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[54] **LAUNDRY HANDLING SYSTEM AND EQUIPMENT**

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[52] **U.S. Cl.** **68/210**, 34/236, 104/88, 105/156, 105/242, 198/177

[51] **Int. Cl.** **D06f 39/00**

[58] **Field of Search** 68/210; 34/236

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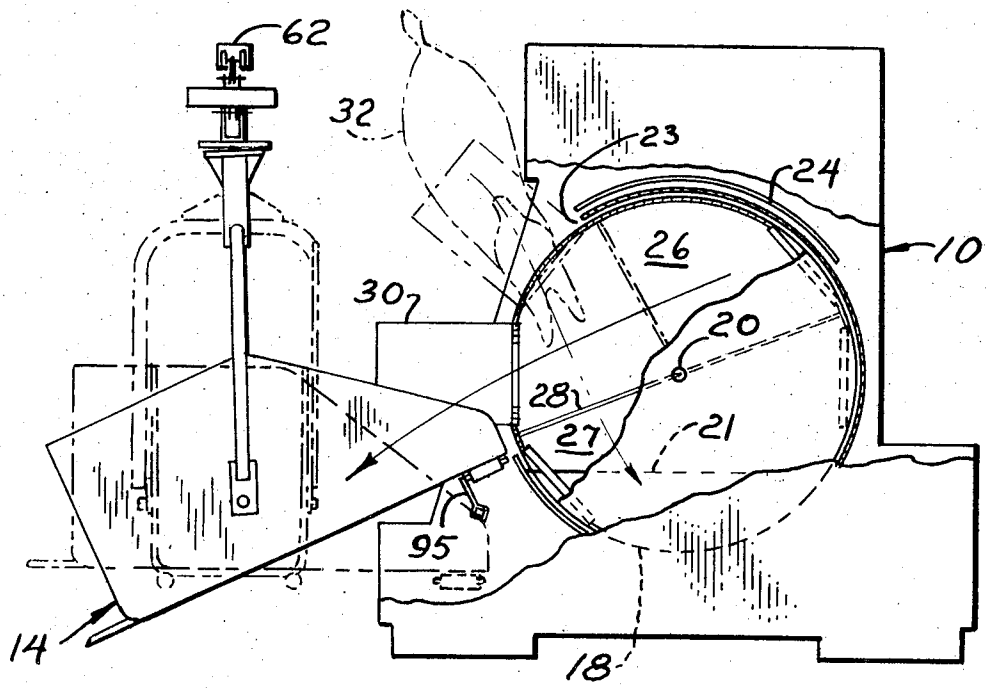
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[57] **ABSTRACT**

A laundry handling system and equipment including overhead support rails and carriers suspended therefrom and adapted to receive laundry goods from and transfer them about a plant to respective units of laundring or finishing equipment. The support rail concept provides power lifting the carriers against gravity and then allowing them to move by gravity and/or with operator assist throughout the various operative positions. The specific carriers have bumpers to allow adjacent like carriers to contact one another without damage and further have rigid scoop like body structures suited for holding loose laundry goods without dropping same. Carrier support means below the support rail are provided for swiveling the carrier about a vertical axis to allow the carrier to be nosed into registry with the loading and unloading openings of the units and are also provided for swiveling the carrier about a horizontal axis centrally through the carrier for tilting the carrier bottom wall as required for easy loading, for reliable transit, and for easy unloading of the goods. Also provided are lock means to hold the carrier against swivel in certain set positions as required. The specific carrier shapes and sizes and swivel mountings allow handling wet heavy goods and dry fluffed up goods.

