

(No Model.)

J. A. CARROLL  
LOG CARRIER.

No. 572,742.

Patented Dec. 8, 1896.

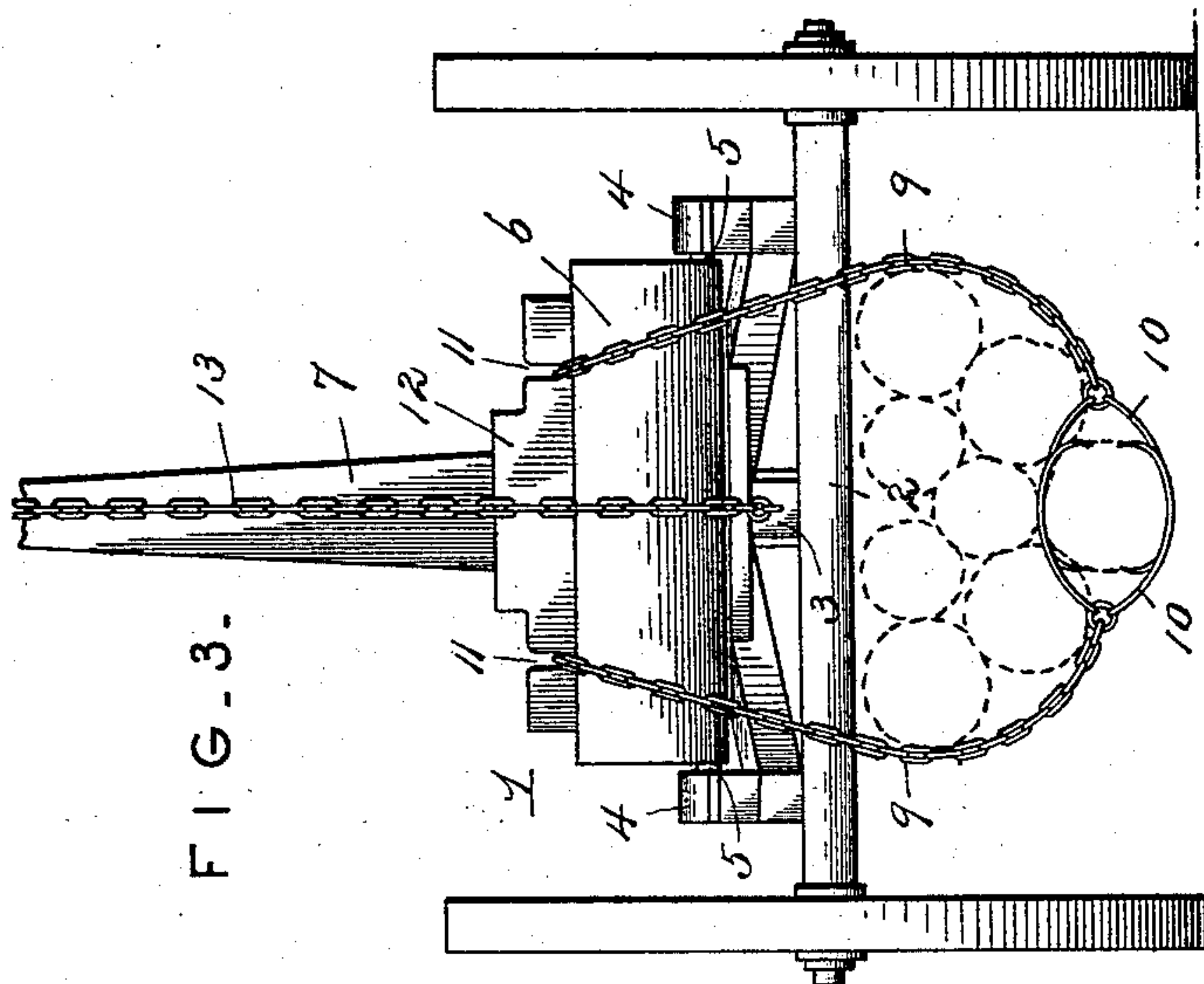


FIG. 3.

