

June 17, 1930.

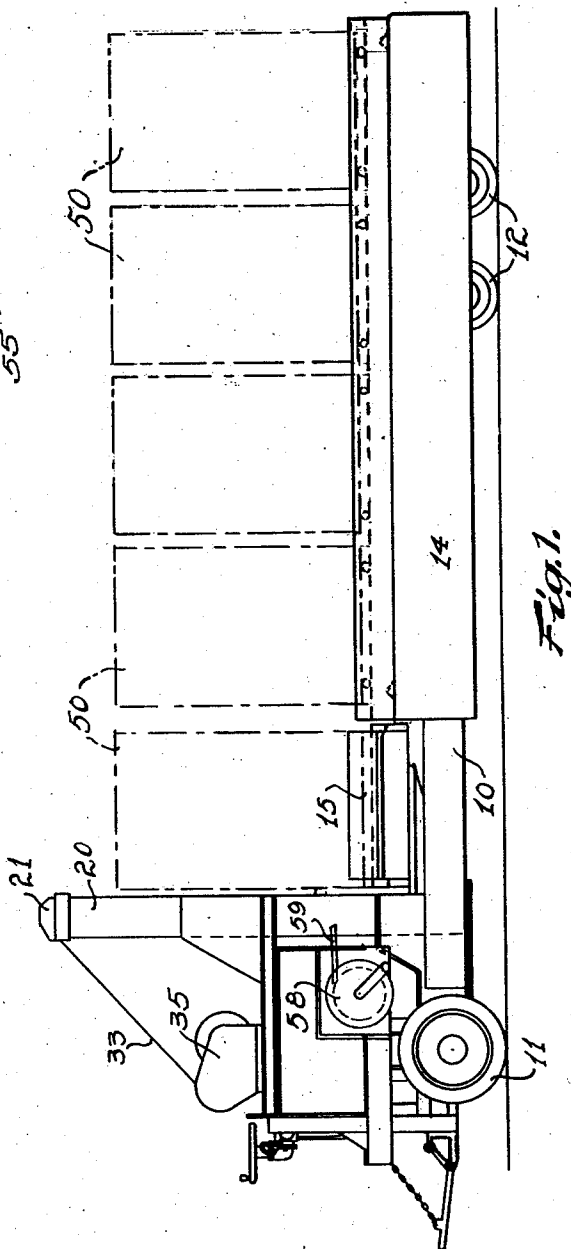
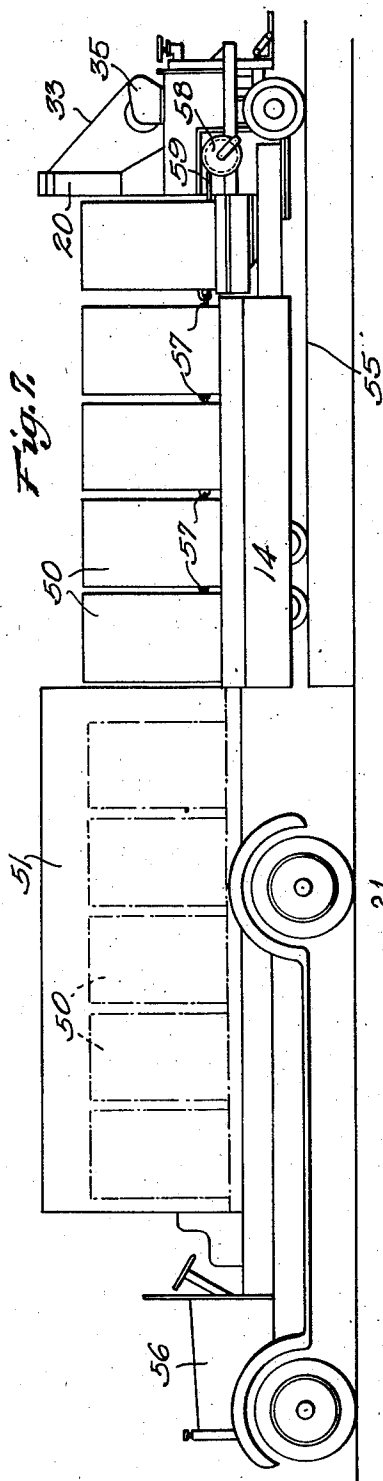
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1,764,780

