

July 8, 1941.

H. J. TROCHE

2,248,794

LADDER UTILITY VEHICLE

Original Filed Nov. 22, 1939

2 Sheets-Sheet 1

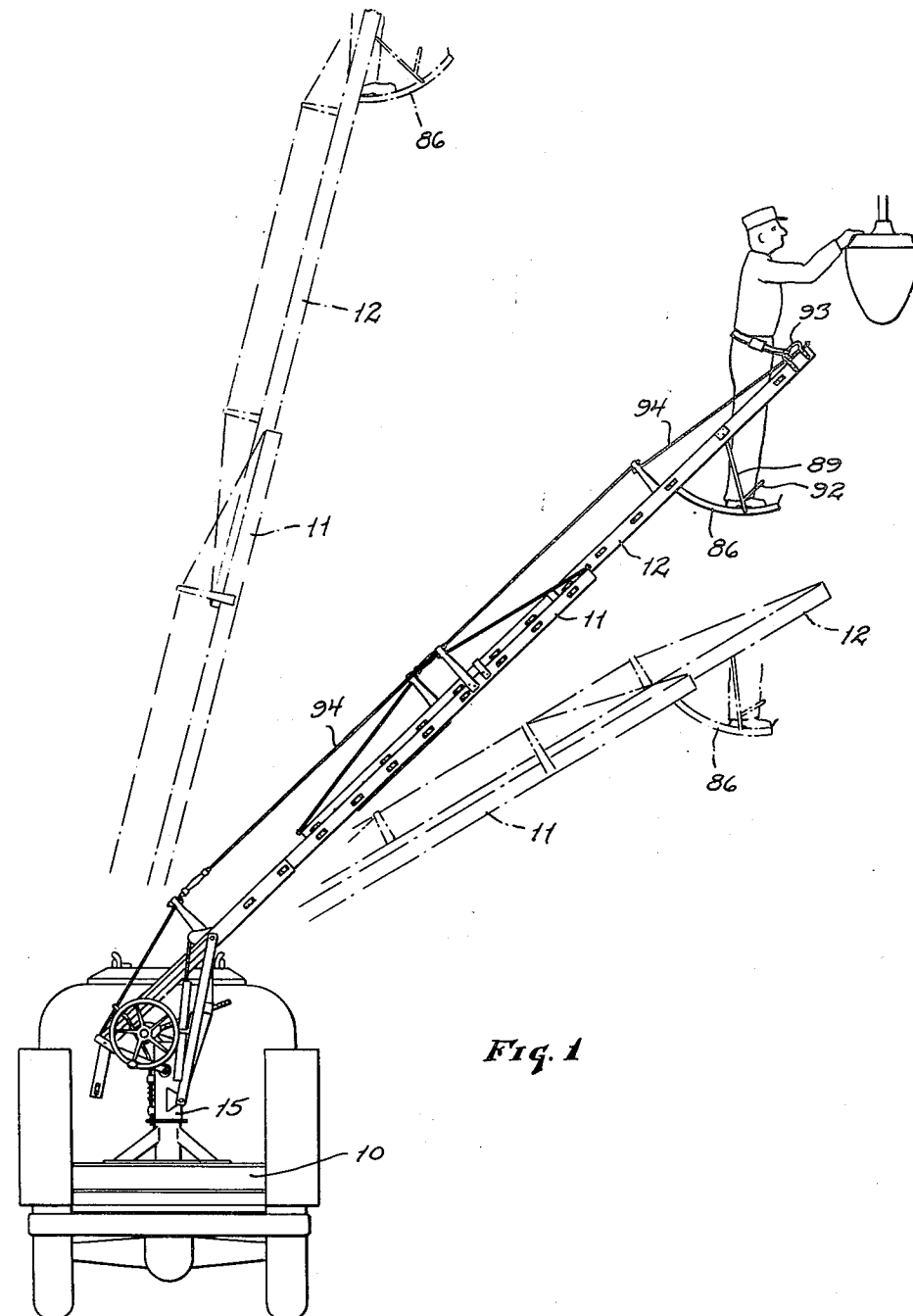


Fig. 1

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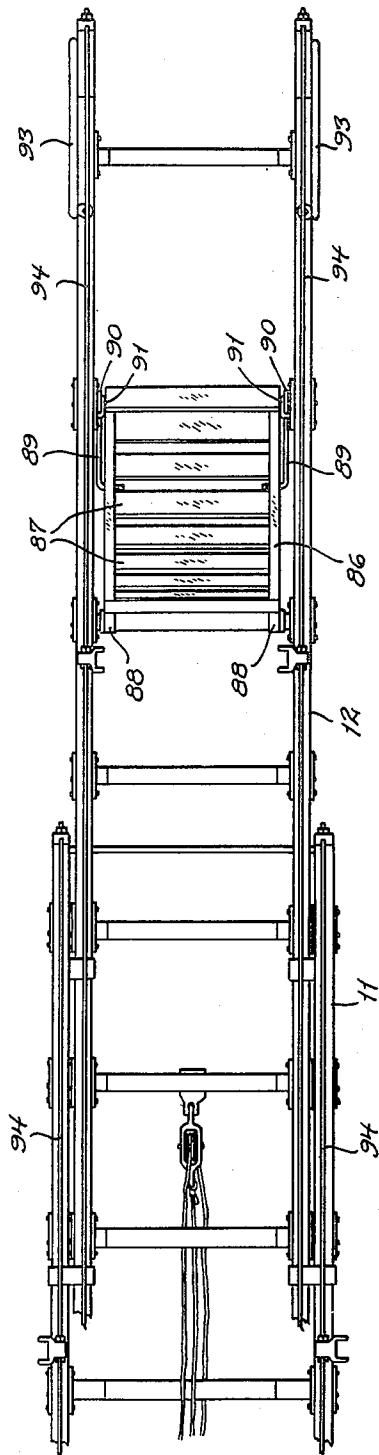


