B. A. NORTHRUP & T. K. CALDER.

INDUSTRIAL TRUCK.

APPLICATION FILED FEB. 23, 1917.

1,276,799.

Patented Aug. 27, 1918.

2 SHEETS—SHEET 1.

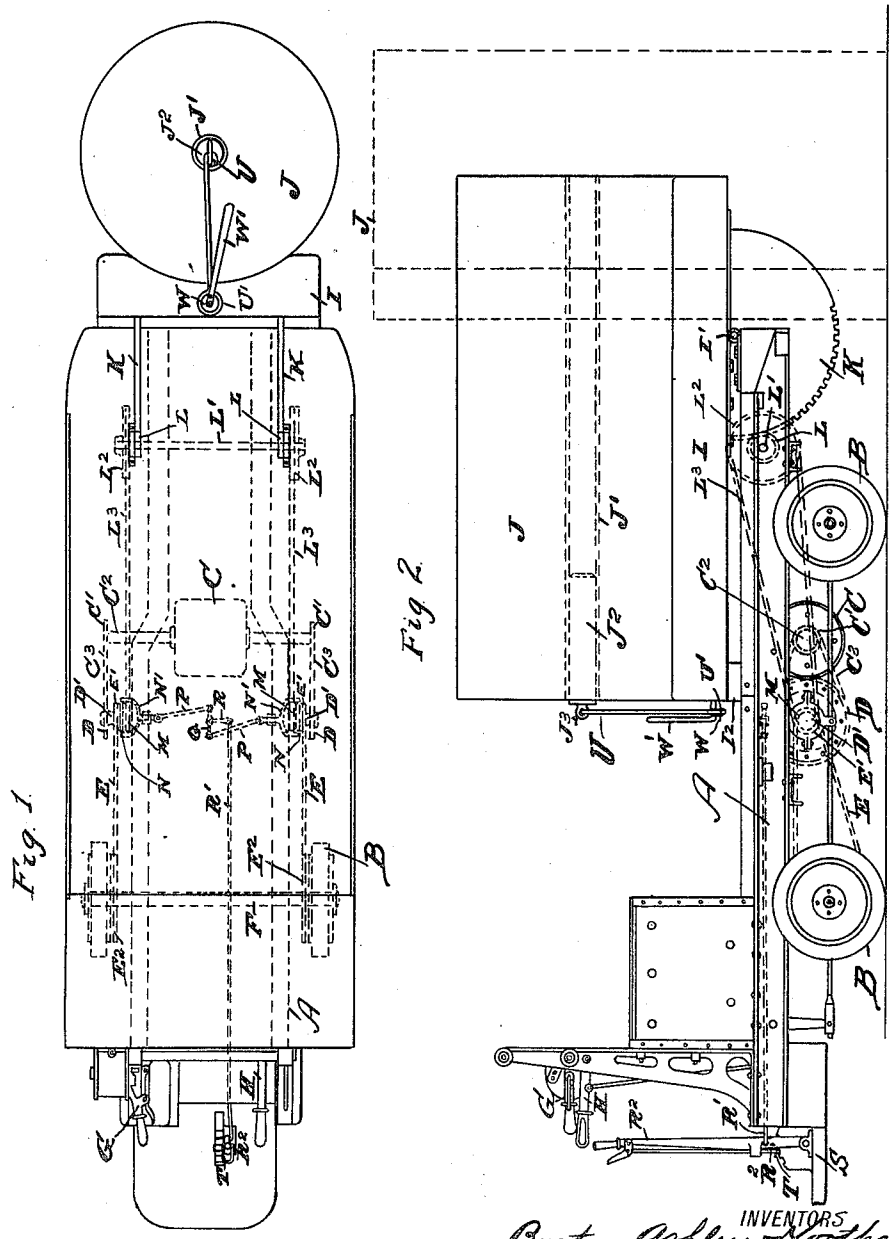


Fig. 1.

Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 3.

