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L. C. MOORE

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FIRE FIGHTING APPARATUS

Filed April 8, 1930

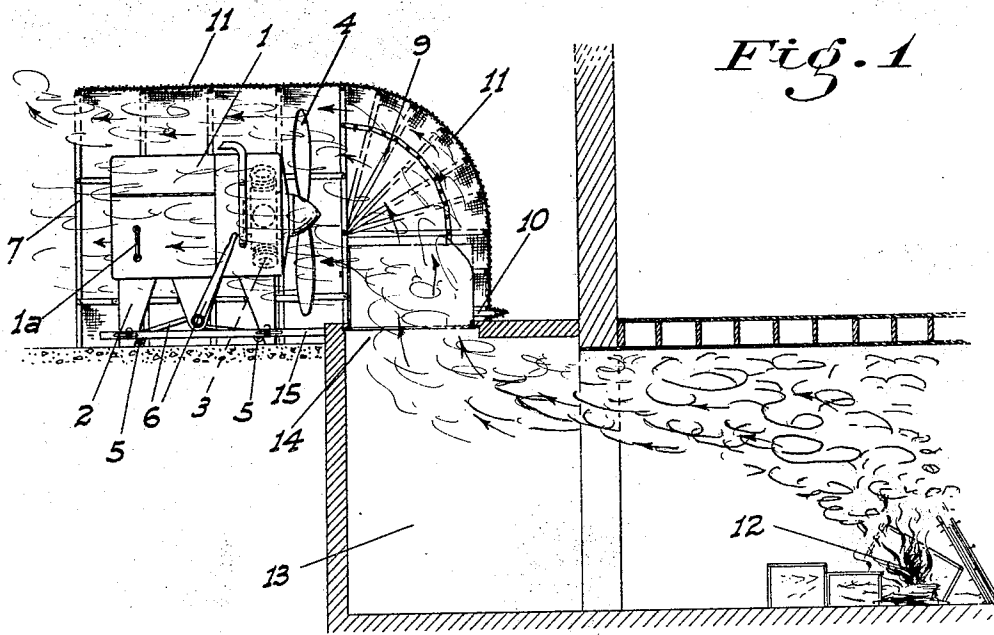


Fig. 1

Fig. 2

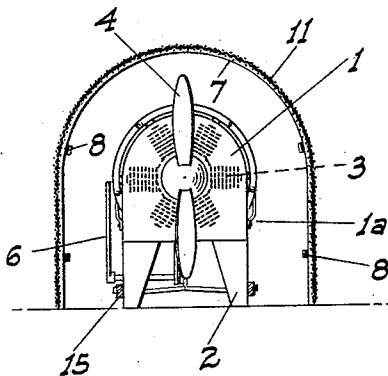
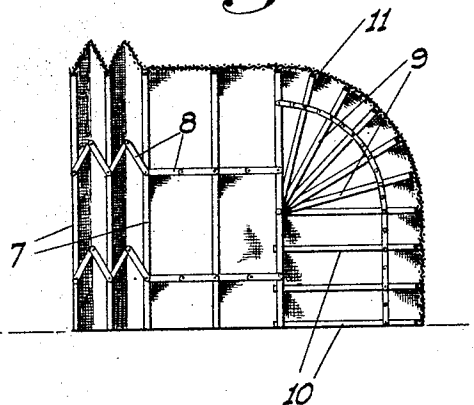


Fig. 3



INVENTOR

L. C. Moore

BY

Wm. J. H. H. H.

ATTORNEY

UNITED STATES PATENT OFFICE

LOYAL C. MOORE, OF SACRAMENTO, CALIFORNIA

FIRE FIGHTING APPARATUS

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This invention relates to fire fighting apparatus, and particularly to one especially useful in combating blind fires such as those in basements of stores and other buildings.

5 As is well recognized a blind fire is the most dangerous and hardest to control of any and is the principal cause of life and property damage, and many firemen are overcome by smoke or gas fumes and frequently lose their
10 lives in fighting such fires, even sometimes in those cases where they are equipped with gas masks or oxygen helmets.

In order to cope with blind fires many things have been devised, among which are
15 the gas masks and oxygen helmets. While these accessories are very valuable in assisting firemen to penetrate and locate such a fire they cannot remove the cause of their use (smoke and gases). Smoke and gases are
20 the worst enemy a fireman has to contend with in combating most fires, especially a blind fire.

