

March 11, 1952

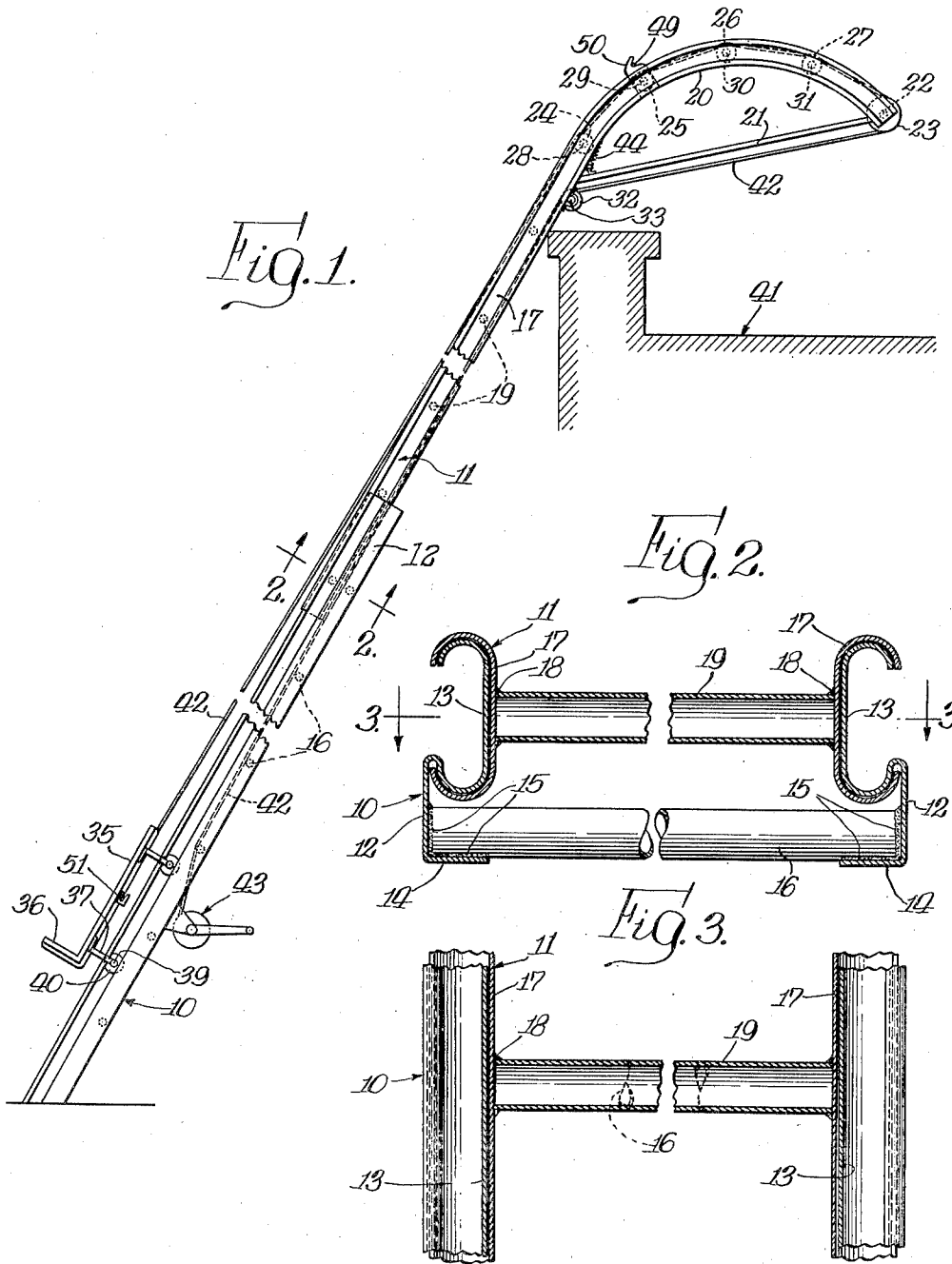
H. L. CAMPBELL

2,588,959

EXTENSION LADDER AND HOIST THEREFOR

Filed Jan. 18, 1947

2 SHEETS—SHEET 1



INVENTOR.
Harry L. Campbell.
BY John P. Smith.
Atty.

