June 3, 1930. H. M. HAVENS 1,761,726

TRUCK LADDER

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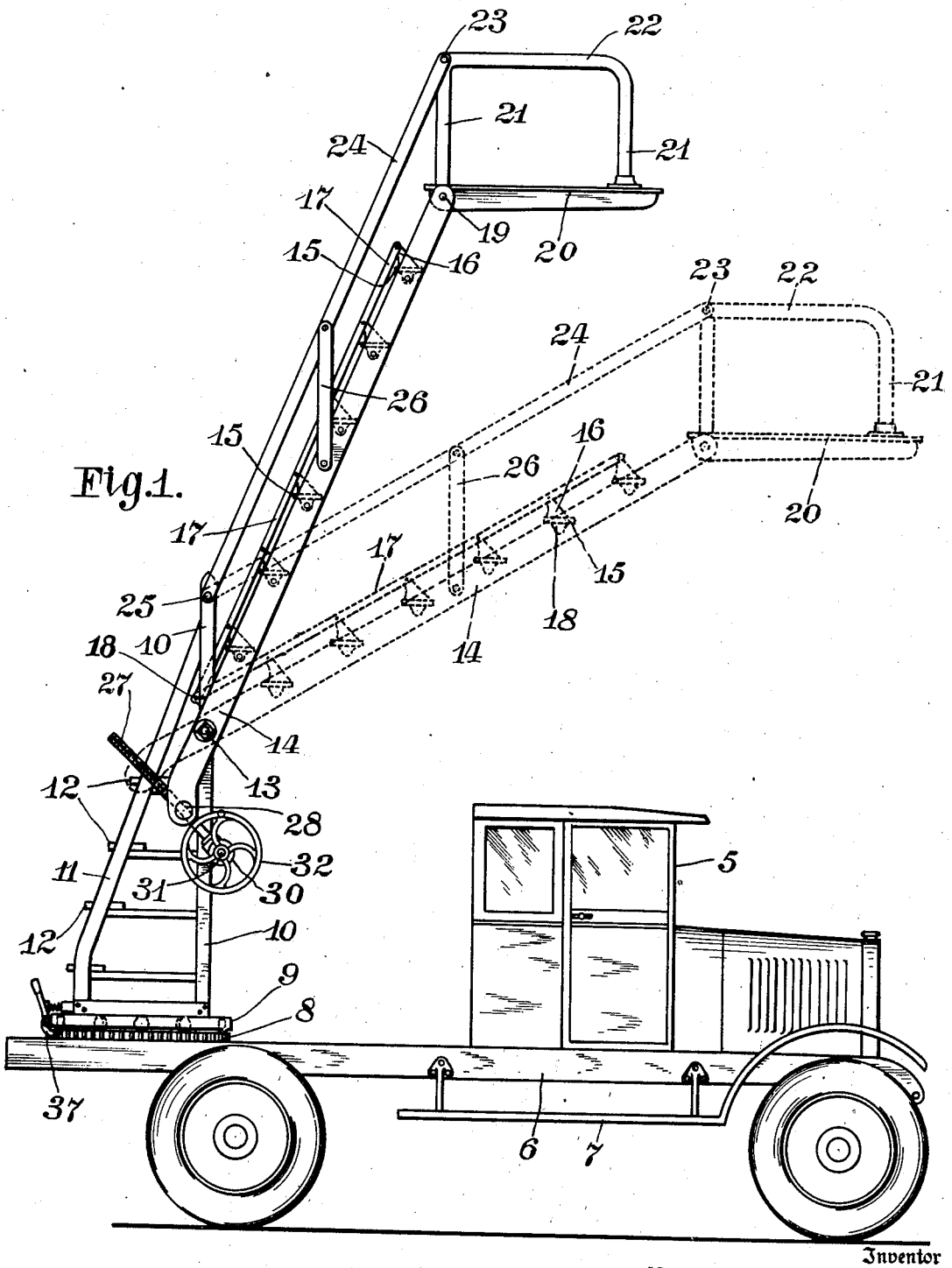


Fig. 1.

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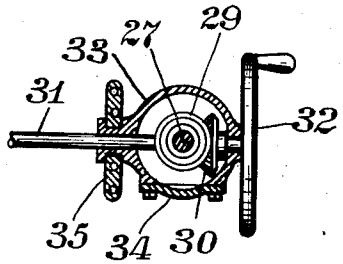


Fig. 3.

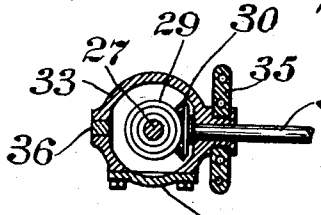


Fig. 4.

