The present invention relates generally to fire fighting and rescue apparatus and more particularly to an improved aerial protecting cab for firemen.

It is a primary or ultimate object of the invention to provide a cab or compartment which is adapted to be mounted at the end of an extensible fire ladder for protecting and shielding firemen from heat, smoke, wind, water, falling debris, etc. As will be hereinafter more fully apparent, the cab of the present invention is attached to the free end of an extensible fire ladder whereby the cab is directly raised and lowered with the fire ladder.

Another object of the invention is to provide an aerial cab for firemen which is constructed in such a manner to provide improved protection and shielding for the fireman using the same. The cab is constructed from a frame of aluminum or other light weight strong structural which is covered by spaced walls of aluminum sheeting to enclose the same. The space between the two walls is filled with insulating material, preferably of the fiber type, and the arrangement is such that the interior of the cab is very effectively shielded and insulated from the intense heat of a fire. The aerial cab may be positioned as is desired upon proper actuation of the extensible fire ladder and the construction of the cab is such that a fireman is completely protected but yet is free to effectively fight the fire and/or perform rescue work.

Yet another object of the invention is to provide an aerial protecting cab for firemen which comprises integral water directing means. One or more fire hose nozzles are mounted in the front of the cab and suitable conduits are provided for connecting the nozzles with a fire hose running up the extensible ladder.

A further object of the invention is to provide an aerial protecting cab for firemen which comprises means for cooling the cab. This last mentioned means consists of the water spraying system which is operative to cover the front and side walls of the cab with a water spray.

A still further object of the invention is to provide an aerial protecting cab for firemen which embodies improved and highly simplified means for attaching the same to the free end of an extensible fire ladder. The means for attaching comprises means for adjusting the angular relation between the cab and the extensible fire ladder whereby the cab may be maintained in a fixed angular disposition with respect to the ground as the extensible fire ladder is pivoted vertically if this is desired.

Still another object of the invention is to provide an aerial protecting cab for firemen which is ideally suited for high altitude rescue work. A section of the front wall of the cab is adapted to pivot downwardly thereby providing a walkway for bridging the space between the cab and a window of a building, for example.

The above, as well as other objects and advantages of the present invention, will become more readily apparent upon consideration of the following specification and accompanying drawing wherein there is disclosed a preferred illustrated embodiment thereof.

In the drawing:

FIGURE 1 is a side elevational view showing an aerial protecting cab for firemen constructed in accordance with the teachings of the present invention attached in operative relation with an extensible fire ladder.

FIGURE 2 is an enlarged side elevational view of the aerial protecting cab for firemen shown in FIGURE 1; and

FIGURE 3 is a plan sectional view taken along the section line III—III of FIGURE 2.

Referring now to the drawing, and initially to FIGURE 1 thereof, the reference numeral 10 designates generally an aerial protecting cab for firemen constructed in accordance with the teachings of the present invention which is mounted at the free end of an extensible fire ladder 11 having a plurality of extensible ladder sections 12. The extensible fire ladder 11 is made from a suitable support, such as the bed of a conventional fire truck 13, for example, and the mounting of the extensible fire ladder 11 is such that the same may be pivoted vertically or rotated horizontally about an axis 14. It will thus be apparent that the aerial protecting cab 10 can be readily positioned as is desired adjacent a burning structure upon proper actuation of the apparatus, not shown, controlling the movements of the extensible fire ladder 11.

The aerial protecting cab 10 has a frame of aluminum or other similar light weight structural, not specifically shown, which supports inner and outer spaced walls of sheeting material 15 and 16, respectively. The inner and outer spaced walls 15 and 16 of sheeting material, which may be aluminum, for example, define spaced double walls for the aerial protecting cab and the spaces between the inner and outer walls are filled with heat insulating material 17. This insulating material is preferably fibrous and the arrangement is such that the interior of the cab is very effectively protected and insulated against even the most intense heat.

The spaced double walls of the cab define a front wall 18, a bottom wall 19, a top wall 20, and a pair of generally L-shaped side walls 21 and 22. In this manner the aerial protecting cab is completely enclosed with the exception of a portion of the rear thereof which is open to allow ingress and egress into the interior of the cab from the extensible ladder 11.

To mount the aerial protecting cab from the extensible ladder 11 the runners of the uppermost ladder section 12 each are provided with an outwardly projecting and laterally extending rod 22. Mounted at the end of each of the rods 22 is a segmental pinion gear 23 which meshes with a worm gear 24. The worm gears 24 are mounted on the rear ends of laterally spaced and longitudinally extending shafts 25 which are interconnected to a hand wheel 26 by means of a pair of roller chains 27 and 28 and suitable sprockets, not specifically shown. The hand wheel 26 is rigidly mounted on shaft 29 that is journailed in the front wall 18 of the aerial protecting cab. Upon proper turning movement of the hand wheel 26 the worm gears 24 will be caused to rotate in synchronism to thereby vary the angular relation between the extensible fire ladder and the aerial protecting cab.

The arrangement is such that the protecting cab is very rigidly attached to the end of the extensible fire ladder but yet the cab may be maintained in level relation with respect to the ground upon vertical pivotal movement of the fire ladder or otherwise tilted as is best adapted for any given fire fighting and/or rescue operation. If desired, the shaft 29 may be driven by an elec-
3,010,533 3 tric motor, not shown, and the motor may be controlled by level sensing means, such as a mercury switch, also not shown, for automatically maintaining the aerial protecting cab in its correct position.