A blind fire can be defined as any fire originating from any source that cannot be seen
25 or its seat located, and which gives forth much smoke and quantities of gases. Some blind fires send forth smoke so black and dense that much valuable time is lost in trying to penetrate through the same in an attempt to locate the seat of the fire. Such
30 blind fires usually occur in basements and cellars where large stocks of merchandise are stored, or where piles of trash have been allowed to accumulate. Most of these fires
35 are fought by the drowning out method. The basement is flooded but in so doing the stock of merchandise is damaged if not entirely ruined.

The principal object of my invention is to provide a valuable aid in locating and combating such fires by the provision of an apparatus which will create a strong suction or draft from the confined area in which the fire is located, to the exterior of the building.
40 This draft will draw the smoke and gases away from said area so that the firemen may approach from the opposite direction in relatively clear air in comparative safety and without the use of masks or helmets. They
50 can thus better locate the seat of the fire and

combat the same under relatively good working conditions, and with the use of a minimum of water or other extinguishing means.

Whenever a fire breaks forth its tendency is always upward. By the use of my improved apparatus such tendency will be counteracted and the fire will be drawn down and away from the ceiling by the tremendous suction of the propeller or fan of the apparatus. This of course helps to keep the
60 flames from burning their way upward and the firemen can enter, locate and extinguish the fire before much damage has been done.

The apparatus will therefore remove the obstacle that now keeps firemen at bay and which sometimes defies their every effort to enter the building. The apparatus will be the means of saving the lives of firemen as well as the lives of tenants of the upper floors, by helping to confine the fire to the lower
70 floors or basement. It will also help to prevent a fire from going upward through elevator shafts or light wells. If the fire has already started to burn its way upward and has taken a hold of the ceiling timbers the
75 apparatus will draw the fire away and downward and tend to check the same from burning any further by reason of the strong flow of fresh air coming down from above. It will therefore reverse the ordinary direction
80 of progress of the fire and will make unnecessary in many instances the venting of the roof by breaking the glass in the skylights or cutting holes in the roof. Finally by facilitating the work of the firemen in
85 allowing them to move with safety and dispatch in locating a fire, this apparatus will be the means of lessening the appalling loss of life and will curtail the tremendous loss of property by permitting firemen sometimes to extinguish fires with chemicals, whereas the procedure of flooding with water would otherwise be necessary.

A further object of the invention is to produce a simple and effective apparatus and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of 100

parts as will fully appear by a perusal of the following specification and claims.

In the drawing similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a side view partly in section of my improved apparatus shown as in operative position in connection with a basement fire.

Fig. 2 is a transverse section of the apparatus.

Fig. 3 is a sectional elevation of the hood unit partly folded.

Referring now more particularly to the characters of reference on the drawing the apparatus for convenience of handling comprises two separate units. One unit comprises a portable body or enclosure 1 supported on legs 2; handles 1a being provided on the sides of the body to enable the unit to be easily moved about and otherwise manipulated. A gas engine of suitable character such as the type commonly used in airplane work and indicated at 3 is enclosed in the body and is connected to a large air propeller or suction fan 4 which is disposed on a horizontal axis at one end of and outside the body. The necessary accessories to the operation of the gas engine so as to make the same a complete unitary power plant, are of course mounted within the body as well as the engine itself. The legs are preferably provided with casters 5 so that the unit may be easily moved along the ground into or out of position.

The casters are swivelly mounted on the legs for vertical movement relative thereto and are connected to a suitable raising and lowering mechanism such as that indicated at 6. This mechanism is so arranged the casters can be easily adjusted, with one operation, to either support the unit or to be disposed so that the legs will rest directly on the ground and the unit will be thus relatively immovable and steady.

The other unit comprises a hood adapted to rest on the ground and to completely envelop the first unit in clearance relation thereto to such an extent as to provide a passage of considerable size between the hood and power unit all about the same. This hood comprises a plurality of vertical longitudinally spaced bows 7 connected by folding braces 8. One of the endmost bows has a plurality of other bows 9 pivotally connected thereto in common with and intermediate the ends of said bow 7, so as to form a fan-like arrangement when unfolded; other horizontal vertically spaced bows 10 being disposed in alinement with and below the lowest one of the bows 9. A collapsible cover 11 of suitable fabric, such as asbestos, extends between and covers all the bows, being of course suitably secured thereto so that the bows and cover form a non-separable unit. The bow arrangement as a

whole is such that the hood will be freely open only at one end and along the bottom, the ground forming the closure for the bottom. This bow arrangement also permits the bows 10 to be raised and relatively collapsed without affecting the bows 7 and 9, and of course the corresponding portion of the cover, for the purpose which will now be seen.