12 Claims, 11 Drawing Figures



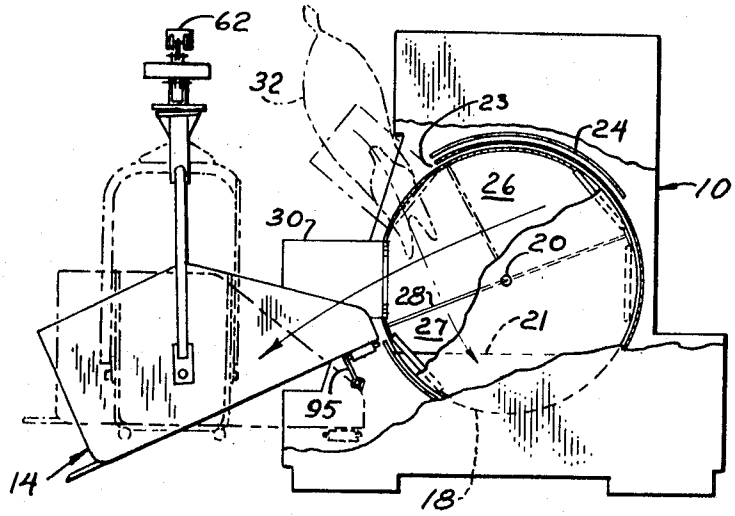


Fig. 1

Fig. 11

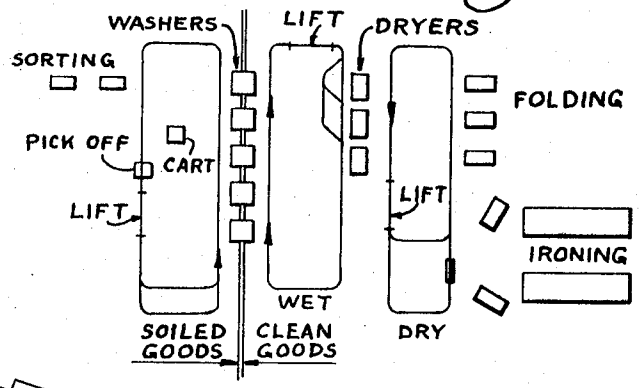


Fig. 2

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Fig. 4

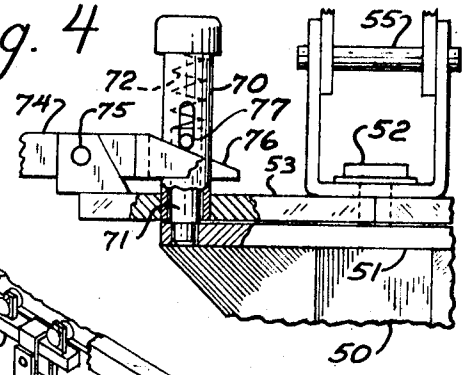


Fig. 3

Fig. 5

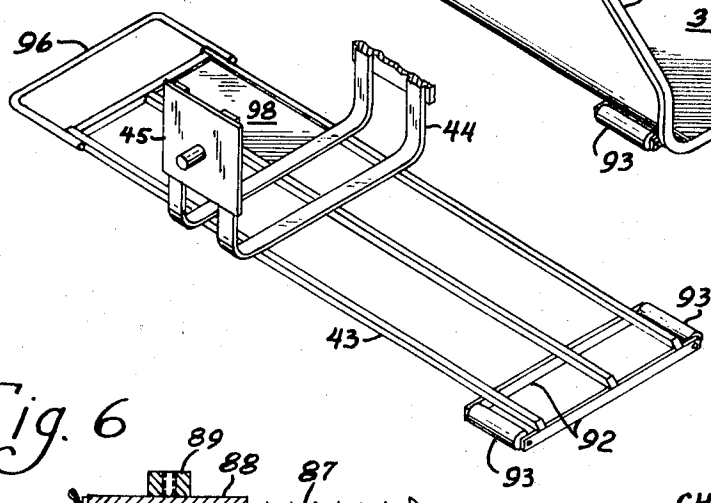
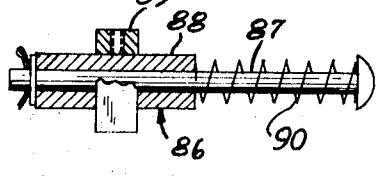


