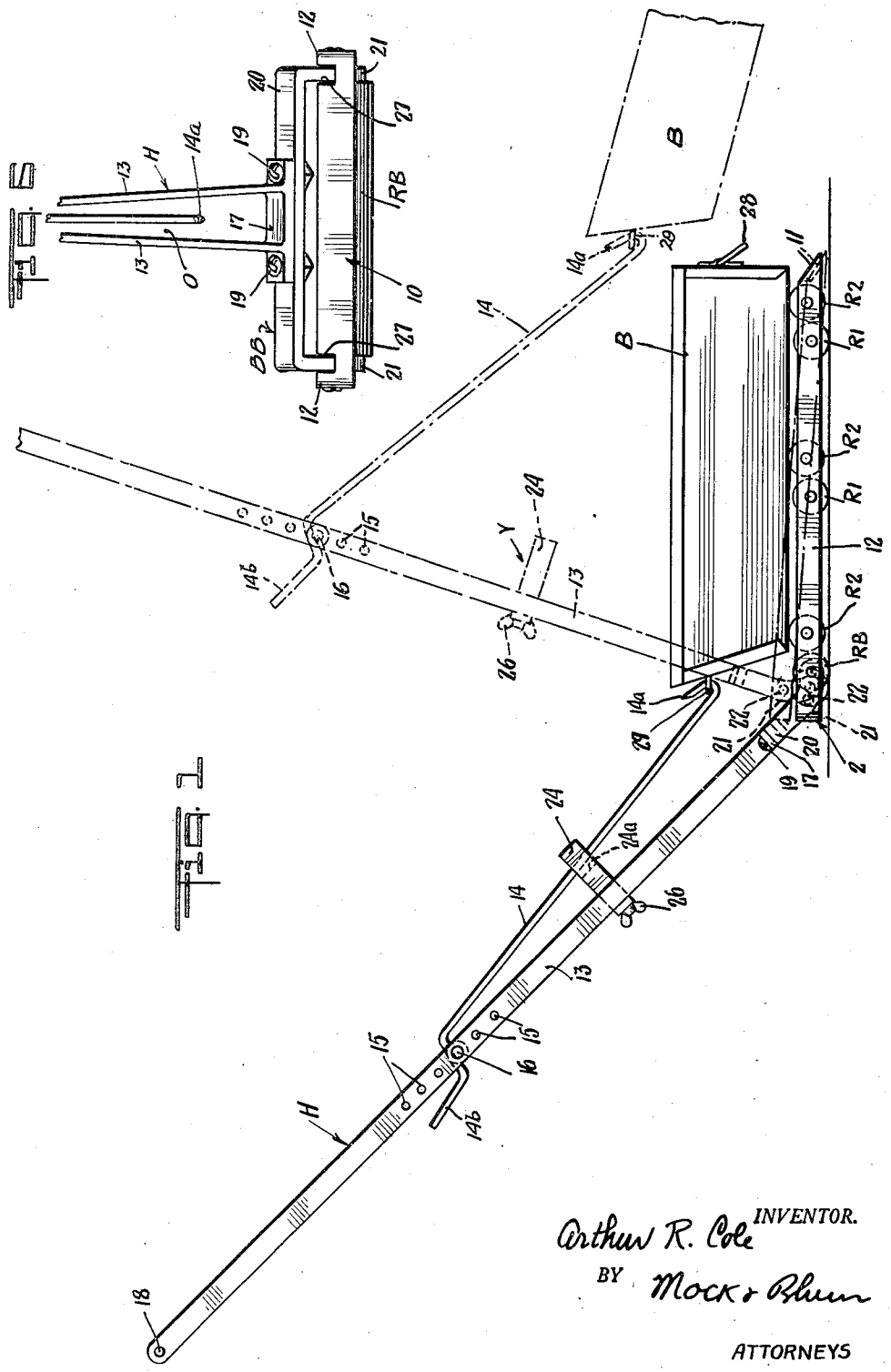
Jan. 23, 1945. A. R. COLE 2,367,754

ROLLER CARRIER DEVICE

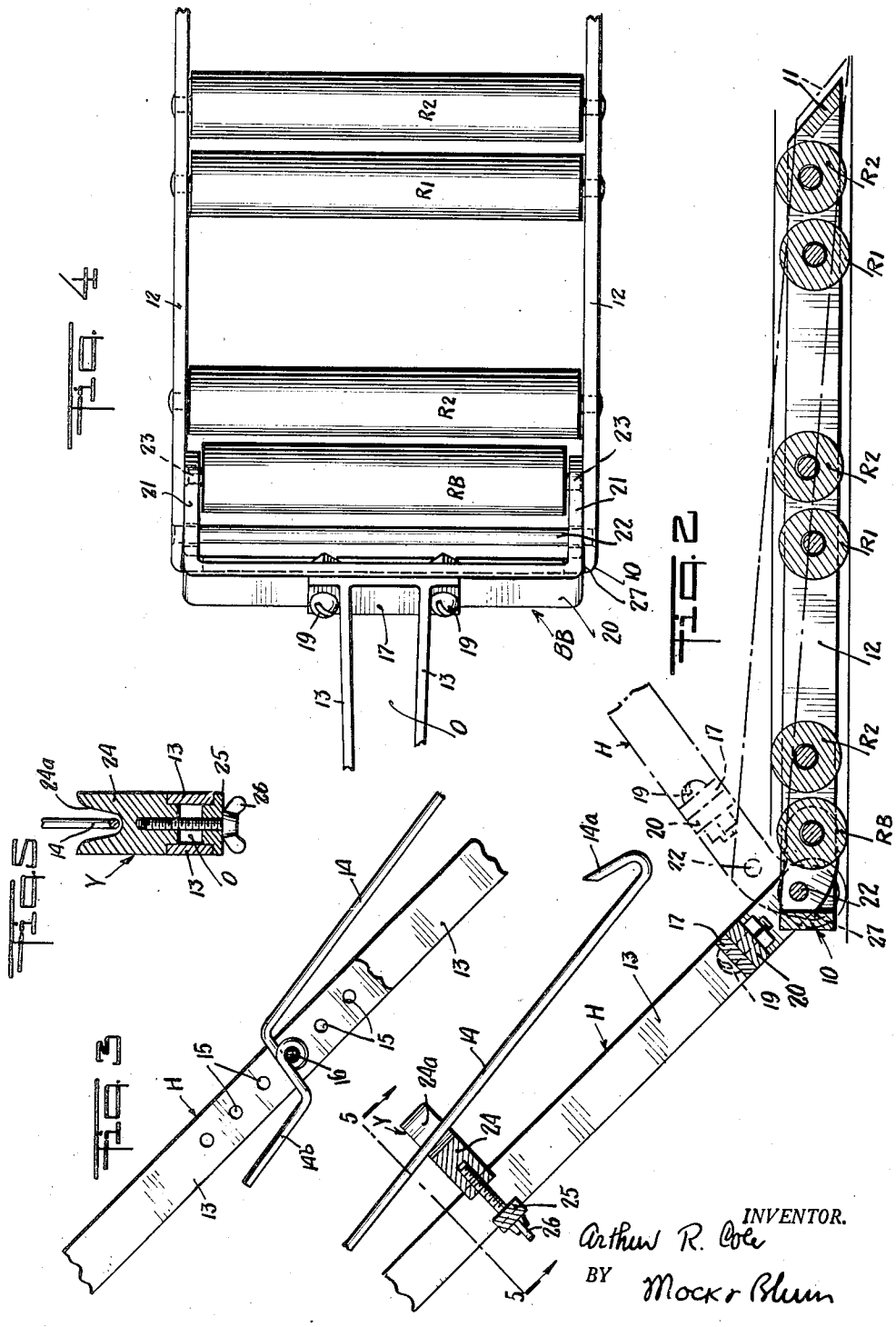
Filed May 23, 1944 2 Sheets-Sheet 1



Jan. 23, 1945. A. R. COLE 2,367,754

ROLLER CARRIER DEVICE

Filed May 23, 1944 2 Sheets-Sheet 2



Patented Jan. 23, 1945

2,367,754

UNITED STATES PATENT OFFICE

2,367,754

ROLLER CARRIER DEVICE

Arthur R. Cole, Bridgeport, Conn.

