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R. P. MATHEWS & C. H. LISTER.

GRAVITY CARRIER.

APPLICATION FILED NOV. 6, 1905. RENEWED MAR. 6, 1908.

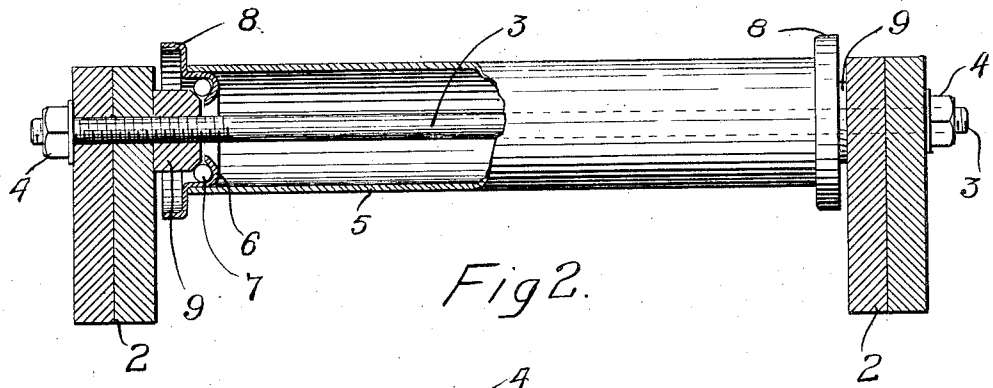


Fig 2.

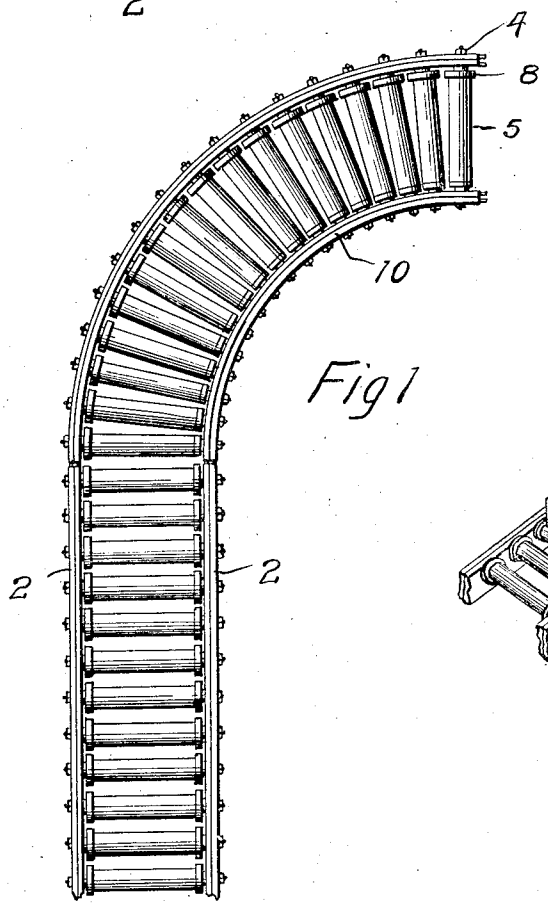


Fig 1

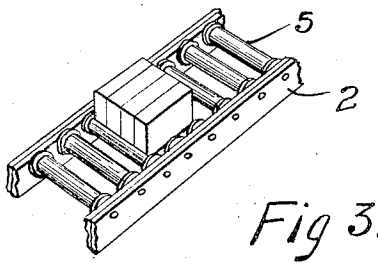


Fig 3.

WITNESSES.

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UNITED STATES PATENT OFFICE.

RUFUS P. MATHEWS AND CHARLES H. LISTER, OF ST. PAUL, MINNESOTA, ASSIGNORS TO MATHEWS GRAVITY CARRIER COMPANY, OF ST. PAUL, MINNESOTA, A CORPORATION OF MINNESOTA.

GRAVITY-CARRIER.

No. 890,917. Specification of Letters Patent. Patented June 16, 1908.

Application filed November 6, 1905, Serial No. 285,968. Renewed March 6, 1908. Serial No. 419,571.

To all whom it may concern:

Be it known that we, RUFUS P. MATHEWS and CHARLES H. LISTER, both of St. Paul, Ramsey county, Minnesota, have invented certain new and useful Improvements in Gravity-Carriers, of which the following is a specification.

Our invention relates to carriers designed particularly for transporting brick and similar articles of comparatively small dimensions by gravity.

To make a gravity carrier successful and valuable in a commercial sense, it is essential that it be made operable on a very low grade, and to accomplish this it is necessary to eliminate as much friction as possible, particularly at the sides of the carrier.

The object, therefore, of our invention is to provide a gravity carrier having antifriction carrying wheels or rollers which will rapidly and smoothly transport the packages, even though the carrier is arranged on a very slight inclination or drop.

A further object is to provide a carrier wherein practically all friction, especially at the sides, is eliminated, the packages following the line of least resistance and traveling in the direction of rotation of the wheels, thereby permitting the side rails or guards to be dispensed with, and eliminating the friction incident to their use.

The invention consists generally in a carrier having side rails and intermediate antifriction rollers provided with means for retaining the brick or other articles thereon.