Fig. 6



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Fig. 9

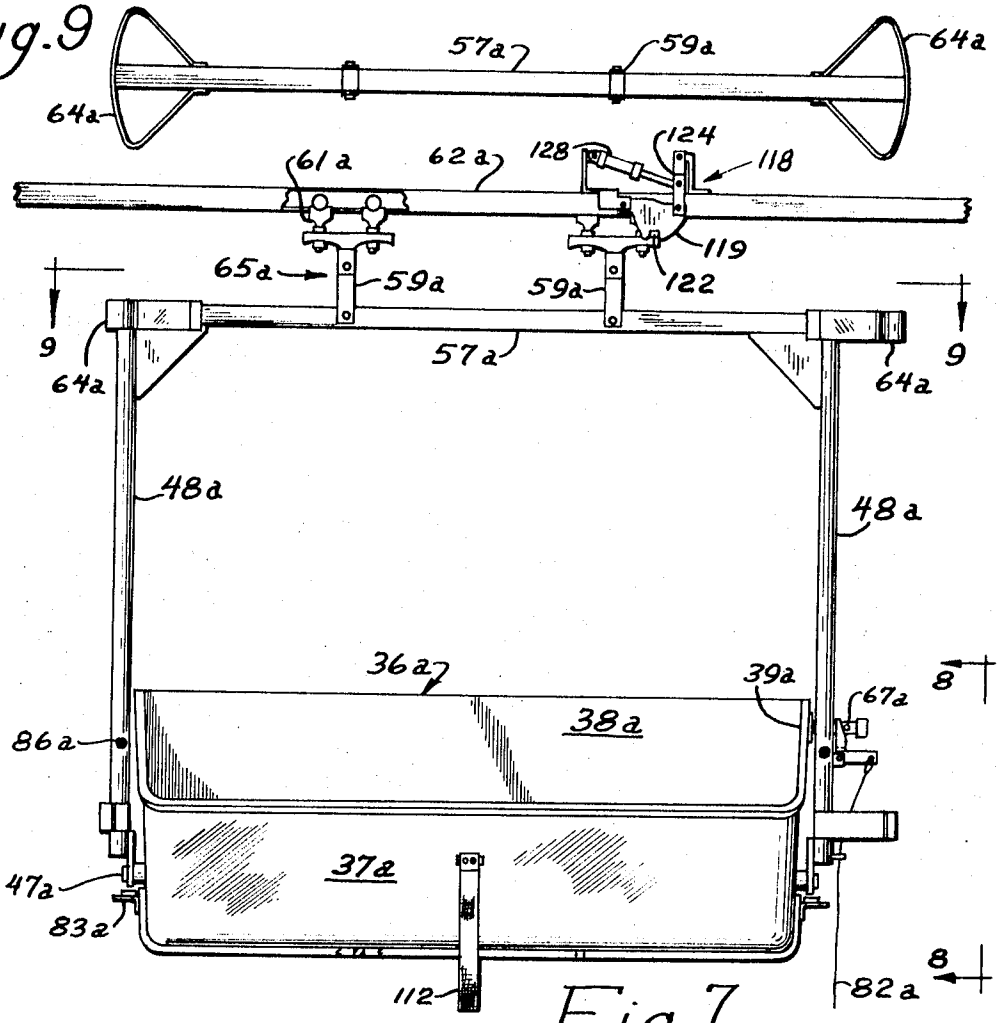


Fig. 7

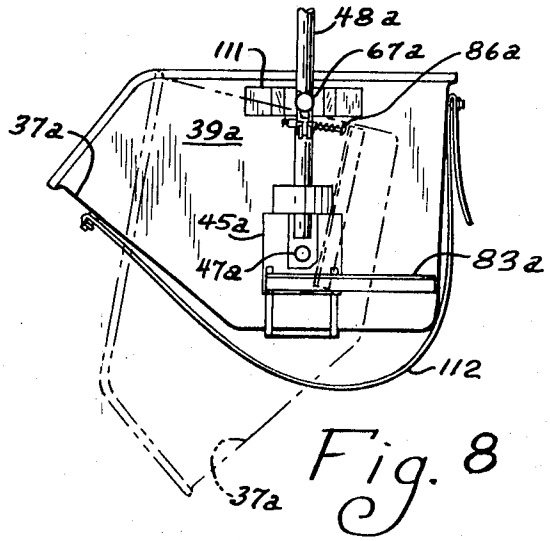
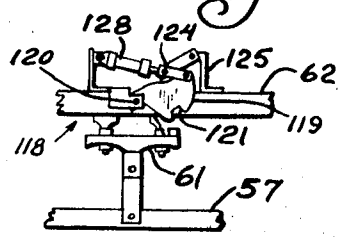


Fig. 8

Fig. 10



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LAUNDRY HANDLING SYSTEM AND EQUIPMENT

In industrial or institutional laundries a tremendous volume or poundage of goods is processed daily through groups or banks of industrial washers, washer extractors, dryers or the like each capable of handling a load of possibly up to 6 to 600 pounds. Without some system of handling the goods before treatment or after treatment by a particular unit, the full capacity or output of the equipment is never utilized. This invention discloses a system of and equipment for handling laundry goods in a highly effective manner.

For example, in the initial stages of handling the soiled goods are sorted in groups of similar washing requirements, and the soiled goods as classified are loaded into separate sling type bags each supported open on a cart. The filled bag is then conveyed to and discharged into the washer which typically has a somewhat vertically oriented top inlet opening. My companion application filed July 26, 1971, having Ser. No. 165,989 and entitled "Laundry Sling Bag And Cart Therefor" discloses bag and cart hardware particularly suited for sorting and handling the soiled laundry goods.

This invention covers the system of and equipment for handling the washed goods, including taking the washed and wet although extracted goods from a combination washer extractor machine and conveying same to and discharging same in a dryer; and thereafter for receiving the washed and dried goods from the dryer and conveying same as required away typically to some appropriate finishing machine.

A specific object of this invention, therefore, is to provide a handling system for conveying laundered or cleaned cloth goods between one unit of equipment and another and to do so with carriers having no ground support but which are suspended from an overhead support rail, and to do so with selected power lifts of the carriers and gravity utilizing inclined runs thereafter, and to do so with rigid body carriers that are particularly easy to load and/or unload and are particularly reliable in transit.

Another object of this invention is to provide specific carriers which are particularly suited by structural integrity and shape for handling similar goods but under differing wet or dry conditions, where the carriers cooperate with specific typical industrial washer extractor and/or dryer machines for easy loading of goods into or unloading of goods from such machines with minimum operator effort.

