

- [54] **MOBILE DISPLAY CART**
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- [22] Filed: **June 27, 1973**
- [21] Appl. No.: **374,202**
- [52] U.S. Cl. **280/111; 280/79.1; 280/47.12; 220/1.5**
- [51] Int. Cl. **B60p 1/24**
- [58] Field of Search **280/79.1, 79.2, 79.3, 47.12, 280/47.11, 103, 111; 220/1.5, 4 F, 6; 248/188.3**

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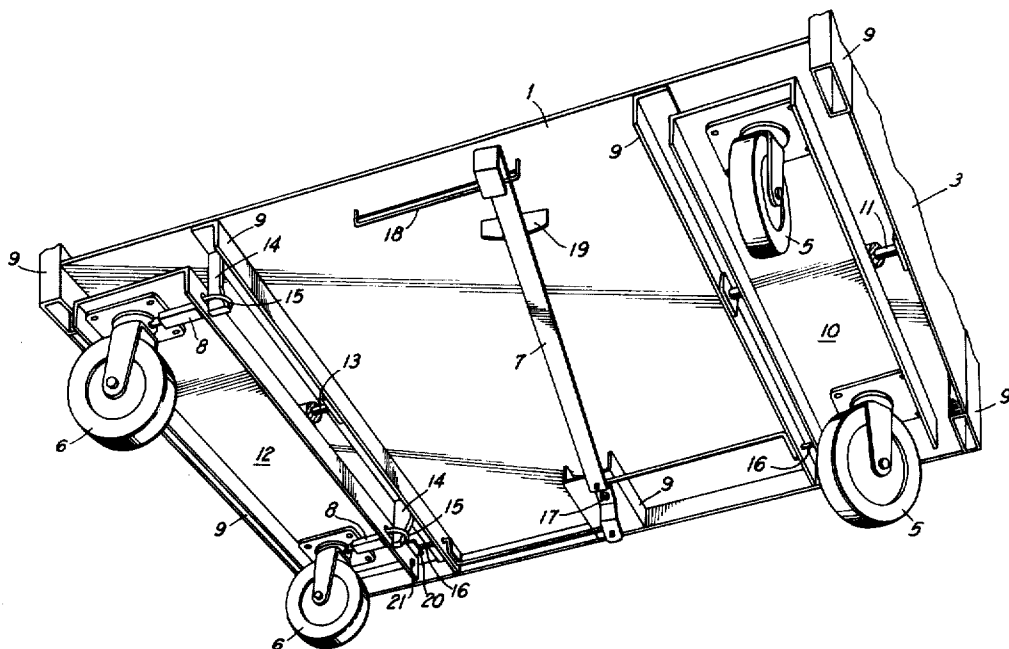
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[57] **ABSTRACT**

A Mobile Display Cart is described which is capable of being utilized as a mobile container for transporting stacked products from a production facility or warehouse to a retail outlet, and which can also be used for merchandizing or displaying the stacked products to the consumer when located at the outlet. The Mobile Display Cart is capable of being transported to and from the retail outlets by means of specialized vehicles designed for the soft drink industry or by conventional tractor-trailer type vehicles. The Cart is of rugged construction, capable of withstanding the stress and abuse of being transported to and from manufacturing and sales points, and when used as a display cart, presents an attractive uncluttered appearance when the product restraining front and ends are removed and stored out of view on the back of the Cart and the front kickplate is lowered so as to obscure the front casters and tilt actuating lever. The Cart includes an improved tiltable assembly that allows the Cart to be wheeled to a display area in an upright position and later tilted when at the display location to retain the products.

