

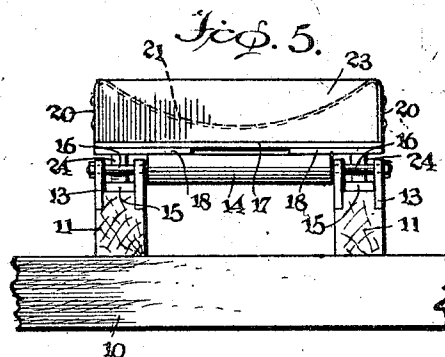
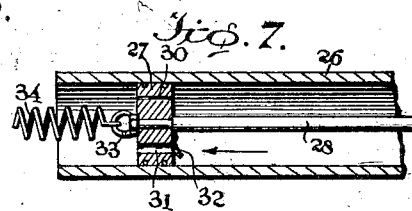
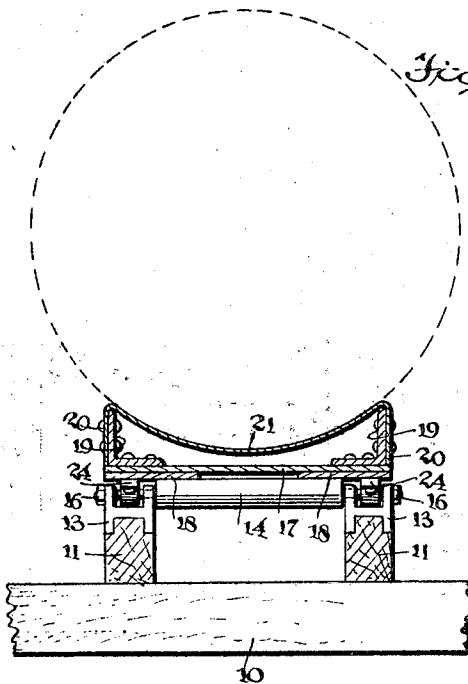
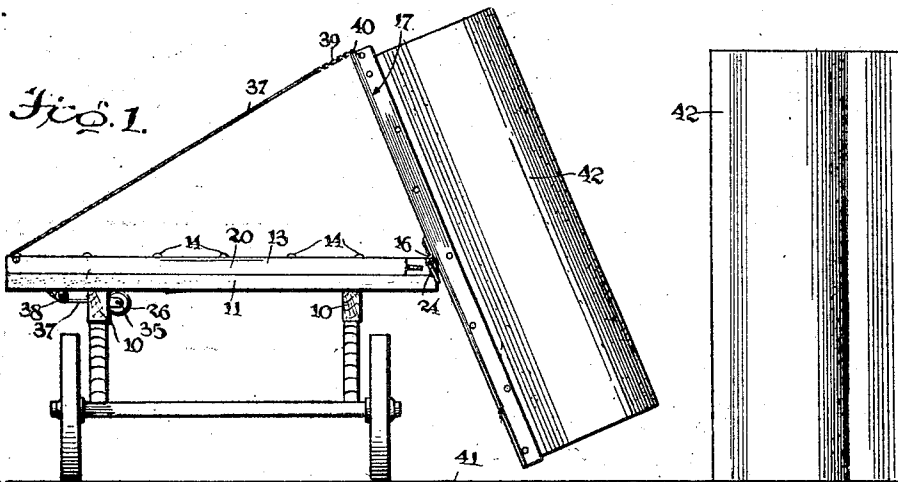
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G. A. JOHNSTON ET AL
MERCHANDISE HANDLING APPARATUS