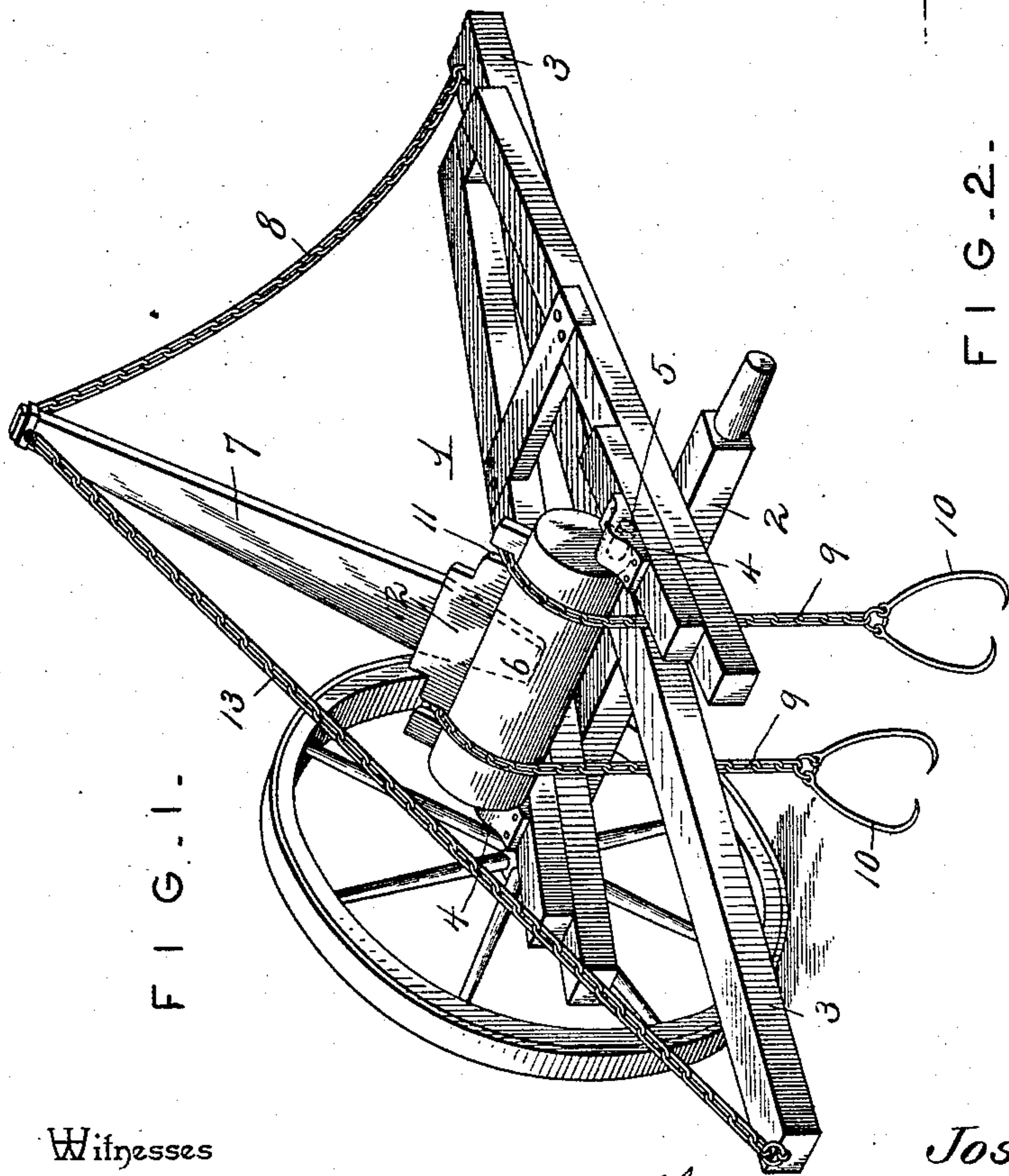
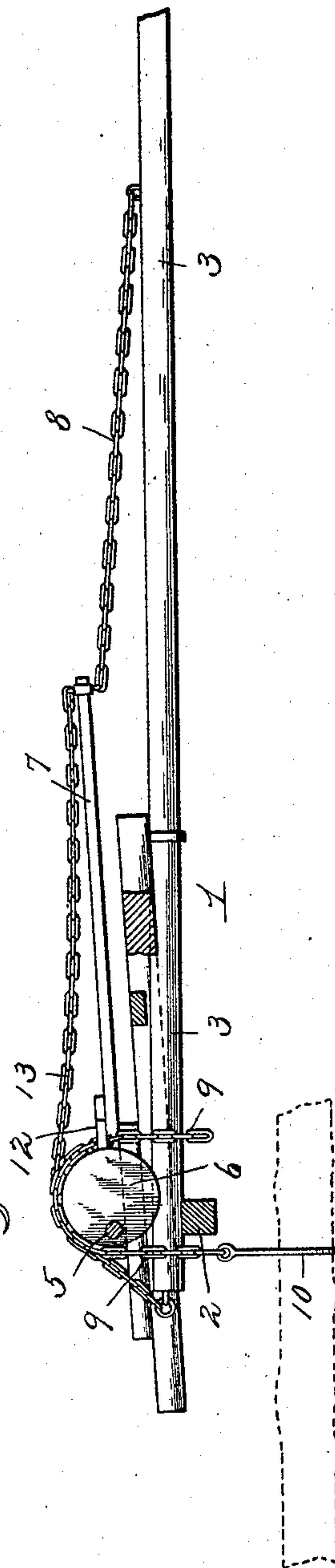