Fig. 2

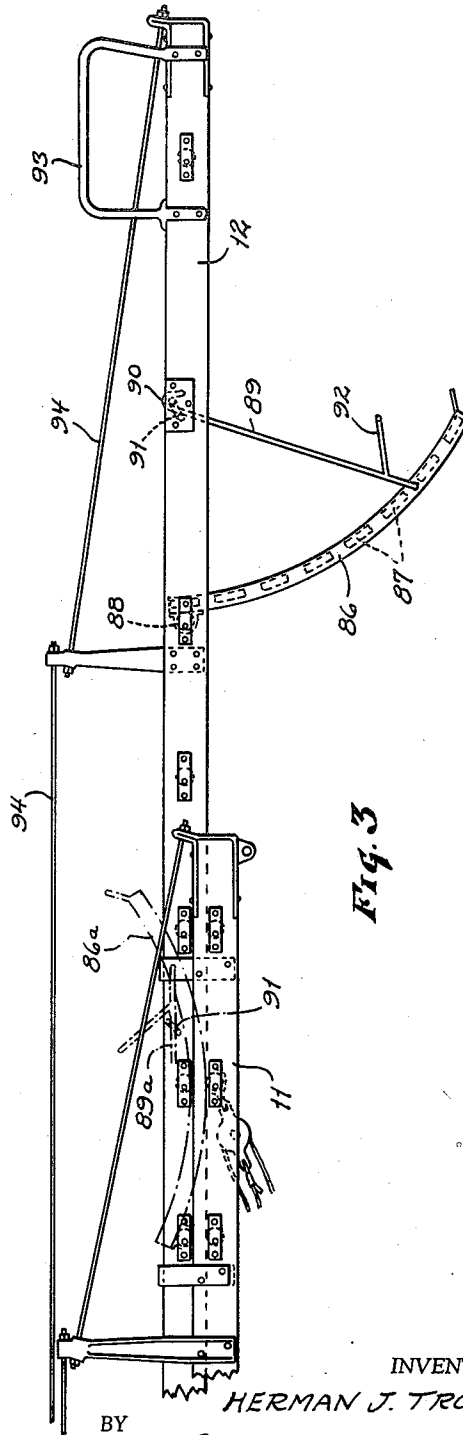


Fig. 3

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LADDER UTILITY VEHICLE

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Original application November 22, 1939, Serial No.
305,664. Divided and this application April 3,
1940, Serial No. 327,674

8 Claims. (Cl. 228—6)

This invention relates to a utility vehicle having a ladder thereon that is swingable and tiltable with reference to the vehicle for obtaining access to overhead traffic lights, street lamps, and the like. The invention finds particular application in cities where traffic is heavy, and where provision must be made for reaching an overhead location speedily without interfering with the normal operation of traffic, and without interference from cars which may be parked beside the signal to be attended. The present application is a division of my copending application, Serial No. 305,664, filed November 22, 1939.

One of the difficulties in mounting a ladder upon a truck has been to make it long enough to reach the desired objectives within the limited space of a vehicle and yet light enough to be operated readily by only one man. An additional difficulty has been the fact that after a ladder has been once adjusted for direction and height, the operator could not move around upon it to different locations without endangering his safety.

The present invention has for one of its objects, an arrangement which permits one man to swing and tilt the ladder quickly to any desired position, and to provide a platform at the upper end thereof which will automatically fall into operating position upon the mere act of extending the ladder, and which will enable an operator to move about and always to stand upon a horizontal surface regardless of the angle at which the ladder is disposed with reference to the ground.

Referring now to the drawings, Fig. 1 is a rear view of a motor vehicle having a ladder embodying my invention mounted thereon and illustrating the ladder in various positions; Fig. 2 is a top plan view of the ladder in extended position; and Fig. 3 is a side view of the ladder in extended position.

I have shown the ladder as being mounted upon the floor of a motor vehicle, indicated in general at 10, and as being used for providing access to an overhead lamp. The ladder illustrated is the extensible type, there being two sections 11 and 12 indicated in this application. These sections are mounted for telescopic movement with respect to each other in the customary manner, and for the purpose of description herein, the section 11 will be referred to as the lower or stationary section while the section 12 will be designated as the upper or extensible section.