1,514,769

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2 Sheets-Sheet 1



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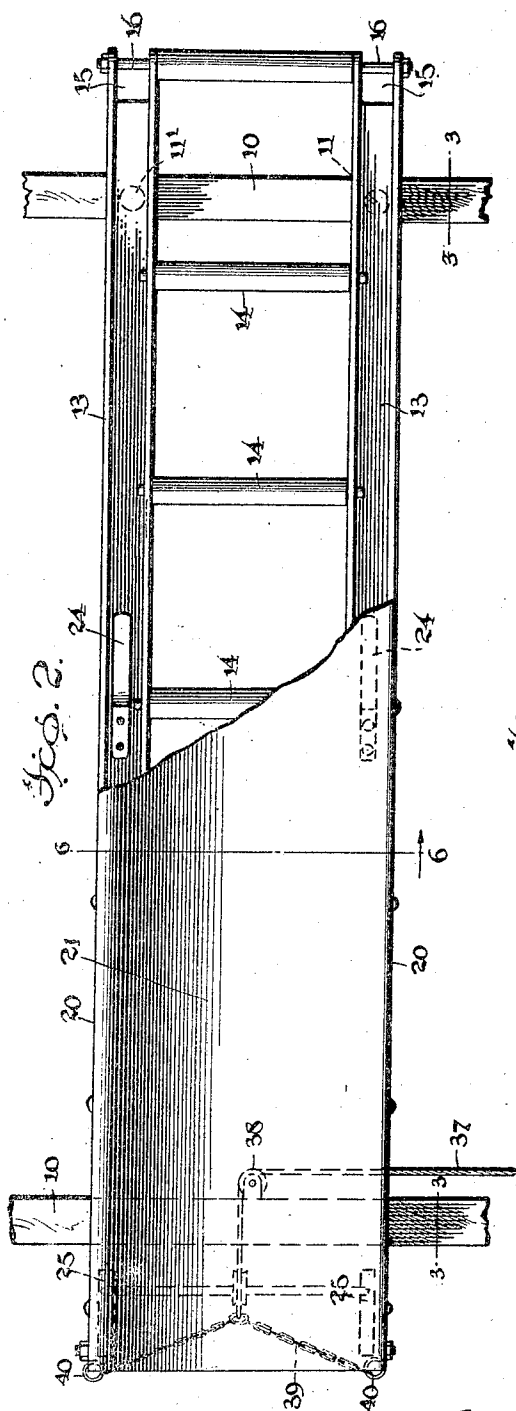


Fig. 2.

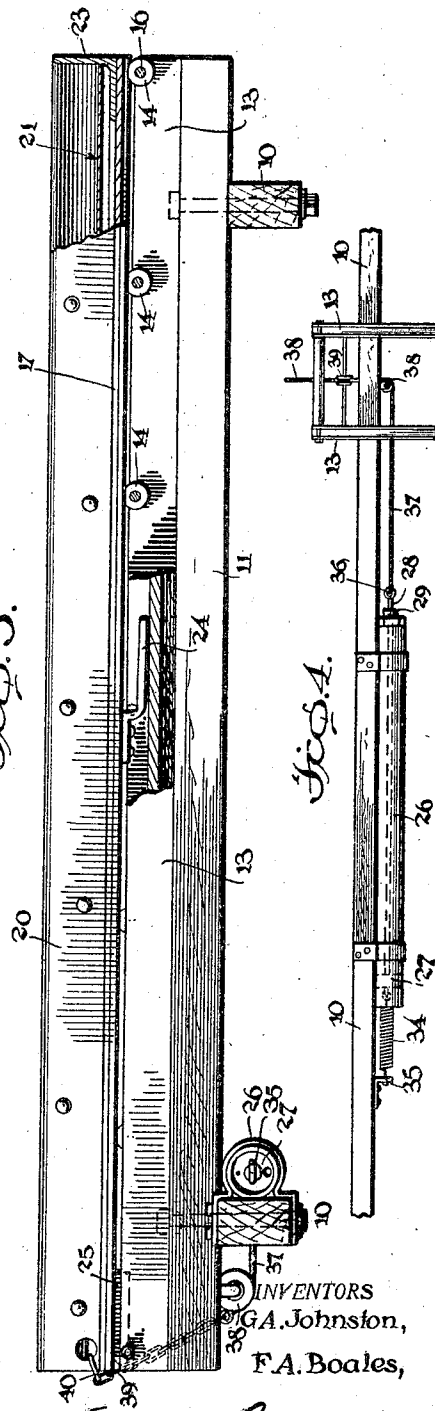


Fig. 3.

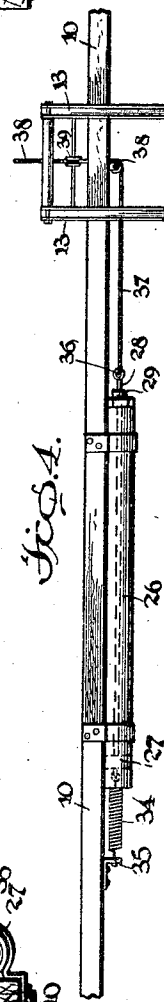


Fig. 4.

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GEORGE A. JOHNSTON AND FRED A. BOALES, OF PORTLAND, OREGON.