Application May 23, 1944, Serial No. 536,868

4 Claims. (Cl. 214—65.4)

My invention relates to a new and improved roller carrier and more particularly to a hand truck, especially intended and adapted for factory, shop and industrial use.

It is the principal object of this invention to provide an improved roller carrier device embodying the following constructional features:

a. Adjustable hook means for engaging and lifting the receptacle with its contents upon the device.

b. Adjustable retaining means to prevent disengagement of the hook member from the receptacle while the device is in motion.

c. Independent series of rollers, one series being employed to render the device mobile, the other series being employed to load the receptacle or box of material on the device.

d. An improved handle arm, which serves as a handle for pulling the device and which also serves as a lever arm whereby the device may be tilted.

Another object of my invention is to provide an improved hand truck device which is small, durable and sturdy in construction, and which is extremely useful and efficient as a loading and conveying device.

Still another object of my invention is to provide an improved hand truck device which is easy to use, manipulate and operate, and which can be readily handled by one person to lift and carry receptacles containing heavy materials.

Numerous additional objects of my invention will be stated in the annexed description and drawings, which illustrate a preferred embodiment thereof.

Fig. 1 is a side elevation of the improved device showing the receptacle or box of material fully loaded thereon.

Fig. 2 is a sectional side elevation of the device, a portion of the handle arm being shown broken away.

Fig. 3 is a fragmental sectional elevation of that part of the handle arm to which the hook member is adjustably and pivotally secured.

Fig. 4 is a fragmental top plan view of the device.

Fig. 5 is a sectional view on the line 5—5 of Fig. 2.

Fig. 6 is a fragmental front view of the device.

Referring to the drawings, the improved device broadly comprises a roller carrying rectangular open frame F and a handle arm H pivotally attached to the front end of said frame.

Frame F includes the notched front wall 10, the inclined rear wall 11 and the side walls 12, all of the said walls being integral.

A series of spaced rollers R1 and R2 are turnably mounted upon transverse axles which are secured to the side walls 12 of frame F. The said rollers are all of equal diameter and any number may be provided for each series depending perforce on the size of the platform desired. It is not essential that all the rollers be of the same diameter and they may vary as desired. Rollers R1 are provided to render the device mobile and rollers R2 are the means employed to load the box or receptacle B on the device. In addition, rollers R2 serve as a platform which supports box B once the said box or case is loaded upon the device.

It will be clearly noted and observed from Figs. 1 and 2 that the axles carrying rollers R1 are not in alignment with the axles carrying rollers R2, so that the tops of the peripheries of rollers R2 are in a different horizontal plane from the tops of the peripheries of rollers R1. Likewise, the bottoms of the peripheries of rollers R1 are in a different horizontal plane than the bottoms of the peripheries of rollers R2. Therefore, the planar bottom of box B does not contact rollers R1 but rests equally upon the tops of the rollers comprising series R2, while rollers R1 contact the floor or ground. It will be noted that rollers R2 do not in any way contact the floor or ground while the device is in motion or at rest.

Handle arm H is formed of two similarly shaped longitudinal metal strips 13 which are of equal length. These strips converge and are connected at their upper ends in face to face abutting relation and diverge at their lower ends, thus forming an elongated triangular-shaped opening O therebetween, the apex of said opening being located at the converging point of the upper ends of said strips 13. Handle arm H is provided at its upper end with the handle bar 18 which extends through strips 13 adjacent their upper connected ends. The bottom ends of strips 13 terminate in the integral crossbar 17 which is rigidly secured by bolts 19 to arm 20 of bracket BB.