March 11, 1952

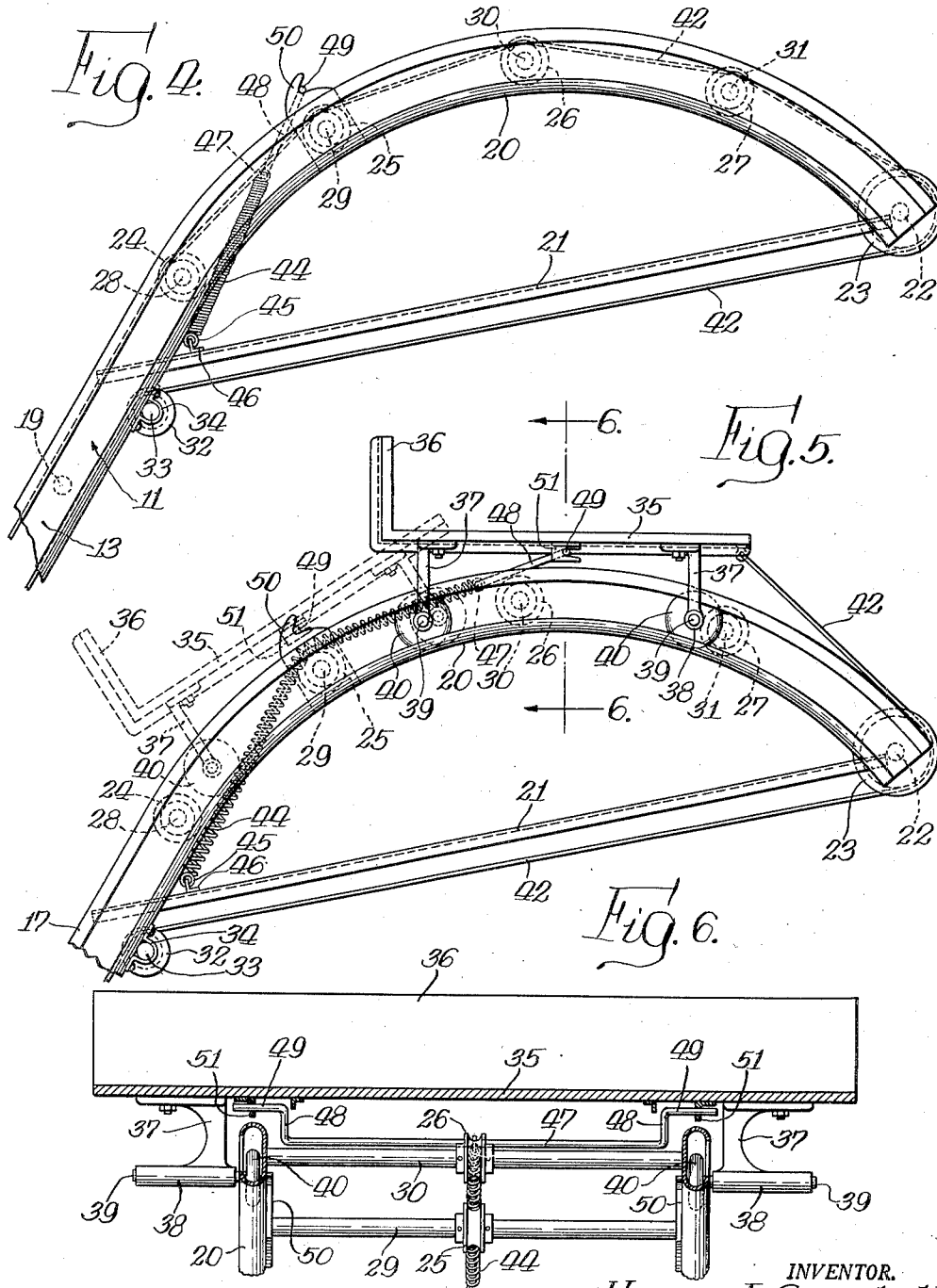
H. L. CAMPBELL

2,588,959

EXTENSION LADDER AND HOIST THEREFOR

Filed Jan. 18, 1947

2 SHEETS—SHEET 2



INVENTOR.
Harry L. Campbell,
BY John P. Smith
Atty.

