Nov. 16, 1954 E. E. EICKMEYER 2,694,455

FIRE FIGHTING EQUIPMENT

Filed Feb. 24, 1950

Fig. 1

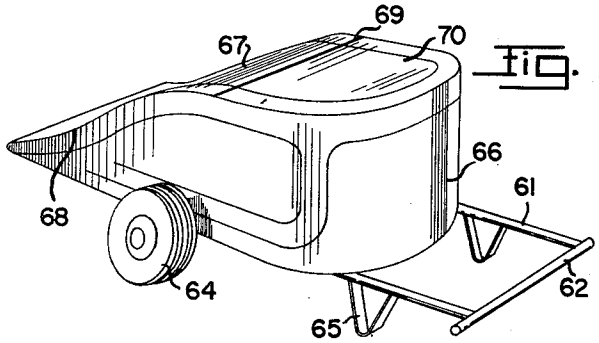


Fig. 2

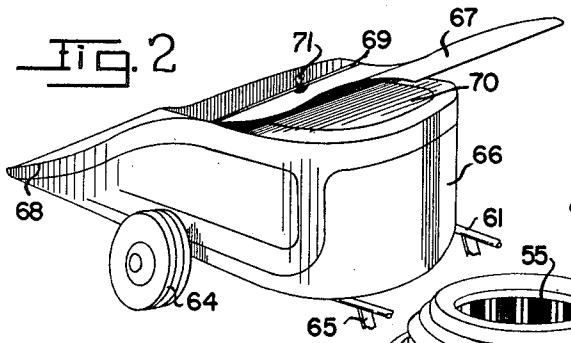


Fig. 3

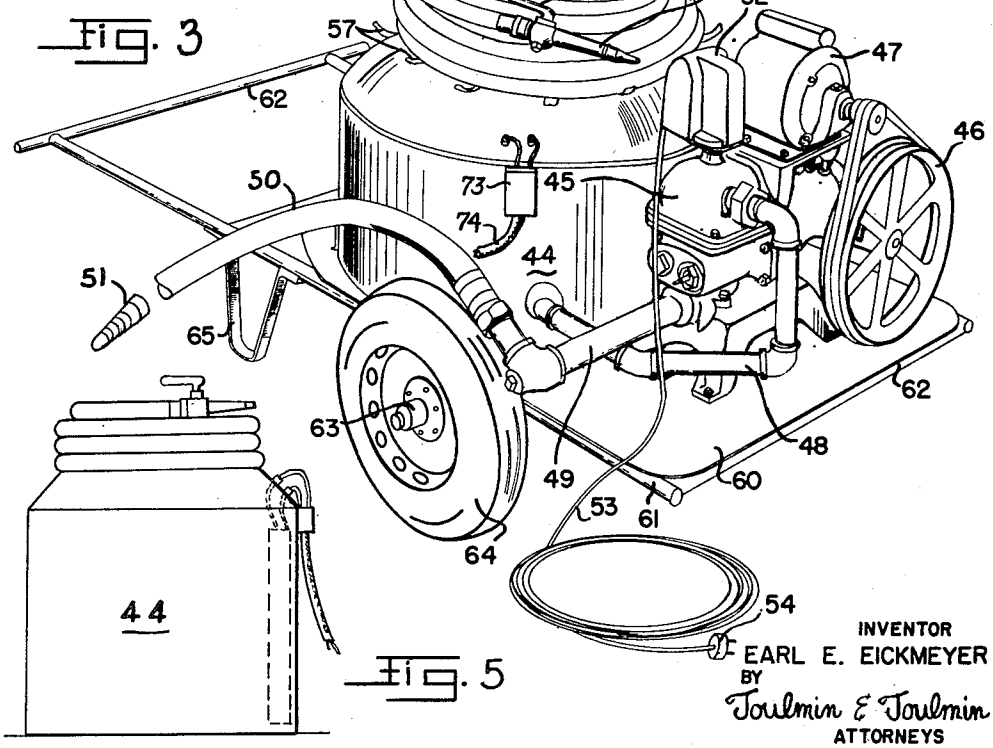


Fig. 4

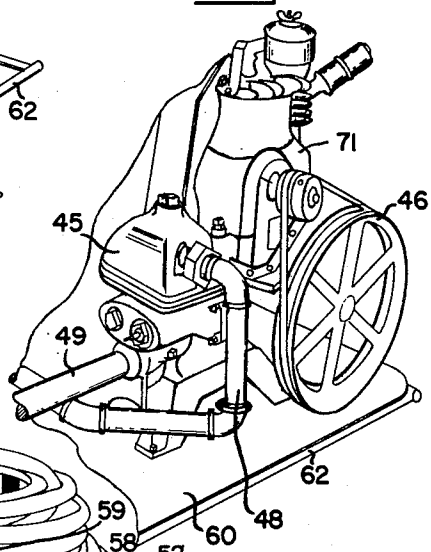


Fig. 5

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FIRE FIGHTING EQUIPMENT

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4 Claims. (Cl. 169—24)

The present invention relates to fire fighting apparatus, more particularly to private portable installations intended to handle small fires prior to the arrival of the community equipment.

In the case of farms, trailer camps, summer homes and other seasonal resort buildings, the matter of fire hazard is enormously increased, due to the absence of watchmen and remoteness of adequate fire fighting equipment. It is well known that in putting out fires a small quantity of water played on the fire at the start is far more effective than large quantities of water after the fire has gained headway.

The primary object of the invention is to provide improved fire fighting equipment which is immediately available upon the out-break of a fire in order to quench the flames or at least prevent the spreading thereof.

Another object is to provide fire fighting equipment which is self-contained, including the hose, and can be placed into immediate operation by simply pulling the hose to its effective position.

A further object is to provide fire fighting equipment which can be kept in an unused but highly efficient condition over long periods of time, and is instantly available in case of emergency.

A still further object is to provide fire fighting equipment which can be permanently or temporarily positioned near or even in the path of the fire and still remain instantly effective.

A further object is to provide improved fire fighting equipment in which the initiation of operation is extremely simple, and can be performed by an unskilled man, or a woman, or even a child, in order to apply water immediately upon the detection of the slightest smoke or flame.

