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J. B. BLAW

PORTABLE FIRE HOSE NOZZLE SUPPORT

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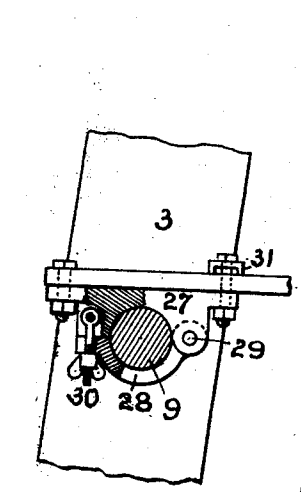


FIG. 4

FIG. 1

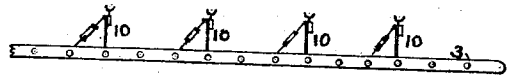
FIG. 2

FIG. 3

FIG. 5

FIG. 6

FIG. 7.



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UNITED STATES PATENT OFFICE.

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PORTABLE FIRE-HOSE-NOZZLE SUPPORT.

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The object of my invention is to provide a fire hose nozzle support of a portable character having a suitable attaching means for adjustably securing it upon a ladder and desirably to the rungs thereof, so that when the ladder is raised upon its truck, or otherwise in front of a burning building, the nozzle of the hose may be clamped to the support with provision for adjustment, whereby the water stream leaving the nozzle may be projected in any direction desired, the equipment embodying the essentials of an adjustable water stand pipe with provision for the attendance of the hoseman who directs the nozzle.

My object is further to so construct the nozzle support that it is adjustable to any position along the length of the ladder to provide a water stream from any suitable elevation to meet the requirements of the fire; and in cases where the ladder is supported on the truck in a horizontal position, to provide a plurality of fire hose nozzle supports thereon so that a number of water streams may be thrown at one time for supplying a large quantity of water for direct extinguishment of the flames and burning masses, or for providing a water screen or curtain between a hot fire and the firemen at work before it.

In the preferred construction of my improved fire hose nozzle support, I provide a light frame having, at a distance apart, quick operating clamps for positively gripping the same rung of the ladder at widely separated places and fitted at the other or free end with a head in which one or more hose nozzle clamps are adjustably secured to enable one or more hose nozzles to be supported and adjusted, said head being further provided with a hinged strut frame preferably adjustable as to its length and having detachable positive clamping means for attachment to another rung of the ladder, whereby the device, as a whole, may project to one side of the plane of the ladder and whereby further, the nozzles are adjustably supported and positioned so that they may be readily manipulated independently when desired by hoseman, while he, on his part, has a foothold on the ladder itself.

My invention further comprehends other specific details of construction and these, together with the features more fully stated above, will be better understood by reference to the drawings, in which:

Fig. 1 is a side elevation of a portable ladder with my improvements applied thereto; Fig. 2 is a sectional side view of a portion of the same; Fig. 3 is a plan view of the same with the nozzle clamps removed and the ladder in section; Fig. 4 is an enlarged sectional view of one of the clamps shown in Fig. 2; Fig. 5 is a perspective view of an adjustable clamp for the strut frame of my improved support; Fig. 6 is a perspective view of the head portion of my improved nozzle support with the nozzle clamps removed; and Fig. 7 is a side elevation of a ladder with a plurality of the nozzle clamp supports of my invention applied thereto.

2 is the chassis or main frame of a fire ladder truck, 5 is a turn-table thereon which may be rotated by worm and worm wheel gearing 6 or otherwise, and 3 is a fire ladder hinged at the bottom to a suitable frame 4 carried by the turn-table 5. The ladder may be provided with a curved rack 7 which engages hand or other power gearing 8 by which the ladder may be elevated as shown or lowered upon the truck for transportation. This truck and ladder may be of the usual construction and may be extensible (not shown) if so desired. To such ladder, I apply my portable fire hose nozzle support at whatever elevation may be required and in Fig. 1 I have shown it attached to the uppermost rungs of the ladder. As my improved device is portable, it may be clamped in position upon any rungs desired to suit the height at which the firemen must work. When the hose and fire nozzle are attached, as shown, the equipment becomes in effect a water column with provision for the hoseman to attend to the manipulation of the nozzle 11. It will be understood that when the nozzle is directing a water stream into the building at the right place, the turn-table 5 may be turned slowly back and forth or otherwise to direct the stream when a hoseman is not in attendance; but when the hoseman is up the ladder, he will have full control of the nozzle without requiring the turn-table to be manipulated, though even then some adjustment of the ladder may be advisable and may be resorted to.

