

July 9, 1929.

P. PIRSCH

1,719,997

FOLDING LADDER

Filed Jan. 23, 1928

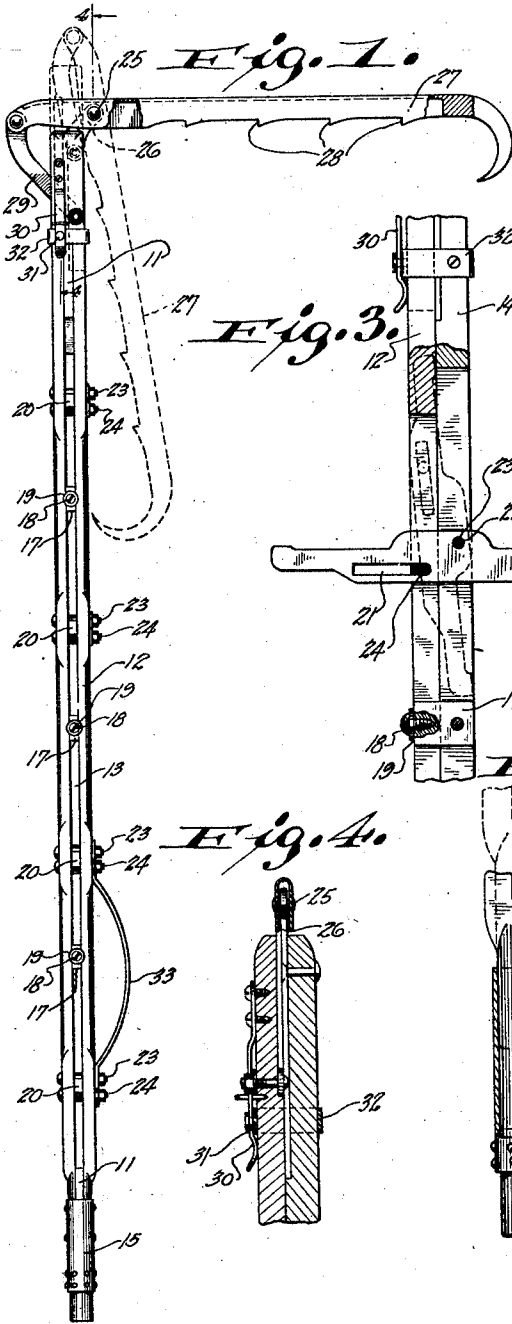


Fig. 2.

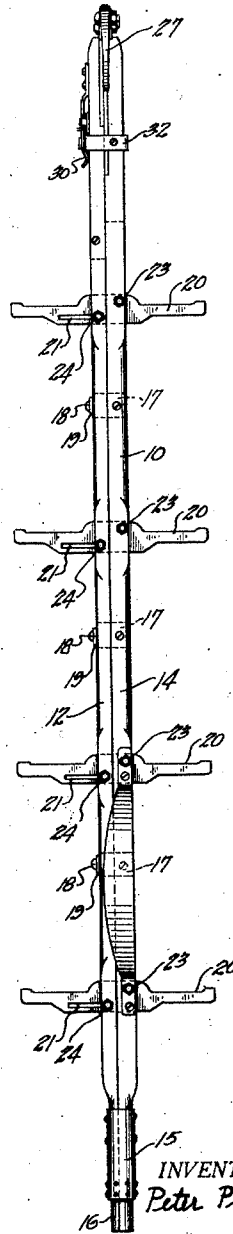
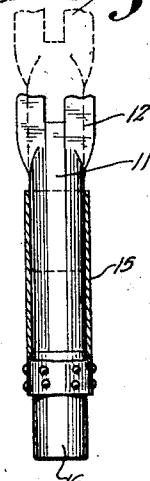


Fig. 5.



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FOLDING LADDER.

Application filed January 23, 1928. Serial No. 248,742.

This invention relates to improvements in folding ladders.

Portable ladders, having window hooks thereon, have been in common use by firemen for climbing from floor to floor of a building. Many of these devices were cumbersome to handle due to the fact that the steps and large iron hook protruded and caught upon objects when the ladder was being carried about at a fire.

It is one of the objects of the present invention to overcome the above-mentioned objections, and to provide a ladder in which the steps and window hook may be folded simultaneously to an out of the way position.