8 Claims, 8 Drawing Figures



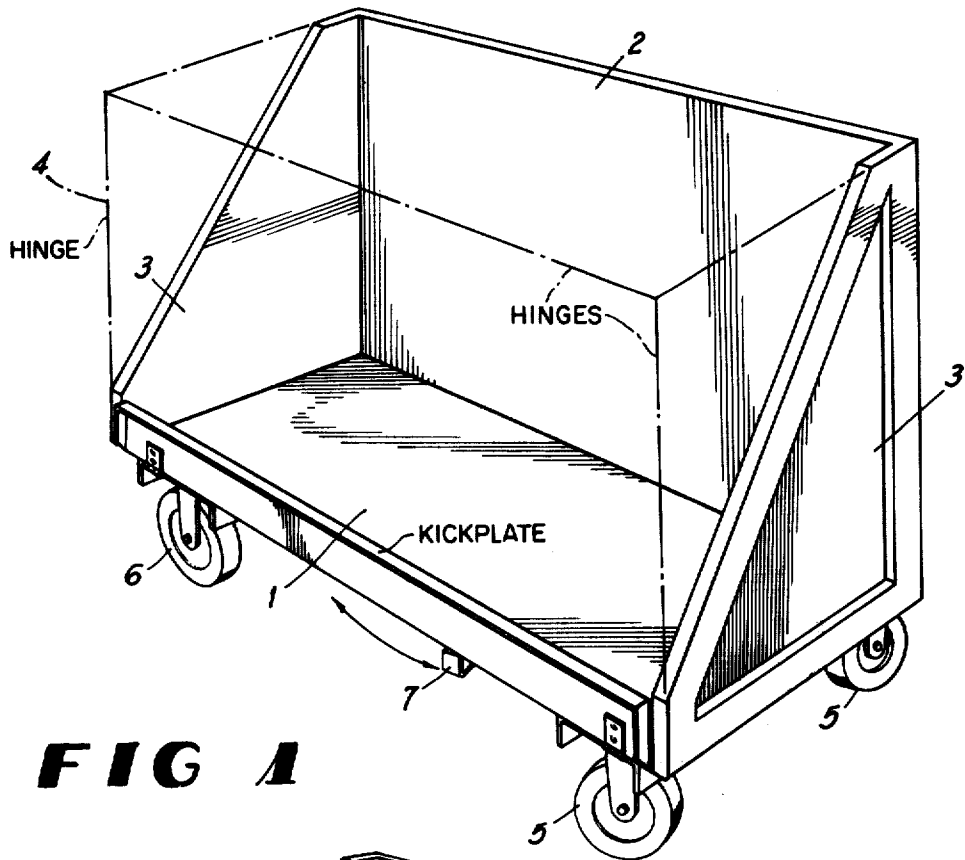


FIG 1

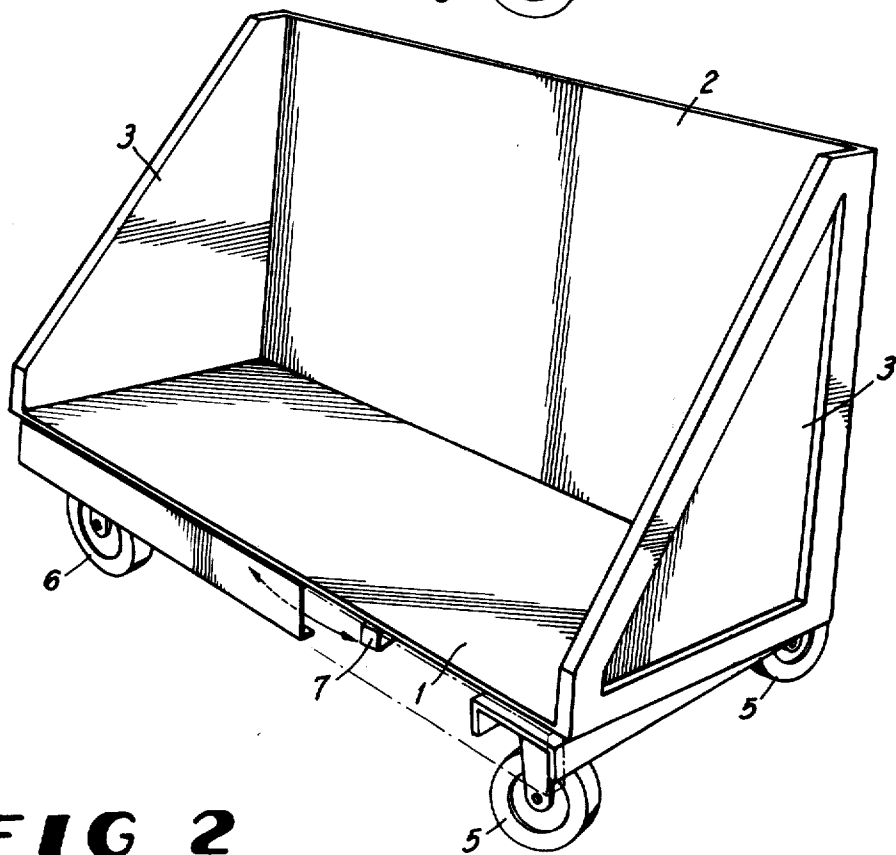


FIG 2

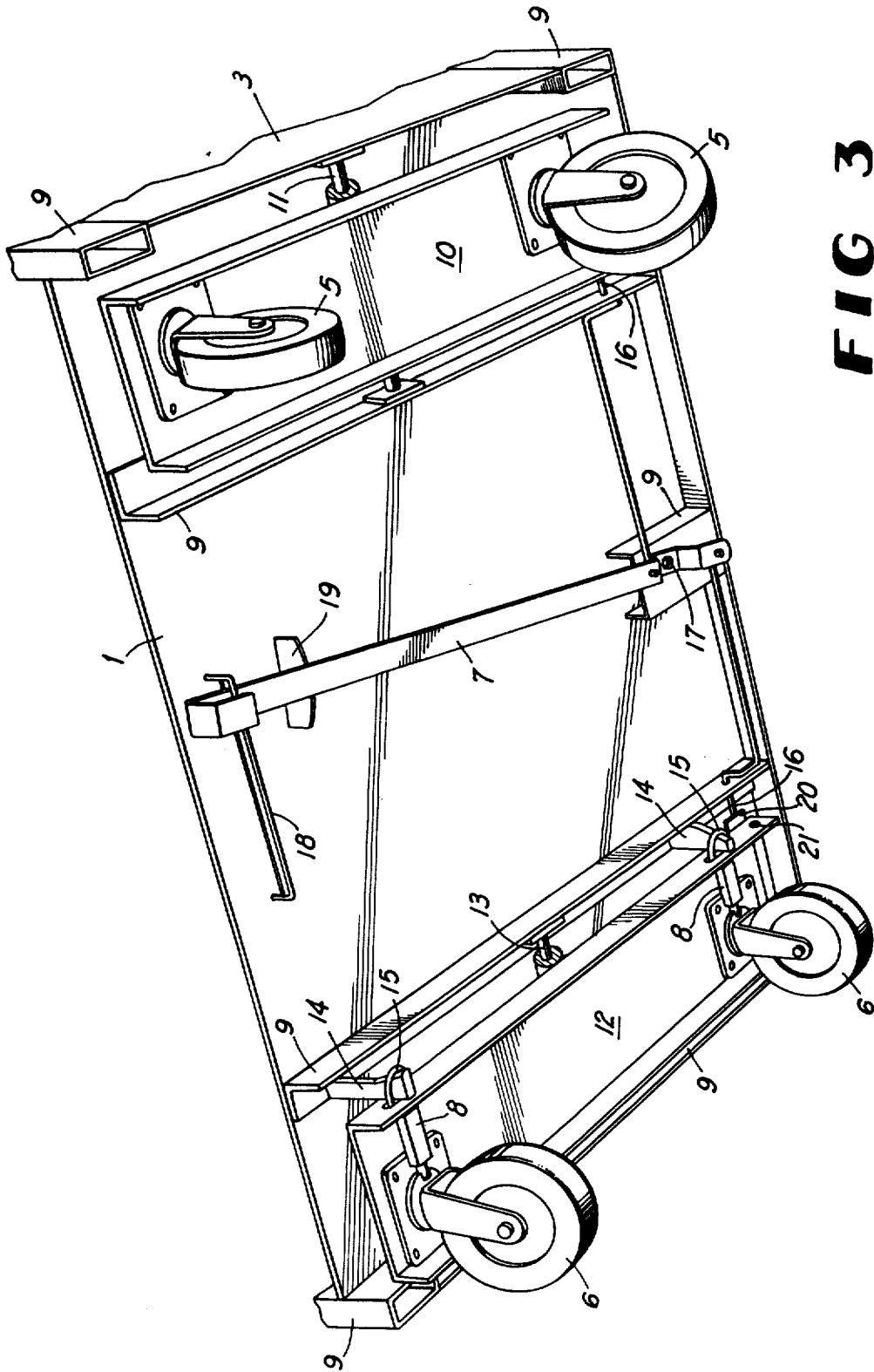


FIG 3

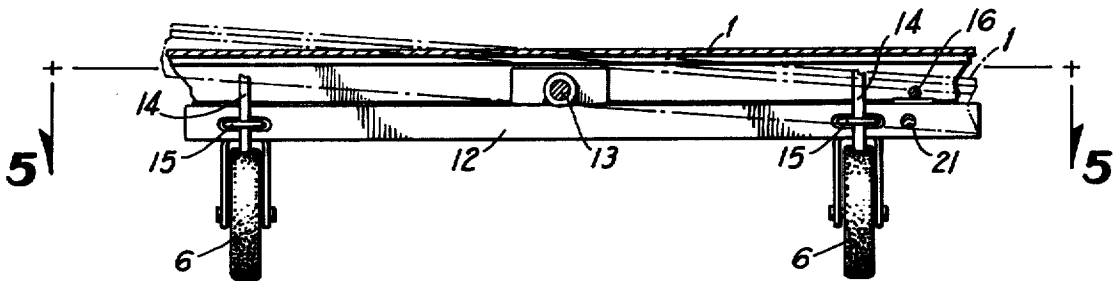


FIG 4

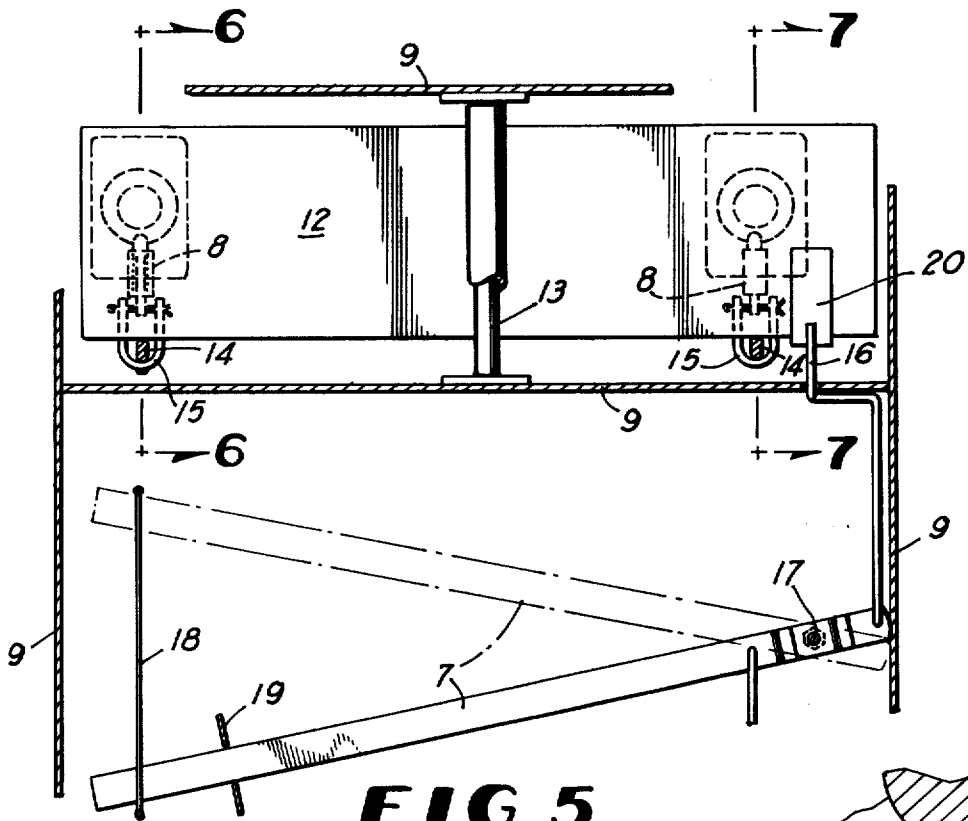


FIG 5

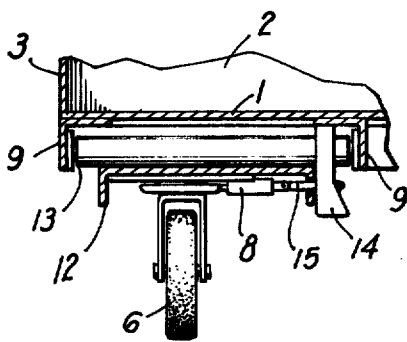


FIG 6

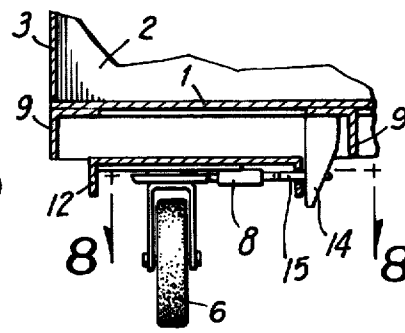


FIG 7

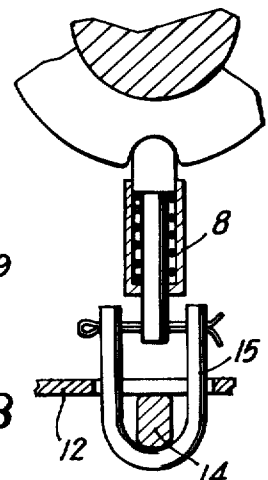


FIG 8

MOBILE DISPLAY CART

BACKGROUND OF THE INVENTION

The present invention relates to a mobile, four-wheeled cart, capable of being utilized as both a mobile container for the transportation of stacked products, such as soft drinks, and also as a display cart for the stacked products at the retail outlet.

The transportation of cases of bottled beverages, such as milk, soft drinks, beer and wine and the like by a bottler from a bottling plant to a route distribution point has always been a time consuming and expensive operation. It has heretofore been practiced where these cases were to be delivered, that several basic types of manually operated wheeled transporting devices be employed for handling the cases.

The first and most common type of wheeled device consists of an elongate, normally upwardly and rearwardly projecting material supporting frames with handles at its upper end, a forwardly projecting material engaging and supporting toe plate at its lower end and a pair of laterally spaced support wheels mounted at the lower end of the frame to occur rearwardly thereof. This type of device has become commonly known as a "dolly device".

Dolly devices, such as described above are made in many different and special designs for special uses. For example, specially designed dolly devices with short toe plates, are provided for handling goods in small packages or containers. Such specially designed dolly devices are not suitable for handling large cartons or sacked goods, such as coal or potatoes. Accordingly, specially designed dolly devices with larger or longer toe plates are provided for handling these large cartons and sacked goods.