UNITED STATES PATENT OFFICE

2,588,959

EXTENSION LADDER AND HOIST
THEREFOR

Harry L. Campbell, Wilmette, Ill.

Application January 18, 1947, Serial No. 722,947

2 Claims. (Cl. 214-100)

1

The present invention relates generally to ladders, but more particularly to a novel and improved construction of an extension ladder and a hoist attachment associated therewith.

One of the primary objects of the present invention is to provide a novel and improved, as well as compact form of extension ladder in which the side rails of the main ladder section and extension telescopically connect with one another so as to form a light weight and simplified structure of ladder construction.

A further object of the invention is to provide a novel and improved construction of ladder in which the side rails of the ladder sections are of channel formation and telescopically mounted within one another in combination with an elevating platform which has rollers supported in the channel-formed rails so as to form in effect tracks for the elevating and hoisting platform.

A still further object of the invention is to provide a novel and simplified construction of extension ladder in which the side rails of the respective sections are telescopically mounted, with the rungs of the ladder of the respective sections welded to the side rails and in which the side rails form the tracks for maintaining and elevating the platform in operative position on the ladder.

These and other objects are accomplished by providing a construction and an arrangement of the various parts in the manner hereinafter described and particularly pointed out in the appended claims.

Referring to the drawings:

Fig. 1 is a side elevational view of my improved ladder construction showing the manner in which the hoisting platform is supported therefrom;

Fig. 2 is an enlarged cross-sectional view taken on the line 2-2 in Fig. 1;

Fig. 3 is a similar cross-sectional view taken on the line 3-3 in Fig. 2;

Fig. 4 is an enlarged side elevational view of the curved portion of the upper section of the ladder;

Fig. 5 is a similar view showing the elevating platform in position at the delivery point on the curved extension; and

Fig. 6 is a cross-sectional view taken on the line 6-6 in Fig. 5.

My novel invention comprises a main ladder section and an extension section, generally indicated respectively by the reference characters 10 and 11. The main section comprises oppositely disposed side rails 12, which are preferably made from flat sheet metal such, for ex-

2

ample, as aluminum or magnesium alloy so as to be light in weight and of sufficient gauge to provide the necessary strength for the ladder construction. Each of these side rails 12 are of channel-like formation, but preferably in the form of the letter C in cross-section, as shown at 13. The lower portion of each of the side rails 12 has a lower extension of the C-shaped cross section in the form of an inwardly turned flange so as to form an L-shaped portion, indicated by the reference character 14. Secured at the usual uniform intervals, by means of welding, as shown at 15, are tubular rungs 16. Telescopically mounted within each of the channel or C-shaped side rails 12 of the main section 10, are complementary channel or C-shaped side rails 17 of the extension section 11. Secured at suitable uniform intervals by the means of welding 18 to each of the side rails 17 are suitable tubular rungs 19. It will be obvious from the above description that the extension 11 and particularly the side rails thereof, are telescopically mounted within the complementary side rails of the main section 10 and the construction provided thereby not only affords a rigid and compact ladder extension construction, but that the C-shaped rails 13 and 17 afford a track for supporting thereon a traveling or elevating platform of a construction hereinafter more fully described.

The upper end of the extension 11 has each of the side rails arcuately curved as shown at 20. The upper ends of the curved track or side rails is braced by a transverse angle member 21. Secured to the upper ends of the opposite curved side rails 20 is a transverse shaft 22. Journaled on the shaft 22 in the center between the side rails is a sheave or pulley 23. In a similar manner, centrally located pulleys 24, 25, 26 and 27 are journaled on the respective shafts 28, 29, 30 and 31, which, in turn, have their opposite ends secured to the opposite side rails of the curved side rails 20. Another pulley 32 is journaled on a shaft 33 which, in turn, has its opposite ends secured to the underside of the extension rails 17 by a bracket 34.

My improved elevating platform and the manner in which carriage wheels thereof are supported in the channel or C-shaped side rails of the respective ladder sections will next be described.