Further, the invention consists in a carrier having rollers provided with flanges or rims at the ends, whereon packages of greater width than the length of the rollers may be placed and transported.

Further, the invention consists in 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 brick carrier embodying our invention. Fig. 2 is a transverse sectional view, one end of a roller being broken away to illustrate the bearing for the same. Fig. 3 is a perspective view showing a portion of a carrier and the bricks thereon.

In the drawing, 2 represents the side rails, of any suitable length and thickness, and 3 rods connecting the said rails at intervals, and provided with lock nuts 4. 5 is a section of steel tubing having ways or races 6 fitting snugly in its open ends for the balls 7, the edges of said races being extended laterally beyond the ends of the tubing, and terminating in flanges 8 which act as heads at each end of the tube or roller and hold the bricks in place thereon as they pass over the rollers, and also serve as wheels for carrying boxes or packages of greater length than the width of the carrier. The cone 9 is provided on the rod 3 at each end of the roller, and between the end of this cone and the bottom of the race 6, the balls are held, adjustment of the cones with respect to the balls being determined by means of the rod 3 and the lock nuts thereon. These rollers are arranged sufficiently near together to allow brick and other small articles to be placed thereon and transported. A sufficient drop will be provided in the carrier to cause the brick to move down over the rollers by gravity without any attention on the part of the operator, except to place the brick on the carrier at one end and remove them on the other. The carrier sections are made of any suitable length and coupled together at their ends, and a curved section 10 may be provided wherein the rollers are mounted in the same manner as described with reference to the one shown in Fig. 2, except that the ends of the rollers supported by the inner rail of the curved section are nearer together than the ends supported by the outer rail, as shown in Fig. 1, and the outer ends of these rollers may be raised above the level of their inner ends to prevent the momentum of the brick from causing them to pass off the carrier. The carriers may be made of any suitable length, and there may be as many turns or curves as necessary to deliver the brick or other material at the desired point.

When it is desired to transport articles of greater length than the width of the carrier, the flanges or rims 8 will act as carrying wheels therefor, and the articles will slide thereover with a very slight drop in the carrier from its receiving to its discharge end. It will be noted in this application that the friction between the carrying rollers or wheels and their bearings is practically eliminated, and we are therefore able to operate our carrier successfully on a lower grade than has heretofore been thought possible with an apparatus of this kind, and this feature alone

has very materially increased the salability and commercial value of the carrier. Furthermore, by eliminating the friction in such a marked degree the packages placed on the rollers will slide easily thereover following the line of least resistance, which will be the direction of rotation of the rollers and permitting the usual side guards or guides to be dispensed with. The cost of manufacturing the carrier is thereby reduced, and its portability increased.

We claim as our invention:

1. A gravity carrier comprising side rails, rods connecting said rails at intervals, metal rollers having flanged ends and ways and balls fitting therein, cones mounted on said rods and having bearing surfaces, and between which surfaces and said ways said balls are arranged.

2. A gravity carrier comprising side rails and means connecting them at intervals, and rollers having anti-friction bearings at their ends upon said connecting means and forming a way over which comparatively small articles such as brick may be transported, said rollers being of substantially uniform diameter between their ends and extending above the tops of said rails, substantially as described.

3. A gravity carrier comprising side rails and rods connecting them and rollers composed of tubing having anti-friction bearings at their ends on said rods, said rollers having narrow annular rims or flanges formed thereon at their ends and projecting above the tops of said rails and forming carrying surfaces for packages of greater width than the length of said rollers, substantially as described.

4. A gravity carrier comprising side rails, rods connecting said rails at intervals, cones mounted on said rods, and rollers having ball bearings at their ends on said cones and forming an antifriction way or surface for transporting articles by gravity, substantially as described.

5. A gravity carrier comprising side rails and rods connecting them and rollers composed of steel tubing arranged between said rails and having antifriction bearings on said rods, said rollers being sufficiently near together to allow small articles, such as brick, to be transported thereover by gravity, substantially as described.

6. A gravity carrier comprising rails and rods connecting them and rollers composed of metal tubes journaled on said rods between said rails and projecting above the same and forming a gravity carrier surface and being sufficiently near together to prevent small articles, such as brick, from dropping down between them substantially as described.

7. A gravity carrier comprising side rails and means connecting them at intervals and rollers having anti-friction bearings at their ends upon said connecting means and forming a way over which comparatively small articles such as brick may be transported, and said rollers being of substantially uniform diameter between their ends, substantially as described.

8. A gravity carrier comprising side rails and means connecting them at intervals and rollers having antifriction bearings at their ends upon said connecting means and forming a way over which comparatively small articles such as brick may be transported.

9. A gravity carrier comprising side rails and rollers composed of metal tubing journaled between said rails, said rollers being of substantially uniform diameter from end to end and forming a gravity carrier surface and being sufficiently near together to prevent small articles such as brick from dropping down between them.

10. A gravity carrier comprising side rails and rollers composed of metallic tubing journaled between said rails, said rollers having annular flanges at their ends and being sufficiently near together to prevent small articles such as brick from dropping down between them, and said rollers forming collectively a gravity carrier surface.

In witness whereof, we have hereunto set our hands this 26th day of October 1905.

RUFUS P. MATHEWS.
CHARLES H. LISTER.

Witnesses:
RICHARD PAUL,
C. MACNAMARA.