My improved fire nozzle support com-

prises a V-shaped frame 25 to the apex of which is bolted a cast metal head 12, said head having a rear flange 26 through which the bolts pass for securing it to the frame 25. The rear ends of the widely spaced arms of the frame 25 are each provided with an adjustable clamp comprising a part 27 which is bolted to the underside of the arms, as shown in Figs. 2 and 3, said part having a semi-cylindrical transverse groove which receives the rung 9 of the ladder. To the part 27 is hinged, at 29, a cap or clamp 28, also grooved to fit the underside of the rung. The free end of this clamp part 28 is slotted and receives a bolt 30 which is hinged to the part 27 and is provided with a wing nut which fits over the slotted end of the clamp 28 and by which it is firmly clamped to the rung (Fig. 4). For quick release from the rung, it is only necessary to loosen the wing nut device 30 and swing it outward, whereupon the part 28 is released and drops by gravity. To stiffen the frame 25 I may employ a cross brace bar 31, as shown in Figs. 2, 3 and 4.

The head casting 12 is provided with a downwardly extending lug 36[a], to which is hinged, at 35, the strut frame 31[a]. The strut frame 31[a] comprises the two rod parts 32 and 33 which are so screw-threaded respectively with right and left handed threads and connected by the turn-buckle 34, into the ends of which they are screwed, as more particularly shown in Figs. 1, 2 and 6. By rotating the turn-buckle, the length of the strut frame may be increased or decreased. The free end of the part 33 of the strut frame is provided with a positive clamp 36, preferably of the character shown in Figs. 2 and 5 for attachment to one of the rungs 9 of the ladder. This clamp comprises a body 37 secured to the rod 33 and having a transverse groove or recess to receive the rung. A clamping cap 38 is hinged to the body at 39 and is also recessed to fit the ladder rung. This cap will normally tend to open by gravity when released to permit quick application or release of the device in respect to the ladder. The locking means is shown at 40 and comprises a hinged bolt with a wing nut which may be swung over the slotted cap 38 and tightened to clamp the strut to the rung. The general principle of construction of the clamping means for attaching the adjustable and portable frame to the rungs of the ladder may be constructed in any other suitable manner, but the construction illustrated is preferred since the loosening of the clamping bolts permits the clamping caps to automatically drop out of engaging position and also enables them to remain out of engaging position until definitely turned up into clamping position when attaching the device to the ladder.

14 is the supporting part of the clamp for receiving and holding the nozzle 11. The nozzle is clamped in the part 14 by a hinged strap 16 which is hinged to the part 14 at 17 and tightened into clamping position by the bolt and nut 18. In this manner, the hose nozzle 11 may be detachably clamped to the supporting part 14 of the nozzle clamp and the hose 11[a] may extend rearwardly between the rungs 9, and thence downward along the ladder. The nozzle supporting part 14 is hinged on a transverse axis at 15 to the outer ends of the U-shaped yoke 13, which is provided with a vertical shaft 23 journaled in a bearing 12[b]. In Fig. 2, the vertical shaft 23 extends through this bearing 12[b] (Fig. 3) so that the yoke stands substantially vertical and at the lower end of the shaft 23 there is provided a clamping nut 24, which, aside from preventing the nozzle clamp from becoming disengaged from the head 12, may, if desired, be employed for tightening it when adjusted in any particular position about a vertical axis. A clamping screw 22 is also shown extending through the side of the head 12 for clamping the vertical shaft 23 of the yoke 13, but it is manifest that if the nut 24 is to be employed for this purpose, the clamping screw 22 may be omitted. 19 is an arc shaped guide bar riveted to the socket portion 14 of the nozzle clamp and is guided through a slot in the body of the yoke and may be clamped in any position of adjustment by a clamping screw 20. By this means, the vertical angle of the nozzle may be maintained. While I have shown and described a form of nozzle clamp which I have found excellently adapted for the purpose of my invention, I do not restrict myself to the details of construction thereof as the clamp may be made in any other suitable manner, if so desired.

While I have shown and described the nozzle clamp which is arranged above the head 12 and adjustable about a vertical axis, I may provide further a second nozzle clamp and the same may be adjustably secured to the outer end of the head 12 in a socket bearing 12[a] preferably at right angles to the socket bearing 12[b] by having the shaft extension of the yoke 13 fitted in a tubular bearing in the head and so constructed as to be clamped therein by a clamp screw 21 as shown in Fig. 1. The general construction of the nozzle clamp may be the same as that already described, only that in this case the vertical angle of the nozzle will be secured by adjustment of the clamp about a horizontal axis and the lateral adjustment of the nozzle will be secured by the adjustability of the yoke and the clamping screw 20. It is also to be understood that this second nozzle clamp may be varied in its construction so long as it supports the nozzle with capacity for adjustment. By employ-

ing the two nozzle clamps in this manner, a far greater range of operation may be had in vertical and lateral directions at the same time, or even to concentrate two streams upon the same place of the conflagration. It is manifest that, while provision is made for two nozzle clamps, the head may be further extended to support more than two such nozzle clamps and the hose nozzles, but ordinarily, two would be sufficient and less liable to complication in utilizing the apparatus in actual practice.