In addition to the above example, specially designed dolly devices are provided for handling barrels or drums, soft drink cases, appliances and many other goods and materials which present special handling problems.

As a result of the above, a great number of shops, warehouses, stores and common carriers, must purchase, maintain and use a wide variety of dolly devices. The necessity and/or desirability of having several available types or styles of dolly devices is expensive, complicated and troublesome.

Another type of wheeled device that the art has developed and which finds wide use throughout industry includes an elongate horizontally disposed frame with an upwardly projecting handle at one end, a pair of support wheels, on fixed axles, at one end of the frame and a pair of caster type wheels at the other end of the frame. This four-wheeled type of truck is commonly referred to as a "flat bed platform truck" and is widely used to carry or transport goods which are too bulky or of such size and shape that they cannot be advantageously transported on a two wheeled dolly device.

The latter, second type of truck is widely used in shops, warehouses and stores but is infrequently used by truckers or common carriers, in spite of the frequent need for such a truck. This is primarily due to the fact that such trucks are awkward and difficult to handle, as for instance, they are difficult to load and unload from trucks and similar vehicles. Furthermore, such trucks occupy considerable space and there is a practical limit as to the number of special pieces of work handling

equipment a trucker or common carrier can be equipped with.

Under practical circumstances, both types of manually operated wheeled transporting devices have been employed. This resulted in a considerable expense because of increased time requirements for delivery routes and/or increased equipment expenditures.

Moreover, until several years ago, practically all soft drink related products were transported from the plant or warehouse to the retail outlet by conventional bay type route trucks. The product was, in many cases, loaded onto pallets and the pallets were in turn loaded into bays on the route truck. Once the truck arrived at the outlet, the cases were unloaded by hand, usually five cases at a time, onto the above described dolly device and then were in turn wheeled into the retail outlet for subsequent sale to the consumer. Of course, prior to selling such products, it was necessary that the cases be off-loaded by hand either into the storage room or directly onto the shelves on which they were displayed to the consumer. Needless to say, this also resulted in a considerable expense because of increased time requirements and equipment expenditures.

These increased expenditures have become disastrous in recent years, since there has been a growing trend in the industry to shift compensation for the delivery salesman function from a base plus commission to an hourly basis. One result of this has been the equation of time and money in terms of route delivery. Thus, by decreasing the time requirement of route delivery, substantial monetary savings can be achieved. The advent of bulk delivery eliminated a sizable portion of the handling involved between the plant or warehouse and the shelf at the retail outlet. The main idea behind bulk delivery was to transport product by means in which a person could handle a greater number of cases more easily in less time than by the previous means of handling individual cases from a conventional route truck and associated distribution equipment.

It was discovered as an outgrowth of the bulk delivery system that the transportation bulk cart formed the nucleus of the bulk delivery system. Thereafter, as the systems were refined, product was loaded into various types of carts at the plant, and the carts were used to secure the product while in route to the sales outlet on a high capacity vehicle that was capable of handling distribution carts. Once at the sales outlet, the carts were wheeled from the vehicle to the storage room or to the shelves to be merchandized. Although considerable handling was eliminated with bulk cart delivery and more cases could be delivered in a shorter time with less physical effort, there was found that some handling was still involved at the outlet in order to load the shelves with the product. This function normally was accomplished by either a merchandizer from the soft drink company or by the sales outlet personnel.

Some outlets started a procedure of using mobile carts that could be loaded in the rear of the store, and subsequently wheeled to the beverage department for actually displaying the product in the carts. These carts were usually of a rigid design with either a flat product holding area parallel to the floor or a built-in permanent pitch to product holding areas in order to give the product more stability. For the most part, the ruggedness and construction of these carts prevented them from being used for anything other than an in-store

handling cart. However, this procedure of using in-store carts also involved transferring product either from the store room to the merchandising carts or from bulk delivery carts to the merchandising carts.

With handling costs rapidly increasing in the soft drink industry, the necessity arose for both the bottlers and retailers to have a cart that could be loaded in the plant with product ready for the consumer, transported over-the-road by a specialized vehicle or semi-trailer rig, delivered to the outlet, and be used in the store as an attractive display for the product. It would have to be of rugged enough construction to withstand the abuse and punishment occurring in the plant and during transport to the outlet, and at the same time be aesthetically pleasing to the eye of the consumer since it would be used to display product at the sales outlet. It was also necessary that the cart provide adequate protection for the product during shipment, and be relatively easy to handle all the way from the plant to the sales outlet.

Accordingly, there has been a need in the industry for the production of a mobile display cart, preferably of simple construction, that is capable of being utilized as both a mobile container for the transportation of stacked product to and from retail outlets, and as a display cart for the product at the retail outlet. The cart should have excellent maneuverability and the capability of being easily wheeled to a display area in an upright position and later tilted back at a specified angle at the display location for product retention purposes.

