June 15, 1965 M. RATEAU 3,189,124

LADDER

Filed Nov. 29, 1963

Fig. 1

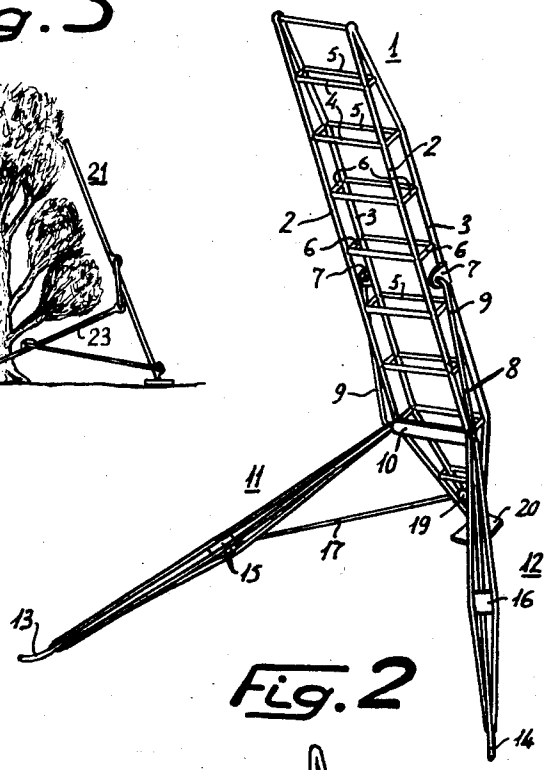
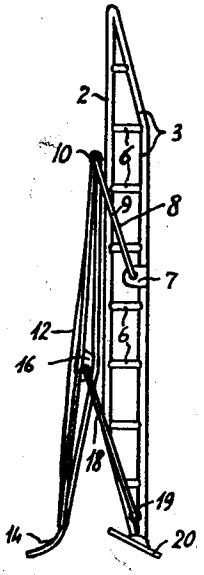


Fig. 3

Fig. 2



INVENTOR

MARCEL RATEAU

By Irwin S. Thompson

ATTY.

United States Patent Office 3,189,124 Patented June 15, 1965

3,189,124

LADDER

Marcel Rateau, Chateau de St. Christophe, Puch-d'Agenais, Lot-et-Garonne, France

Filed Nov. 29, 1963, Ser. No. 326,872
Claims priority, application Belgium, Nov. 30, 1962, 625,530
3 Claims. (Cl. 182—170)

This invention relates to a ladder able to be used without top bearing.

One object of this invention is to provide a ladder comprising a straight ladder and two stabilizing arms, of which the upper respective ends are connected to said straight ladder at a point on the lower half of said straight ladder. Thus, the upper part of the ladder is clear and may be placed near any work place even when obstacles are under the ladder.

Another object is to provide such a ladder of which said two stabilizing arms are divergent from the plane of said straight ladder, on which the upper end of said stalilizing arms is articulated, whereby said stabilizing arms may be placed by pivoting near the plane of said straight ladder and consequently the dimensions of the ladder assembly are very reduced for transport and ranging.

According to another object of the invention, a pull-rod, articulated at its ends, links each of said stabilizing arms and said straight ladder, near the foot thereof.

With the above objetcs in view and others such as will be referred to, the invention consists in the construction and combination of parts, such as hereinafter described and claimed.

In the accompanying drawing which illustrates one embodiment of the invention:

FIGURE 1 is a perspective view of said embodiment.

FIGURE 2 is a transverse view of the same in folded position, and

FIGURE 3 is a schematic transverse view, on a reduced scale, of the same embodiment in use.

According to the invention and as shown in FIGURES 1 and 2, the ladder comprises a straight ladder 1 provided with double lateral uprights 2 and 3, a set of rungs 4 horizontally fixed between the uprights 2, a set of rungs 5 horizontally fixed between the uprights 3 and a set of cross-bars 6 fixed between the uprights 2 and 3. On each upright 3 are attached mountings 7 adapted to the articulation on the free branches 9 of a support 8 somewhat U-shaped. The horizontal branch of the support 8 passes through a tube 10 and is free to rotate therein. Each end of the tube 10 is rigid with the upper end of a stabilizing arm 11 and 12 respectively.