MERCHANDISE-HANDLING APPARATUS.

Application filed July 6, 1923. Serial No. 649,833.

To all whom it may concern:

Be it known that we, GEORGE A. JOHNSTON and FRED A. BOALES, citizens of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Merchandise-Handling Apparatus, of which the following is a specification.

This invention relates to an apparatus for moving a body from a vertical to a horizontal position, or from a horizontal to a vertical position, and has for one of its objects to simplify and improve the construction and increase the efficiency and utility of devices of this character.

Another object of the invention is to provide a device of this character including supporting rails, a carriage to receive the body to be handled and movable on the rails and arranged to be tilted relative to the rails, to transfer the body from a horizontal to a vertical position or from a vertical to a horizontal position.

Another object of the invention is to provide a device of this character including supporting rails, a carriage to receive the body to be handled and movable on the rails and arranged to be tilted relative to the rails, to transfer the body from a horizontal to a vertical position or from a vertical to a horizontal position, and with means whereby the movement of the carriage is controlled.

With these and other objects in view, the invention consists in certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claims, and in the drawings illustrative of the preferred embodiment of the invention.

Figure 1 is an end elevation of the improved apparatus.

Fig. 2 is an enlarged plan view of the movable carriage with a portion broken away to show the structure of the guide rails and rollers.

Fig. 3 is a side view of the parts shown in Fig. 2, with portions broken away and with the main support in section on the line 3-3 of Fig. 2.

Fig. 4 is a detail on a reduced scale, illustrating the arrangement of the motion controlling combined air cylinder and spring.

Fig. 5 is an end elevation of the parts shown in Figs. 2 and 3.

Fig. 6 is a transverse section on the line 6-6 of Fig. 2, looking in the direction of the arrow.

Fig. 7 is an enlarged sectional detail of a portion of the combined air cylinder and spring.

The improved apparatus may be employed in connection with a storage platform, a vehicle or truck, or the like, and adapted to handle various articles, but is designed more particularly for handling large rolls of paper such as used by newspaper publishers and the like, and for the purpose of illustration is shown in Fig. 1, applied to a conventional truck device, for transporting rolls of paper of this class, but it will be understood that it is not desired to limit the invention in any manner to the location of the lowering and elevating device.

The improved apparatus includes spaced supporting members 10 which may be the side rails of a truck as represented in Fig. 1.

Rigidly attached to the upper faces of the side members 10 at some points thereon are spaced supports 11, of hard wood or metal as may be preferred and preferably extending at the ends beyond the members 10, as shown in Fig. 1.

Bearing upon each of the supports 11 is a guide rail 13, preferably of sections of I-beams as shown in Figs. 5 and 6, and rigidly secured by any suitable means to the supports 10.

By this means upwardly opening guide channels are presented extending in parallel spaced relation, as shown in Figs. 2, 4, 5 and 6. Extending between the guide rails 13 and mounted for rotation relative thereto are bearing rollers 14, the upper portions of the rollers extending above the upper lines of the rails 13, as shown in Figs. 1, 5 and 6.

At one end, the web portion of each of the rails 13 is cut away as shown at 15, and the axle 16 of the end roller 14 extends through the flanges of the rails and transversely of the recesses or cut away portions 15, the portions of the axle 16 between the sides of the channelled rails forming stop rods.

Movably disposed upon the bearing rollers 14 is a carriage or car to receive the body to be handled, and consists of a base plate 17 with spaced bearing strips 18, beneath the side portions and bearing directly on the rollers 14, as shown in Figs. 3, 5 and 6.

Attached to the upper face of the plate 17 at the edges are L-bars 19, and bearing over the L-bars is a "floor" member including downturned side portions 20 bearing 5 against the outer faces of the L-bars 19 and with the intermediate portion curving downwardly between the members 19, as shown in Figs. 5 and 6.

Attached to the floor member at the "tail" 10 end is a stop member 23, for illustration formed of a section of an L-bar as shown in Fig. 3.

Attached to the lower faces of the bearing members 18 intermediate the ends and 15 depending into the channel portions of the guide rails 13, are open stop hooks 24 adapted to engage the stop rods 16 when the carriage is moved into tilting position, and attached to the lower faces of the members 20 18 at the end farthest from the stop rods 16, are stops 25, operating to prevent lateral displacement of the carriage.

