July 31, 1951 V. A. KALISH 2,562,794

FIRE FIGHTER'S TOOL

Filed Nov. 17, 1947

FIG. 1

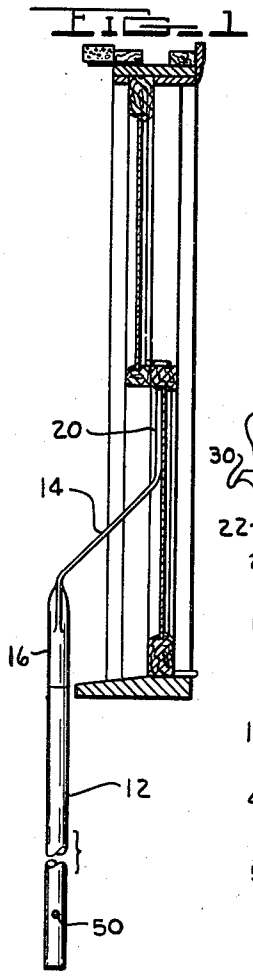


FIG. 2

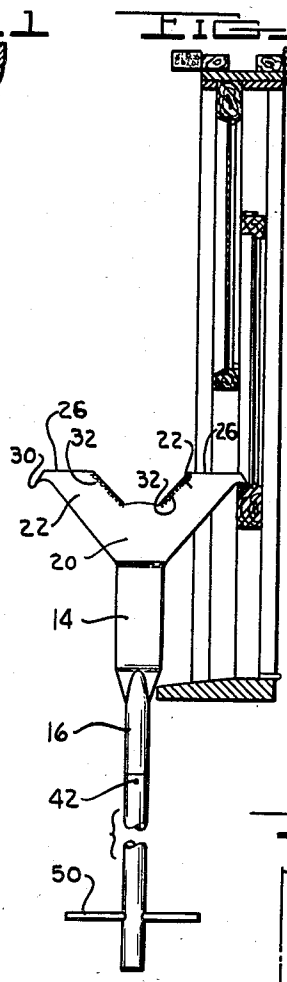


FIG. 3

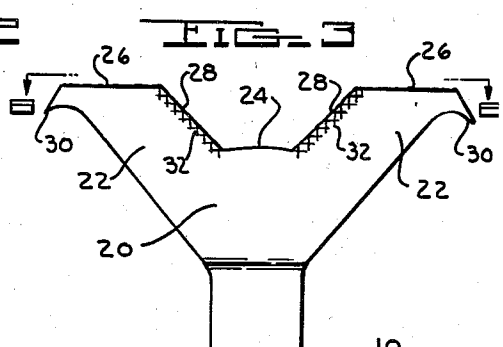


FIG. 4

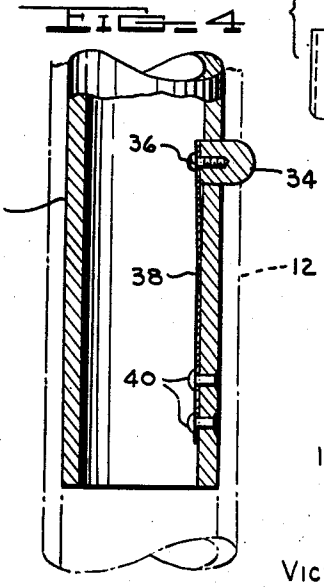


FIG. 5

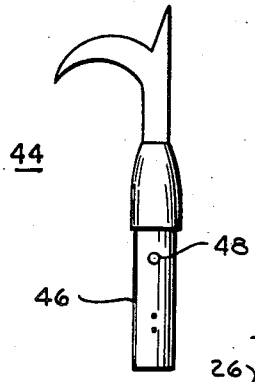


FIG. 6

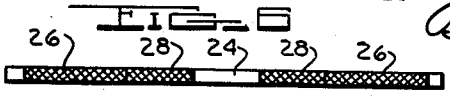
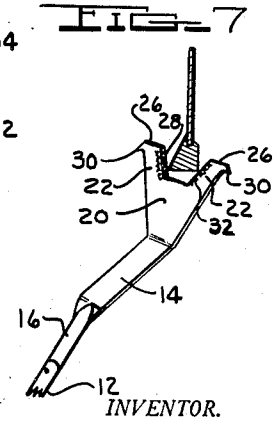


FIG. 7



INVENTOR.
VICTOR A. KALISH

BY Burton & Parker

ATTORNEYS

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FIRE FIGHTER'S TOOL

Victor A. Kalish, Highland Park, Mich.

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12 Claims. (Cl. 268—134)

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This invention relates to fire fighting equipment and particularly to a tool especially adapted to open locked windows at a considerable height above the ground and to lower the same.

