

1,028,589.

Patented June 4, 1912.

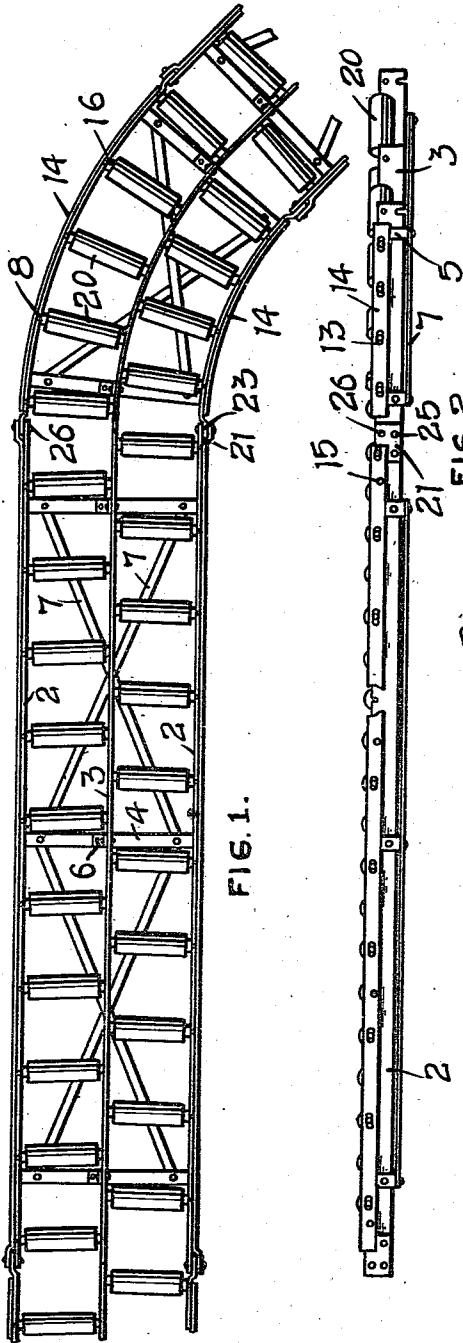


FIG. 1.

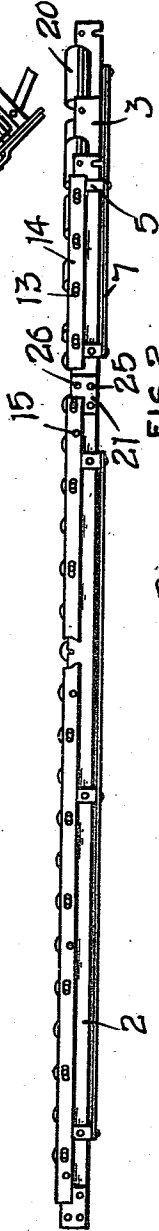


FIG. 2.

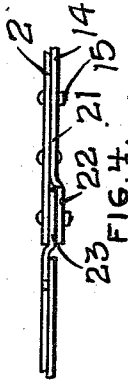


FIG. 3.

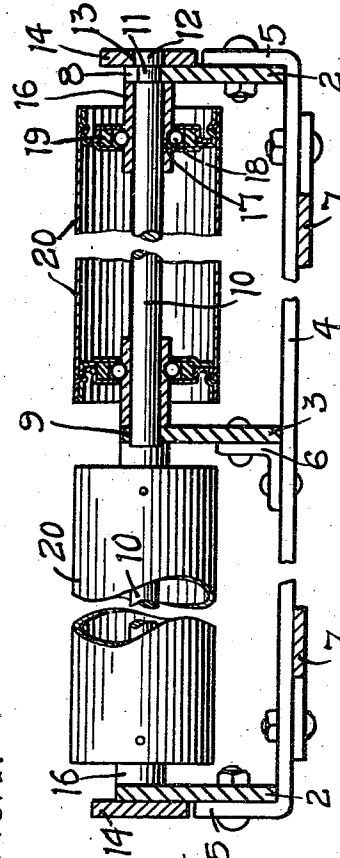


FIG. 4.