It is a further object of this invention to provide a ladder in which the steps fold entirely within the standard, leaving a smooth outer surface.

It is a further object of this invention to provide a folding ladder having stop means to maintain the hook and steps in position.

It is a further object of this invention to provide a folding ladder having a catch to prevent it from collapsing.

It is a further object of this invention to provide a folding ladder which is simple and light in construction, and well adapted for the purpose described.

With the above and other objects in view, the invention consists of the improved folding ladder, and all its parts and combinations as set forth in the claims, and all equivalents thereof.

In the accompanying drawing, in which the same reference characters designate the same parts in all of the views:

Fig. 1 is a side elevation of the improved ladder, parts being broken away and parts being shown in section, the dotted lines indicating the position of the parts when folded;

Fig. 2 is a front view of the ladder ready for use;

Fig. 3 is a detail view of a portion of the standard, parts being broken away and parts being shown in section, the dotted lines indicating the position of a step when folded;

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1; and

Fig. 5 is a detail view of the lower end of the standard, parts being broken away, and parts being shown in section.

Referring to the drawing, the numeral 10

designates the standard, constructed preferably in four sections. Two of these sections are joined together in spaced-apart relation to form the movable portion 12 of the standard, by strips of material 11 interposed at the upper and lower ends, leaving a slot 13 between the two sections. The other two sections of the standard are joined together in a similar manner to form the stationary portion 14. A sleeve 15 is secured to the lower end of the stationary standard member and to a stop block 16, and within this sleeve the lower end of the movable standard member 12 slides, the block 16 limiting its downward movement.

A plurality of guide blocks 17 are secured at intervals between the two sections of the stationary standard member, and these blocks extend into the slot 13 between the two sections of the movable standard member. A screw 18, in each guide member, holds a disk 19 in place, the latter overlapping the edges of the slot 13.

Steps 20, each having a slot 21 and a perforation 22 therein, are positioned at intervals within the slot 13. Each step pivots on a bolt 23 extending through the stationary standard members and the perforation 22 in the step. A second bolt 24, extending through the movable standard member and the slot 21 is also provided for each step.

Pivoted at an intermediate point 25 to an extension 26 on the upper end of the stationary standard member is a window hook 27. The latter is constructed preferably of metal hollowed out to render it light in weight, and is provided on its lower edge with teeth 28 for engaging a window sill or other part of a building. The inner end of the hook member is pivoted to one end of a link 29, the other end of the link being pivotally connected to the movable standard member. A spring member 30 has a pin 31 extending inwardly therefrom which is adapted to engage a perforation in a band 32 to lock the parts of the ladder in open position. An outwardly curved extension 33 is secured to the standard near its lower end to keep the ladder a short distance from the wall when it is being used.

To collapse the ladder it is merely necessary to pull outwardly on the spring member 30 to disengage the pin 31 from the perforation in the band 32, and then to push

downwardly upon the hook member 27. By this latter movement, the movable standard member is raised upwardly, causing the bolts 24 to slide in the slots 21 of their respective steps. This causes each step to fold into the slot 13 of the standard as indicated by the dotted lines in Fig. 3. Thus the hook and steps fold simultaneously. To open the ladder, the hook member must be raised upwardly until the spring catch 30 engages the perforation in the band 32. The steps will of course be unfolded by this operation, and the device will be ready for use. The stop piece 16 will limit the downward movement of the movable standard member, and as a result, the steps will be held firmly in position.

From the foregoing description it may be seen that the improved folding ladder is simple and light in construction and well adapted for the purpose described.

What I claim is:

1. A ladder comprising a standard, a plurality of foldably mounted single length step members connected thereto at a medial point of said step members, and means in connection with said step members for simultaneously folding the same.

2. A ladder comprising a single standard, a plurality of step members pivotally connected thereto, and means in connection with said step members for simultaneously folding the same, by pivoting them in their entirety.

3. A ladder comprising a standard, a plurality of mounted step members connected thereto, a foldable hook member foldably connected to the standard, and means connecting said hook member with said standard and said steps for folding the latter when the hook member is folded.

4. A ladder comprising a standard, a plurality of step members in pivotal connection therewith, a hook member pivotally connected to the standard, and means connecting said hook member with said standard and said steps for pivoting said steps to a folded position when the hook member is moved.