Heretofore, considerable difficulty has been encountered in opening locked windows of a building or house on fire, especially if the window is above the ground floor, and whatever implements have been used for this purpose were unsatisfactory and usually resulted in breaking the window pane. Usually the practice has been for the fireman to raise a ladder to the window and if the window was locked to break the pane in order to gain access into the interior of the burning building. In many instances it would be desirable to close a window to cut off the draft but the breaking of a window pane precluded such an act.

An important object of this invention is to provide a novel tool so constructed that it may open locked windows from the ground level without difficulty and without the likelihood of breaking the window pane. Another important object of the invention is to provide a device of this character which is shaped in a novel manner for the dual function of breaking the lock and opening the window and for closing the window. A further important feature of the invention is the provision of an improved fire fighting tool which is capable of opening locked windows at considerable heights above the ground and closing the same thereafter without requiring the fireman to climb a ladder for this purpose.

In carrying out the invention the tool comprises one or more elongated handles or poles constructed in an improved manner for detachable connection one to the other and an improved operating head so constructed that will apply an equal pressure to a window sash rail on opposite sides of the lock thereof and apply a force in a vertical direction to break the lock, if necessary, and open the window. Another important feature of the invention is the offset character of the operating portion of the head from the portion which is connected to the pole sections whereby the tool can be used around window sills and apply a vertical pressure to the window to open or close the same. Another important feature of the invention is the provision on the operating head of the tool of hook-shaped elements which enables the tool to be used to lower a window once opened thereby. A further important feature to the invention is the provision of gripping surfaces or indentations on the window engaging portion of the tool which enables it to bite into the window sash or rail in the raising operation and also enables the tool to be grippingly connected to a window sash when it cannot be lowered by the hook-shaped elements.

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Various other objects, advantages and meritorious features of the invention will become more fully apparent from the following specifications, appended claims and accompanying drawings, wherein:

Fig. 1 is a vertical sectional view through a window frame illustrating the position of the tool prior to raising one of the windows thereof,

Fig. 2 is a vertical sectional view through a window frame similar to Fig. 1 illustrating the position of the tool for lowering a window,

Fig. 3 is a front elevation of the operating end of the tool showing the manner of detachably coupling the same to a pole handle,

Fig. 4 is an enlarged vertical sectional view of the coupling end of the tool taken along line 4—4 of Fig. 3,

Fig. 5 is a side elevation of a different fire fighter's tool constructed for detachable connection to the pole handle,

Fig. 6 is a top view of the operating end of the tool taken along line 6—6 of Fig. 3, and

Fig. 7 is a detail sectional view of a window sash rail and the tool illustrating another method of using the tool to lower the window.

A tool constructed in accordance with this invention is generally indicated at 10. It is provided with an upper window engaging end and a lower connecting end for detachable securement to an elongated handle or pole. One of these poles is indicated at 12 and is preferably of tubular formation shaped at its upper end for disconnectible connection to the lower end of the tool 10. The tool is shown in Figs. 1 and 2 as applied to a window for opening and closing the same respectively. The tool is so constructed that it is capable of raising window sashes without breaking the window pane even though the window is locked. For operations on windows at considerable heights above the ground, such as the third and fourth floors of the burning building, additional tubular pole handle sections are coupled in end to end relationship to the pole section 12 illustrated herein. The disconnectible connection illustrated in detail in Fig. 4 may be used for connecting the poles in detachable endwise relationship.

The total 10 comprises in general three portions one of which serves as an intermediate connection predisposing the other two portions in

offset planes to one another. This intermediate portion is indicated at 14 and as shown in Fig. 1 is preferably so related to the other portions of the tool that in the operating position it assumes an inclination to the vertical as shown in Fig. 1. The lower end portion 16 is provided with a reduced cylinder end section 18 which is adapted to be telescopingly coupled to the upper end of the pole 12 and locked thereto in the manner hereinafter described.

The upper end portion 20 of the tool comprises a flat plate member of forked or bifurcated formation. The fork sections of the tool thus formed are indicated at 22—22 and they are located on opposite sides of a recess or notch 24 located on the longitudinal median line of the tool. The forks 22—22 are adapted to engage a window sash rail on opposite sides of a lock therefor and upon upward pressure being applied to the tool cause the sash to break the lock and raise the window.

The upper operating end of the tool 10 is provided with gripping surfaces preferably in the form of a criss-crossing indentations or grooves in the manner illustrated in Fig. 6. The gripping surfaces provided on the ends of the forked sections 22—22 are shown at 26 in Figs. 3 and 6. Similarly, the downward and inclined sides 28—28 of the notch 24 may be provided with criss-crossing grooves as illustrated in Fig. 6.