Attached to the inner face of one of the side members 10 is a cylinder 26 having a 25 piston 27 and a piston rod 28 operating therein, the cylinder being open at one end as shown in Fig. 7 and closed at the other end except for an opening for the passage of the rod, the closed end having a stuffing box 30 represented conventionally at 29 through 30 which the rod operates.

The piston 27 is provided with a small orifice 30 and an opening 31 over which an inwardly operating valve 32 is connected as 35 shown in Fig. 7.

Connected at 33 to the piston head 27 is one end of a spring 34, the other end of the spring being attached at 35 to the adjacent 40 side member 10.

The spring operates to yieldably hold the piston head at one end of the cylinder and automatically return it to initial position when released.

Attached at one end at 36 to the outer end 45 of the piston rod 28 is a pull cable 37 leading thence over guide pulleys 38 to a flexible coupling such as chains 39 attached to the carriage at 40.

In operating the improved apparatus, for 50 unloading, the carriage carrying the roll to be unloaded upon the floor 41, is manually moved along the tracks 13 until the hooked catches 24 engage the stop rods 16 and the carriage tilted into the position shown in 55 Fig. 1, which will locate the transverse end stop 23 near the floor or ground indicated at 41. This movement of the carriage will cause the chains 39 and cable 37 to draw the piston 27 toward the closed end of the cylinder 26, against the resistance of the spring 34, compressing the air within the cylinder, 60 the orifice 30 within the piston head permitting the air to slowly escape from behind the piston head, thus allowing the carriage carrying roll to slowly assume a vertical posi-

tion. The roll may then be shifted from the supporting stop 23, to the floor 41.

The carriage is then manually tilted into horizontal position and moved along the tracks 13 and over the rollers 14, into its 70 normal position, the reaction of the spring 34 assisting in the movement, while the orifice 31, and the inwardly operating valve permits the air 32 to rapidly re-enter the cylinder, thus allowing the carriage to 75 quickly assume a position for reception of a new roll.

When the empty carriage has been returned to horizontal position, another roll of paper may be rolled along the members 10 80 and onto the carriage, and the carriage again actuated to lower another body 42 in an upright position to the floor 41, and the operation repeated until the truck is empty.

If the tracks 13 are located intermediate 85 the ends of the members 10, the rolls 42 will be moved from each end toward the carriage, but if the tracks are located at one end of the members 10, then the "load" will be 90 rolled in one direction only to the carriage.

If the storage place for the elevated rolls is a warehouse or the like, the members 10 95 will merely operate as "skids" to support the rolls, or other object elevated by the coaction of the tracks and carriage.

When located in a warehouse or the like, the supports 11 and tracks 13 may be located directly on the floor of the warehouse at a point opposite to a doorway opening. 100 If the device is to be employed for elevating objects other than rolls of paper, the floor 21-23 may be of other forms than dish-shape, as shown in Fig. 6.

The improved device is simple in construction, can be manufactured of any suitable 105 material and of any suitable size and capacity, and adapted without structural change to the elevation of various objects or bodies as before stated.

The preferred embodiment of the invention 110 is disclosed in the drawings and set forth in the specification, but it will be understood that modifications within the scope of the claims may be made in the construction without departing from the principle 115 of the invention or sacrificing any of its advantages.

Having thus described the invention, what is claimed as new is:—

1. In an apparatus of the class described, 120 guide rails in spaced parallel relation, said rails being formed with upwardly opening longitudinal channels, stop rods extending transversely of the channels of said guide rails, a carriage movable on said rails, and 125 open hooks attached to said carriage intermediate the ends thereof and depending into the channels of the rails and guiding the carriage relative thereto and adapted to engage the stop rods of the guide rails 130

when the carriage is moved into a predetermined position to enable the carriage to be tilted toward a vertical position.

2. In an apparatus of the class described,
5 guide rails in spaced parallel relation and formed of channel members with the side webs extended beyond the bottom web, stop rods extending through the extending side webs of the guide rails, a carriage movable
10 on said rails, and open hooks attached to said carriage intermediate the ends thereof

and depending into the channels of the rails and guiding the carriage relative thereto and adapted to engage the stop rods of the guide rails and extending into the cavity 15 formed by the extensions of the side webs when the carriage is tilted toward a vertical position.

In testimony whereof, we affix our signatures hereto.

GEORGE A. JOHNSTON.
FRED A. BOALES.