FIG. 1.

FIG. 2.



Inventor

Witnesses

Harry L. Amer.

*[Signature]*

By *[Signature]* Attorneys.

Joseph A. Carroll.

*[Signature]*



# UNITED STATES PATENT OFFICE.

JOSEPH ALEXANDER CARROLL, OF BEAUMONT, TEXAS.

## LOG-CARRIER.

SPECIFICATION forming part of Letters Patent No. 572,742, dated December 8, 1896.

Application filed February 11, 1896. Serial No. 578,898. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH ALEXANDER CARROLL, a citizen of the United States, residing at Beaumont, in the county of Jefferson and State of Texas, have invented a new and useful Log-Carrier, of which the following is a specification.

My invention relates to log-carriers, and has for its object to simplify, strengthen, and otherwise improve the construction shown and described in a former patent, granted to me on May 14, 1895, numbered 539,380, the contemplated improvements consisting, essentially, in dispensing with guide-rolls of all forms, both for the lifting and draft chains, and in so constructing and arranging the parts of the lifting apparatus as to give a uniform leverage in all positions of the sliding tongue without the use of said guide-rolls or other auxiliary devices.

It is common to employ a cylindrical drum or roller mounted transversely upon a truck and having the lifting-chains attached to and reeled thereon, and it is equally common to communicate rotary movement to a drum of this class by means of a lever or arm attached to the drum and connected by flexible means, such as a chain, to a tongue mounted to slide upon the truck; but, as in the above-named former patent granted to me, it has been found necessary, in order to maintain an approximately uniform leverage, to employ means in connection with the truck for changing the angle of strain of the draft-chain as the lever approaches the horizontal position, which it assumes, approximately, when the load is elevated. In said former patent granted to me a guide-roller is arranged upon the truck at a distance from the drum approximately equal to the length of the lever, whereby when the lever is in its approximately horizontal position occupied when the load is elevated the angle of draft of the chain is approximately the same as when the lever is in an upright position or before the load is elevated. Thus in other devices of a similar nature heretofore employed auxiliary means involving a loss of power by friction have been resorted to in order to maintain a uniform leverage throughout the movement of the drum in elevating the load, and hence it is the object of my present in-

vention to secure the advantages of said former devices by maintaining a uniform leverage without the use of guide-rollers or other means causing a waste of energy by friction or its equivalent.

A further object of my invention is to provide such a construction and arrangement of parts as to secure a balancing of the sliding tongue in all positions of the parts, whereby the team is relieved of the weight thereof.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings, Figure 1 is a perspective view of a log-carrier constructed in accordance with my invention, the parts being shown in the unloaded position. Fig. 2 is a side view, partly in section, of the same, showing the parts in the loaded position. Fig. 3 is a rear view showing the lifting-chains in the positions which they may assume in grappling a number of logs simultaneously, as is often required in practice.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a truck of the ordinary or preferred construction forwardly tapered or V-shaped in plan and having a transverse axle 2, and 3 represents a sliding tongue mounted upon the truck and capable of longitudinal movement.

