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UNITED STATES PATENT OFFICE.

WILLIAM GRAY MAGOFFIN, OF NEWPORT, ARKANSAS.

COMBINED HAND-TRUCK AND HOIST.

SPECIFICATION forming part of Letters Patent No. 795,147, dated July 18, 1903.
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To all whom it may concern:

Be it known that I, WILLIAM GRAY MAGOFFIN, a citizen of the United States, residing at Newport, in the county of Jackson and State of Arkansas, have invented a new and useful Combined Hand-Truck and Hoist, of which the following is a specification.

The invention relates to a combination hand-truck and hoist.

The object of the present invention is to improve the construction of that class of hand-trucks which are provided with hoisting means and to provide a simple and comparatively inexpensive hand-truck of great strength and durability designed for handling all kinds of goods and adapted for both raising and lowering the same.

A further object of the invention is to provide a truck adapted to raise or lower the lighter class of goods with great rapidity and capable of affording great power for lifting heavy articles.

Another object of the invention is to provide a truck which when employed as a hoist will remain firmly in an upright position and which will not have to be held to maintain it steady or prevent it from falling.

The invention is adapted to provide a combined hand-truck and hoist in which the means for supporting the goods while the same are being raised or lowered may be quickly folded out of the way and within the contour of the truck to permit the same to be employed as an ordinary hand-truck.

With these and other objects in view the invention consists in the construction and novel combination and arrangements of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a perspective view of a hand-truck provided with hoisting mechanism constructed in accordance with this invention. Fig. 2 is a central vertical sectional view of the same. Fig. 3 is a rear elevation, partly broken away to illustrate the arrangement of the gearing. Fig. 4 is a transverse sectional view on the line 4-4 of Fig. 3. Fig. 5 is a detail perspective view of the vertically-moving carrier. Fig. 6 is an enlarged detail view illustrating the manner of uniting the foldable support to the back of the carrier. Fig. 7 is a detail sectional view illustrating the construction of the latch for locking the hinged support of the carrier in its folded position.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

I designates a hand-truck of the ordinary form provided at the lower ends of its side bars 2 with a fixed support 3 of substantially rectangular form, composed of parallel sides 4 and a transverse connecting portion 5. The sides, which form guides for an extensible section 6, have their terminals 7 bent at right angles and secured to the side bars of the frame of the truck, as clearly shown in Fig. 1. The fixed support, which may be constructed in any desired manner, preferably consists of a single bar of metal bent at opposite sides of the center, as shown in Fig. 4, to form the transverse portion and the parallel sides, the transverse portion 5 being located at the upper face of the sides 4 and forming stops for limiting the outward movement of the extensible section 6. The extensible section 6, which is substantially rectangular, preferably consists of a single bar of metal bent at opposite sides of the center in the same manner as the fixed support and provided at the inner ends of its sides 8 with projecting lugs 9. The sides 8 slide on the lower or front faces of the sides 4, and the flanges extend around the outer edges of the sides 4 and are arranged on the upper or rear faces thereof, whereby the extensible section 6 is slidably connected with the fixed support. The extensible section is adapted to be drawn out to provide an enlarged base for the truck when the same is placed in a vertical position. When the truck is arranged in a vertical position and is subjected to the weight of a load, it will remain firmly in such position, and as the wheels 10 of the truck will be lifted clear of the ground.
or other supporting-surface a rigid base is afforded, and there is no liability of the truck accidentally slipping. The extensible section is adapted to be moved inward to arrange it compactly, as shown in Fig. 2 of the drawings, and in this position the transverse connecting-bar of the extensible section will lie above and fit snugly within the upper or rear side bars 2 and 12, of the fixed support. The wheels of the truck are of the ordinary construction and are mounted upon the ends of an axle 11, which is secured to suitable blocks 12, fixed to the rear faces of the side bars 2. The wheels and the axle may be of any desired construction, and any suitable means may be employed for securing them to the frame of the truck.

The side bars of the truck are connected by front and rear transverse bars 13 and 14, to which are secured inner longitudinal bars 15, and the latter are spaced from the side bars 2 to provide openings or spaces for rotary screws 16, which have reduced ends 17 and which are journaled in suitable bearings of the front and rear transverse bars of the truck-frame. The longitudinal bars are connected by suitable braces 18, having their terminals bent at right angles and secured to the inner side edges of the said bars 15, between which the braces are located. The space between the longitudinal bars 15 is covered by front and back plates 19 and 20 to form a casing for the goring hereinafter explained, and this casing is offset from the upper edges 21 of the side bars 2 to provide a space for folding the hoisting mechanism when it is desired to use the truck as an ordinary hand-truck, as hereinafter explained.

The rotary screws 16, which are located at opposite sides of the truck frame, as clearly illustrated in Fig. 1 of the drawings, to receive the goods to be raised or lowered. The carrier, which slides longitudinally of the truck-frame, is provided at opposite sides with bars 26 which are connected by an upper cross-bar 27 and by a lower rod 28, forming a pintle for hinging the foldable support 25 to the carrier. The pintle rod 28 pierces the side bars 26 and the sides of the hinged support 25, which consists of an approximately rectangular frame.

