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LADDER HOLDER

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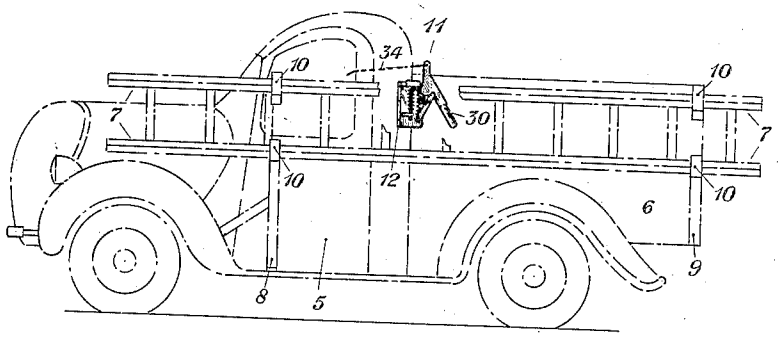


Fig. 1

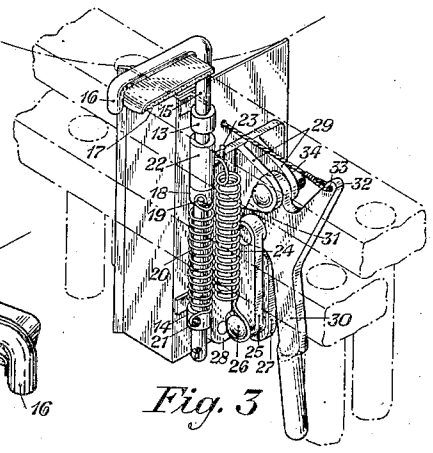


Fig. 3

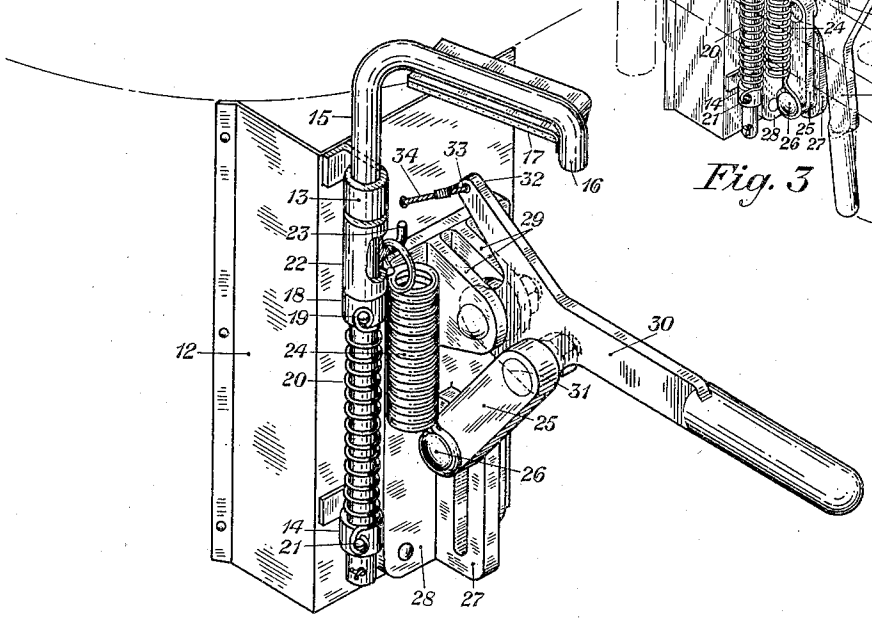


Fig. 2

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LADDER HOLDER

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4 Claims. (Cl. 248—361)

This invention relates to means for holding ladders in position upon the sides of trucks or other vehicles in such manner that they may be readily released.

One of the objects of this invention is to provide a holder for ladder or grouped ladder sections whereby the ladder or ladder sections may be mounted and held in rigid position upon the side of a truck so that accidental displacement or rattling is avoided.

Another object is to provide mechanism by which the ladder or grouped ladder sections may be instantly released from a clamped position so that they may be readily removed from the truck or other vehicle.

These and further objects will be apparent from the following description, when considered in connection with the accompanying drawing, in which one embodiment of the invention is illustrated.

Referring to the drawing, Figure 1 is a side elevation of an automotive truck showing the improved device applied thereto;

Fig. 2 is a perspective view of the improved arrangement showing it in released position; and

Fig. 3 is a perspective view showing the improved device applied to a ladder to clamp it in position.

In Fig. 1 of the drawing a motor truck is shown in dotted lines. This truck, while illustrated as of a certain type, may, of course, be of any other type. The truck is illustrated as being provided with the usual driver's cab 5 from which a truck body portion extends. This body portion is shown as having sides or panels 6, and the ladder or grouped sections of ladders 7 may be carried on one or the other or both of these panels.

The ladder or ladder sections 7 are normally positioned on holders 8 and 9. The holder 8 comprises a standard carried on the running board of the truck and fastened to the side of the truck body forwardly of the door of the cab, and the holder 9 is carried on a side panel 6 and at the rear of the truck. These holders are each provided with a pair of L-shaped bracket portions 10, 10 which form seats and guards for the upper and lower rails of the ladder.