These and other objects of the invention will be more fully understood and appreciated after referring to the following specification, the accompanying drawings forming a part thereof, wherein:

FIG. 1 is a side elevational view of a typical industrial washer extractor unit and an appropriate wet goods carrier associated therewith for receiving washed goods from the unit;

FIG. 2 is an elevational view of a typical industrial dryer and the same wet goods carrier shown in FIG. 1 this time being shown in its operative discharge position relative to the dryer; and also showing a dry goods carrier in adjacent and receiving association relative to the dryer;

FIG. 3 is a perspective view of the wet goods carrier shown in FIG. 1 and 2;

FIG. 4 is a detailed sectional view of the carrier of FIG. 3 showing one carrier swivel and the look and release means therefor;

FIG. 5 is a perspective view of a reinforcing base used with the carrier of FIG. 3;

FIG. 6 is a detailed sectional view of a snubbing device used in the carrier of FIG. 3;

FIG. 7 is a side elevational view of the dry goods carrier shown in FIG. 2, as seen generally from the machine side of the carrier, showing the same in its loading and/or transit position;

FIG. 8 is an end elevational view, as seen generally from line 8 — 8 in FIG. 7, showing the carrier in its loading and/or transit position as well as in phantom in its dump position;

FIG. 9 is a top plan view as seen generally from line 9 — 9 in FIG. 7 and showing a typical bumper structure on the carrier;

FIG. 10 is a detailed view of a typical carrier stop used in this invention; and

FIG. 11 is a schematic of a typical floor plan of a laundry plant showing the manner of incorporating this invention in the handling of goods therein.

In FIGS. 1 and 2, for example, a typical industrial washer extractor unit 10 is indicated as well as a typical industrial dryer unit 12, and the location relative to these units of wet goods carrier 14 and the dry goods carrier 16. The typical industrial washer-extractor unit 10 would have a frame which supports a drum 18 for rotation about a shaft 20 through water generally up to the level 21 during washing. The frame has an opening 23, or possibly two opposite openings on some units, used for loading and for unloading the unit, where a sliding door 24 is selectively opened to expose the drum through the opening. The drum 18 is typically divided into two compartments 26 and 27 by a partition 28, and likewise has an opening in the drum wall to each compartment defined adjacent one or possibly both ends of the partition. A door 30 typically would be hinged at its side edge to the drum to close the drum opening for operation or expose the drum opening for loading or unloading the particular compartment.

When a compartment is to be loaded, the drum door is aligned with the frame opening and opened so that an operator can manually fill the compartment or a sling bag 32 can discharge the soiled goods into the drum. The drum door and frame door are then closed and the washer run through its particular cycle, whereupon when it is desired to unload the washer compartment 26, for example, the drum would be stopped with the door 30 aligned with the frame opening and the partition 28 inclined downwardly toward the door opening. At this point it is possible to bring the wet goods carrier 14 into registry with the washer openings to unload the drum with minimum operator effort.

The wet goods carrier 14 is shown in detail in FIGS. 3, 4, 5, and 6 and the same will be disclosed now. Initially it is noted that the carrier 14 includes a hard or rigid open top form 36 which has a base wall or floor 37, a rear wall 38, and spaced side walls 39. The open end of the form has the edges of the side walls 39 tapered as at 41 to reduce the height of the carrier nose thereby more evenly distributing the load to be carried therein and allowing insertion of the carrier nose into the machine loading and unloading openings.

A frame 43 fabricated of metal rods underlies and reinforces the base wall 37 of the carrier, and straps 44

therefrom are secured to plate 45 which in turn are secured to the side walls 39 of the form. A horizontal pin 47 is supported from each plate 45 and cooperates with a bearing at the ends of arms 48 of a yoke 50. The top of the yoke 50 is connected to a centered vertical post having a top horizontal face plate 51 secured thereto, and a pin assembly 52 rotatably connects this carrier plate with a horizontal trolley face plate 53. This face plate 53 is secured to opposing side arms which are pivoted about horizontal pin 55 to a bracket on trolley bar 57. The bar 57 in turn is suspended through pivot links 59 from a roller assembly 61 which rides in a support rail 62. The opposite ends of the bar 57 are provided with bumpers 64 which are sized to project beyond the ends of the carrier to keep adjacent carrier forms of like construction supported along the same run of the bar from bumping.

As thus noted, the carrier 14 is supported by a trolley 65 and can move along the rail 62 and the height at the horizontal pivot pins 47 of the carrier is generally constant below the rail. The bolt connection 52 between carrier yoke and the trolley face 53 accomodates rotation of the carrier about a vertical axis, while the pivot pin connection 47 accomodates rotation of the carrier about a horizontal axis. A lock device 66 and 67 is provided to hold the carrier against rotation about each axis.

