooks 24 in the upper part of the device. To these two sets of hooks are secured the opposite ends of the usual straps 25 employed for carrying the device upon the back of the user in knapsack fashion.

To the rearward portion of the tank and preferably practically co-inciding with the whole area of the front 17 there is secured the shield or false front 26. Preferably this shield will be in the form of sheet metal of such character as to have its top and bottom edges and its opposite sides soldered or otherwise readily secured to the tank at the top and bottom edges thereof and to the surface of the tank along the vertical lines 27 approximately at the junction of the front of the tank and the two ends 19 of the tank. The shield will also be of material such as sheet metal of sufficient thickness as to retain when properly stamped the desired form-fitting bulges or hillocks preferably curving outwardly from the near front side 17 of the tank both when seen horizontally as in Fig. 2 and also when seen vertically as in Fig. 3. As the parts of the front of the tank that are to be covered or protected by this shield 26 are in the form shown in Figs. 1 and 2 already convex when seen horizontally, it will be seen that the horizontal curves of the form-fitting bulges or hillocks 28 have to be more curved in order to space the shield 26 appreciably from these portions of the front 17 of the tank.

As will be seen by inspecting Figs. 3 and 4, the bulges or hillocks 28 when viewed through a vertical section thereof at their highest points will show a more pronounced projection away from the straight line of the front 17 at the lower half of the tank. This is because the lower half of the tank is the part that is always pressed closely against the back of the operator. Varying according to the position of the user and also according to the tightness with which the tank is held against the shoulders of the user, the upper half of the tank and of the shield may lightly engage the shoulders of the user as shown by the dash line 29 in Fig. 3 or may be spaced slightly away from the shoulders as indicated by the dotted line 30. The dash line 29 or the dotted line 30 indicate the general outline of the back of the person against the middle vertical line of the bulges 28.

Preferably as suggested in Figs. 1 and 2, the shield 26 will be formed to bear at its central vertical line directly back against the outer surface of the front 17 of the tank. Allowing this intermediate contact of the shield with the tank accomplishes several purposes including that of allowing the sheet metal of the shield to be relatively thin and light and yet retain its rigid form into which it is pressed so as to maintain the two parts of the air chamber 31 and to allow the vertical central portion of the shield to still be away from contact against the body of the user opposite the person's back bone.

Preferably both bulges or hillocks 28 are numerously perforated or apertured as by perforations or apertures 32 so that the air chamber 31 will be ventilated or opened to the atmosphere and thus allow the crowning portion of the bulges to be easily kept near the natural heat of the human body notwithstanding the attachment of other parts of the sheet metal shield to the cold walls of the tank proper.

Particularly there is provided at the lowermost point of the air chamber 31 an en-

larged hole or aperture 32ª to allow of the quick drainage out from the air chamber of any of the water that may have entered the air chamber when the tank may have been dipped into an open stream or pond or when water may have entered the air chamber by the spilling of water from a pail or pump when the tank has been filled therefrom.

I have found that in ordinary carrying or use, the upper half of the tank is not carried in as close contact with the body or very often not in contact with the body at all and accordingly the air chamber opposite the upper half of the tank does not need to be so extensive; that is does not need to extend so far from the adjacent wall of the tank.

It will be seen also that the shield or false front is so formed and attached to the tank as to provide no sharp edges or corners to come in contact with the body of the user and that in fact the pronounced outward spacing of the lower half of the bulges 28 helps to keep the lower front edge away from the back or hips of the user.

In Figs. 5 to 7 I have shown my invention illustrated with another form of tank 34 which is more in the shape of a valise or bag and has two flat or nearly flat main sides 35—35 as seen horizontally and two flat ends 36—36 forming four corners. A tank of this sort is reversible; that is either side 35 can be placed against the back of the user and thus allow the device to be used with either a right-handed or a left-handed man with equal convenience by simply reversing the tank. This reversal is of course required due to the hose 11 being permanently fastened to one end 36 of the tank. The hose-bearing end of the tank ordinarily should be at the opposite side of the body or away from the hand operating the handle 13 of the pump 12. For a tank of this sort accordingly I provide a shield or false front 37 opposite each of the sides 35 of the tank. The general formation of these shields will be the same as already described with reference to the other forms of tank; that is two bulges 38 will be provided on each shield as seen on a horizontal cross section as appears in Fig. 6. As appears by the vertical sectional view Fig. 7 the three tank-contacting vertical lines 39 of the shield have to follow the general curved line of the sides 35 whereas the rest of the area of the shields has to be curved or pressed outwardly that much further in order to form the air chamber 42 as indicated in Fig. 7. Preferably in this form also the shield or false fronts 37 are provided with numerous well spaced ventilating perforations 40 and at or near the bottom of the air chambers 42 with large drainage apertures 41.

What I claim as new and desire to secure by Letters Patent is:

1. In a portable fire extinguisher and sprayer the combination of a tank, means for carrying the device upon the back of the operator and a numerously perforated sheet metal shield secured to the side of the tank that is towards the operator's body when the tank is being carried, but having most of its area spaced from said near side of the tank whereby the tank is spaced from the operator's body.

2. In a portable fire extinguisher and sprayer the combination of a tank, means for carrying the device upon the back of the operator and a metallic, false front having its lower edge secured to the lower front part of the tank and its upper edge secured to the tank thereabove and spaced forwardly from the front of the tank between said attached edges and forming an air space between said tank front and said false front.

3. In a portable fire extinguisher and sprayer the combination of a tank, means for carrying the device upon the back of the operator and a metallic, false front having its lower edge secured to the lower front part of the tank and its upper edge secured to the tank thereabove and curving forwardly from the front of the tank between said attached edges and forming an air space between said tank front and said false front.

4. In a portable fire extinguisher and sprayer the combination of a tank, means for carrying the device upon the back of the operator and a metallic, false front having its upper and lower edges and its opposite side edges attached to the adjacent portion of the tank, but having most of the remaining part of the false front spaced forward of the tank and forming an air chamber between the tank and said false front.

5. In a portable fire extinguisher and sprayer the combination of a tank, means for carrying the device upon the back of the operator and a metallic, false front having its upper and lower edges and its opposite side edges attached to the adjacent portion of the tank, but having most of the remaining part of the false front spaced forward of the tank and forming an air chamber between the tank and said false front, said false front being apertured at the lowest points of the chamber to provide drainage therefrom.

6. In a portable fire extinguisher and sprayer the combination of a tank, means for carrying the device upon the back of the operator and a metallic, false front having its upper and lower edges and its opposite side edges attached to the adjacent portion of the tank, but having most of the remaining part of the false front spaced forward of the tank and forming an air chamber between the tank and said false front, said false front being numerously-apertured

to provide air circulation through said chamber.

7. In a portable fire extinguisher and sprayer the combination of a tank, means for carrying the device upon the back of the operator and a metallic, false front having its upper and lower edges and its opposite side edges attached to the adjacent portion of the tank, but having most of the remaining part of the false front spaced forward of the tank and forming an air chamber between the tank and said false front, said false front being numerously-apertured to provide air circulation through said chamber, said perforations extending to the lowermost points of the air chamber to provide drainage therefrom.

In witness whereof I have affixed my signature, this 9th day of August 1932.

MYRON H. SMITH.