The ladder is so supported upon the vehicle that it can be swung through an entire circle

with reference thereto, and tilted at any desired angle, within its range, with reference thereto. The mechanism for supporting the ladder is illustrated and described in detail and claimed in my aforesaid application, Serial No. 305,664 and, hence, for the purpose of this application, it will be sufficient only to state that the ladder is slidably and tiltably mounted upon a column 15 which in turn is rigidly fastened to the floor of the vehicle.

The present application is concerned with the provision of a platform which is disposed adjacent the top of the movable ladder section and which is so made that an operator can stand erect regardless of the angular position of the ladder. Moreover, I so construct the platform that it may swing automatically into operating position whenever the ladder is extended and will automatically move back into idle position upon retraction of the ladder to the storage position. The platform 86, which is shown in use in Fig. 1, embodies curved side rails that are connected by spaced foot supports 87, Fig. 3. The inner ends of the side rails are pivotally mounted at 88 on a rung of the upper ladder section, while the outer ends are supported by rods 89 that have a hooked portion 90 at the free end thereof. Each rod passes through a U-shaped bracket 91 which, as shown in Fig. 3, extends obliquely to the side rail of the upper section. Thus, as the ladder is extended, the platform drops into operative position, and the hooks 90 engage the U-shaped bracket and thus hold the platform securely in place. Upon retraction of the upper section, the platform swings about the pivots 88, being cammed up by the end rung of the lower section, while the rods 90 move upwardly in the brackets 91 until they assume the position shown by the broken lines 86a and 89a in Fig. 3.

As an added safety feature for the workman at the top of the ladder, I provide a U-shaped foot guard 92 which connects the rods 89, and I provide hand grip brackets 93 which are rigidly attached to the upper end of the movable ladder section. The brackets 93 also permit the attachment of the safety belt as is shown in Fig. 1. An additional safety feature are the truss rods 94 which reinforce the ladder rails against deflection and which serve as hand rails while the workman is moving along the ladder.

The ladder platform made in accordance with the present invention is advantageous in that it affords comfort to an operator regardless of the angle to which the ladder is tilted while it is in use. A further advantage is the fact that the

platform automatically drops into operative position whenever the ladder is extended and automatically retracts to storage position whenever the ladder is collapsed.

I claim:

1. In combination, a ladder having a relatively stationary section and an extensible section, means for supporting the ladder upon a vehicle for tilting and swinging movement with reference thereto, and a curved platform concave upwardly carried by the movable section, said platform operating to permit a workman to stand on an approximately level surface irrespective of the angle at which the ladder is tilted with relation to the vehicle.
2. In combination, a vehicle, a ladder mounted for tilting and swinging movement thereon and having an extensible section, a curved platform concave upwardly pivotally carried on the extensible section, and means for detachably connecting the free end of the platform to the extensible section at a point removed from said pivotal connection, said means allowing the positioning of the platform automatically upon extension of the ladder, and to move the platform automatically into nesting relationship with the ladder upon retraction of the ladder.
3. In combination, a vehicle, a ladder mounted for tilting and swinging movement thereon, said ladder having an extensible section, a curved platform pivotally mounted on the movable section, and having an arm carried adjacent the free end thereof, the end of the arm opposite the platform terminating in a hook, the section having a guideway thereon for the arm and having an abutment which may be engaged by the hook to support the platform in operative position, said hook being disengageable from the abutment automatically upon retraction of the ladder to collapsed position.
4. The combination of a vehicle, a ladder carried thereby adapted to be elevated into an upwardly inclined position at various angles, and a platform carried by the ladder adjacent the top thereof and concave on its upper surface, whereby the workman may stand on an approximately level support irrespective of the angle of incline of the ladder.

5. A combination of a vehicle, a ladder carried thereby and adapted to extend upwardly at various angles, a platform concave on its upper surface pivoted to the ladder and adapted to fold along it or project from it, and means for supporting the platform in projected position.

6. A combination with a vehicle of a ladder carried thereby adapted to extend upwardly at various angles, said ladder having two side rails and cross rungs, the ladder having near its upper end an open space between the rails and a platform below such open space, the platform being concave upwardly by a surface which is arcuate in a direction transverse of the ladder and straight in a direction parallel with the plane in which the two rails lie, whereby a man in the open space between the rails may stand on an approximately level support furnished by the top surface of the platform.

7. In combination, a vehicle, a ladder having an extensible section, means for mounting the ladder for swinging and tilting movement upon the vehicle, a curved platform concave on its upper face carried by the extensible section, and means on the extensible section for supporting the platform in a manner which will allow movement of the platform automatically into operative position upon extension of the ladder, and to cause the platform to retract automatically into nesting relationship with the extensible section upon retraction of the ladder.

8. In combination, a vehicle having a platform and a driver's cab, a ladder having an extensible section, means for mounting the ladder for tilting and swinging movement upon the platform, a curved platform concave upwardly carried by the extensible section of the ladder and supported for nesting relationship therewith while the ladder is in collapsed position, the platform being pivotally carried by the ladder in such manner that it may be automatically extended and held in its operative position upon extension of the ladder.

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