The lock device 66 is shown in FIG. 4 to include a tube 70 secured to plate 53 and housing a pin 71 that rides therein with a spring 72 urging the pin so that its end engages the plate 51. A release lever 74 is pivoted at 75 relative to the tube supporting plate 53, and one end of the lever would have a clevis configuration 76 which would straddle the tube 70 and engage tab 77 formed on the pin. A rope 78 connected at the opposite end of the lever 74 and directed through eyelets 79 secured on the yoke arm 48 and hanging below the carrier provides that an operator could readily release the lock 66 when appropriate to rotate the carrier about the vertical axis. Typically there would only be one lock position opening formed in the face plates 51 (as shown in FIG. 4) to preclude rotation about the vertical axis, and this would occur when the carrier were elongated in a direction parallel to the and underlying the support bar 57 to be parallel to the direction of travel of the trolley device 65.

The lock 67 to preclude the carrier from shifting about horizontal pivot axis 47 can be similar to lock 66, except as noted. For example, the shape of the release lever 81 would be bent at right angles as a bell crank from its pivot connection shown at 80 to allow horizontal lock pin movement with vertical pulling on rope 82. Also attached to the side wall 39 of the carrier would be a side plate 83 which would have the opening to receive the projected pin end of the lock device when in proper registry corresponding to when the carrier base wall 37 is generally horizontal.

An upstanding projection 85 is at one end of the side plate 83 and a bumper assembly 86 (shown in detail in FIG. 6) is located on the opposite end of the side plate. The stop 85 hits the projected end of the lock pin 67 to limit the rearward tilting of the carrier beyond its loading inclination (as shown in FIG. 1), whereas the bumper 86 hits the yoke arm 48 to limit carrier rotation in the opposite direction at its dumping or unloading inclination as shown in FIG. 2. The bumper assembly 86 (FIG. 6) typically would include a rod 87 carried in the sleeve 88 which is secured relative to upstanding projection 89 on the side plate 83, and a spring 90 normally biases the bumper rod 87 away from the sleeve.

Since in the loading and unloading of the carrier it is frequently necessary to guide the projected nose end of the carrier into or from the opening of the unit and/or to lock the carrier to the unit, the following pertains. For example, cross arms 92 are provided on the front of frame 43, and rollers 93 are mounted therebetween at the opposite sides of the frame so that they rotate about axis generally parallel to the bottom corners of the carrier. To load the carrier with wet goods from the washer extractor unit 10 (FIG. 1), it is preferable to lock the projected nose end of the carrier relative to the unit and this is possible by inserting the rear cross element 92 beyond a bar 95 on the unit to preclude rearward carrier movement away from the unit. Also, when discharging the goods into the dryer 12 with the carrier nose inside the dryer drum opening (FIG. 2), the rollers 93 can rest on the inside perimeter of the drum opening and the drum can be rotated to vibrate the carrier to dislodge the wet goods into the dryer. The spring snubber 86 accomodates this action while yet limits the dumping movements of carrier about the horizontal axis.

The rear end of the frame 43 has a loop element 96 which extends beyond the rear end of the carrier form itself, which loop is used in two ways by the operator. For example, to nose the carrier up to the washer extractor opening and to interlock the carrier with or release the carrier from the lock bar 95 on the unit, the operator can stand on the loop 96 or push the loop with his foot. Since the loaded carrier may weigh several hundred pounds, this leverage makes carrier movement quite easy. The operator can also use the loop as a handle particularly at the dryer.

As indicated, the empty carrier 14 can be engaged onto the lock bar 95 of the washer extractor unit, where the base wall 37 is rearwardly and downwardly inclined and generally in line with the positioned drum partition 28. With the carrier in place, the operator can manually reach into the unit to pull the goods therefrom and pack them against and forwardly from the rear wall 38 of the carrier. When the carrier is loaded with typically the entire load in any one washer compartment, the load is properly distributed or balanced relative to the pivot 47. The longer nose section of the carrier with the tapering side walls forward of the pivot 47 automatically serve to counterbalance the deeper but shorter rear part of the carrier where there might only be a few pounds difference from being perfectly balanced. One or more counter balance weights 98 might be added to the carrier frame 43 to balance the more typical load at any installation, depending on the size of washer, type goods washed, and the degree of loading. Under such circumstances it is possible for the operator to release the carrier by standing on the loop 96 and then to rotate the carrier about its vertical pivot axis to underlie the trolley bar 57. The rail 62 is perforably spaced from the unit 10 a distance slightly greater than the minimum needed to engage the carrier with the unit in the unloading position to require a slight shift or cant of the yoke arms 47 from the vertical and forwardly toward the unit when the carrier is so positioned. Consequently, when carrier is released, it can swing by gravity to a rearward position clear of the unit so that it can be rotated about the vertical axis.