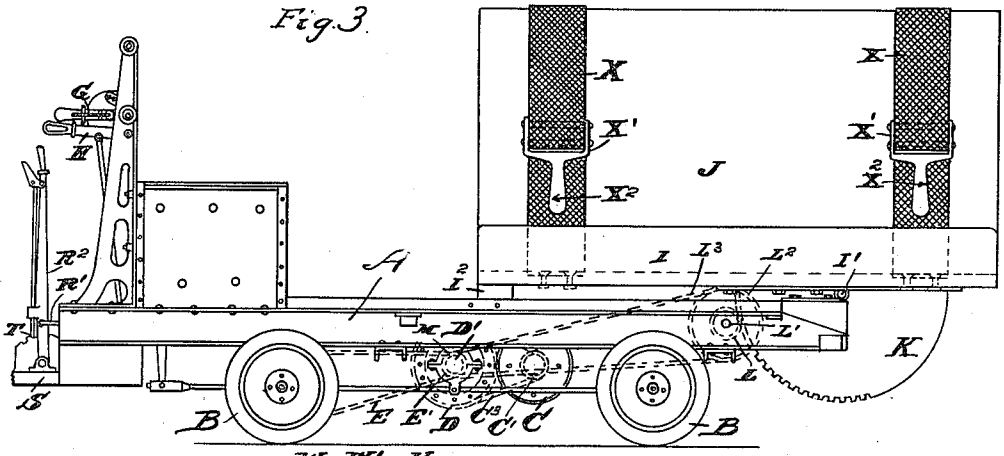


Fig. 4.

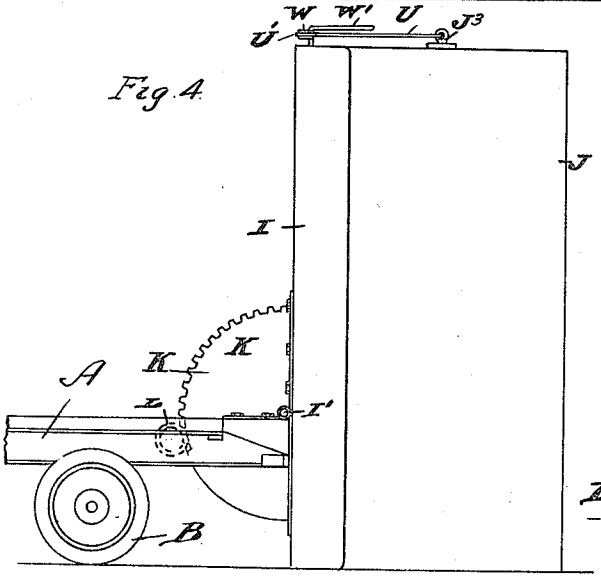


Fig 5.

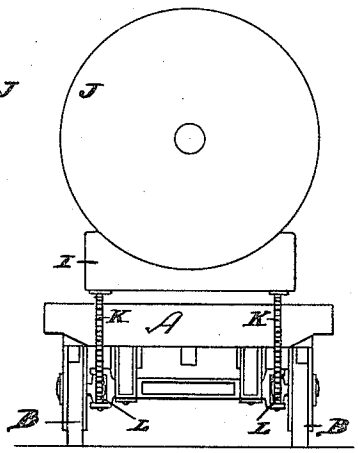
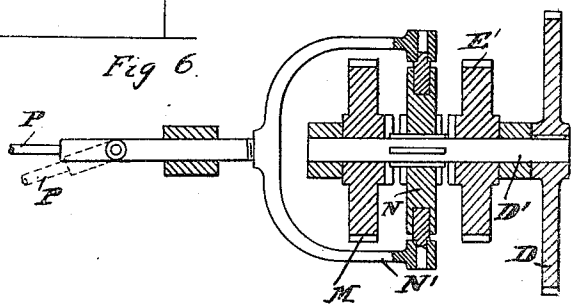


Fig 6.



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BURTON ASHLEY NORTHRUP AND THOMAS K. CALDER, OF DETROIT, MICHIGAN.

