

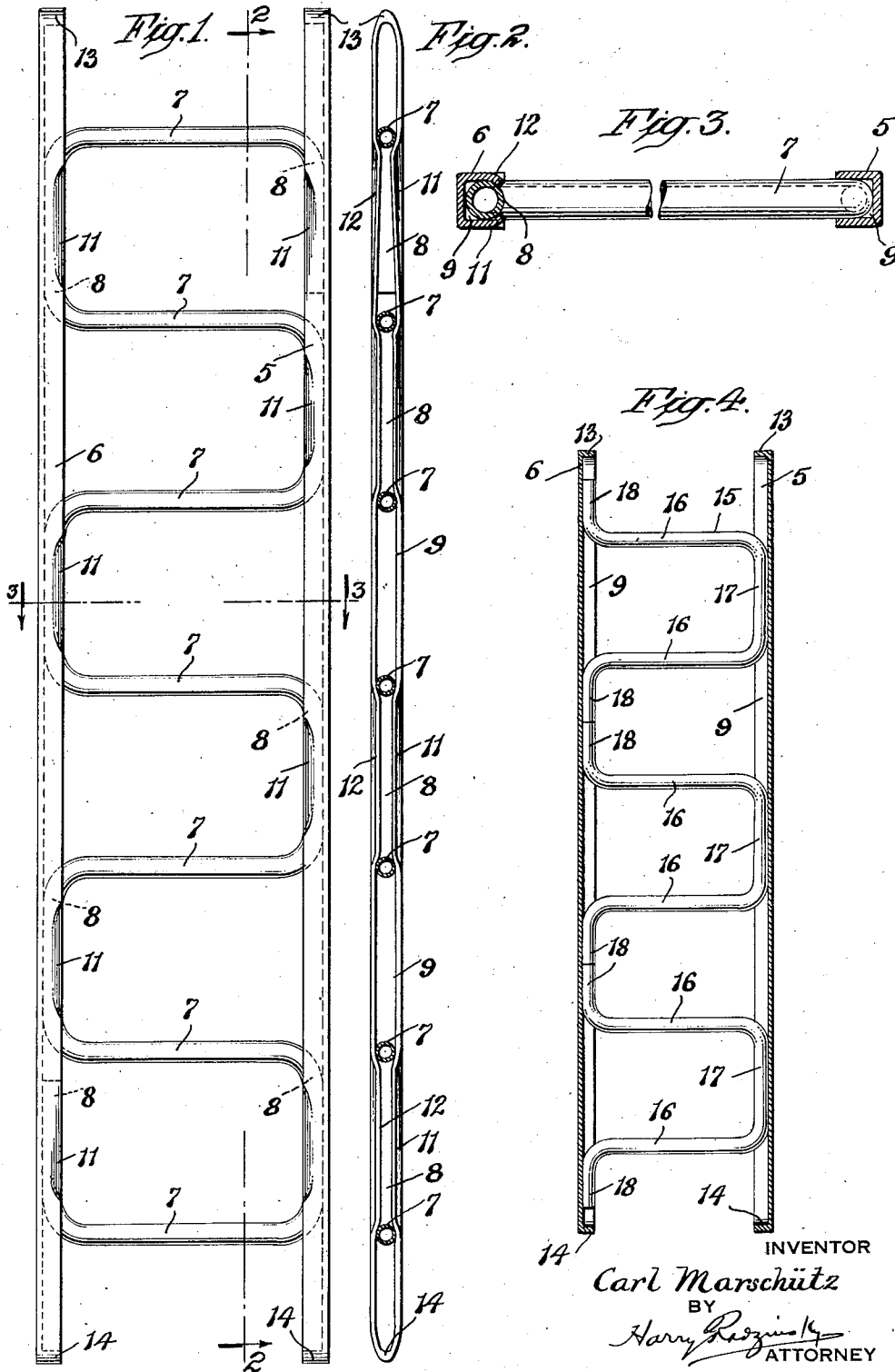
March 27, 1934.