The dryer **12** (FIG. 2) typically would have a rotating drum **102** supported on a frame **103** with the frame further having means typically for example in the form of accordian type slide doors (not shown) to close the open ends **104** of the drum. Normally, the drum and frame would be adapted to tilt about a horizontal axis, and such tilting means might provide power cylinders **106** between the frame and a base **107.** The dryer shown has both drum ends of the drum provided with openings where the frame and drum need only tilt in one direction (as shown) to both load and unload the dryer, but other types might tilt the drum from either end at separate times so that the unit is both loaded and unloaded from the same drum opening. In any regard, this particular assumes of dryer construction does not form any part of the subject invention but is only disclosed as environment.

As noted in FIG. **2,** to unload the wet goods carrier **14** of its load, the operator need only line up the carrier nose with the drum opening as the drum is tilted and release the lock **66** to allow the carrier to pivot about the vertical pivot axis, and then slightly walk the trolley and carrier along the rail **62** while simultaneously rotating the carrier about the vertical pivot axis until the carrier assumes a position normal to the support rail **62.** At this time the carrier nose is actually projecting into the drum opening **104** and the operator then while holding on to the projected loop **96** with one hand releases the lock **67** by pulling on the rope **82** with the other hand. Since the carrier is virtually balanced, the operator can easily elevate the loop **96** or allow the same to rise slowly until the carrier assumes a downwardly inclined discharge position and the load shifts and the carrier might rotate more rapidly and the rollers **93** engage the drum opening periphery.

During the carrier discharge, the drum can be rotating in a uniform direction and the rollers **93** thereby riding along the slightly irregular periphery of the drum opening cause the carrier to vibrate which completely unloads the carrier therefore without any operator effort. To remove the unloader carrier nose from the dryer, it is only necessary to release any stop that may be holding the carrier trolley relative to the rail **62** and to back the trolley back upstream of its normal run along the rail and simultaneously to swing the carrier about the horizontal and vertical axes until it is generally horizontal and underlying the bar **57.**

The dry goods carrier **16** is like the wet goods carrier **14,** just noted, being carried from rail **62***a* on a trolley device **65***a* having rollers **61***a*, the pivoted links **59***a*, and support bar **57***a* having bumpers **64***a*. The dimensions and some mountings for the carriers **14** and **16** are different because of the different purposes to be served. Thus, the wet goods carrier **14** is primarily designed for easy loading and unloading of heavy compacted wet goods, where as noted the carrier can swivel about a vertical axis and the small carrier nose could be fitted into the opening of the typical dryer and further could be locked in place adjacent the discharge opening of the washer.

The dry goods carrier **16** has a hard open top form **36***a* including a base wall **37***a*, a rear wall **38***a* and spaced side walls **39***a*, except the angle of the base wall is more acute to the rear wall, and the carrier is much wider and shorter then the wet goods carrier. The carrier form is supported from side arms **48***a* connected directly to the bumper bar **57***a* and the arms are pivotally connected to the side walls **39***a* and side plate **45***a* through pivot connections **47***a*. The carrier can thus rotate about a horizontal pivot **47***a*, but the carrier does not have a swivel connection to permit rotation about a vertical axis. Plate **83***a* secured to the carrier side wall **39***a* strikes a bumper **86***a* mounted on the side arm **48***a* to limit carrier rotation about the horizontal pivots in the dumping position (phantom in FIG. **8**). A lock **67***a* released by rope **82***a* holds the carrier in the loading and transit position shown in solid in FIG. **8,** cooperating with an opening in plate **111** secured to the carrier side wall **39***a*. A strap **112** is connected on the under side of the carrier and can be used by the operator to return the unloaded carrier from its dump position to its load and transit position merely by pulling on the rearward side thereby tending to rotate the carrier about the pivot **47***a*. The same strap can be used to jostle the carrier against spring snubber **67***a* to release any goods that might tend to adhere or stick to the carrier during the dumping process.

The dry goods carrier **16** is different from the wet goods carrier **14** to more readily accomodate the particular character of the goods that it is to handle as well as the character of the machine that will be serviced by the carrier. Thus, most dryers have large drum openings, can be tilted to assist in the goods discharge, and moreover have a discharge cycle that oscillates the drum back and forth over less than a complete revolution. These conditions and the fact that the dry goods are fluffy and light and almost thrown from the dryer, make this wide stubby carrier shape preferred. The carrier shape is particularly satisfactory since it is such that it can be dumped directly into the large roll-about carts which are used frequently in conventional handling of washed and dried goods prior to finishing in an ironer or to folding and stacking.

It is to be noted that the dryer **12** has a switch that controls the unloading drum oscillating circuit previously mentioned, and an actuating arm **114** on the face of the machine is used to actuate this switch. Thus, by means of the carrier being laterally displaced from below the rail **57***a* by 3 to 6 inch movement against the arm **114,** the powered drum rotation easily unloads the goods. This is most useful since it provides that the carrier must be in position to receive the finished goods in order to power the drum.