Each stabilizing arm 11 and 12 is formed with a triangular beam of which the free end 13 and 14 is bent up. In the midst of each arm 11 and 12 is secured a set of plates 15 and 16 respectively. Each set of plates 15 and 16 is adapted to strengthen the corresponding arm and to support the articulation of the end of the pull-rod 17 and 18, respectively. The other ends of the pull-rods 17 and 18 are rigid with a common cross-bar, which passes through a horizontal tube 19 and is free to rotate therein. The tube 19 is fixed between the uprights 2 and 3 of the straight ladder 1, near the foot thereof. A sole 20 is fixed or hinged to this foot.

The manner of use of the improved ladder, according to the invention, is described hereinafter. FIGURE 1 shows the ladder assembly in position of service. At a distance from the straight ladder 1, the stabilizing arms 11 and 12 diverge from each other, so that the respective raised ends 13 and 14 of the arms 11 and 12 and the sole 20 rest on the ground, at the three apices of an isosceles triangle, inside of which the top of the straight ladder 1

and the load resting on this ladder project, whereby a considerable stability is obtained. For transport and positioning, it suffices to pivot upwards the support 8 and consequently the upper ends of the arms 11 and 12. As the pull-rods 17 and 18 are articulated, the plane of the arms 11 and 12 comes near the plane of the straight ladder 1; and the sole 20 and the arm ends 13 and 14 rest on the ground, at the apices of a triangle of which the surface is large enough for a good stability of the assembly thus folded.

FIGURE 3 shows schemtaically a ladder 21 similar to the preceding one and the stabilizing arms 23 of which are disposed on each side of an obstacle, a tree 22 for example. As the stabilizing arms 23 are divergent from each other, it is clear that the top of the ladder 21 may be disposed so that it reaches all the branches of the tree 22, notwithstanding the presence of the trunk and lower boughs of the tree. Thus an important advantage is obtained with respect to known ladders. Effectively, it is not possible to bring a single ladder to bear against fragile structures. With a double ladder, the user may not face the work place, namely when the ground is not clear underneath.

According to the invention, the ladder may be used in the most varied situations and particularly for performing work on young trees, such as fruit-trees for instance.

Metal welded tube assembly may be used for building the ladder, according to the invention; thus the highest strength is obtained with the lowest weight. However various elements, such as metal or plastic profiles or wood pieces are usable for the ladder structure.

An extensible ladder may take the place of the straight ladder 1 or 21.

I claim:

1. A ladder comprising a straight ladder section, stabilizing arms, first link means articulately interconnected at opposite ends thereof with a midportion of said straight section and with the upper ends of said stabilizing arms, the length of said first link means being such that in one position of said link means when said link means extends downwardly from said straight section the upper ends of said stabilizing arms contact a lower portion of said straight section, and second link means articulately interconnecting the base of said straight section and a portion of said stabilizing arms below said upper ends.

2. A ladder as claimed in claim 1, and a supporting foot articulately interconnected to the base of said straight section.

3. A ladder as claimed in claim 1, said first link means comprising a first single U-shaped member having a first transverse portion, a first tubular socket carried by said upper ends, said first transverse portion being disposed in said first tubular socket, said second link means comprising a second single U-shaped member having a second transverse portion, a second tubular socket carried by the base of said straight section, said second transverse portion being disposed in said second tubular ocket.

References Cited by the Examiner

UNITED STATES PATENTS

163,114	5/75	Stichter	182—165
1,727,211	9/29	Marlatt	182—127
1,812,119	6/31	Rue	182—180

FOREIGN PATENTS

69,957	9/49	Denmark.

HARRISIN R. MOSELEY, *Primary Examiner.*
REINALDO P. MACHADO, *Examiner.*