As shown in Figs. 4 and 6, bracket BB comprises the longitudinal arm 20 and the integral curved side arms 21. Said bracket BB is pivoted intermediate the ends of its arms 21 to the front end of frame F by means of the pivot pin 22 secured to side walls 12 of said frame. It will be noted that front wall 10 of frame F is located anterior to said pivotal connection. A roller RB

is turnably mounted upon an axle 23 which is secured to the free ends of arms 21 of bracket BB, said roller being located posterior to said pivotal connection. When bracket BB is pivoted about its pivoted connection 22, roller RB will move in unison therewith. The functions of roller RB, bracket BB and handle arm H will hereinafter be explained when the use and operation of the device is described.

As shown in Figs. 1 and 3, strips 13 which comprise handle arm H, are formed with a plurality of aligned openings 15. These openings are adapted to receive the pivot pin 16 about which the hook member 14 is looped or bent. In other words, handle arm H carries hook member 14 which is pivotally connected to said handle arm. Hook member 14 is rendered adjustable by inserting pin 16 in any pair of aligned openings 15. Pivot pin 16 extends transversely of opening O formed by strips 13 and hook member 14 is parallel to the longitudinal axis of said opening. Hook member 14 is provided with the hook terminal 14*a* at its lower end for engagement with box or receptacle B. Said box B is provided at its front end with an outwardly projecting tongue 29 having an opening therein adapted to be engaged by hook terminal 14*a*. At its rear end, box B is provided with a ring or loop 28. It will be noted that hook member 14 may be manipulated simply by pushing the upper end 14*b* thereof downwardly.

Located on handle arm H intermediate bracket BB and the pivotal connection of hook member 14, is the adjustable clamping yoke Y. Said yoke comprises the upper retaining portion 24 having the concavity 24*a* formed therein and the bottom plate member 25, as illustrated in Figs. 2 and 5. As shown in the latter figure, the bottom face of member 24 and the top face of plate 25 are grooved at their respective side edges so as to receive and securely hold the top and bottom edges of strips 13 when wing screw 26 is tightened. It will be noted that yoke Y extends transversely of opening O and said yoke serves as retaining or bracing means to prevent disengagement of the hook member 14 from the opening in tongue 29 of box B. It will be noted that hook member 14 is located within concavity 24*a* of portion 24 of yoke Y.

As shown in Fig. 6, front wall 10 of frame F is formed with notches or recesses 27 which are adapted to receive the curved side arms 21 of bracket BB. The said notches arrest the forward movement of bracket BB and handle arm H, and the first roller R2 adjacent front wall 10 arrests the rearward movement of said bracket when handle arm H is moved rearwardly over frame F.

In operating the device, the rear end of the truck is placed in position adjacent the front end of box B (which is presumably filled with a heavy material). Handle arm H is then moved rearwardly over frame F from the full line position shown in Fig. 1 to the dotted line position shown in the same figure. This rearward movement will cause the roller end of bracket BB to move downwardly, thus raising the front end of frame F and at the same time lowering the rear end thereof until the outwardly bevelled rear wall 11 of frame F almost contacts the ground or floor. When this position is reached, terminal hook 14*a* is engaged with the opening in tongue 29 of the front end of box B. Handle arm H is then lifted and pulled forwardly. By this upward and forward movement, box B and its contents is lifted and rolled over rollers R2 on to the device.

When it is desired to unload box B after it has been transported on the device to its desired place, handle arm H is moved rearwardly over frame F until hook terminal 14*a* is disengaged from the opening in tongue 29 of box B. This rearward movement will tilt frame F as shown by the dotted lines in Figs. 1 and 2. Box B is then rolled off the device over the outwardly bevelled rear wall 11.

Referring to Figs. 1 and 2, when handle arm H and its bracket BB is in the full line position shown in these figures, roller RB is in alignment with rollers R1. In this position, all of the said rollers serve as roller bearings to movably support frame F. When handle arm H and its secured bracket BB are moved rearwardly over frame F, bracket BB is caused to pivot about its pivot pin 22 thus causing bracket roller RB to assume a position which is out of alignment with rollers R1. The downward movement of bracket roller RB will tilt the device so that the front end thereof will be raised and the rear end thereof lowered.