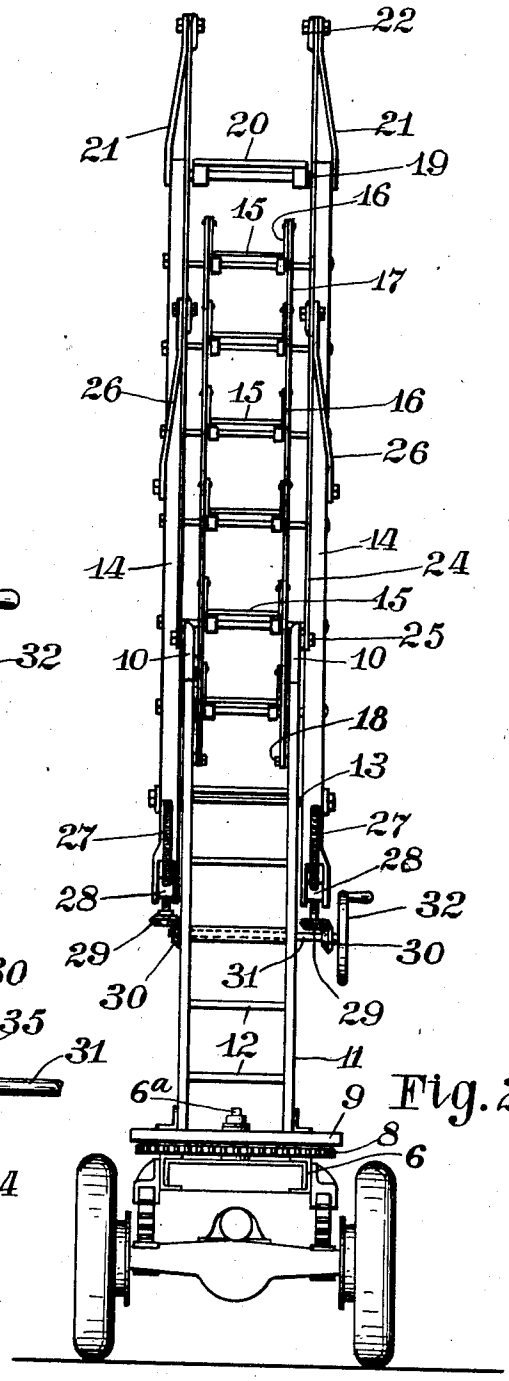


Fig. 2.

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UNITED STATES PATENT OFFICE

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TRUCK LADDER

Application filed May 14, 1928. Serial No. 277,519.

This invention relates to ladders and more especially to a ladder with a platform mounted on a truck and adapted for trimming lamps, repairing trolley wires, trimming trees or other work where it is desirable to carry the ladder quickly from place to place and raise the ladder and platform to permit the doing of the job and lower the same or turn the ladder and platform to different points horizontally.

The principal object of the invention is an improved and simplified construction whereby the platform and the treads of the steps thereto are maintained in a horizontal position whatever be the degree of elevation from the horizontal or prone position of the ladder. Other objects will appear from the disclosure herein.

The invention is embodied in the example herein shown and described the features of novelty being finally claimed.

In the accompanying drawings—

Figure 1 is a view in side elevation of the structure according to the invention showing, in full lines, the ladder and platform in an elevated position and, in broken lines, the same somewhat lowered from the elevated position.

Fig. 2 is a view in elevation looking from the left hand side of Fig. 1, portions of the truck being omitted to avoid confusion.

Figs. 3 and 4 are sectional views, on a larger scale, of a housing for the right hand and left hand operating gears, respectively, as shown in Fig. 2.

In the example shown there is employed an ordinary motor vehicle truck having a cab 5, a bed 6, and a running board 7 enabling a workman easily to climb into the cab or onto the bed.

Upon the rear of the bed is fixed a circular base 8 having, in the example shown, its rim toothed. Pivotally mounted with a suitable king pin 6^a and anti-friction bearings on the base is a turn-table 9 upon which is erected a frame including vertical standards 10 braced by inclined rails 11 between which are supported a suitable number of steps 12 constituting a relatively stationary ladder leading to the steps of the swinging ladder.

Pivoted at 13 to the standards 10 are the side bars 14 of the swinging ladder. The pivotal points 13 are preferably such that the ladder can be brought to stand horizontally over the cab.

Between these side bars and pivoted thereto is a series of steps 15 each of which has at its opposite ends, a laterally projecting tongue 16 that is pivotally connected to a rod 17 that in turn is pivoted to an ear 18 on the standard 10 so that when the side bars 14 are raised or lowered the treads of the steps 15 are maintained in horizontal position.

Pivoted at 19 between the free extremities of the side bars beyond the aforesaid steps is a platform 20 provided with uprights 21, and, if desired, side rails 22. Pivotally connected at 23 with the upper end of the uprights 21 are rails 24 that extend parallel to the ladder side-bars 14, said rails 24 being pivotally connected with the standard 10 at 25 so that when the side-bars are swung up or down the platform 20 is maintained in a horizontal position as can be observed from an inspection of the full line and broken line position of the ladder and platform as shown in Fig. 1. Intermediate links 26 can be added between the rails 24 and side-bars 14 for the purpose of bracing the rails, said links being pivoted to the rails and side bars as shown.

It will be observed that the rods 17, and the side bars 14 form with the portion of standard 10 between the pivots of said rod and side bar a parallelogram the form of which changes with a change of the elevation of the ladder. The side of such parallelogram between the pivots of the standard 10 being constant and fixed, controls the position of the steps.