The frame of the hinged support consists of a bar bent at opposite sides of the center at right angles to form two sides and a transverse connecting portion. The sides, which are also connected by a pintle rod 28, are reinforced at their inner portions by bars 24 and are provided at their inner ends with heels 30 for engaging the side bars 26 of the carrier. The sides of the hinged support 25 and the reinforcing side pieces 24 are spaced apart to provide openings to receive the side bars 26 when the hinged support is folded. The inner ends of the reinforcing-bars are connected with the heels 30, and the outer ends of the reinforcing-bars are angularly bent and secured to the sides of the support 25 in any suitable manner. The lower ends of the side bars 26 of the carrier are recessed to provide curved edges and shoulders 31 for engagement with the heels 30 of the hinged support. The hinged support may be locked in its folded position by catches 25, mounted on the sides of the support 25 and each comprising a beveled pin or bolt and a spring for actuating the same. The bolt or pin, which is adapted to engage an opening 26 of the adjacent side bar 26, is secured to the spring of the catch 25, and when the hinged support is folded. The brace 29 consists of a bar arranged within the frame of the foldable support and having its terminals bent at right angles and secured to the sides of the same. The carrier is provided with a pair of hinged guards 31, arranged to slide 95 on the front plate 19 of the casing of the truck-frame and adapted to prevent the goods handled from coming in contact with the said plate 19. These guards, which consist of bars, extend beneath the connecting-bar 27 and are provided at their lower ends with eyes 32 for the reception of the pintle-rod, whereby they are connected with the carrier. Also the guards are arranged above the transverse bar 14 to provide a back support for the goods when the carrier is raised to or near the limit of its upward movement.

In order to enable the carrier to move freely, it is provided at the front of the truck with a pair of antifriction rollers or wheels 33, arranged on the pintle-rod and adapted to run on the front plate. The pintle-rod also receives spacing-sleeves 34 and 35, arranged, respectively, between the two guards and between the antifriction rollers or wheels and the sides of the foldable support. The nuts 22 and 33 are the setting screws and the outer nuts 22 are provided with laterally-extending arms 36, arranged in pairs and terminating in journals, which receive antifriction rollers or wheels 37. The antifriction rollers or wheels 37, which are located at the back of the truck, are arranged to run on the rear face 20 of the casing and on the rear plate 20 of the casing. The weight of the goods upon the foldable support of the carrier holds the rear antifriction devices in contact with the truck, and they, together with the front antifriction devices, enable the ca-
whereby the truck is adapted to be employed as an ordinary hand-truck. When folded, the movable support is located entirely out of contact with the goods handled by the truck and there is no liability of the hoist interfering with such goods or being injured by the same.

Any other form of gearing may be employed for transmitting motion from the operating device to the rotary screws, and the latter may be constructed of any desired length to enable the goods to be raised or lowered the desired distance.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is:

1. The combination of a hand-truck having a fixed support at its front forming a base for the truck when the latter is in an upright position with its wheels clear of the supporting-surface, and hoisting mechanism mounted on the truck for raising and lowering a load, said fixed support projecting outwardly so as to lie beneath the load to prevent the truck from tilting forwardly when the load is being raised or lowered.

2. The combination of a hand-truck having a fixed support at the front forming a base for the truck when the same is in an upright position and provided with an extensible member for increasing the size of the base, and hoisting mechanism mounted on the truck.

3. The combination of a hand-truck provided at the front with a fixed support forming a base for the truck when the same is in an upright position, an extensible section slidably connected with the fixed support, and hoisting mechanism mounted on the truck.

4. The combination of a hand-truck having a fixed support at its front provided at opposite sides with guides having stops at the outer ends thereof, and an extensible section slidably interlocked with the guides and having its outward movement limited by the said stops.

5. The combination of a hand-truck provided at the front with a fixed support composed of a bar bent at opposite points to provide two sides and a connecting portion, the bends forming stops at the outer ends of the sides, and an extensible section provided with means for slidably engaging the sides of the fixed support and having its outward movement limited by the said stops.

6. The combination of a hand-truck provided at the front with a fixed support, and an extensible section consisting of a bar bent at opposite points to form two sides and a connecting portion, the sides being slidably connected with the fixed support at the sides thereof.

7. The combination of a hand-truck having a fixed support at the front, a movable support mounted on the truck, and having an outwardly-extending portion arranged to receive the goods to be raised or lowered, said...
outwardly-extending portion being foldable within the truck, and means for raising and lowering the movable support.

8. The combination of a hand-truck, a movable support mounted on the truck having an outwardly-extending portion to receive the goods to be raised or lowered, said outwardly-extending portion being foldable within the truck, and means for raising and lowering the movable support.

