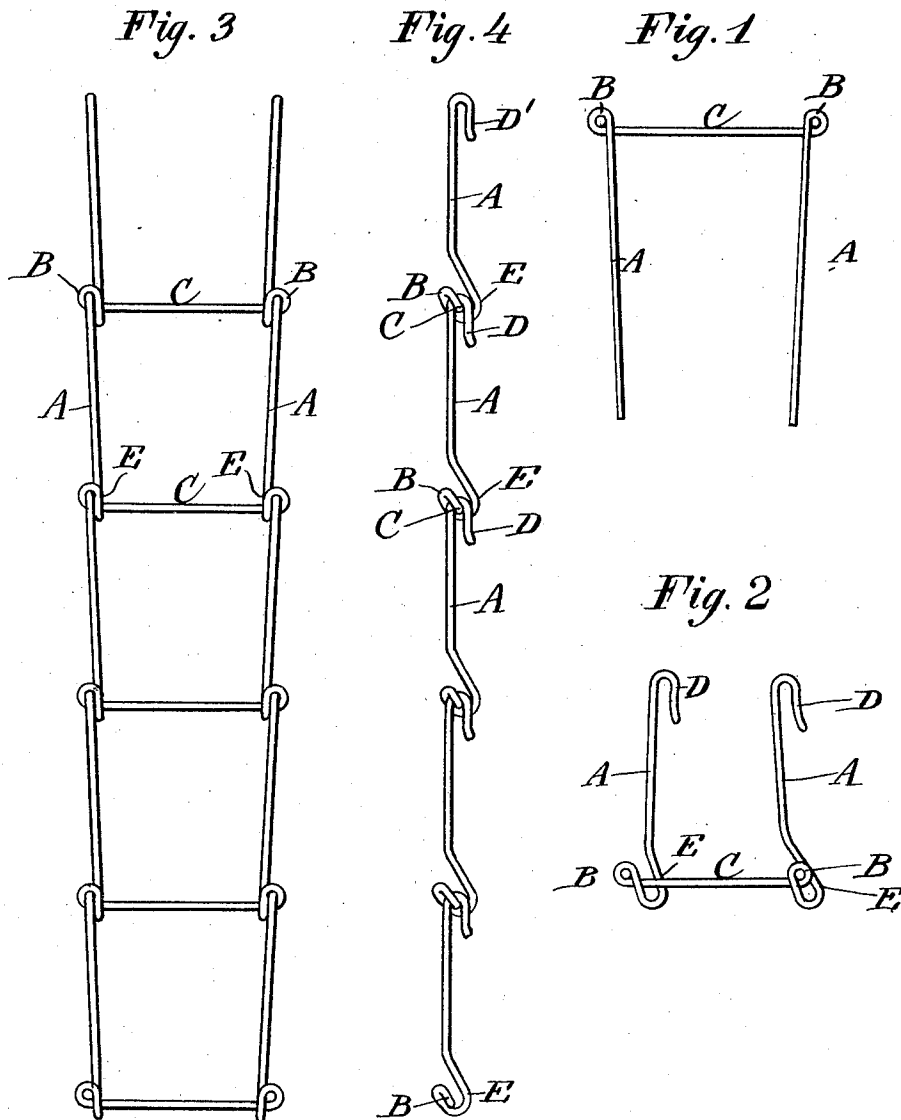


T. H. CHURCHILL.
LADDER.
APPLICATION FILED NOV. 10, 1909.

997,241.

Patented July 4, 1911.



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS HOPE CHURCHILL, OF TORONTO, ONTARIO, CANADA, ASSIGNOR OF ONE-THIRD
TO CHARLES HEBER RUGGLES, OF TORONTO, CANADA.

LADDER.

997,241.

Specification of Letters Patent.

Patented July 4, 1911.

Application filed November 10, 1909. Serial No. 527,341.

To all whom it may concern:

Be it known that I, THOMAS HOPE CHURCHILL, a subject of Great Britain, and a resident of Toronto, Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Ladders, of which the following is a specification.

This invention relates to ladders, but more particularly to sectional metallic ladders and to the unit sections or elements which form the complete ladder.