OBJECTS OF INVENTION

An object of the present invention is to provide a mobile display cart that is capable of being utilized as a mobile container for transporting stacked products from a production facility to a retail outlet, and which can also be used for displaying the stacked products to the consumer when located at the sales outlet.

Another object of the present invention is to provide a mobile display cart of the character referred to herein having a foot operated tiltable assembly which allows the cart to be wheeled to a display area in an upright position and later tilted back at a specified angle at the display location for product retention purposes.

Another object of the present invention is to provide a mobile display cart of the character referred to herein wherein a cam operated locking assembly is provided below the cargo bed of the cart and cooperates with certain casters or wheels of the cart to allow excellent maneuverability of the cart in and out of beverage departments at the sales outlet.

Another object of the present invention is to provide a mobile display cart of rugged construction, capable of withstanding the stress and abuse of being transported on high capacity vehicles to and from manufacturing and sales points, and when used as a display cart, presents an aesthetically pleasing display to the consumer.

A further object of the present invention is to provide a mobile display cart having a novel, rigid, durable and compact frame construction; a cart which is easy and economical to manufacture and a cart which is highly effective, dependable and easy to maneuver by the operator.

These, other, and further objects, important features, and advantages of the present invention to which attention has not been specifically directed hereinbefore,

will be better understood and appreciated by those skilled in the art from the following detailed description of the invention taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF DRAWINGS

The present invention will now be described by way of example, with reference to the accompanying drawings, in which:

FIG. 1 is an isometric view of the cart in the non-tilted, travel position with the left front and left rear casters locked. The dimensional boundaries with the front cover and sides attached are depicted.

FIG. 2 is an isometric view of the cart in the tilted position with the front cover and sides removed. The left front and left rear casters are unlocked in this position and allowed to swivel.

FIG. 3 is an isometric view of the underside of the cart showing the swivel casters on the right end, the combination rigid and swivel casters on the left end, and the tilt and caster lock and unlock mechanisms. The actuating lever for the tilt feature and caster locking and unlocking is shown in the center of the drawing.

FIG. 4 is a view of the left end of the underside of the cart as shown in FIG. 3, looking perpendicularly at the axis of rotation of the tilting platform. The solid lines show the platform in the horizontal position and the broken lines show the platform rotated into the tilted position.

FIG. 5 shows a section view of FIG. 4 along line 5—5 with the casters that can be locked rigidly or unlocked to swivel. The actuating lever is shown at the bottom of the view and the shaft about which the platform rotates in order to tilt is shown in the top center of the view. Shown by broken lines are the swivel mechanisms of the two-way casters and the spring-loaded locking and unlocking pins.

FIG. 6 is a section view, along line 6—6 of FIG. 5, of the left front caster and its cam-operated locking and unlocking mechanism. Shown on the right side of the view is the wedge-shaped cam which retracts the lock pin when the cart is tilted and allows the caster to swivel.

FIG. 7 is a section view, along the line 7—7 of FIG. 5, of the left rear caster and its cam-operated locking and unlocking mechanism. Shown on the right side of the view is the wedge-shaped cam which retracts the lock pin when the cart is tilted and allows the caster to swivel.

FIG. 8 is a section view, along line 8—8 of FIG. 7, of the left rear caster and its cam-operated locking and unlocking mechanism. The "U-shaped" pin is activated by the wedge-shaped cam and causes the spring-loaded pin to be retracted when the actuating lever is operated.

DETAILED DESCRIPTION OF INVENTION

The Mobile Display Cart provided by this invention and illustrated in the accompanying drawings includes generally a flat cargo bed 1, a back panel 2, two end panels 3, a removable fold-up front panel with ends 4, two permanent swivel casters 5, two combination casters that may either swivel or be locked rigidly 6, a foot-operated actuating lever 7, to lock and unlock the combination casters and allow the cargo bed to be moved to and from the tilted position, and two spring-loaded locking pin assemblies 8, for the two-way casters.

The cargo bed 1 (See FIGS. 1 and 2) is a flat surface upon which the product being transported or displayed rests. In the form of the invention illustrated, the cargo bed is made of medium gauge flat sheet metal, with a supporting frame 9 made of angle iron, rectangular tubing, and channel stock. The cargo bed 1 is permanently bounded on three sides by the back panel 2, and two end panels 3, all of which are an integral part of the cargo bed 1 and supporting frame 9. The removable fold-up front panel with ends 4, when in place, forms a cargo holding area in the shape of a rectangular solid, as depicted by broken lines in FIG. 1. This removable front panel with ends 4 is made of a lightweight expanded metal or wire with an outer frame work of small gauge square tubing. The ends are hinged to the front panel so that the entire assembly may be folded flat when removed.