The upper end portion 20 of the tool is provided with novel means for lowering a window. This means comprises a hook 30 on the upper outer side of each fork section 26. These hooks are preferably integrally formed with the plate portion 20 and project laterally in the plane thereof. When it is desired to use these hooks to lower a window the device is turned so that the plane of the plate 20 is perpendicular to the plane of the window and one of the hooks 30 thereof is engaged over the upper edge of a sash rail in the manner illustrated in Fig. 2. The rail usually preferred for this operation is the lower rail of the sash as shown and upon downward pulling movement of the tool the window will be closed.

In addition to the gripping surfaces previously described the tool is provided with gripping surfaces on the outer faces of the plate portion section 20 along the inclined edges 28—28 of the notch 24. Such gripping surfaces are indicated at 32—32 and are located on opposite sides of the plate portion 20 along the side margins of the notch. The purpose of these last mentioned gripping surfaces is to enable the tool to lower a window having a sash or rail with which the hooks 30—30 are incapable of satisfactorily engaging for this purpose. Quite frequently it is necessary for the firemen to lower a window, usually of metal, wherein the rail or the putty used to secure the pane in place extends at such a slope that the hooks 30 cannot satisfactorily engage the same. When this condition is encountered the tool is raised so that the lower rail of the window is received transversely through the notch 24. Thereafter upon turning the tool upon its axis one of the gripping surfaces 32 on one side of the tool will engage and bite into the rail while at the same time a gripping surface 32 on the other side of the tool will engage the opposite side of the rail in the manner shown in Fig. 7. If a sufficient twisting force is applied to the tool the two engaging gripping surfaces 32—32 will wedge tightly into engagement with the rail and thereafter upon pulling down of the tool the window will be lowered.

The disconnectible coupling between the lower end of the tool and a pole handle section is illustrated in Fig. 4. Reciprocably mounted in the lower end of the tool and projecting from one side thereof is a button shaped member or detent 34. A hole is provided on the side wall of the lower end of the tool in which this detent is mounted for movement. The inside end of the detent is secured by means of a screw 36 or otherwise to the end of a flexible metal blade 38. The opposite end of the detent is secured in any suitable manner by rivets 40 or otherwise to the inside surface of the tubular section 18. Normally the spring blade 38 urges the detent 34 to its outmost position such as that shown in Fig. 4. The upper end of the pole 12 is provided with a hole 42 shown in Fig. 3, which is adapted to receive the detent 34 and lock the two elements together. The detent 34 is mounted as shown so that upon slidable telescoping movement of the tube 12 thereover the detent will retract within the plane of the tubular section 18 until the hole 42 of the tube 12 is brought opposite to the detent 34. Thereafter the detent will spring into the hole and lock the two members against axial and rotational movement relative to one another.

For use at considerable heights, as previously mentioned, a plurality of pole sections 12 can be detachably connected in end-to-end relationship. In place of the tool 10, other fire fighting devices may be attached to the pole sections. There is illustrated in Fig. 5 a fireman's pike pull or plaster hook generally indicated at 44. The pike is provided with a reduced cylindrical end section 46 similar shaped as the end section 18 of the tool 10 which is adapted to be detachably coupled to one end of a pole section 12. The preferred form of connection is that illustrated in Fig. 4 and for this purpose the lower end section 46 is provided with a retractible detent 48 like the detent 34 previously described. The attaching end 46 of the pike is preferably made exactly like the coupling end 18 of the tool 10 so that the tools are readily interchangeable in use. In addition to the pike 44, Pompier ladder hooks may be similarly constructed for detachable connection to the ends of the pole sections. Whatever tool is used, the form of connection is such that the tool is held from longitudinal and rotational movement on the upper end of the pole sections.

To facilitate lifting and turning movement of the tool it is desirable to provide a removably cross bar of handle member on the lower end of the pole sections. Such a bar is illustrated in Figs. 1 and 2 and is referred to by reference numeral 50. This bar is slidably received in aligned holes formed in opposite sides of the tubular pole section and can be quickly removed and attached thereto. Each pole section may be provided with such a pair of holes for receiving the bar so that it may be used on the lowermost pole section regardless of the number of pole sections coupled together.

What I claim is:

1. A window opening and closing device comprising, in combination, a plate member bifurcated to provide two upwardly projecting forked sections, the upper edges of said sections extending in the same horizontal plane and being indented with criss-crossing grooves to form gripping surfaces, laterally extending hooks on the outer side edges of said forked sections for engaging the upper side of a rail of a window sash, a handle attaching section on the device, and

means connecting the handle section to the plate member so that the handle section extends in substantially parallel but offset relation to the plate member.

2. A window opening and closing device for fire fighters comprising, in combination, a plate member bent intermediate its ends so as to dispose the upper end section thereof in a plane parallel to but in spaced offset relationship to the lower end section thereof, a handle, means for detachably connecting the handle to the lower section of the plate member, said upper plate section being bifurcated in order to engage the underside of a window sash rail and straddle a lock thereon to break the lock and raise the sash and being provided with one or more outwardly extending hook shaped elements adapted to engage the upper side of a rail of a window sash and lower the same.