While the use of the invention is more particularly intended as illustrated in Fig. 1, it is manifest that the nozzle supporting means may be adjusted at any vertical height along the ladder to conveniently operate in connection with any special condition of the fire, and it is also evident that a plurality of these nozzle supporting devices may be arranged upon the same ladder, and corresponding to the levels required for different floors of a building which may be in flames. It is also evident that these same nozzle supporting devices may be arranged along the ladder when it is down or in a horizontal position, so that a plurality of nozzles may be put into operation for throwing streams which would act not only for the purpose of extinguishing the fire, but also in providing a water screen between the fire and places in the street where active work is to be carried on, and in that manner protect the firemen against excessive radiant heat where the fire is intense. Such a use of the improvements are indicated in Fig. 7, which shows a portion of the ladder and with four of the nozzle supporting devices in position. In this case it would be more convenient to use the nozzle clamps which are fitted to and adjustable upon the outer ends of the heads 12 of the supporting devices 10.

While ordinarily the frame 25 of the device would assume a substantially horizontal position, yet, in some cases, it would be desirable that it should be supported in an oblique position, whether upwardly or downwardly according to the necessities of the fire, and this may be accomplished by the adjustment of the turn-buckle 34 of the strut frame 31ª; or where an extreme downward incline is required, then, in addition to the adjustment of the turn-buckle, the clamp 36 at the lower end of the strut may be adjusted to the next rung below.

While my improvements are especially designed for use in connection with a ladder, it is to be understood that the general construction of the parts may be utilized where the device is employed in attachment with other means than the ladder, or, if desired, may be adapted for use on the ground where the parts may be conveniently braced and, therefore while I prefer the clamp such as will form an attachment to the rungs of a ladder I do not limit myself to any particular attaching means.

It will now be apparent that I have devised a novel and useful construction which embodies the features of advantage enumerated as desirable and while I have in the present instance shown and described the preferred embodiment thereof which has been found in practice to give satisfactory and reliable results it is to be understood that I do not restict myself to the details, as the same are susceptible of modification in various particulars without departing from the spirit or scope of the invention.

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

1. A portable fire nozzle support, comprising two frames hinged together, one of said frames having two widely spaced arms each provided with positive clamping means at its end and the other frame constituting a strut and having a positive clamping means at its free end, the jointed ends of said frames provided with a head, a nozzle clamp yoke journaled in the head so as to be movable about an axis arranged substantially perpendicular to the plane of the frame portion having the widely spaced arms, means for locking the yoke in its adjusted positions upon the head, a nozzle clamp carried by the yoke and adjustable about a transverse axis, and means for locking the nozzle clamp in its adjusted positions on the yoke.

2. A portable support for a fire nozzle, which consists of a jointed frame structure formed of two frames of different radial lengths carrying at the jointed end a head and having the free end of each of the frames provided with adjustable positive clamping devices for a positive yet detachable connection so that the two frames may be connected with widely separated rungs of a ladder and whereby the head may be positioned to one side and at a distance from the plane of the ladder, said clamping devices each formed of a transversely grooved part rigidly secured to the end of one of the respective frames and associated with a hinged clamping part and latching means for clamping the frames when spread to the rungs of the ladder, and a fire nozzle clamp adjustably secured to the head whereby a stream of water may be definitely directed on the fire and the direction maintained without continued manual control.

3. In fire apparatus, means for supporting a fire hose nozzle which consists of a supporting structure formed of two frames of different lengths hinged together at one of their ends and having at their other and free ends positive clamping means adapted for positive yet detachable connection with a plurality of rungs of a ladder at one time,

whereby said structure is adapted to project greatly to one side of the plane of the ladder, a nozzle clamp adjustably pivoted upon the part of the supporting structure most distant from the positive clamping means for the rungs of the ladder, and means for clamping the nozzle clamp fixedly in its positions of adjustment whereby the nozzle in action may be supported and fixedly adjusted at a position beyond the plane of the ladder and capable of maintaining such relation for all positions of the ladder.

4. A portable support for a fire nozzle, which consists of two frames hinged together at one end and respectively of different radial lengths, said frames each respectively provided at their free ends with clamping means comprising a part having a transverse groove and an adjustable clamping portion hinged thereto the groove of the clamping device of the shorter frame opening in a direction at right angles to its frame and toward the other or longer frame and the groove of the clamping device of the longer frame opening in the radial direction of said frame and outwardly from it, and an adjustable fire nozzle clamp carried at the jointed ends of the two frames.

5. In a portable fire nozzle support, a head and nozzle clamping means pivoted thereon, combined with means on the head for locking the nozzle clamping means to the head in adjusted positions thereon, a frame secured directly to the head and having widely spaced arms whose free ends are respectively provided with positive adjustable clamps for attachment to one rung of a ladder, and a separate extensible strut frame having one end hinged relatively to the head and its other end also provided with a positive clamp for attachment to another rung of a ladder.

In testimony of which invention, I hereunto set my hand.

JACOB B. BLAW.