In bearings 4, arranged upon the side beams of the truck-frame, are mounted the trunnions 5 of an eccentric drum or lifting-roller 6, to which is secured the operating-lever 7. The axis of this eccentric drum or roller, which is established by the position of the trunnions, is arranged upon the diameter of the roller which is in alinement with the operating-lever, the relative position of said axis and the length of the lever being determined by experience to provide for a uniform leverage, as the application of power through a draft-chain 8 varies from an approximately perpendicular to an approximately alined direction. This chain is attached at one end to the extremity of said operating-lever and at the other extremity to the sliding tongue in front of the truck, and, as will be seen from



a comparison of Figs. 1 and 2, the forward movement of the tongue will cause a forward strain upon the operating-lever, the direction of strain, however, changing continuously and uniformly as the angle between the chain and the lever increases and as the lever approaches a horizontal position. Inasmuch as the most effective application of power to a lever is in a direction perpendicular thereto, it is obvious that as the forward movement of the sliding tongue proceeds the efficiency of the direction of application will decrease, and under ordinary circumstances the leverage would decrease therewith. By arranging the axis of the drum or roller upon a diameter in alinement with the operating-lever, however, it will be seen that as the lever approaches a horizontal position the leverage will proportionately and continuously increase by reason of the relative change in the length of the arms of the lever; but throughout this change of leverage a uniformly cylindrical bearing-surface for the lifting-chains 9 is maintained, said chains being provided with the usual grappling hooks or clutches 10, and being secured to the drum or roller by means of seats 11, formed in an upstanding rib 12 on the drum or roller.

I employ a lifting drum or roller equal in length to the interval between the side beams of the truck-frame, for the reason that it allows lateral change of position of the lifting-chains without altering the character of the bearing-surface thereof, and hence, as shown in Fig. 3, when it is desired to lift a plurality of logs the lateral deflection of the lower ends of the grappling or lifting chains does not involve increased friction between said chains and the surface traversed thereby. The conditions remain the same, and hence the efficiency of the mechanism for a given weight remains unaltered. Furthermore, said drum or roller is provided with a uniformly cylindrical surface, no grooves or equivalents being employed, whereby the lifting or draft chains are free to move laterally to suit the direction of strain in lifting a load, thus avoiding all but tensile strain, for which the chains are adapted.

The return-chain 13 is adapted for returning the operating-lever to the unloaded position and, in connection with the draft-chain 8, maintaining said lever in an approximately upright position when relieved of the load.

From the above description it will be seen that I have provided a long smooth cylindrical

bearing-surface for the lifting-chains, whereby they are adapted for lateral movement without varying the direction of strain or increasing the friction in operation, and the use of guide-rolls in connection with the drum or lifting-roller is avoided to enable the lifting-chains to follow the change of leverage.

The increase of leverage as the operating-lever approaches a horizontal position enables the load to be supported with less downward pressure upon the extremity of the lever, and hence the upward strain upon the tongue is reduced to compensate for the increase of the weight in rear of the axle. This causes an approximate balancing of the tongue in all positions of the apparatus. Finally, as the direction of the application of power through the draft-chain 8 becomes affected by the increase of the angle between said draft-chain and the operating-lever the lever is lengthened, and hence a uniform forward straining upon the sliding tongue is sufficient to support the load in all positions of the operating-lever.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

In a log-carrier, the combination with a truck and a sliding tongue mounted thereon, of an eccentrically-mounted operating drum or roller having a cylindrical surface, lifting or grappling chains attached to the drum or roller, the same resting upon the rear surface of the drum or roller, and depending vertically from the rearmost point thereof, an operating-lever arranged in alinement with or continuation of that diameter of the drum which embraces the axis thereof, and a draft-chain extending from the lever directly to a fixed point on the sliding tongue in advance of the truck, whereby the draft upon said lever is on a straight line connecting the points of attachment of the draft-chain to the lever and tongue, substantially as specified.

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

JOSEPH ALEXANDER CARROLL.

Witnesses:

W. H. VINSON,

J. M. THOMPSON.