The permanent swivel casters 5 (See FIG. 3) are mounted to the right caster supporting channel 10, which is mounted to the cargo bed 1 and supporting frame 9 assembly with a right pivot shaft 11, which allows the cargo bed to tilt with the caster supporting channel and permanent swivel casters remaining in their original position.

The two combination casters 6, (See FIG. 3) are mounted in the left caster supporting channel 12 which is mounted to the cargo bed 1 and supporting frame 9 assembly by the left pivot shaft 13 which allows the cargo bed to tilt with the caster supporting channel and combination casters remaining in their original position. In addition, each combination caster 6 has its own spring-loaded lock pin assembly 8 which is activated by a wedge shaped cam 14 which rides in a U-bolt 15 which is attached to each spring-loaded pin assembly. The wedge-shaped cams are mounted to the supporting frame 9.

In use, the Mobile Display Cart has two positions or modes of operation. In the travel position, (FIG. 1) the plane of the cargo bed 1 is parallel to the floor and is restrained from moving into the tilted position by two retractable locking pins 16 which are attached to the foot-operated actuating lever 7 which swings about a pivot point 17. The non-pivoting end of the actuating lever slides in a guide 18 and is secured in the lock position by nesting in a ramp-type locking guide 19 with a slot cut out of it. The two retractable locking pins 16 extend through part of the supporting frame 9 and rest atop restraining tabs 20, one of which is mounted to the right caster supporting channel 10 and one to the left caster supporting channel 12. This prohibits the cargo bed 1 and supporting frame 9 assembly from tilting relative to the caster supporting channels 10 and 12. In this locked position, the wedge-shaped cams 14 are in a position such that the spring loaded locking pin assemblies 8 are not retracted and the pin projects into slots in the bases of the combination casters preventing them from swiveling (See FIGS. 5 and 8). Thus in the travel position, the cargo bed 1 is locked in a position parallel to the floor and the combination casters are locked rigidly so that they are not allowed to swivel.

In order to place the cart in the tilted position, (FIG. 2) the operator first moves the foot-operated actuating lever 7 to the left. The movement of the actuating lever causes the two locking pins 16 which are connected to it to retract from their position atop the two restraining tabs 20 and allows the entire cargo bed 1 and supporting frame 9 assembly to tilt about pivot shafts 11 and

13. This tilting action occurs due to the location of the pivot shafts 11 and 13. Pivot shafts 11 and 13 are positioned forward of the center line of the Cart which in turn results in the center of gravity of the Cart being rearward of the center line and causing such tiltable action. As the cargo bed 1 and supporting frame 9 assembly tilts, the attached wedge shaped cams 14 move inside their respective U-bolts 15 which are connected to the spring-loaded pin assemblies 8. The cam effect of the relative movement between the wedge-shaped cams 14 and the U-bolts 15 causes the spring loaded locking pins to which they are attached to compress the springs and to retract from the slots in the bases of the combination casters, allowing the casters to swivel. When the pins are fully retracted they are restrained from further movement by contact with the caster supporting channel 12. Restraining the locking pins from further movement also restrains the U-bolts 15 to which they are attached from moving any further. Consequently, the wedge-shaped cams 14 cannot move relative to their respective U-bolts 15 and since the cams are attached to the cargo bed 1 and supporting frame 9 assembly, the tilting action is stopped at this point. The cargo bed 1 and supporting frame 9 assembly are now in the fully tilted position and the combination casters 6 are free to swivel. In order to lock the cart in this tilted position, the actuating lever 7 is moved back to the right. This causes the two locking pins 16 to be inserted into two tilt lock holes 21 directly below the restraining tabs 20 upon which the locking pins formerly rested. This further locks the cart in the tilted position. Since the cargo bed 1 and supporting frame 9 assembly cannot move back to its original position parallel to the floor, the wedge-shaped cams 14 which are connected to it cannot move relative to the U-bolts 15 of the spring loaded pin assemblies 8 which keeps the pins retracted and the combination casters free to swivel.

In order to put the cart into the travel position from the tilted position, the process for putting it into the tilted position from the travel position is simply reversed. The actuating lever 7 is moved to the left which retracts the locking pins 16 from the tilt lock holes 21 below the restraining tabs 20. The cart is then tilted back to its position with the cargo bed 1 and supporting frame 9 assembly parallel to the floor. As the assembly tilts back parallel to the floor, the wedge-shaped cams 14 slide relative to the U-bolts 15 allowing the tension of the compressed springs to force the locking pins to ride against the base of the combination casters. When the slots in the casters and the locking pins line up, the spring tension forces the pin into the slot locking the combination caster. With the cargo bed 1 and supporting frame 9 assembly parallel to the ground, the actuating lever 7 is moved back to the right which causes the locking pins 16 to ride atop the restraining tabs 20 and prevent the cart from tilting.