SYSTEM AND APPARATUS FOR HANDLING FREIGHT

Filed July 22, 1927

4 Sheets-Sheet 1



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4 Sheets-Sheet 3

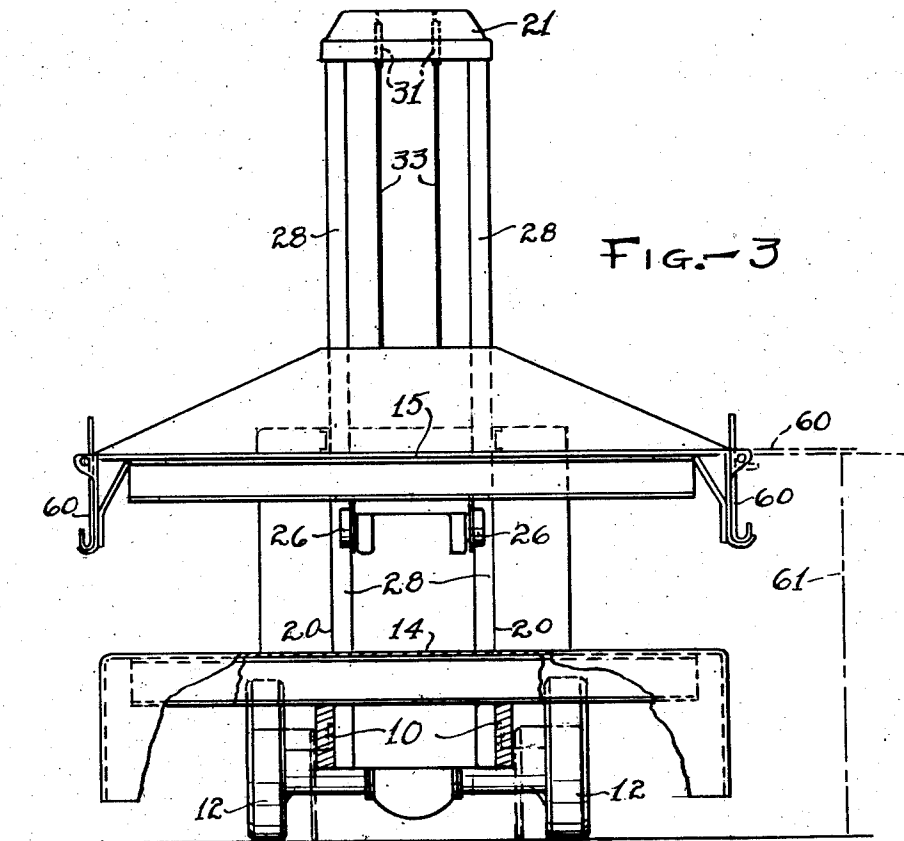


FIG. 3

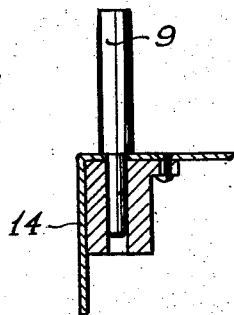


FIG. 5

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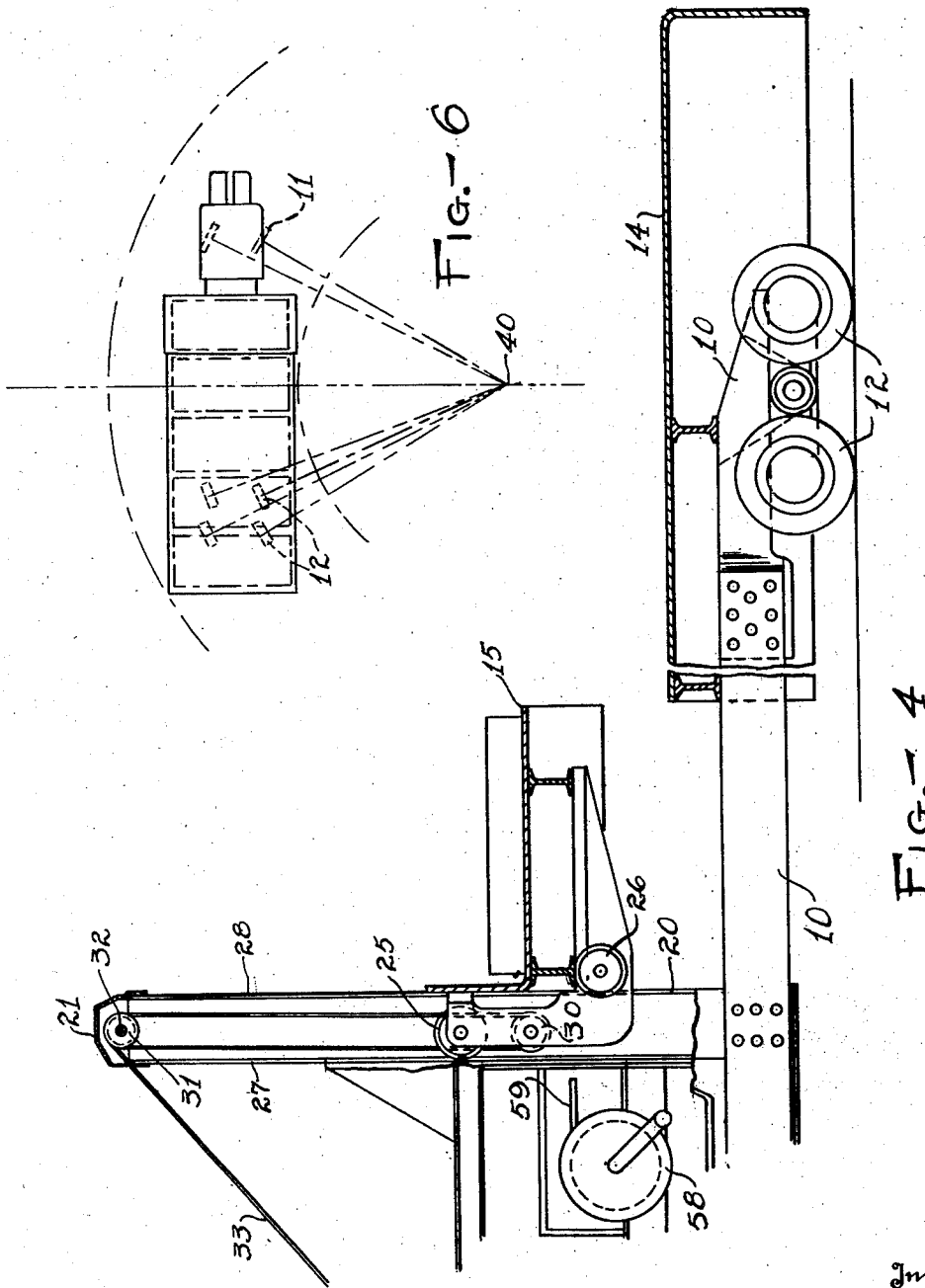
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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

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SYSTEM AND APPARATUS FOR HANDLING FREIGHT

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This invention relates to a system and apparatus for handling freight wherein the freight is handled in containers which comprise removable automobile bodies. To safeguard the transportation of freight, it has been customary to store the freight in relatively small containers and then to insert a predetermined number of such small containers into a large container. Ordinarily heavy duty equipment is required to withdraw the small containers and hence, the danger of opening of the containers by unauthorized parties is minimized.

Heretofore, special apparatus has been required to insert and withdraw the small containers, and such apparatus has included the building of a raised stationary platform which leads outwardly from the large container. From such platform small containers are handled as individual units by an industrial truck. Inasmuch as the freight handling requirements usually necessitate the moving of the individual containers from the large container to remote points within the station, considerable time is lost if only one industrial truck is used for the transporting medium. Moreover, after the small containers have been moved to the desired location, then it is frequently necessary to raise the small containers to a different level. Such elevation of the containers is desirable in cases where the handling platform is above the receiving platform, or in cases where it is desired to elevate the small container onto a motor truck. Thus, the industrial truck must be operated for a considerable period of time without a load.

An object of the present invention is to provide a system of handling freight wherein a plurality of small containers may be transported as a group, and then may be individually transposed to a different level in accordance with the freight handling demands. In addition, my invention contemplates the construction of an industrial truck which is well adapted for carrying out my system.

The preferred form of apparatus for carrying out my invention is illustrated in the drawings, wherein Fig. 1 is a side elevation of an industrial truck made in accordance

with my invention; Fig. 2 is a similar side elevation showing one of the containers on a different level; Fig. 3 is an end view of the truck showing the elevating platform at a higher level than the stationary platform; Fig. 4 is a vertical longitudinal section through the truck with the elevating platform in raised position; Fig. 5 is a vertical section showing a detail of the platform structure; Fig. 6 is a diagrammatic view showing the short turning radius of the truck; and Fig. 7 is a side elevation of a motor truck and industrial truck showing the operation of any system.