3. A fire fighter's tool comprising, in combination, a plate member having a vertical section adjacent to the upper end thereof and a downwardly inclined section adjacent to the lower end thereof, a handle engaging section secured to the lower end of the downwardly inclined section and extending in substantially parallel relationship to the upper end section, said upper end section being bifurcated to provide two forked portions having their upper ends extending in substantially the same horizontal plane and their outer side portions shaped in the form of downwardly extending hooks.

4. A fire fighter's implement comprising, in combination, a bifurcated member having a flat surface adapted to be brought into juxtaposition to a pane of a window and having the forked sections shaped to engage the underside of the upper rail of a window sash to raise the same, said member having oppositely extending lateral projections shaped in the form of hooks adapted when the implement is rotated 90 degrees to engage the upper edge of a rail of a window sash to lower the same.

5. A fire fighter's tool comprising, in combination, a member of flat sheet metal stock widened at its upper end and provided with a downwardly inclined lower end section, the upper end of the member being bifurcated and provided with indentations on the upper edges thereof for gripping engagement with the underside of a rail of a window, the upper end of the member further provided with laterally extending downwardly bent elements formed integrally with a member and shaped to provide hooks.

6. A fire fighter's tool comprising, in combination, a member of flat sheet metal stock, the upper end section of the member being widened and bifurcated for engagement with the underside of a rail of a window sash, the lower end section of the member being reduced in width and inclining downwardly from the upper section, and means on the lower end of the downwardly inclined section for detachably connecting a pole thereto and projectionably extending the pole in a plane substantially parallel but offset to the plane of the upper section of the member.

7. A fire fighter's tool comprising, in combination, a cylindrical rod section, a flat plate section bifurcated at its upper end to engage the underside of a rail of a window sash, and an intermediate section connected to the lower end of the bifurcated plate section and to the upper end of the cylindrical rod section and being inclined to the planes thereof so as to dispose the rod section in offset substantially parallel relationship to the plane of the plate section.

8. A fire fighter's tool comprising, in combination, an elongated handle, a member of flat sheet metal stock being bent intermediate its upper and lower ends to dispose the upper end section in offset relationship to the lower end section, said upper end section being bifurcated and provided with two laterally and downwardly extending hook shaped elements on the opposite sdies thereof, and means for detachably connecting the lower end section of the member to one end of the handle.

9. A window opening and closing device for firemen and the like, comprising, in combination, a plate member bent intermediate its ends so as to dispose the upper end section thereof in a plane substantially parallel to but in spaced offset relationship to the lower end section thereof, means on the lower end section of the plate member for detachably connecting the same to an elongated handle, said upper end section being bifurcated to provide two spaced apart correspondingly shaped forked portions shaped to engage the underside of a window sash rail and straddle the locking area thereof, said upper end section being further provided with indentations on its opposite faces adjacent to the space between said forked portions to form gripping surfaces for engagement with the opposite sides of a window sash rail positioned between the forked portions.

10. A fire fighter's tool comprising, in combination, a member of flat sheet metal stock having a recess in one end thereof forming two correspondingly shaped forked sections on opposite sides of the recess, the upper edges of said forked sections extending straight and in the same plane and being indented to provide gripping surfaces for contact with the underside of a rail of a window sash, and the opposite sides of said member along the margin of said recess being provided with indentations forming gripping surfaces adapted to engage the opposite sides of a rail of a window sash extending through the recess.

11. A fire fighter's tool comprising, in combination, a flat metallic member adapted in use to extend in substantially a vertical plane and provided in the upper end thereof with a recess forming two similarly shaped forked sections on the opposite sides of the recess, the upper edges of said forked sections extending straight and in the same plane for engagement with the underside of the upper rail of a window sash to raise the same, and a hook on the outer end of each fork section projecting laterally therefrom in the plane of the member and adapted when the tool is rotated approximately 90° to engage the upper edge of a rail of a window sash to lower the same.

12. A fire fighter's tool comprising, in combination, a flat metallic member adapted in use to extend in substantially a vertical plane and provided in the upper end thereof with a recess dividing the plate member into two similarly shaped forked sections on the opposite sides of the recess, the upper edges of said fork sections extending straight and in the same plane for engagement with the underside of the upper rail of a window sash to raise the same, a hook on the outer end of each fork section projecting laterally therefrom in the plane of the member and adapted when the tool is rotated approximately 90° to engage the upper edge of a rail

of a window sash to lower the same, the surface area of the plate member immediately adjacent to said recess being indented to form a frictional grip for engaging the opposite sides of a rail of a window sash extending through the recess.

VICTOR A. KALISH.

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