The final object is to provide portable fire fighting equipment including a source of water and a reel of hose, and which remains inactive until the hose is unreeled therefrom.

Other objects and features will be apparent as the specification is perused in connection with the accompanying drawings, in which:

Figure 1 is a perspective view of a portable fire fighting equipment, improved in accordance with some of the principles of my invention, and showing the manner in which the equipment can be moved rapidly over the terrain;

Figure 2 is a view similar to Figure 1 but showing the manner in which the lid on the top of the equipment can be raised preparatory to placing the apparatus in active operation;

Figure 3 shows, in perspective, the fire fighting equipment that is housed in the vehicle illustrated in Figures 1 and 2;

Figure 4 represents similar equipment except that a gas engine is employed to actuate the pump instead of an electric motor; and

Figure 5 is a schematic drawing of parts of the portable equipment illustrated in Figure 3 but showing the location of an immersible form of heater and its thermostat control.

In Figure 3 a portable form of the equipment has been shown. In this figure, reference character 44 indicates a tank which is normally filled with water under pressure and serves as an emergency supply. This tank is on the discharge side of a pump 45, illustrated as being of the reciprocatory type, but which might also constitute a centrifugal pump. The pistons of the pump are operated

through a crank shaft and the latter is driven in the usual manner by a large flywheel pulley 46 and a motor 47. There is a discharge pipe 48 leading from the discharge chamber of the pump 45 into the tank 44. An inlet pipe 49 extends into the suction side of the pump and a flexible hose 50 terminating in a combined foot valve and strainer 51 is connected to the pipe 49. An automatic pressure switch 52 may be provided for shutting off the motor 47 when the discharge pressure of the pump or the normal pressure in the tank reaches a predetermined amount. Extended electrical wires 53 terminating in a plug 54 may be connected to the switch for conveying electrical energy through the switch to the motor.