For the purpose of illustrating one of the major uses to which my apparatus may be put I have shown a fire 12 as being located in a store basement 13 which as usual has trap doors in the sidewalk which, when raised, provide an opening 14 of considerable size which communicates with the basement. The apparatus is transported to the scene of the fire in a suitable vehicle and is then unloaded and the units separately placed in position. The suction fan unit is placed first, being disposed in the street so that the fan faces the building and in alinement with the opening 14, the doors of which are opened. To prevent possible advancing movement of the unit when the fan is in operation I mount adjustable anchor bars on the legs of the unit which abut against the curb or other rigid projection. The hood is then unfolded and placed over the fan unit and also over the sidewalk opening. The size of the hood is such as to be considerably longer and wider than the fan unit and so as to be at least as wide as any standard trap-door opening. The hood is placed so that its open end is at the outer end of the fan unit or faces away from the building; its closed end being disposed over the opening 14. The vertical movement of the bows 10, which are at said closed end of the hood, provide for the necessary difference in height between the street on which the main portion of the hood rests and the sidewalk level, which is the level of the opening 14 and of the adjacent portion of the hood. This enables the hood to have a substantially air-tight fit with the supporting face about the opening and all along the bottom. This adjustable hood construction also enables the same to be effectively used in connection with the basement openings of residences, which are very often disposed on a slope.

An air passage from the street to the basement is therefore formed in which the suction fan is interposed. The fan is of course arranged to draw air out of the basement and is as powerful as possible. The action of the fan therefore, as will be obvious, draws smoke and gases away from the fire and causes the air thus drawn away from the fire to be replaced by fresh air from other openings in the building behind and above the fire. This draft will offset the tendency of the fire to rise, with the advantages outlined in the preamble of the specification, and will of course facilitate the work of the firemen.

If the opening through which the draft is

to be drawn is vertically disposed the hood would be reversed in position so that its open vertical end would cover the opening; the opposite end being then folded up to the necessary extent to provide an outlet opening at said end. It is to be understood that the actual construction of the units may be altered to a considerable extent to suit conditions of operation as experience may determine to be beneficial or necessary; the main feature of my invention being the creation of a strong draft away from the seat of a blind fire and outwardly of the building for the purposes previously set forth.

comprising a hood open at one end and along its bottom and closed at its other end, the hood adjacent its closed end being angularly adjustable whereby the bottom edge of the hood adjacent such closed end may be selectively fitted about openings into an enclosed fire area, which openings are disposed in different angular positions relative to the plane on which the hood is positioned, and means to create a ventilating draft through the hood.

In testimony whereof I affix my signature.
LOYAL C. MOORE.

From the foregoing description it will be readily seen that I have produced such an apparatus as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the apparatus, still in practice such deviations from such apparatus may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

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

1. Apparatus for combating a fire confined in a relatively closed area having an opening to the atmosphere comprising a portable open-ended air passage unit arranged to rest on a solid surface in surrounding relationship to the opening and to extend some distance beyond the same, and a separate portable unit smaller than and placeable within the hood beyond the opening, said last named unit having a driven suction fan arranged to create a draft in the direction of the outer end of the passage.

2. Apparatus for use in withdrawing smoke and gases from an enclosed fire area comprising a portable suction device adapted to be positioned adjacent a substantially horizontally disposed opening into the fire area, and a separate portable hood open at one end and along its bottom and closed at the other end whereby such hood may be positioned over and enclosing the suction device and opening so that the action of the suction device will pull the smoke and gases through the opening from the fire area and discharge the same out the open end of the hood.

3. Apparatus for use in withdrawing smoke and gases from an enclosed fire area comprising a hood open at one end and along its bottom and closed at its other end, the hood adjacent its closed end being vertically adjustable whereby the bottom edge of the hood adjacent such closed end may be fitted about an opening in a different horizontal plane from that on which the hood proper is positioned, and means to create a ventilating draft through the hood.

4. Apparatus for use in withdrawing smoke and gases from an enclosed fire area

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