From the foregoing, it will be apparent that I have provided a novel, highly versatile, effective and dependable mobile display cart construction which may be used as both a bulk delivery cart for transporting products directly from the production facility to the retail outlet and also when located at the outlet, used as a display cart which can be maneuvered easily into position by means of the unique four swivel caster feature and tilted back to give product stability once the prod-

uct restraining removable front and end portions have been removed.

It is believed that the present invention, its mode of construction, assembly and operation, and many of its advantages attendant thereto should be readily understood from the foregoing description and it would also be manifest that, while a preferred embodiment of the invention has been shown and described for illustrative purposes, the structural details are nevertheless capable of wide variation within the purview of the artisan. For example, instead of a removable front and end arrangement 4 which will fold flat and store by hanging on the back wall 2 of the cart, these removable parts 4 could be confined to the front only and the ends could instead be made a part of and hinged to the end panels 3. This would allow the ends to be folded down and out of the way. Also, while not necessary, the cart could be provided with collapsible walls that are secured together at the meeting corners and which could be separable so that the cart could be adaptable for being knocked down for shipping or storage purposes.

It is believed that the present invention, its modus operandi, and many of the advantages attendant thereto should be understood from the foregoing without further description. It should be manifest that the present invention is capable of wide variation within the purview of the invention as defined in the appended claims.

The embodiment of the invention in which an exclusive property right is claimed is defined as follows:

1. A mobile display cart adaptable for transporting stacked product from a production facility to a retail outlet and displaying said products at the retail outlet, including the combination of a cargo bed, a back panel, a pair of end panels, and a plurality of castors, said cargo bed being supported and mounted on said castors and being bounded on the back side by said back panel and on the end sides by said two end panels and wherein the improvement comprises activating means mounted below the cargo bed and cooperating with said cargo bed to allow the cart to be wheeled on said castors to a display area in an upright position and upon activation at the display location, to tilt the cargo bed toward the back panel for product retention purposes, said activating means comprises a foot operated lever positioned below the cargo bed, said foot operated lever being connected to a retractable tilt locking pin arrangement that is in turn associated with a pair of castor supporting columns which are laterally spaced at respective ends of the cargo bed and fixed to said cargo bed by a pair of pivot shaft members which are positioned forward of the center line of the cart and mounted to the bottom of the cargo bed on the supporting frame assembly of said cart.

2. A mobile display cart as defined in claim 1, wherein a removable fold up front panel is associated with said cargo bed between the two end panels and opposite the back panel, said removable fold up front panel being adaptable to form a cargo holding area in the shape of a rectangular solid when connected to the

cargo bed, back panel and end panels.

3. A mobile display cart as defined in claim 2, wherein the removable fold up front panel comprises rectangular front and top members which are bounded by a pair of triangular end members, said top and front members being hinged together and said end and front member being hinged together, so as to provide a removable fold up assembly that may be folded flat when removed and stored out of view on the back of the cart.

4. A mobile display cart as defined in claim 2, wherein the back panel and pair of end panels are releasably secured together at the meeting corners on said cargo bed, said back and end panels being selectively detachable from the cargo bed so as to form a completely collapsible cart for transportation and/or storage.

5. A mobile display cart as defined in claim 1, wherein a pair of combination castors are mounted on one of said supporting columns at respective ends thereof, a pair of permanent swivel castors are mounted on the other supporting column at respective ends thereof and a cam operated locking assembly means is positioned below the cargo bed and located adjacent the combination castors, said assembly means being adaptable to lock said combination castors when the cart is in an upright position and thus allow excellent maneuverability of the cart when wheeled from a production facility to a retail outlet.

6. A mobile display cart as defined in claim 5, wherein the cam operated locking assembly comprises a pair of wedge-shaped cams that are mounted to the supporting frame of the cart adjacent said pair of combination castors, each of said cams riding within a U-bolt which is attached to a spring-loaded pin assembly, said pin assembly being associated with the support column for said combination castors and adapted to project into slots that are formed in the base of the combination castors preventing them from swiveling when the cart is in an upright position.

7. A mobile display cart as defined in claim 1, wherein a front kickplate is fixed on brackets to the front end of the cargo bed, said kickplate being capable of obscuring the castors and activating means which are mounted beneath the cargo bed when positioned in a lowered position and allowing access to the activating means when positioned in a raised position.

8. A mobile display cart as defined in claim 1, wherein each of said castor supporting columns include a restraining tab mounted on the top back portion of the columns and a tilt lock hole provided directly below each of the restraining tabs within a side frame member of said columns, and wherein said pin arrangement comprises a pair of retractable locking pins which are connected to a centrally located foot operated activating lever, said pins being adapted during operation of the activating lever to rest atop the restraining tabs when the cart is in an upright position and within the tilt lock holes when the cart is in a tilted position.

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