The improved device is shown at 11, and is adapted to quickly clamp the ladder or ladder sections 7 upon the holders 8 and 9 and to be operated to instantly release the ladder or ladder sections from a clamped position so that they may be removed from the holders. This device is shown in the present instance as being attached to one corner of the cab 5, as shown in Fig. 1, by means of an angular mounting plate 12 which is screwed or otherwise secured to the cab. It will be obvious that the device may be attached at any other proper position so that it may be applied to the ladder or ladder sections. A bearing 13 is suitably mounted near the top and near a vertical edge of the plate 12, and a cooperating bearing 14 is mounted near the bottom of said plate and directly below the bearing 13. A shaft or shank 15 is journaled in these bearings and is provided with a hook portion at its top which extends at right angles therefrom. This hook portion is adapted to be rotated with the shaft approximately 90 degrees from a released position, out of engagement with the ladder, to a position in engagement with the top rail of the ladder to securely clamp it upon the supporting brackets 10, 10. Upon the release of this tension, the hook portion 16 is caused to move upwardly free from engagement with the ladder rail, and be rotated approximately 90 degrees to a disengaged position. This action is brought about by the spring 20 which acts as a compression spring and also as a torsion spring, as will be presently described. A shield 17 of woven brake lining or the like may be applied to the lower or contract surface of the hook portion to prevent scraping or injury to the ladder rail at the point where it is clamped.

A collar 18 is fixed to the shaft 15 by a set screw 19 or the like, which serves as an anchor for one end of a spring 20. This spring lies about the shaft 15 and is anchored at its other end to a set screw 21. A second collar 22 is carried by the shaft 15 and lies intermediate the bearing 13 and the fixed collar 18. The collar 22 is provided with a hook or bracket 23 which is welded or otherwise secured thereto. A spring 24 is attached at one looped end to this bracket member 23, and the other looped end of the spring is held in clamped position against the side of and at one end of link 25 by a bolt the head of which is shown at 26. The bolt passes through the link and through a vertical slot in a casting 27. A nut on the other end of the bolt holds it and the link 25 in position so that the bolt may ride up and down in the slot, as will presently appear.

The casting 27 extends perpendicularly from and is integral with the plate 28. This plate is shown as being of rectangular shape and is fixed to one face of the plate 12. The plate 28 carries a pair of parallel lugs 29 which extend outwardly therefrom, and are positioned above the slotted casting 27. A control lever 30 is provided

for the device, and this lever has an eccentric portion 31 at one end. This eccentric portion has two openings extending therethrough and a bolt passing through the lugs 29 and through one of these openings serves as a fulcrum for the lever. Another bolt passing through the upper portion of the link 25 and the other opening in the eccentric portion pivotally connects the upper portion of said link with the control lever 30. The lever 30 is also provided with a finger portion 32 which lies adjacent the eccentric portion 31. This finger portion has an opening 33 near its end to which a tiller cord 34 is attached. The other end of the tiller cord extends through holes in the plate 12 and cab 5, and an operator in the cab may pull this cord to release the lever from a clamped position on the ladder or ladder sections in case of emergency or when so desired, as will be later described. This latter operation provides an auxiliary means for releasing the lever when it has been actuated to an operated position.

The ladder engaging hook 16, actuating lever 30 and associated elements are shown in Fig. 2 in their disengaged positions. Under this condition, the hook member lies in a rotated position away from the ladder, and the actuating lever is raised while the spring 20 is extended and the spring 24 is in a contracted position.

To apply a clamping action on the ladder or ladder sections, the hook is rotated approximately 90° outwardly so that it is in a position over the ladder. The actuating lever is then moved downwardly causing the spring-connected end of the link to travel downwardly in its associated slot. The spring 24 is thus extended causing the shank 15, to which it is connected, to travel downwardly and the encircling spring about the shank to be compressed. When the control lever has been moved to its downward limit of travel, it will be locked in an obvious manner, as shown in Fig. 3. The three pivotal points of the toggle, to which the control lever is connected, will thus lie in substantial alinement, or in such position as to cause an interlocked relation by toggle action caused by the pivotal connection of the link 25 being slightly past center.

In case of emergency, or where it is desired to release the control lever and the clamping action of the hook 16 upon the ladder or ladder sections, the tiller cord is pulled by an operator in the cab. This auxiliary control will cause the control lever to be raised and release the clamping action on the ladder or ladder sections so that they may be readily removed from their supports by the operator in the cab. The release of the ladder may be effected, of course, by a person at the side of the truck in an obvious manner.

While there is shown and described herein a preferred form of the invention by way of illustration, it will be understood that it is not limited or confined to the precise details of construction herein described and delineated, as modification and variation may be made within the scope of the appended claims without departing from the spirit of the invention.

What is claimed is:

1. The combination with a support upon which a ladder may rest, and means associated with the support for holding the ladder in clamped and released positions on the support, said means including a hook member for clamping over the ladder to hold it upon the support, a lever, a resilient connection from said lever to said hook member whereby said hook member may be actuated to clamped and released positions, and a spring associated with said hook member tending to move the hook member to releasing position.

2. The combination with a support upon which a ladder may rest, and means associated with the support for holding the ladder in clamped and released positions on the support, said means including a hook member carried on a rotatable shank for clamping over the ladder to hold it upon the support, a lever, a resilient connection from said lever to said hook member whereby said hook member may be actuated to clamped and released positions and a spring associated with said hook member tending to move the hook member to releasing position and to simultaneously swing said hook upon the shank.

3. The combination with a support for ladders, a hook member associated with the support and adapted to clamp the ladder in place thereon, means including a lever having a toggle connection with said hook member and so arranged that when the lever is moved to break the toggle the hook will be released, but when the lever is in such position as to bring the three pivotal points of the toggle into substantial alinement the hook will be locked over the ladder.

4. The combination with a support for ladders, a hook member associated with the support and adapted to clamp and release the ladder, a lever for actuating the hook member to clamped and released positions, and auxiliary means for operating the lever to release the hook member when it is in clamped position.

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