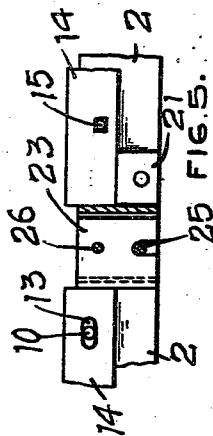


FIG. 5.

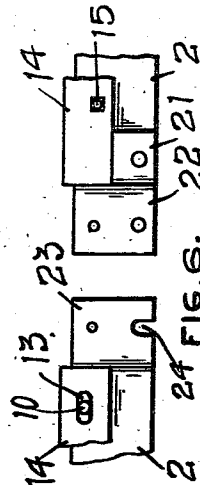


FIG. 6.

WITNESSES
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UNITED STATES PATENT OFFICE.

FRANK E. MOORE, OF ST. PAUL, MINNESOTA, ASSIGNOR TO MATHEWS GRAVITY CARRIER COMPANY, OF ST. PAUL, MINNESOTA, A CORPORATION OF MINNESOTA.

GRAVITY-CARRIER.

1,028,589.

Specification of Letters Patent.

Patented June 4, 1912.

Application filed March 27, 1909. Serial No. 486,233.

To all whom it may concern:

Be it known that I, FRANK E. MOORE, of St. Paul, Ramsey county, Minnesota, have invented certain new and useful Improvements in Gravity-Carriers, of which the following is a specification.

My invention relates to carriers and particularly to those for transporting merchandise of various kinds by gravity.

The primary object of the invention is to provide a means for locking the roller journals which will admit of the rapid assembling of the parts without the necessity of providing for accurate fitting or adjustments.

A further object is to provide a carrier of simple, economical construction and one which will be very durable for the purpose designed and from which one or more rollers can be easily and quickly removed without disturbing the others.

A further object is to provide a carrier capable of transporting lumber, barrels placed on end, and other merchandise.

My invention consists generally of various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of a gravity carrier, embodying my invention, and particularly adapted for handling lumber, Fig. 2 is a side view of the same, Fig. 3 is a transverse, sectional view illustrating the manner of mounting the rollers, Fig. 4 is a detail sectional view illustrating the manner of connecting the sections of the carrier together, Figs. 5 and 6 are detail views showing the joints formed at the ends of the carrier and sections, and also illustrating in detail the locking bar which holds the rollers in place in the carrier rails.

In the drawing, 2 represents the outer side rails of the carrier and 3 the middle rail arranged in parallel relation with one another, the middle rail to be equally spaced from the outer ones. Cross bars 4 have upwardly turned ends 5 bolted to the side rails 2 and secured to the middle rail by brackets 6; diagonally arranged braces 7 are secured to the cross bars 4 and serve to strengthen the carrier and prevent twisting and racking of the same. The rails and braces are preferably made of bar metal of suitable

weight and in sections of suitable length for convenience in handling, and each outer rail is provided with a series of notches 8 in their upper edges at intervals and the middle rail 3 has holes 9 therein to receive the inner ends of shafts 10 whose outer ends are provided with reduced portions 11 which slip into the notches 8, the shoulders formed on each side of said reduced portion serving to hold each shaft against longitudinal movement. Each shaft has a head 12 on its outer end that is adapted to slip into a slot 13 provided in a lock bar 14 which is secured to the side rails 2 by bolts 15. The slots 13 are of sufficient length to insure the entrance of the heads 12 therein without close fitting or adjustment, and, when the bars are secured in place, the outer ends of the shafts cannot slip accidentally out of the notches and interfere with the movement of the rollers thereon. To assemble the parts, the inner ends of the shafts are thrust into the holes 9, the bearing being sufficiently loose therein to allow such insertion, while the outer ends of the shafts are dropped into the notches of the side rails. After the rollers are inserted, the bars 14 are secured to the side rails by bolts 15, as hereinbefore stated. This same construction may be used in a carrier having side rails only, the middle one being omitted, in which case the journals at both ends of the rollers will drop into the notches 8 of the side rails and be held therein by the locking bars, as shown in Fig. 3, instead of having only their outer ends so mounted, as in the three rail carrier. The locking bars and the slots therein dispense entirely with the lock nuts on the ends of the journals and the slots allow the bars to be easily fitted to the sides of the rails, even though there is a slight variation in the distance between the ends of the journals. If the locking bars were provided with holes of sufficient size to receive the journals without allowing the longitudinal movement of the bars, it is evident that these holes would have to be accurately spaced apart, or the distance between the notches of the side rails or the journals of the rollers would have to be accurately determined to obtain a perfect register of the holes in the bars with the ends of the journals. This might be done in some instances and still effect a considerable saving in labor and expense from the use of the