On top of the tank there is a rotatable mechanism formed of a drum 55 carried on any suitable and well known type of support for permitting the drum to rotate when the fire hose 56 is unreeled. The latter is supported in the vertical direction on a number of strip-like fingers 57 which are secured to the drum 55 and rotate therewith. Any suitable and well known leak-proof type of connection can be used between the lower end of the hose and the outlet opening in the tank. The hose 56 terminates in a nozzle 58 and a lever shut off 59. Instead of employing a pressure switch 52 for starting and stopping the motor 47, a lever actuated switch, controlled by the weight of the nozzle, may be used. However, the pressure switch offers the advantage that the motor 47 can be caused to start when the pressure in the tank 44 becomes less than a predetermined pressure and the hose 56 is still in place.

The equipment is carried on a strong metal plate 60 which is welded or otherwise secured to a pair of inflexible rods 61 spaced apart by a short length of pipe 62 at each end. One of these pipe lengths may be longer than the other to serve as a handle. An axle 63 extends transversely of the pipe support 61 at a position between the center of the tank 44 and the vertical median line of the pump 45. Solid rubber tires 64 or wheels with steel tread may be secured at opposite ends of the axle 63 in order to permit the equipment to be moved rapidly over the ground by lifting up at the handle 62.

Triangularly shaped legs 65 are welded to the pipes 61 to hold them in a relatively horizontal position when no upward force is exerted on the handle 62. It is apparent that the axle 63 is so positioned with the center of gravity of all of the equipment resting on the platform 60 such as to cause the carriage as a whole to rest on the legs 65 when the tank is filled with water and the equipment is either in active operation or is placed in storage. The flexible hose 50 can be stowed in any suitable place on the carriage, as also the electrical conductors 53.

The fire fighting equipment shown in Fig. 3 is preferably housed in a metal cabinet 66, illustrated in Figs. 1 and 2. The outline of this housing or casing takes the general form of a chariot to impress the user that the vehicle must be moved to the place of the fire with the utmost speed. In order to provide the greatest accessibility to the hose 56, and therefore rapidly unreel the hose to the required length, the cover 67 which conforms to the rear or tapering portion 68 of the chariot is hinged at 69 to the stationary cover 70. Thus when the movable cover 67 is swung upwardly and then over the stationary cover 70 as seen in Fig. 2, the entire interior of the chariot at the rear is exposed to give complete access to the hose 56, the wire conduit 53 and suction conduit 50.

Since the fire fighting chariot would normally be stored above ground, it is desirable to provide some form of heating equipment in or around the tank 44. This may comprise a lamp indicated at 71 which serves as a heater when the lid is closed. This heater may be automatically controlled in any suitable manner by a temperature responsive device positioned within or without the chariot. If desired, a heating unit indicated at 72 (Fig. 5) may be immersed in the water of the tank and the circuit to the heater controlled by a standard form of thermostat 73 which is secured to the tank. Wires 74 may be taken to the electric cable 53 (Fig. 3). When occasion requires, a heater may also be positioned inside or outside

the various pipes to prevent freezing of the contained water.

It is obvious that the lamp 71 which normally serves as a heater external to the tank may have the additional function of illumination, or if desired, an additional lamp (not shown) may be attached to the casing and automatically switched on when the cover 67 is lifted to illuminate the interior.

In operation, the combined strainer and foot valve 51 is inserted into any suitable source of water, or even into a town hydrant if one is available. The water in the tank is already under the required pressure. The hose 56 is then unreeled and the valve 59 turned on to apply water directly to the fire. The motor will immediately start in order to maintain the desired pressure in the tank. In the event there is no external source of water available, there is generally enough water in the tank 44 to at least assist in preventing the fire from spreading. It should be noted that the pistons of the pump are located vertically below the top of the tank 44 so that, assuming the tank is full of water under pressure, the water will be supplied to the discharge side of the pistons and therefore transmit pressure to the remaining water in the tank. This pressure would of course remain in the tank, at least until a large part of the water is discharged, in which case the pump in pumping air into the tank would still apply a reasonable amount of pressure to the water still remaining. Thus the apparatus is normally used in places where an external source of water is available, but can be used for emergency purposes even in the absence of an external water source, and particularly when the pump 45 is of a reciprocatory character.