The elevating platform comprises a substantially flat base 33 and a right angularly projecting rear wall 36. Secured to the forward and rearward portions and to the opposite sides of the flat member 35, are depending brackets 37,

Formed integrally with these brackets are hub portions 38 in which are secured stub shafts 39. Journaled on the inner ends of each of these shafts 39 are carriage wheels 40. The carriage wheels of the elevating platform, as clearly disclosed in the drawings, are adapted to travel within the C-shaped tracks or side rails of each of the ladder sections so that the platform is free to move thereon in conveying and elevating material from the lower portion of the main section to the curved extension or to a point, for example, adjacent the roof of a building, generally indicated by the reference character 41 in Fig. 1 of the drawings. The platform may be connected to one end of a cable 42, which is attached to the front end of the platform and is trained about the pulley 23 and 32 with the lower end thereof connected to a crank operated winch, generally indicated by the reference character 43. The winch in this instance, may be power operated or manually operated and may be attached to the lower or main section of the ladder for convenient operation or control by the operator on the ground.

In order to actuate the platform 35 in its return travel after the material has been delivered therefrom, I have provided a novel arrangement and construction which includes a spring 44. The lower end of the spring is attached as shown at 45, to a transverse angle 46, which has its opposite ends secured to the opposite brace members 21. The upper end of the spring 44 is connected to the center of a transverse rod 47. The opposite ends of the rod are provided with offset portions, as shown at 48, so that the outer ends thereof, as shown at 49, seat in upwardly extending hooks 50 secured to the inner side of the opposite curved track 20. These outwardly projecting portions 49 are parallel to the main portion of the rod 47 and lie in the path of and are adapted to be engaged by oppositely disposed hooks 51 secured to the lower side of the platform 35.

From the above description it will be observed that as the elevating platform 35 reaches the curved portion of the extension 11, the hook portions 51 will engage the outwardly projecting portions 49 of the rod 47 and thereby extend or expand the spring from the position shown in Fig. 4 to that shown in Fig. 5 of the drawings, in which case the extended spring will be trained about the pulley 25. After the material has been removed from the platform and the tension on the lifting cable released from the winch, the spring will actuate the platform 35 from the full line position to the dotted line position shown in Fig. 5 of the drawings and from that point on, gravity will convey the platform to its lowermost position or the position shown in Fig. 1 of the drawings.

Summarizing the advantages and function of operation of my improved extension ladder and conveying platform, it will be observed that by forming the side rails of the main and extension sections of the ladder in channel shape or preferably in C-shaped cross-section, that I have not

only increased the strength by such cross-section, but have also afforded a simple telescopic connection between the two sections of the ladder and at the same time, provided a track for supporting the wheels of the traveling platform therein and thereby reduce to a minimum not only the number of parts heretofore required, but by such configuration and formation, have compactly arranged the parts and reduced the overall weight to a minimum.

While in the above specification I have described one embodiment which my invention may assume in practice, it will, of course, be understood that the same is capable of modification and that modification may be made without departing from the spirit and scope of the invention as expressed in the following claims.

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

1. An extension ladder comprising a main section having side rails and spaced apart rungs, an extension section having side rails telescopically mounted in the side rails of said main section, spaced apart rungs carried by said extension section, a curved extension formed integrally with said extension section, an elevating platform mounted on said ladder, an extension spring having one end attached at a point adjacent said curved extension, a transverse rod connected to the other end of said spring, hooks carried by said extension for supporting said rod in one position, and hooks carried by said platform for engaging the opposite ends of said rod as the platform moves upwardly over said curved extension.

2. An extension ladder comprising a main section having side rails and spaced apart rungs, an extension section having side rails telescopically mounted in the side rails of said main section, spaced apart rungs carried by said extension section, a curved extension formed integrally with said extension section, an elevating platform mounted on said ladder, an extension spring having one end attached at a point adjacent said curved extension, a transverse rod connected to the other end of said spring, hooks carried by said extension for supporting said rod in one position, hooks carried by said platform for engaging the opposite ends of said rod as the platform moves upwardly over said curved extension, and means carried by said main section and operatively connected to said platform for raising and lowering the same.

HARRY L. CAMPBELL.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,924,751	Porter	Aug. 29, 1933
2,198,071	Artini	Apr. 23, 1940
2,394,148	Campbell	Feb. 5, 1946