lock nuts, but I prefer to provide the bars with elongated slots so that accurate fitting of the parts will be unnecessary. In the two-rail carrier, the rollers will generally be placed nearer together to adapt it for handling brick or other comparatively small articles. The function, however, of the locking bars in the two-rail carrier will be the same as in the carrier designed for lumber or other bulky merchandise.

As shown in Fig. 1, the shafts are in staggered relation to one another so that those on one side of the middle rail of the carrier will not, in any way, interfere with those on the other side, and, as provided in the patent above referred to, the bearings of the shafts at their inner ends are in the rear slightly of the bearings of the outer ends so that the merchandise moving over the carrier will work toward the center. I prefer, however, to arrange the inner ends of the shafts on the same level as their outer ends, so that the middle portion of the carrier will not be elevated above the sides or depressed below the sides.

At each end of the shaft 10 I prefer hubs 16 having long bearing surfaces on the shaft and loosely mounted thereon and contacting at their outer ends with the middle and side rails. These hubs have annular grooves 17 therein to receive the bearing balls 18, which form a part of the ball-bearing 19 that is provided within each end of the anti-friction roller 20 whereon the merchandise travels. The long bearing surfaces of the hubs on the shaft 10 renders the roller more regular and uniform in its revolution and I find that a bearing constructed in this way will be far more durable than the short bearing or one that is secured to the shaft itself. The hubs turn slightly on the shaft and wear uniformly and a bearing constructed in this way is far more efficient for this purpose than a rigid support for the bearing balls would be. Furthermore, the end of the hubs contact with the rails of the carrier and prevent endwise movement of the roller and shaft.

To secure the ends of contiguous sections of the carrier together, I provide plates 21 secured to the ends of the rails, and having offset portions forming with the ends of the rails, forks 22, into which the offset ends 23 of contiguous rails are inserted. These offset ends 23 have notches 24 in their lower edges to receive bolts 25 which pass through the forks, and bolts 26 are inserted through holes in the upper portion of the offset ends 23 and in forks to lock the ends of the sections together. This construction allows the convenient assembling of the sections to set up the carrier, or their separation, when the carrier is to be taken apart.

I claim as my invention:

1. A gravity carrier comprising side and middle rails, rollers having journals fitting within notches provided in said side rails and locking bars extending lengthwise of said side rails and having slots therein to receive the journals of said rollers.

2. In a carrier, side rails having notches therein, rollers having journals to enter said notches and locking bars having slots to receive the outer ends of said journals.

3. A carrier comprising side rails having notched edges, rollers having journals fitting within said notches, said journals projecting outwardly beyond said side rails, and slotted bars adapted to receive the projecting ends of said journals, said slots being sufficiently long to compensate for variation in the spacing of the notches in said rails.

4. A gravity carrier comprising side rails having bearings open at the top thereon, rollers having journals fitting within said bearings and locking bars having slots to receive said journals, said slots being sufficiently long to compensate for any variation in the spacing of the bearings on said rails.

In witness whereof, I have hereunto set my hand this 20th day of March 1909.

FRANK E. MOORE.

Witnesses:

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RICHARD PAUL.