A warehouse-style, gravity-feed shelving system (12) comprises upright side frames (14, 16) between which there extend pairs of shelf supporting crossbars (18). Each pair of shelf supporting crossbars (18a, 18b) has a rear crossbar (18b) mounted above the horizontal plane of the front crossbar (18a) such that shelves (36) supported atop the crossbars slope downwardly from front to rear. Each shelf comprises a plurality of channel-shaped sheet metal racks (36), each rack of which has a bottom wall (38) from which a pair of sidewalls (40, 42) extend vertically upwardly, the sidewall being interlocked with the sidewalls of adjacent racks by male and female fittings (40a, 42a) formed on the upper edge of the sidewalls.
FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

| AT  | Austria                  | ES | Spain                    | MG | Madagascar             |
| AJ  | Australia                | FI | Finland                  | ML | Mali                    |
| BB  | Barbados                 | FR | France                   | MR | Mauritania              |
| BE  | Belgium                  | GA | Gabon                    | MW | Malawi                  |
| BF  | Burkina Faso             | GB | United Kingdom           | NL | Netherlands             |
| BG  | Bulgaria                 | HU | Hungary                  | NO | Norway                  |
| BJ  | Brain                    | IT | Italy                    | RO | Romania                 |
| BR  | Brazil                   | JP | Japan                    | SD | Sudan                   |
| CA  | Canada                   | KP | Democratic People's Republic of Korea | SE | Sweden                  |
| CF  | Central African Republic | KR | Republic of Korea        | SN | Senegal                 |
| CG  | Congo                    | LIE | Liechtenstein           | SJ | Soviet Union            |
| CH  | Switzerland              | LK | Sri Lanka                | TD | Chad                    |
| CM  | Cameroon                 | LU | Luxembourg               | TG | Togo                    |
| DE  | Germany, Federal Republic | MC | Monaco                   | US | United States of America |
STORAGE RACK SHELVING SYSTEM

This invention relates to a merchandising system and, more particularly, to a merchandising system for use in a warehouse-style merchandising facility.

A relatively recent development in retail merchandising has been the growth of warehouse-style merchandising and particularly warehouse-style grocery store merchandising. Such merchandising customarily involves bare bones display of large quantities of merchandise on warehouse-style storage racks such that there is a minimal need for restocking of merchandise on the racks and a minimal need for customer service until the customer reaches the checkout station. Such warehouse-style merchandising facilities are increasingly popular and are quite quickly increasing their market share of all retail business, but particularly the grocery store business.

Customary practice in warehouse-style retail stores is to display boxes or cartons of merchandise with the tops of the cartons removed for access to the carton contents. Such cartons are customarily
displayed on flat horizontal shelves of the display racks of the store, but this type of merchandising has its limitations. Among those limitations is the difficulty of maintaining merchandise at the front of the rack where the merchandise is easily accessible by customers located in the aisle adjacent the front of the rack. After a limited number of sales, the merchandise on the rack becomes increasingly inaccessible. This problem has been overcome in conventional grocery stores by the use of gondola displays having gravity-feed shelves which slope forwardly and downwardly such that merchandise supported upon the shelves is caused to automatically slide by gravity forwardly on the shelf whenever the forwardmost object on the shelf is removed. Such a gravity-feed gondola display is disclosed in Bustos U.S. Patent No. 4,128,177 and Bustos U.S. Patent No. 4,461,388. But, gondola displays of the type disclosed in these patents, are not suitable for use in warehouse-style retail establishments or warehouse-style grocery stores, primarily because they do not have the capacity required for a warehouse-style store and do not give rise to the requisite space-to-sales ratio required for such warehouse-style facilities.

It has therefore been one objective of this invention to provide an improved merchandising storage
rack for use in warehouse-style retail establishments, and particularly warehouse-style grocery stores.

Yet another objective of this invention has been to provide a gravity-feed storage rack suitable for use in warehouse-style retail establishments.

Still another objective of this invention has been to provide an improved gravity-feed merchandising system which has an improved space-to-sales ratio relative to prior gravity-feed shelving systems and which has greater capacity than prior gravity-feed merchandising systems.

To achieve these objectives, the invention of this application utilizes a plurality of sheet metal channel-shaped racks arranged in side-by-side relationship upon the crossbeams of existing warehouse rack systems. The crossbeams of the rack systems are so positioned on the upright side frames of the rack systems that the channel-shaped racks slope downwardly and forwardly in order that merchandise supported upon the racks slides to the front of the racks. The channels are so configured that the sidewall of one channel overlaps and mates with the sidewall of the adjacent channel-shaped rack. This overlapping configuration of the sidewalls of the channels provides increased structural strength to the rack without substantially increasing the weight of the rack. A front and rear locking system is provided on the underside of each channel. This locking system is
adjustable on the channel so as to enable the channels to be easily utilized in variable depth warehouse merchandising systems.

In accordance with this invention, each channel-shaped rack is sized for the particular item of merchandise to be displayed on the rack such that there is no wasted space between packages or products displayed on the racks.

The primary advantage of this invention is that it provides a relatively inexpensive, but very efficient, gravity-feed shelving system for use in a storage rack merchandising environment, such as a warehouse-style grocery store. The system is economical, as well as being easy to load with product, and has a very high space-to-sales ratio.