It will also be observed that the rail 24 and side bar 14 together with upright 21 make a parallelogram of changeable form according to the elevation of the ladder controlled in a similar way by the pivotal connection of the rail and side bar with the standard 10 so that the floor of the platform is maintained concurrently with the steps in level position as the side bars of the ladder are raised or lowered.

The means for raising and lowering the

ladder includes a screw 27 at each side of the ladder, said screws turning in threaded blocks 28 swiveled in the side bars below the pivotal point thereof.

Said screws 27 each has fixed to its lower end a bevel gear 29 engaged by a bevel gear 30, the latter being fixed on a cross shaft 31, said shaft having affixed thereto at one end a handled wheel 32, for turning the gears and the screws 27 in unison in one direction or the other according as the intention is to elevate or depress the ladder and platform. Said screws and threaded blocks lock the ladder in the position to which raised or lowered.

The gears 29—30 are preferably inclosed with housings 33 each provided with a removable cover 34, such as shown in Figs. 3 and 4; that shown in Fig. 3 being designed for the right hand gears as shown in Fig. 2 while that shown in Fig. 4 is designed for left hand gears of said Fig. 2.

The casings for these housings can be identical, each having an annular groove for receiving a bearing 35 for bolting it to the edge of the side of the stationary ladder. The gears and bearings can be supplied with lubricating grease upon temporarily removing the cover 34. When the housing are made identical they are attached in reversed position, the hole for the cross shaft 31, when used in the right hand one, being suitably plugged as shown at 36 when used in the left hand one.

The frame carrying the swinging ladder is shown as provided with a spring latch 37 for engaging the rim of the turn-table to hold the ladder from turning horizontally. The ladder can be turned on said base to any desired position by pushing it around on the table it being secured in the position desired by said latch 37. By reason of this the ladder can be swung out of the way of traffic or the ladder used with the truck in any position it may occupy in the road. For example in repairing the trolley wire of a railway, the truck can stand off and parallel with the track and the platform swung under the wiring to permit the making of repairs and away from the wiring to permit the cars to pass along the tracks without moving the truck. Many other features of utility will suggest themselves to those skilled in the art.

The forms of the parts can be changed without departing from the gist of the invention as claimed.

What I claim is:

1. An aerial platform ladder including a truck, a ladder pivoted at one end for vertical and horizontal movement on said truck, said ladder having therein a series of pivoted steps and means for maintaining said steps in horizontal position during the raising and lowering of the ladder, a platform pivoted to the other end of said ladder and means for maintaining said platform in horizontal position during the raising and lowering of the ladder.

2. In an apparatus of the kind described, a truck, a standard on said truck, a ladder pivoted to the standard to swing vertically, a series of steps each pivoted to the ladder and having a tongue extending laterally therefrom, a bar pivoted to said tongues and the standard, a platform pivotally connected with the free end of the ladder, and a hand rail pivotally connected with said standard and said platform whereby said steps and platform are maintained in horizontal position when the ladder is raised or lowered.

3. In an apparatus of the kind described, a truck, a standard on said truck, a ladder pivoted to the standard to swing vertically, a series of steps each pivoted to the ladder and having a tongue extending laterally therefrom, a bar pivoted to said tongues and the standard, a platform pivotally connected with the free end of the ladder, a hand rail pivotally connected with said standard and said platform whereby said steps and platform are maintained in horizontal position when the ladder is raised or lowered and means for raising and lowering said ladder.

4. In an apparatus of the kind described, a truck, a standard on said truck, a ladder pivoted to the standard to swing vertically, a series of steps each pivoted to the ladder and having a tongue extending laterally therefrom, a bar pivoted to said tongues and the standard, a platform pivotally connected with the free end of the ladder, a hand rail pivotally connected with said standard and said platform whereby said steps and platform are maintained in horizontal position when the ladder is raised or lowered and a base on which said standard and ladder are pivotally mounted to swing horizontally.

5. In an apparatus of the kind described, a truck, a standard on said truck, a ladder pivoted to the standard to swing vertically, a series of steps each pivoted to the ladder and having a tongue extending laterally therefrom, a bar pivoted to said tongues and the standard, a platform pivotally connected with the free end of the ladder, a hand rail pivotally connected with said standard and said platform whereby said steps and platform are maintained in horizontal position when the ladder is raised or lowered and means for raising and lowering said ladder including meshing gears on the standard and ladder, the gear on the ladder provided with a screw engaged with the ladder.

6. In an apparatus of the kind described, a truck, a standard on said truck, a ladder pivoted to the standard to swing vertically, a series of steps each pivoted to the ladder and having a tongue extending laterally therefrom, a bar pivoted to said tongues and the standard, a platform pivotally connected

with the free end of the ladder, a hand rail pivotally connected with said standard and said platform whereby said steps and platform are maintained in horizontal position when the ladder is raised or lowered, and means for raising and lowering said ladder including meshing gears on the standard and ladder, the gear on the ladder provided with a screw engaged with the ladder and a rotary housing for the gears on the standard.

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