The front wall 18 of the aerial protecting cab comprises a downwardly and outwardly angled upper portion 31, and inwardly angled intermediate portion 32 and vertical extending lower portion 33. The upper portion 31 of the front wall 18 is provided with a pair of laterally spaced plates of shatter proof and heat resistant glass or plastic material which define a pair of windows 34. Also, the intermediate portion 32 of the front wall 18 has a window 35 therein which allows a fireman in the cab to look downwardly and each of the side walls 21 and 22′ is provided with a side window 36. The windows 34—36 are of such size and so disposed that a fireman in the cab can observe anything taking place in the area of the cab while it is still being completely protected. It is contemplated that the windows 34—36 will be provided with automatic wipers and electric defrosters, not shown, for clearing away water or ice and snow. Also, if desired, the windows may be glazed or painted to protect the eyes of the fireman from a brilliant fire.

Exposed below the front windows 34 and mounted in and projecting forwardly beyond the front wall 18 are a pair of laterally spaced fire hose nozzles 38. Each of the fire hose nozzles 38 is swivelly mounted at 39 and is provided with a hand grip portion 40. The arrangement is such that the nozzles 38 are adapted to be operated by a fireman in the cab to direct water therefrom as is required in fighting a fire. Each of the fire hose nozzles 38 is interconnected through its swivel connection 39 with a water conduit 41 that extends across the front wall 18 and is supported and rests on the inwardly angled intermediate portion 32 thereof. One end of the conduit 41 is connected to a conduit 42 running along the side wall 21 which terminates at the rear end of the cab in a standard fire hose coupling 43. The fire hose coupling 43 is adapted to detachably connect a fire hose 44 to conduits 42 and 41 and the fire hose nozzles 38. The fire hose 44 extends down the extensible fire ladder 11 to a source of water, not shown.

Extending vertically from the outer ends of the conduits 41 are a pair of laterally spaced conduits 45 which are connected to a generally U-shaped spray pipe 46 that extends across the side walls 21 and 22′ and the front wall 18 adjacent the top wall 20 of the aerial protecting cab. The spray pipe 46 has a plurality of small apertures therein throughout its entire length whereby a spray of water is directed across the front and side walls of the aerial protecting cab. The spray of water cools the aerial protective cab and further protects the firemen therein from the intense heat. A pair of valves 47 are placed in the conduits 45 whereby the protective spray from the spray pipe 46 may be turned on, turned off or adjusted as is required.

The lower portion 33 of the front wall 18 comprises a panel 47 that is pivotally mounted adjacent the bottom wall 19 and which is adapted to be pivoted downwardly to the position shown in FIGURES 1 and 2 of the drawing. Attached to and projecting forwardly from the aerial protecting cab is a platform 48 having safety railings 49 disposed along the opposite sides thereof. When the panel 47 is pivoted downwardly the same rests on the platform 48 and serves as a catwalk for bridging the space between the aerial protecting cab and the window of a building, for example. In this manner, a fireman can enter a building by positioning the aerial platform adjacent the window so that the forward end of the panel 47 engages the window sill. Then the fireman can crawl along the catwalk defined by the lower panel 47 and into the building. Conversely, a stranded person in the building may enter the aerial protecting cab by way of this catwalk, and then proceed to safety down the extensible fire ladder 11. The arrangement is such that the aerial protecting cab of the present invention is ideally suited for high altitude rescue work.

A spot light 50 may be mounted on the top wall 20 of the aerial protecting cab for aiding a fireman in rescue or fire fighting operations. Also, if desired, a communications system may be incorporated to allow communications between a fireman in the cab and other firemen on the ground. For rescue work it may be desirable to incorporate amplifying and loud speaker apparatus whereby a fireman in the cab may more easily give instructions to persons within a burning building, for example. It is contemplated that all electrical apparatus mentioned in the aerial protecting cab—including the spot light 50, the electric defrosters, the automatic windshield wipers, the communications system and the amplifying and loud speaker apparatus—will all be supplied from an electrical cord running the length of the extensible fire ladder. In this manner only the fire hose 44 and the electrical cord will run the length of the extensible ladder whereby the same may still be used with comparative safety.

It should thus be apparent that I have accomplished the objects initially set forth by providing an improved aerial protecting cab for firemen. Although I have shown and described a preferred embodiment of the invention it should be apparent that many changes may be made therein without departing from the true scope or intent thereof. Accordingly, reference should be had to the following appended claims.

I claim:

1. Fire-fighting and rescue apparatus comprising a light-weight cab in which a fireman may stand and which has a rear wall with a vertically elongated entrance opening therein as well as a front wall with a window therein and side, top and bottom walls, an aerial ladder having a pair of side rails extending through said opening and pivotally mounted at their end extremities said cab for pivotal movement about a horizontal axis intermediate the top and bottom walls and intermediate the front and back walls of said cab, the means mounting the cab on said rails being located outside of said rails and said ladder being free of runs in its upper portion whereby a fireman ascending said ladder and entering through said opening may step freely and easily onto said Said front wall, means in said cab to rotate the same about said axis whereby the cab may be leveled regardless of the angle of inclination of the ladder, and said front wall having an opening in its lower portion whereby a person to be rescued may enter said cab through said front wall and a fireman may enter a building directly from said cab.

2. Apparatus according to claim 1 further including a platform extending outwardly from said front wall in general continuation of the bottom wall of the cab, and safety railings on either side of said platform in general continuation of the side walls of the cab.
der being free of rungs in its upper portion whereby a fireman ascending said ladder and entering through said opening may step freely and easily onto said bottom wall and have ready access to said front wall, and means in said cab to rotate the same about said axis whereby the cab may be leveled regardless of the angle of inclination of the ladder.

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