INDUSTRIAL TRUCK.

1,276,799. Specification of Letters Patent. Patented Aug. 27, 1918.

Application filed February 23, 1917. Serial No. 150,390.

To all whom it may concern:

Be it known that we, BURTON ASHLEY NORTHRUP and THOMAS K. CALDER, citizens of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Industrial Trucks, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to industrial trucks, and is especially designed for handling the rolls of paper in warehouses, or newspaper press rooms publishing large daily and Sunday editions.

It is well known among those who handle paper in newspaper offices and the like that great damage is frequently the result of transferring the rolls of paper from one department to another or to the printing presses due to the edges and face of the rolls becoming damaged through careless handling.

It is therefore one of the objects of the present invention to supply a truck,—preferably of the motor driven type,—in which a tilting platform is provided having a concave face to receive a roll of paper which upon being secured to the tilting platform may be swung off the floor onto the body of the truck for removal to its destination.

Another feature of the invention consists in providing means whereby the motor employed to drive the truck may be used to actuate the tilting platform through the operation of a suitable clutch mechanism, and thus the roll of paper may be raised from the floor and loaded upon the truck, or unloaded therefrom, with a minmum expenditure of manual effort.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes may be made in the precise embodiment of the device as herein disclosed, without departing from the spirit of the invention.

In the drawings accompanying this specification.

Figure 1, is a plan view of the truck, showing the tilting platform in a vertical position with a roll of paper clamped thereto ready for loading upon the truck, indicating diagrammatically the chain driven mechanism and clutch for operating the tilting platform in dotted lines.

Fig. 2 is a side elevation of the truck with the roll of paper loaded thereon and indicating in dotted lines the position of the roll before it was loaded upon the truck.

Fig. 3 is a side elevation of the truck with a roll of paper loaded thereon, showing a modification of the means for securing the roll to the tilting platform.

Fig. 4 is a fragmentary side elevation of the truck, indicating its tilting platform in position to receive a roll of paper to be loaded upon the truck.

Fig. 5 is an end elevation of the truck with a roll of paper loaded thereon.

Fig. 6 is a detail view with parts in section, of the clutch mechanism controlling the operation of the tilting platform.

The motor, the means for controlling it, and the mechanism for controlling and driving the truck forms no part of this invention but is shown diagrammatically, that the operation of my invention may be more clearly understood.

Referring now to the letters of reference placed upon the drawings.

A, denotes a truck frame, B, its traction wheels.

C, indicates an electric motor. C′, C′, are driving sprocket gears mounted upon the motor shaft C^2.

C^3, C^3, denote driving chain connections between the sprocket gears C′, C′, and the sprocket wheels D, D, keyed on the respective counter-shafts D′, D′.

E, E, indicate driving chain connections between the sprocket wheels E′, E′, carried by the counter-shafts D′, D′, and the sprocket wheels E^2, E^2, carried by the rear axle F. G, indicates an electric control lever governing the operation of the motor. H, denotes the usual steering lever. The foregoing elements are common to industrial trucks and require no further explanation.

I, designates an auxiliary platform hinged

at I′, to the forward end of the truck frame, having a concave face to conform to the shape of a roll of paper J.

I², is a rubber bumper on which the platform rests when lowered. K, K, are sectors bolted to the auxiliary platform having teeth in mesh with the respective pinions L, L, carried by a counter-shaft L′, in turn supported in suitable bearings. L², indicate sprocket wheels carried by the counter-shaft, and L³, L³, designates driving chain connections between the sprocket wheels L², and the sprocket gears M, M, carried on the respective counter shafts D′, D′.

N, denotes a suitable clutch member keyed upon the shafts D′, and longitudinally slidable thereon to interlock with the respective sprocket wheels D, and M;—the latter being free to turn upon the shaft D′, until interlocked therewith through the operation of said clutch member.

N′, is a yoke engaging the clutch member N,—the teeth of which engage coöperating teeth carried by the sprocket wheels D, and M. P, P, are link connections between the arm of the yokes and the arms of a rock-shaft Q. R, is a lever arm projecting from the rock-shaft, and R′, is a link connection between said arm and an operating lever R², pivoted to the platform S.