It is noted in the use of both the wet goods carrier **14,** and the dry goods carrier **16** that the path of support rail **62** and/or **62***a* must be sufficiently close to the particular unit **10** and/or **12** so that the carrier can become operatively interconnected to forming a generally continuous path allowing free transfer of the goods without spilling. This is accomplished by tilting the carrier sideways of the support rail (as shown in FIGS. **1** and **2**). If desired, a shunt support could be provided for a short section of the support rail **62** and/or **62***a* itself, where the rail with the carrier thereon would be laterally shifted to the required separation from the unit from the actual run of the rail then well spaced from the unit. This shunting of the support rail adds flexibility of design in locating the runs of the support rails while yet maintaining nominal clearances between the carrier and the adjacent units.

It is preferable that the carrier forms **36** and **36***a* be fabricated of a smooth durable material not affected by water or like chemicals which would be associated with the load encountered. Fiber glass or plastic has been

found to be well suited since the same can be fabricated economically, is sufficiently durable in strength, and lastly has a smooth face to minimize binding or jaming of the goods or wear of the goods.

It is also frequently desired to stop and/or hold the carrier in its preloading or actual loading relationship with the unit. To so hold the carrier stops **118** (FIGS. **7** and **10**) can be located on the support rail to engage and hold the carrier trolley carried thereon. A typical stop includes a locking plate **119** which is pivoted at pin **120** to the rail with a lock face **121** that can move downward to engage a bar **122** on the carrier trolley. Toggle type linkage **124** supported between an ear **125** on the support rail and the lock plate and shifted by power cylinder **128** can move the plate between its locking position (FIG. **7**) and its unlocking position (FIG. **10**).

Referring to the schematic floor plan (FIG. **11**) of a typical laundry layout using this invention, there is indicated dirty or soiled goods area and a clean goods area separated by a wall. A bag conveyor loop is located in the soiled goods area, and wet goods conveyor loop and dry goods conveyor loop are located in the clean goods area.

In the soiled goods area, there is a sorting table or the like where the goods would be sorted and loaded into sling bags carried in roll-about carts indicated. The loaded bag and cart is rolled manually by an operator to a bag pickoff station where a hook of the overhead bag conveyor registers with and engages lift straps on the bag. The conveyor hooks then move forwardly and upwardly to lift the bag from the cart whereby the bag then is under the sole control of the conveyor. A power incline on the conveyor lifts the bag for a downward pitched run to a series of storage or shunt tracks each separated by a switch so that sorted goods can be accumulated. The conveyor hook could be on a free wheeling trolley type device so that it rolls easily down the inclined rail, and the trolley device is generally held at any area by means of stops holding the lead trolley where all others stack up behind it.

A bank of washers is indicated and the discharge run of the soiled goods conveyor passes each and the storage spurs feed into the run each through a switch. As the operator might need bags from any spur, the bag trolley is released and moved by gravity along the declining run until the appropriate washer is located at which time another stop is engaged to register the bag for discharge to the washer. The operator then opens the bag to discharge goods therefrom into the washer and then releases the stop to roll the trolley by gravity back to accumulation area where the bag is removed for subsequent reuse or washing with like dirty bags and the trolley passes again out of the way of the sorting area back to the pickoff station where a subsequent bag will be loaded.

The layout disclosed herein is particularly suited for use in a sterilized area where a wall indicated might extend down the entire bank of washers to separate the dirty and clean sides. The washer would then have openings on opposite sides as is quite conventional in industrial capacity washers and the sterilized area would be subject to a superatmospheric pressure to drive air leakage from the clean or sterile side to the dirty side to prevent germ migration into the sterile area.

Located on the clean side of the wall and bank of washers would be located the wet goods conveyor. This wet goods conveyor would have an overhead supporting rail and a roll-about trolley supporting a carrier thereon, where the run adjacent the bank of washers would be generally level and at a height so that the carrier would line up in registry with the washer openings. Each carrier is elongated to be positioned closely adjacent and locked in registry with the discharge opening of the washer to permit the easy unloading of the washer into the carrier.

After the carrier is completely loaded by the operator, it is then manually shifted along the run until it comes under the control of a power lift that elevates the carrier so that it can move thereafter on downwardly inclined runs across switches to adjacent dryers. The conveyor runs are provided with stops in general registry with the dryers to hold the carrier in a predumping position relative to the dryer opening, which upon release allows the operator to maneuver the carrier nose into the dryer opening and dump the carrier load. After the carrier has been emptied, it is returned back to storage where it again is reused to pickup a subsequent load of wet goods.