In Fig. 4 I have shown the same pumping apparatus as illustrated in Fig. 3, except that a gas engine 75 has been substituted for the electric motor 47. However, the electric motor shown in Fig. 3 provides an added advantage over a gas engine motor that is normally employed in fire fighting equipment in that the electric motor can be self-sealed and requires no explosive fluids so that all danger of explosion in and around the pump is completely eliminated.

It will be understood that various modifications and arrangements in structure could be made without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A portable fire fighting apparatus adapted for manual movement to the area of a fire comprising a carriage, said carriage having connected rear, front and side frame members and a supporting plate carried at the rear of said frame, wheel means mounted on said carriage adjacent said plate, said front frame members comprising means for lifting and imparting motion to said carriage, leg means on each side frame member adjacent said front frame member, fire fighting equipment on said carriage comprising a tank mounted on said plate forwardly of said wheel means, a pump and an actuator therefor being mounted on said plate rearwardly of said wheel means, a discharge conduit connected from said pump to said tank and an inlet conduit connected at one end to said pump and having a combined foot valve and strainer connected at the opposite end thereof, a drum rotatably mounted on said tank and an elongated flexible hose wound around said drum whereby upon said carriage being manually wheeled to the scene of a fire and said foot valve and strainer being inserted into a water supply, said hose may be unwound from said drum and said pump may be actuated for applying water to said fire from said hose.

2. A portable fire fighting apparatus adapted for manual movement to the area of a fire comprising a carriage, said carriage having connected rear, front and side frame members and a supporting plate carried at the rear of said frame, wheel means mounted on said carriage adjacent said plate, said front frame members comprising means for lifting and imparting motion to said carriage,

leg means on each side frame member adjacent said front frame member, fire fighting equipment on said carriage comprising a tank mounted on said plate forwardly of said wheel means, a pump and an actuator therefor being mounted on said plate rearwardly of said wheel means, a discharge conduit connected from said pump to said tank and an inlet conduit connected at one end to said pump and having a combined foot valve and strainer connected at the opposite end thereof, a drum rotatably mounted on said tank and an elongated flexible hose wound around said drum, a housing surrounding said fire fighting equipment comprising upstanding side walls on either side of said carriage sloping downwardly towards the rear thereof and an arcuate front wall integrally connecting said side walls and spaced from said front frame member, a cover for said housing having a stationary portion at the front threeof and a hinged portion at the rear thereof conforming to the slope of side walls whereby upon said carriage being manually wheeled to the scene of a fire and said foot valve and strainer being inserted into a water supply, the hinged portion of said cover may be opened exposing said hose for unreeling and said pump may be actuated for applying water to said fire from said hose.

3. A portable fire fighting apparatus adapted for manual movement to the area of a fire comprising a carriage, said carriage having connected rear, front and side frame members and a supporting plate carried at the rear of said frame, wheel means mounted on said carriage adjacent said plate, said front frame members comprising means for lifting and imparting motion to said carriage, leg means on each side frame member adjacent said front frame member, fire fighting equipment on said carriage comprising a tank mounted on said plate forwardly of said wheel means, a pump and an actuator therefor being mounted on said plate rearwardly of said wheel means, a discharge conduit connected from said pump to said tank and an inlet conduit connected at one end to said pump and having a combined foot valve and strainer connected at the opposite end thereof, a drum rotatably mounted on said tank and an elongated flexible hose wound around said drum, a housing surrounding said fire fighting equipment comprising upstanding side walls on either side of said carriage sloping downwardly towards the rear thereof and an arcuate front wall integrally connecting said side walls and spaced from said front frame member, a cover for said housing having a stationary portion at the front thereof and a hinged portion at the rear thereof conforming to the slope of side walls, means in said housing for heating the interior of said housing and temperature responsive means for controlling the operation of said heating means, whereby upon said carriage being manually wheeled to the scene of a fire and said foot valve and strainer being inserted into a water supply, the hinged portion of said cover may be opened exposing said hose for unreeling and said pump may be actuated for applying water to said fire from said hose.

4. The combination of claim 1 wherein means are provided in said tank for heating the contents thereof and means are provided exteriorly of said tank for controlling the temperature of said heating means.

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