T, denotes a dog and sector to secure the lever in its adjusted position. J′, indicates a tubular core in the paper roll J, and J², denotes a plug sleeved in the core having an eye J³, formed on its projecting end to receive the hooked end of the bar U, engaged therewith.

The bar U, is provided with an eye or strap U′, at its opposite end to receive an eccentric or cam W, journaled in the end of the auxiliary platform.

W′, is an operating lever for rotating the eccentric within the eye or strap U′, of the bar that the roll of paper may be securely clamped to the auxiliary platform.

In the modification shown in Fig. 3 of the drawings a pair of flexible bands X, secured to the auxiliary platform, are provided to encircle the roll of paper, the ends of the bands being drawn tightly around the roll of paper by manually operated yoke-shaped members X′, having cross-bars to which the ends of the bands are secured.

To tighten and thereby secure the roll to the platform the yoke to which the ends of the strap is secured is rocked by means of its handle X², so as to place the strap under tension. The cross rods of the yoke to which the ends of the strap are connected slightly overlap when engaged that the "draw" of the strap from opposite direction may secure it against accidental release and also that the strap may engage the roll.

Having indicated the several parts by reference letters the construction and operation of the device will be readily understood.

To move a roll of paper the truck is driven into position with the tilting platform swung into a vertical position that it may be brought into abutting relation with the face of the roll. The plug J′, is then inserted in the core of the roll of paper and the hooked end of the bar U, engaged with the eye at the projecting end of the plug. The cam or eccentric W, is then rotated by means of the lever W′, to draw the roll into impinging relation with the concave face of the tilting platform thereby securing it in position. The lever R², is then operated to shift the clutches N, N, that the motor may drive the sprocket gears M, M, thereby operating the sprocket wheels L², L², through the driving chains L³. The pinions L, L, on the counter-shaft are thus rotated actuating the sectors K, K, and causing the auxiliary platform carrying the roll of paper to tilt into a horizontal position as indicated in Figs. 2 and 3. The clutches N, N, are then shifted by the operating lever R, to connect the motor with the sprocket wheels E′, E′, which through the chain drive E, E, actuates the traction wheels B. Having reached its destination, the clutch N, is again shifted to engage the sprocket gear M, and the electric controlling lever G, is then operated to reverse the direction of the motor in a manner well understood. The driving chains L³, connecting the sprocket gears M, M, and sprocket wheels L², L², thereby drives the pinions L, L, which in turn actuate the sectors K, K, tilting the platform I, into a vertical position that the roll of paper may be discharged upon releasing the cam W, by a reverse movement of its controlling lever.

While we have described this invention as particularly adapted for handling rolls of paper it will be apparent that it is equally well adapted for handling other merchandise.

Having thus described our invention what we claim is:—

A motor propelled and load hoisting and discharge truck comprising a truck frame, traction wheels supporting the frame, a tilting platform hinged to the rear end of the frame and having its front portion normally resting upon and supported by the same, a counter-shaft extending across the truck frame gearing between the counter-shaft and the platform for tilting the latter, a motor mounted on the truck frame, relatively short counter-shafts disposed at opposite sides of the truck frame and independently geared to the shaft of the motor, gear elements arranged in pairs and loose on the motor driven counter-shafts, power transmitting means between one of the gear elements and a traction wheel, separate power

transmitting means between the other gear element and the counter-shaft geared to the platform, clutch members slidably interlocked with the relatively short counter-shafts and disposed between the gear elements for engaging one or the other thereof, a rock shaft located between the clutch members and having opposite arms connected with the same and operating mechanism for actuating the rock shaft to effect simultaneous movement of the clutch members.

In testimony whereof, we sign this specification in the presence of two witnesses.

BURTON ASHLEY NORTHRUP.
THOMAS K. CALDER.

Witnesses:
S. E. THOMAS,
N. HURLEY.