The industrial truck made in accordance with this invention has a main frame which is supported at one end by drive wheels 11 and at the other end by two pairs of idler wheels 12. The end having the drive wheels 11 is termed the front end of the truck and carries the usual power unit, including the motor and storage batteries, together with the control mechanism.

The main frame supports a relatively stationary platform 14, and a relatively movable platform 15. Such platforms are so arranged that the level of the movable platform can be brought to the same level as the stationary platform for enabling containers to be shifted from one to the other platform.

To support the movable platform, I provide a vertical guide frame 20, which extends upwardly from the main frame near the power unit. Such guide frame embodies spaced beams, the lower ends of which are attached to the main frame and the upper ends of which are connected by a cap 21. Suitable reinforcing connections are utilized for providing sufficient strength and rigidity to the upright frame. The elevating platform carries two pairs of guide wheels 25—26, which are adapted respectively to engage the inner and outer flanges 27 and 28 on the guide beams.

To actuate the platform I utilize a pair of guide pulleys 30, which are journaled in the elevated frame and another pair of pulleys 31 which are disposed at the top of the upright frame. Such last named pulleys are mounted for rotation upon a shaft 32,

which is shown as being carried by the upright frame. Cables 33 lead over the pulleys to hoisting mechanism at 35. Such mechanism includes an electric motor which is mounted on the top of the battery casing. Removable upright pins 9 function to hold the containers from inadvertently moving off the platforms.

The front and rear wheels are dirigibly connected so as to minimize the turning radius. In the preferred arrangement, the loci of the turning radii is in a plane which extends at right angles to the main frame, and passes approximately through the mid-portion of the main frame. Such arrangement is illustrated diagrammatically in Fig. 5, wherein the turning locus is shown at 40.

With the apparatus thus described I can effect the handling of freight by means of containers in an expeditious manner. For example, the relatively small containers indicated at 50 in Fig. 7 are normally stored in a relatively large container 51. Such large container comprises a removable automobile body having doors preferably in both ends. The small containers are adapted to be simultaneously withdrawn from the large container. One way of accomplishing this is to so arrange the level of the platform 55 that the end of the industrial truck may be brought into engagement with the end of the motor truck 56, while the platform level of the industrial truck is substantially in the same horizontal plane as the level of the floor surface of the container 51. By interconnecting the relatively small containers, as by chains 57, and by mounting the containers upon rollers, then all of the small containers may be simultaneously withdrawn from the large container and moved on to the platform of the industrial truck. A convenient way of accomplishing this is to utilize a windlass 58 which may be mounted upon the industrial truck adjacent to forward end thereof. A cable 59 on the windlass may be attached to suitable hooks on the end of the container, and since the containers are interconnected before being inserted into the large container, they may be simultaneously withdrawn as a unit. The windlass is shown as being hand operable but if desired may be operated by power.

After the containers have been positioned upon the industrial truck, then the truck may be transported and the containers may be progressively transposed to a different level and removed from the truck. Such transposition of level is obtained by means of the elevating platform heretofore described.

Assuming that the containers are to be raised with reference to the stationary part of the platform, then after one is raised to the desired level, it can be shifted laterally from the industrial truck across a ramp 60 onto a platform 61, as indicated in Fig. 3.

Thereafter the elevating platform is lowered to the original level and then the next container is moved on to the platform as by means of the windlass, and is thereafter elevated in the same manner. Thus, I provide a system wherein all of the containers may be moved as a unit onto the truck, and then may be progressively removed therefrom at a transposed level. Only one operation of the truck is thus required for this system.

I claim:

1. A system of handling freight, which includes the steps of loading it into a plurality of containers of convenient size to be drawn by and placed upon an industrial truck, coupling the containers together to form a train, operating the truck to move the train as a unit onto the platform of the truck, providing an elevating mechanism on the truck for raising one of the containers above the platform, moving the container laterally from the truck at a transposed level, and then progressively moving each subsequent container onto the elevating mechanism and moving it laterally from the truck at a transposed level.

2. An industrial truck having a main frame, supporting wheels journaled at each end of said frame, a relatively stationary platform carried by the frame and overhanging one end thereof, power supply and control mechanism adjacent the opposite end thereof, guiding means extending vertically from the frame adjacent said means, and an L-shaped carrier movable vertically in said guiding means, and having a platform adapted when in lowered position to align with the stationary platform, and to provide a continuation thereof, the relatively movable platform having substantially the same width as the relatively stationary platform, and mechanism associated with said means for moving articles from the stationary platform onto the movable platform.

In testimony whereof, I hereunto affix my signature.

CLYDE E. COCHRAN.