C. MARSCHÜTZ

1,952,878

LADDER AND LIKE STRUCTURE

Filed Sept. 1, 1933



UNITED STATES PATENT OFFICE

1,952,878

LADDER AND LIKE STRUCTURE

Carl Marschütz, Nuremberg, Germany

Application September 1, 1933, Serial No. 687,746
In Germany September 21, 1932

2 Claims. (Cl. 228—56)

This invention relates to improvements in ladders and other like structures, and has for its object to provide an article of that character, light in weight and easily portable, at the same time possessing strength, sturdiness and lack of bulk. Its extreme portability makes it particularly well suited for use in the household, in stores and places of business as well as for a fire or fire-escape ladder. Many other uses will be apparent from the hereinafter described structure.

The described device, while particularly adapted for use in the construction of ladders, is also well suited as a girder for use in building constructions, bridges, and the like, and may also be used in scaffolding work, fence work and in other environments too numerous to specifically set forth herewith.

In the accompanying drawing, wherein the preferred embodiment of the invention is shown, Fig. 1 is a front elevation of a ladder, girder or other structural element made in accordance with the invention; Fig. 2 is a longitudinal sectional view through the structure of Fig. 1 on the line 2—2 thereof, looking in the direction of the arrows; Fig. 3 is a sectional view on the line 3—3 of Fig. 1, looking in the direction of the arrows; and Fig. 4 is a sectional view of a modified structure.

In the embodiment of the invention shown in Figs. 1 to 3 inclusive, 5 and 6 indicate a pair of longitudinal members or side pieces, which, in the case of a ladder or like structure, form the supporting legs thereof. These members 5 and 6 are each composed of channel-shaped metal. In the assembled structure, the channels face toward one another. The rungs of the ladder are formed from a single, lengthy section of metal tubing 10 which is bent sinuously to the form clearly shown in Fig. 1. When the tubing is so bent, a series of uniformly spaced rungs 7 is provided, said rungs being connected by integrally formed end pieces 8 which lie within the channels 9 of the members 5 and 6 and extend co-extensively therewith.

The tubing 10 is secured to the members 5 and 6 by having the opposing side flanges 11 and 12 of the channels 9 squeezed or bent inwardly toward one another, as clearly shown in Fig. 3, so as to grip the end pieces 8 of the member 10, located in the channels, securely holding the structure together. The end pieces 8 may also be welded in the channels of the members 5 and 6 if extraordinary sturdiness of structure is found desirable.

The ends of the longitudinal members 5 and 6 are brought together to close the ends of the channels, as shown at 13 and 14.

In the modified structure shown in Fig. 4, the rungs are made up of a number of separate, similar U-shaped sections 15 of tubing, placed together in the manner shown and producing a finished structure similar in every way to that shown in Figs. 1 to 3 inclusive. The U-shaped sections 15 each have the rung portions 16, connecting pieces 17 and laterally projected leg-ends 18. The leg-ends 18 and end pieces 17 lie within the channels of the longitudinal members 5 and 6 and are secured therein by the bending inward of the walls of the channel as previously described.

While I have herein described the structure as a ladder, it will be understood that it may well be used for many other structural purposes, as for girders in building and bridge construction, scaffolding, railings and the like. It is therefore intended that such structures shall be considered as within the scope of the invention without departing from the spirit thereof.

What I claim is:

1. An article of the character described comprising, a pair of longitudinal side members composed of channel-shaped metal, cross members having parallel ladder rung portions disposed between the side members, said cross-members being composed of bent metal tubing and formed with portions integral with the rungs and extending at right angles thereto, said portions lying within the channels of the side members, the sides of said channels being inwardly bent to grip those portions of the tubing which are located between them.

2. An article of the character described comprising, a pair of channelled longitudinal members, a series of ladder rungs disposed between them, said rungs being composed of a number of U-shaped bent tubing sections, each of said U-shaped sections having its end portions lying within the channels of the longitudinal members, the sides of said longitudinal members being inwardly bent at intervals to embrace those portions of the U-shaped sections which are located between them.

CARL MARSCHÜTZ.

105

110