Handle arm H and its secured bracket BB are arrested from exceeding the limit of their forward and outward movement by notches 27 in front wall 10. The said handle arm and bracket are prevented from exceeding the limit of their rearward movement over frame F by the first roller R2 adjacent front wall 10 of said frame.

I have shown and described a preferred embodiment of my invention but it is obvious that numerous changes and omissions may be made without departing from its spirit. For example, bracket BB may be integral with handle arm H.

I do not wish to be limited to any particular proportions and dimensions as obviously the size of the device is principally to be governed by the size of the box or receptacles to be carried. Frame F can therefore be of any desired size or configuration.

I have not specified the materials from which the various members of my improved roller carrier device are formed. However, it is obvious that metal would be preferred in view of the nature and use of the improved device. Handle arm H may be made of wood and reinforced with metal if desired. Boxes or receptacles B may be made from sheet metal.

My improved roller carrier device may be employed to carry and transport articles other than receptacles or boxes, for example, metal filing cabinets, steel cabinets and cases, etc.

I claim:

1. A roller carrier device comprising a frame having a front wall, an inclined rear wall and side walls, a series of ground rollers turnably mounted upon said side walls, a series of loading rollers also turnably mounted upon said side walls, the tops of the peripheries of said loading rollers extending above the tops of the peripheries of said ground rollers, a handle arm pivotally secured adjacent its lower ends to the front end of said frame, a ground roller turnably mounted on the lower ends of said handle arm posterior to said pivotal connection, the movement of said handle arm rearwardly over the frame being adapted to move said handle arm roller downwardly thereby raising the front end of said frame and lowering the rear end thereof, a hook member pivotally and adjustably connected to said handle arm, said hook member

having a hook terminal at its lower end adapted to engage a receptacle to be slid onto said frame over the loading rollers thereof, a clamping yoke positioned on said handle arm intermediate the pivotal connection of said hook member and the front wall of said frame, said yoke being adapted to prevent disengagement of the hook member from the receptacle supported by the loading rollers of the frame while the device is in motion.

2. A roller carrier device as claimed in claim 1 in which the front wall of the frame is formed with a pair of notches, said notches being adapted to receive the lower ends of the handle arm and to limit the forward movement thereof.

3. A roller carrier device of the character described comprising a rectangular frame having a notched front wall, an inclined rear wall and side walls, a plurality of ground rollers turnably mounted on said side walls, a plurality of loading rollers also turnably mounted on said side walls, the tops of the peripheries of said loading rollers extending above the tops of the peripheries of said ground rollers, a handle arm pivotally secured adjacent its lower ends to the front end of said frame, said pivotal connection being located posterior to the front wall of said frame, a ground roller turnably mounted on the free lower ends of said handle arm, said roller being located posterior to the pivotal connection of said handle arm, the movement of said handle arm rearwardly over the frame being adapted to move said roller downwardly thereby raising the front end of said frame and lowering the rear end thereof, a hook member having a hook terminal at its lower end pivotally and adjustably connected to said handle arm, said hook member adapted to engage a receptacle to be slid onto said frame over the loading rollers thereof, a clamping yoke member positioned on said handle arm intermediate the pivotal connection of said hook member and the front wall of said frame, said yoke member being adapted to retain said hook member and to prevent disengagement thereof from the receptacle supported by the loading rollers of the frame while the device is in motion.

4. A roller carrier device as claimed in claim 3 in which the handle arm is formed of two similarly shaped longitudinal strips, said strips converging and being connected at their upper ends in face to face abutting relation, said strips diverging at their lower ends to form an elongated triangular shaped opening therebetween, said strips terminating at their lower ends into a bracket, said bracket comprising a longitudinal arm and integral curved side arms.

ARTHUR R. COLE.