9. The combination of a hand-truck, a carrier mounted on the truck and provided with a hinged supporting member foldable within the truck, and means for raising and lowering the carrier.

10. The combination of a hand-truck, a carrier movable longitudinally of the truck and provided with a support, said support being movably connected with the carrier and arranged to fold against the same, and gearing for raising and lowering the carrier.

11. The combination of a hand-truck, a carrier mounted thereon and movable longitudinally thereof, said carrier being provided with means for supporting the goods to be raised or lowered and means being movably connected with the carrier and arranged to fold against the same, and a guard arranged at the back of the carrier and interposed between the goods and the truck.

12. The combination of a hand-truck, a carrier mounted thereon and movable longitudinally thereof, said carrier being provided with means for supporting the goods to be raised or lowered, and guards hinged to the carrier and slideable on the truck.

13. The combination of a hand-truck, a carrier slideable thereon and provided at its upper portion with antifriction devices engaging the truck at the back thereof, and gearing for raising and lowering the carrier.

14. The combination of a hand-truck, a carrier slideable thereon and provided with upper and lower antifriction devices located respectively at the front and back of the truck, and means for raising and lowering the carrier.

15. The combination of a hand-truck, a carrier slideable thereon and provided with a hinged support having a pintle, antifriction devices mounted on the pintle for engaging the truck, and means for raising and lowering the carrier.

16. The combination of a hand-truck, a carrier mounted thereon and provided with means for supporting the goods to be raised or lowered, said carrier being also provided at opposite sides with arms arranged in pairs, and antifriction devices mounted on the arms and engaging the truck.

17. The combination of a hand-truck provided at opposite sides with openings, a carrier having traveling nuts located at the openings of the truck, said carrier being also provided at the said openings with arms arranged in pairs, antifriction devices mounted on the arms and engaging the truck, rotary screws mounted in the openings of the truck and receiving the traveling nuts, and means for rotating the screws.

18. The combination of a hand-truck, a carrier provided with a pintle and having a hinged support mounted thereon, guards provided with eyes arranged on the pintle, and antifriction devices also mounted on the pintle-rod.

19. The combination of a hand-truck provided at opposite sides with openings, rotary screws mounted in the openings, a carrier having traveling nuts engaged by the screws, and gearing for rotating the screws, said gearing embodying a plurality of operating-shafts.

20. The combination of a hand-truck, rotary screws mounted thereon, a carrier having nuts engaging the screws, a longitudinal shaft located between the screws, transverse shafts extending from the said shaft to the screws, gearing connecting the transverse shafts with the screws and with the longitudinal shaft, and means for rotating the latter.

21. The combination of a hand-truck, rotary screws mounted thereon, a carrier having nuts engaging the screws, a longitudinal shaft located between the screws, transverse shafts extending from the said shaft to the screws, gearing connecting the transverse shafts with the screws and with the longitudinal shaft, a plurality of operating-shafts, and gearing connecting the operating-shafts with each other and with the longitudinal shaft.

22. The combination of a hand-truck, rotary screws mounted thereon, a carrier having nuts engaged by the screws, a plurality of operating-shafts, gearing connecting the shafts with each other and with the screws, a removable operating device provided with means for detachably engaging the operating-shafts, and means for holding the operating device when the same is not in use.

23. The combination of a hand-truck having side bars and provided between the same with a casing spaced from the side bars to form longitudinal openings, rotary screws mounted in the openings, a carrier provided with nuts engaged by the screws, and operating-gearing housed within the casing and connected with the screws.

24. The combination of a hand-truck having side bars and provided between the same with a casing spaced from the side bars to form openings, said casing being also spaced from the front edges of the side bars, rotary screws mounted in the openings, a carrier having nuts engaged by the screws, said carrier being also provided with a foldable section adapted to be arranged within the space between the casing and the front edges of the side bars, and gearing housed within the casing and connected with the screws.

25. The combination of a hand-truck, a carrier...
carrier movable longitudinally of the track, a foldable support extending outward from the carrier hoisting means for raising and lowering the carrier, and means for locking the support in its folded position.

26. The combination of a hand-truck, a carrier mounted thereon and having opposite side bars, the said side bars being provided with shoulders, a foldable support extending outward from the carrier and hinged to the side bars of the same, said foldable support having heel portions for engaging the said shoulders and provided with reinforcing-bars connected with the shoulders, the reinforcing-bars being spaced from the sides of the support to receive the side bars of the carrier and a catch mounted on the support and engaging the carrier for locking the former in its folded position.

27. The combination of a hand-truck, a carrier mounted thereon and having opposite side bars, the said side bars being provided with shoulders, a foldable support extending outward from the carrier and hinged to the side bars of the same, said foldable support having heel portions for engaging the said shoulders and provided with reinforcing-bars connected with the shoulders, the reinforcing-bars being spaced from the sides of the support to receive the side bars of the carrier.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM GRAY MAGGIEIN.

Witnesses:

THOMAS JAMES PHILLIPS,

ROBERT J. WISE.