5. A ladder comprising a standard, said standard consisting of a fixed section and a slidable section, a plurality of steps pivoted to the fixed standard section, a hook member pivoted to the fixed standard section, means connecting the hook member with the slidable standard member for moving the latter when the hook member is moved, and means operating between the slidable standard section and the steps for causing said steps to pivot when the slidable standard section is moved.

6. A ladder comprising a standard, said standard consisting of a fixed section and a slidable section, a plurality of steps pivoted to the fixed standard section and each having a slot therein, a hook member pivoted

to the fixed standard section, means connecting the hook member with the slidable standard member for moving the latter when the hook member is moved, and means on the slidable standard member slidably engaging the slots in the steps for causing the latter to pivot when the slidable standard section is moved.

7. A ladder comprising a standard, said standard consisting of a fixed section and a slidable section, means for holding said sections together in slidable relation, a plurality of steps pivoted to the fixed standard section and each having a slot therein, a hook member pivoted at an intermediate point to the fixed standard member, a link having one end pivoted to the hook member and its other end to the slidable standard section for moving the latter when the hook member is moved, and bolts on the slidable standard member engaging the slots in the steps for causing the latter to pivot when the slidable standard section is moved.

8. A ladder comprising a standard, said standard consisting of a fixed section and a slidable section, a plurality of steps pivoted to the fixed standard section, a hook member pivoted to the fixed standard section, means connecting the hook member with the slidable standard member for moving the latter when the hook member is moved, means operating between the slidable standard section and the steps for causing the latter to pivot when the slidable standard section is moved, and means for limiting the downward movement of the slidable standard section.

9. A ladder comprising a standard, said standard consisting of a fixed section and a slidable section, a plurality of steps pivoted to the fixed standard section, a hook member pivoted to the fixed standard section, means connecting the hook member with the slidable standard member for moving the latter when the hook member is moved, means operating between the slidable standard section and the steps for causing the latter to pivot when the slidable standard section is moved, a stop block secured to the lower end of the fixed standard section, and a sleeve secured to the fixed section and the stop block, the slidable standard section being slidably received by said sleeve and its downward movement being limited by said stop block.

10. A ladder comprising a standard, said standard consisting of a fixed section and a slidable section, a plurality of steps pivoted to the fixed standard section, a hook member pivoted to the fixed standard section, means connecting the hook member with the slidable standard member for moving the latter when the hook member is moved, means operating between the slidable standard section and the steps for causing the latter to

pivot when the slidable standard section is moved, a spring catch on the slidable standard section, and means carried by the fixed standard section for engagement with the spring catch.

5 11. A ladder comprising a single standard having openings therein, a plurality of single length steps foldably mounted within the openings of said standard, and means in
10 connection with said steps for simultaneously folding the same within the openings of said single standard.

15 12. A ladder comprising a standard, said standard consisting of a fixed section and a slidable section, said sections each having
20 registering longitudinally extending slots therein, a plurality of steps pivoted within the slots to the fixed standard section, a hook member pivoted to the fixed standard section,
25 means connecting the hook member with the slidable standard member for moving the latter when the hook member is moved, and means operating between the slidable standard section and the steps for causing said steps to pivot within the slotted portions of the steps.

13. A ladder comprising a standard, a plu-

rality of foldably mounted step members connected thereto, a hook member of substantial size and adapted for engagement with an object to support the ladder foldably connected to the ladder, and means connecting said hook member with said standard and said steps for folding the latter when the hook member is folded.

35 14. A ladder comprising a single standard, said standard consisting of a fixed section and a slidable section, a plurality of steps pivoted to the fixed standard section, and means between said steps and the slidable
40 standard section for causing said steps to pivot when the slidable standard section is moved.

45 15. A ladder comprising a standard, a plurality of foldably mounted step members connected thereto, a hook member foldable from a position at substantially right angles to the standard to a position substantially parallel thereto, and means connecting said hook member with said standard and said
50 steps for folding the latter when the hook member is folded.

In testimony whereof I affix my signature.
PETER PIRSCH.

CERTIFICATE OF CORRECTION.

Patent No. 1,719,997.

Granted July 9, 1929, to

PETER PIRSCH.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, line 6, claim 11, for the word "singe" read "single"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 13th day of August, A. D. 1929.

(Seal)

M. J. Moore,
Acting Commissioner of Patents.