The invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

The filling of orders for spare parts in large warehouses in which the parts are stored in vertical tiers of bins or lockers, or the filling of other types of orders in which at least part of the items are stored in vertical tiers extending approximately to the ceiling, is both tedious and time consuming because of the fact that a ladder is frequently necessary, the order itself must be at hand at all times, and the separate items must be transported to a point of assembly for ultimate shipment to the proper destination.

Attempts have heretofore been made to provide an apparatus capable of overcoming the foregoing difficulties, but in the main these prior combinations have not been entirely satisfactory, not only because they were cumbersome and expensive but also because they involved expensive upkeep and were not readily operable by unskilled labor.

It is a primary object of the present invention to combine in one simplified device a suitable hand truck, ladder, and support for the order, so that these elements are readily available for use at all times, and are easily operated by unskilled labor.

Another object of the invention resides in providing such a combination of elements in which the ladder may be readily placed in operative position for use or swung to storage position when the truck is to be moved from one point of use to another.

A still further object of the invention consists in so designing the truck and the ladder mounting that the truck will support the ladder in operative position and the ladder will serve as a brake for the truck so that there is no liability of injury to the operator due to inadvertent movement of the ladder.

Other objects and advantages of the novel construction will be apparent from the following description when taken in connection with the accompanying drawing, in which,

The figure is a perspective view of the apparatus with the ladder in position for use, and showing in dotted lines the positions the hooks will assume over a cross-bar of the frame when the hand truck is to be moved from one point to another.

The frame of the hand truck is formed of metal, preferably in the form of tubular rods, the side rods of the frame being indicated by the numeral 1—1 and provided with downturned portions 2 forming the rear of the frame, each of the elements 1 and 2 together being of L-shaped formation. The front portion of the frame is composed of the tubular members 3—3 which are vertically disposed and are secured intermediate their ends to the forward ends of the frame members 1—1, by welding or otherwise. The downturned portions 2 at the rear of the frame are rigidly connected by a bracing member 4, and the front frame members 3—3 are likewise braced by a cross-rod 5 having its ends fixedly secured to the frame members 3. It will be noted that the front frame elements 3 are substantially longer than the downturned portions 2 of the frame, and extend upwardly a substantial distance above the portions 1—1 of the frame. This extension is generally indicated by the numeral 6 and has its upper end bent forwardly as indicated by the numeral 7. The upper ends of the extensions are connected by a transverse portion 8 which forms a suitable grip for a person ascending or descending the ladder, to be described hereinafter, and the entire front portion of the frame may consist of a single tubular member bent into substantially inverted U-shaped form.

Brackets 9 are fixed to the lower ends of the front frame members 3 and are provided with bearings 10 for rotatably supporting the front wheels 11. These brackets are fixed with respect to the frame members 3 to prevent inadvertent lateral motion of the truck when the apparatus is in actual use at a loading or unloading station. Brackets 12 are swivelly connected to plates 13 fixed to the lower ends of the rear frame members 2 and are provided with bearings 14 for rotatably supporting the rear wheels 15. These wheels 15, of course, permit the truck to be steered from point to point in the warehouse or other location in which the device is being used. Supported on the lower part of the frame just above the wheels is a sheet-metal shelf 16 provided with downturned flanges 17. The forward end of this shelf rests upon the front brackets 9 and the rear end rests upon the plates 13 to which the rear wheels are swivelly connected, and the shelf may be releasably secured in position by bolts 18.

The ladder, which forms an important part of the present combination device, is indicated generally by the numeral 19 and is composed solely of two leg members 20 and the steps 21 which are secured to the leg members and extend transversely therebetween. The upper ends of the legs 20 are each provided with an elongated slot 22, and the legs are pivotally and slidably connected to the frame of the truck by means of pins or bolts 23 extended through the slots and secured to the end elements 3 of the frame. In order to limit the outward swinging movement of the ladder when it is being moved into operative position, and in order to brace the same, a pair of brace-bars 24 is provided. These brace-bars are pivotally connected to the legs of the ladder as indicated by the numeral 25 and are provided at their opposite ends with slots 26 which receive pins 27 fixed to the frame members 3 adjacent the lower ends thereof. This slidable connection of the brace members in conjunction with the slidably upper ends of the legs 20 of the ladder permit the ladder to be swung about the pivot pins 23 and moved upwardly and downwardly with respect thereto. The primary purpose of this compound movement of the ladder is to permit it to be moved and supported in an out of the way position when the truck is being moved from one point to another, and for this purpose the rear edges of the legs 19 of the ladder are provided with hooks 28 which are adapted to engage over the cross-member 5 of the front portion of the frame as indicated in dotted lines, and it will be noted that the length of the slots 22 and 26 are sufficiently great, and the hooks 28 so located that the ladder may be moved into position with the hooks engaged over cross-member 5 and the lower ends of the ladder legs spaced from the floor or other support on which the truck is being operated.

When parts are being selected from the bins or lockers of the warehouse for shipping purposes, or are being stored in the bins or lockers, the parts are usually placed in a large box or tray and together with the parts form a rather heavy unit. In order that these boxes may be
readily mounted on or removed from the truck the upper portion 1 of the frame is provided with a series of rollers 29 arranged in a horizontal plane and having their end bearings in the tubular members 1; thus providing a ready means for movement of the box or tray onto or off of the truck.

For convenience of the workman in filling an order the extension 6 of the frame of the truck may be provided with an upwardly inclined shelf or the like 30 having its side frame elements 31 suitably secured to the extension 6 and provided on its upper surface with one or more clips 32 for suitably clamping the order blanks or the like on the shelf.

The operation of the combined hand truck and ladder has been fairly well described in connection with the description of the several structural details, but it may be pointed out by way of emphasis that when the ladder is moved to its operative position the legs are permitted to set firmly upon the floor or the like and thus serve as a brake to prevent inadvertent movement of the truck and its ladder, and the wheels 11 at the front of the truck being mounted in fixed brackets 9 prevent any inadvertent lateral motion to the truck which might otherwise cause a tilting movement of the ladder and injury to a workman who may be filling a particular order or storing parts in the bins or lockers adjacent the apparatus.

In accordance with the patent statutes I have described what I now consider to be a preferred form of the invention, but since various minor changes may be made in structural details without departing from the spirit of the invention, it is intended that all such changes be included within the scope of the appended claim.

I claim:

In combination a four-wheel hand truck including a frame of tubular rods having vertical front and rear portions and a horizontal portion connecting the upper ends of the vertical portions, the vertical portion at the front of the frame being extended vertically a substantial distance above the horizontal portion of the frame, said extension terminating in a horizontal hand grip, a ladder, a pin and slot connection between the upper portion of the ladder and the vertical extension whereby the ladder may be moved into contact with the ground or lifted into spaced relation thereto, a brace member having one end pivoted to an intermediate portion of a leg of the ladder and a pin and slot connection between the opposite end of the brace member and the truck frame, a fixed horizontal brace rod on the front vertical portion of the frame, and hooks fixed to the ladder and adapted to engage over said brace rod when the ladder is in raised position.

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