The objects of the invention are to improve and simplify the construction of such ladders, reduce the cost of manufacture, and increase the strength and the efficiency in operation, and produce an interchangeable unit metallic section which may be readily and quickly formed, preferably from a single piece of metal, as a metallic rod.

Another object of the invention is to increase the lateral rigidity of the ladder as a whole formed of assembled units, and thus prevent swaying motion when the ladder is being raised, pushed or drifted into position.

To these ends, the preferred form of the invention is described and claimed in this specification and shown in the accompanying drawings, in which—

Figure 1 is a front view of one unit section in process of formation; Fig. 2 is a perspective view of a completed unit section; Fig. 3 is a front view of a complete ladder embodying the invention formed of unit sections; and Fig. 4 is a side view of the ladder shown in Fig. 1.

Referring to the drawings, a unit section or element is shown partially formed in Fig. 1. Each unit section comprises a U-shaped piece of metal, the legs or sides A of which are bent to form retaining loops B at the ends of the cross bar C. The free ends of the legs A form the securing hooks D as shown in Fig. 2 and in the other figures. In the process of bending, the legs or sides A of the U-shaped piece of metal are bent across and around the base portion of cross bar C to form the retaining loops B which lie outside of the legs A. The unit sections are then adapted to be detachably connected together by means of the loops B and the hooks D. In the completed unit section the hooks D are preferably inclined toward each other so as to be nearer together than the width between the loops, and in order to insert the hooks D in the loops of the adjacent

section, said hooks must be sprung apart. By this means each section grips or clamps each adjacent section by inward pressure of the locked hooks. This construction has the advantageous effect of preventing a swaying motion when the ladder is being raised. The upper unit section is provided with sharpened hooks D' for securing the ladder to the gable or ridge poles of buildings.

The sections of this ladder are readily assembled by merely hooking one section to the loops or eyes B of another section and the ladder may be quickly adjusted to buildings as extension and scaling ladders and also as fixtures and fire escapes. The ladder when made a fixture on a roof or wall of a building may be drawn taut by means of brackets or screw tighteners ordinarily used in securing such ladders as well known in the art. The ladders may be made of any length desired and unit sections of any desired size may be used. Since the sections are interchangeable, if one becomes broken or useless for any reason, a new one may be substituted.

It will be seen that the ladder is substantially flat on the front side, while the bends E of the sections project outwardly at the rear, thus spacing the ladder away from a wall or roof.

What I claim as my invention, and desire to secure by Letters Patent is:

1. A unit ladder section or element, comprising a U-shaped piece of metal, the legs or sides of which are bent across and around the base portion or cross bar to form closed loops outside of said legs, the free ends of the legs forming securing hooks, whereby the unit sections are interchangeable and adapted to be detachably connected together by means of said loops and hooks.

2. A unit ladder section or element, comprising a U-shaped piece of metal, the legs or sides of which are bent to form closed retaining loops at the ends of the cross bar, the free ends of the legs forming securing hooks, said hooks being inclined toward each other, so as to be nearer together than the width between the loops.

3. A unit ladder section or element, comprising a U-shaped piece of metal, the legs or sides of which are bent across and around the base portion or cross bar to form closed retaining loops outside of said legs, the free ends of the legs forming securing hooks,

whereby the unit sections are interchangeable and adapted to be detachably connected together by means of said loops and hooks, said hooks being inclined toward each other, 5 so as to be nearer together than the width between the loops.

4. A sectional ladder, comprising unit sections or elements detachably connected together, each section comprising a U- 10 shaped piece of metal, the legs or sides of which are bent to form closed retaining loops at the ends of the cross bar, the free ends of the legs forming securing hooks.

5. A sectional ladder, comprising unit 15 sections or elements detachably connected together, each section comprising a U-

shaped piece of metal, the legs or sides of which are bent across and around the base portion or cross bar to form retaining loops, outside of said legs, the free ends of the legs 20 forming securing hooks, whereby the unit sections are interchangeable and adapted to be detachably connected together by means of said loops and hooks.

In testimony whereof I have signed this 25 specification in the presence of two subscribing witnesses.

THOMAS HOPE CHURCHILL.

Witnesses:

C. H. C. LEGGOTT,

K. TIERNEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."