Located on the opposite side of the dryers is the dry goods conveyor loop. This loop likewise has a power lift after the run immediately adjacent the dryers to allow gravity roll of the loaded carrier past the many possible pieces of finishing equipment that might be used. Stops on the runs again bring the carrier into registry with the dryer opening and the locations for dumping the dried goods. The particular dry goods loop runs past a series of folding tables, past a hopper dump station at a spreader-feeder ironer device, or selectively past another dump station used for a small piece ironer or folder.

It is to be understood that this particular layout is typical of what might be presented with this overhead rail support of the work holding carriers, and the switches or runs and the location of the working equipment can be relocated as required to suit specific needs. It is noted that one of the primary features of this system is that it is operated by a gravity biased trolley throughout the waiting, dispensing and return to storage movements of the carriers. This system thereby satisfies most any need in high capacity laundry handling and does so with a minimum of floor clutter and operator effort.

While the disclosure has uniformly referred to laundry goods, and washer-extractor and dryer units, it is to be understood that the apparatus could be used with other types of fabric goods and other fabric treating equipment. Thus, the apparatus could handle goods for dry cleaning equipment, impregnating equipment or other like equipment where a solvent other than water might be used.

I claim:

1. Apparatus for bulk handling and conveying randomly grouped fabric goods between spaced work areas one of which areas is at and includes an industrial fabric treating unit having an access opening through which the goods are passed, said handling apparatus comprising an overhead support rail running between the areas and adjacent the unit, a trolley-like device hanging from and movable axially along the support rail, and upwardly and forwardly open carrier including a base wall, a rear wall, and opposing side walls, arms depending from the trolley-like device, pivot means

connected between the carrier and the arms for allowing carrier swivel about a generally horizontal axis through the carrier side walls between a first carrier position suited for holding the randomly grouped goods and a second carrier position for dumping the goods from the carrier, lock means for holding the carrier in the first position, means for releas-ing the lock means from a remote location, and means operable when the carrier is in the work area including the unit for shifting the carrier to operative association with the unit with the front of the carrier base wall generally lined up in registry with the unit opening and abutted against the unit whereby transfer of the goods can occur between the carrier and unit through the opening.

2. Handling apparatus according to claim **1,** further including stops located along the support rail adapted to engage and hold the trolley-like device when the carrier is in general registry with the unit and the opening therein.

3. Handling apparatus according to claim **1,** further including snubber means between the carrier and arms operable in the second carrier position to assist the dumping of goods from the carrier.

4. Handling apparatus according to claim **1,** further including means between the arms and trolley-like device for rotating the carrier relative to the trolley-like device about a general vertical axis between one position in line with the support rail and another position transverse to the support rail, second lock means for holding the carrier in the one position, and second means for releasing the second lock means from a remote location.

5. Handling apparatus according to claim **4,** further including means cooperating between the carrier and the unit for holding the carrier closely adjacent the unit and the base wall underlying the opening therein, whereby the goods can be unloaded from the unit into the carrier.

6. Handling apparatus according to claim **5,** wherein the carrier swivel means also allows the carrier to swivel rearwardly beyond the first carrier position to a third carrier position where the base wall is upwardly inclined toward the unit opening.

7. Handling apparatus according to claim **4,** wherein the carrier is sufficiently narrow across the side walls to fit within the opening of the unit and wherein rollers on the carrier end within the opening are adapted in the carrier dumping position to engage the opening periphery.

8. Handling apparatus according to claim **4,** further including carrier guide means extended rearwardly beyond the rear wall of the carrier at a location near the base wall thereof, operable in one instance to serve as a step for the operator to use to overweight the rear part of the carrier for upwardly pivoting the carrier front about the horizontal axis and operable in another instance to serve as a handle for hand manipulation by the operator.

9. Handling apparatus according to claim **1,** wherein the carrier is sufficiently wide across the side walls to extend well beyond the opening of the unit, whereby the carrier when in its first position orientation and below and overlying the opening is shifted to a receiving position against the unit to allow the goods to be unloaded from the unit directly into the carrier.

10. Handling apparatus according to claim **9,** further including a control having a switch which when actuated operates the unit, and a limit arm located on the unit adapted to be engaged by the carrier when in the receiving position operable then to actuate the unit only when the carrier is in proper position to receive the goods unloaded from the unit.

11. Handling apparatus according to claim **9,** further including carrier guide means in the form of a flexible strap secured as a loop to the under-side of the carrier base wall at the front and the rear wall at the top in a manner to hang generally loose, whereby an operator can grasp the loose loop of the flexible strap and pull it to rotate the carrier about the horizontal axis.

12. Handling apparatus according to claim **1,** wherein the trolley-like device includes a pair of spaced rollers adapted to ride along the rail, a bumper bar underlying the rollers, links pivoted about axes normal to the rail connecting the rollers and bumper bar together, said depending arms being operatively connected to the bumper bar, and bumpers on the opposite ends of the bumper bar extended beyond the carrier.

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