These and other objects and advantages of this invention will be more readily apparent from the following description of the drawings in which:

Figure 1 is a perspective view of a portion of a merchandising display system incorporating the invention of this application.

Figure 2 is a perspective view of the underside of a portion of the storage rack system of Figure 1.

Figure 3 is a cross-sectional view taken through a rear portion of a channel-shaped rack of the storage rack system of Figure 1.
Figure 4 is a cross-sectional view taken on line 4-4 of Figure 3.

Figure 5 is a cross-sectional view taken through a front portion of a channel-shaped rack of the storage system of Figure 1.

Figure 6 is a cross-sectional view taken on line 6-6 of Figure 5.

With reference to Figure 1, there is illustrated a warehouse-style storage and merchandising rack 10 incorporating the novel shelving system of this invention. The rack 10, except for the shelving system 12, is conventional and per se forms no part of the invention of this application. It comprises a pair of upright side frames 14, 16 between which there are located shelf supporting crossbars or crossbeams 18a, 18b. These crossbeams are arranged in pairs with shelf racks 36 supported between the pairs. Traditionally, the pairs of shelf supporting crossbars or crossbeams 18 are located in the same horizontal plane so as to support a shelf in a horizontal plane. According to the practice of this invention, though, the front shelf supporting crossbar 18a of each pair of crossbars 18a, 18b is located in a lower plane than the rear shelf supporting crossbar 18b of each pair such that any shelf racks 36 supported by the shelf supporting crossbars slope downwardly and forwardly in order to facilitate gravity feed or forward feed of
objects supported on the top surface of the shelf racks all as explained more fully hereinafter.

Each upright side frame 14, 16 comprises a pair of corner posts 20 interconnected by side support bars 22, 24. Some of these bars 22 are horizontal bars, and others 24 are diagonal bars. Traditionally, both the horizontal bars 22 and the diagonal bars 24 are welded at their ends to the corner posts 20 so as to create a very rigid upright frame 14. The corner posts 20 have vertically and equidistantly spaced slots 26 formed therein. As explained more fully hereinafter, these slots are adapted to receive hooks or fingers of brackets upon which the shelf supporting crossbars are mounted.

The front and rear crossbars or crossbeams 18 are all identical. Each beam comprises a sheet metal tube, which is generally rectangular in cross-sectional configuration (Figures 3 and 5), but which has a step or recess formed in one corner of the rectangle. This step or recess is located on the inside upper edge of the beam when the beam is assembled between two upright frames 14, 16.

An end mounting bracket 30 is secured to each end of each crossbar or crossbeam 18. These mounting brackets are welded to the ends of the crossbars or crossbeams such that they form a part of the beam. Each bracket is generally L-shaped in cross section with one leg 30a of the bracket being welded
to the end of the crossbar or beam and the other leg
30b having a plurality of downwardly extending hooks
30c formed thereon. These hooks are adapted to be
received within the spaced vertical slots 26 of the
5 corner posts so as to removably mount the ends of the
crossbars on the corner posts.

As mentioned hereinabove, the upright frames
14, 16, as well as the crossbeams 18, are conventional
and per se form no part of the invention of this
10 application. The novel portion of the invention of
this application resides in the channel-shaped racks
36 and the manner in which those racks are mounted
upon and form a part of the complete storage rack 10.

With reference particularly to Figures 3 and
6, it will be seen that each channel-shaped rack 36
comprises a bottom wall 38 and a pair of sidewalls 40,
42 extending vertically upward from the bottom wall
38. Each bottom wall 38 has a central depression 44
extending for the length of the rack. Spaced holes 46
are located along the length of this depression and
are adapted to receive a bolt 48 for securing a pair
of anchor brackets 50, 52 to the racks 36 adjacent the
front and rear ends of the rack. These anchor
brackets are generally L-shaped with an upper leg 50a,
52a bolted to the underside of the rack and a
depending leg 50b, 52b extending at a right angle to
the upper legs 50a, 52a, respectively. The anchor
brackets 50, 52 are positioned on the bottom of the
racks at a position in which the depending leg of the front anchor 50 engages the rear surface of the front crossbeam 18a, and the depending leg 52b of the rear anchor 52 engages the front surface of the rear crossbeam 18b. The depending legs may be secured to the crossbeams by sheet metal screws 54.

One sidewall 40 of each channel-shaped rack has an upper end 40a which is offset outwardly from the vertical plane of the sidewall 40. The other sidewall 42 of the channel-shaped rack has an upper end which is bent outwardly and downwardly to form a recess 42a for the reception of the upper offset end portion 40a of an adjacent channel-shaped rack 36.

The bottom walls 38 of the channel-shaped racks are of varying width so as to accommodate differing size products, such as differing size bottles or cans, between the sidewalls 40, 42 of the rack. The racks in turn are juxtapositioned one against the other with the male fitting 40a of one rack received within a female fitting 42a of an adjacent rack. This interlocking of the racks extending across the width of the crossbeams 18 rigidifies the shelf formed by the racks and additionally, maximizes the space utilization of the storage rack 10 so as to insure a maximum space-to-sales ratio use of the complete storage rack 10.
At the front and rear ends of each rack 36 there is a U-shaped wire bumper 60 extending upwardly through holes 36a from the underside of each rack. These U-shaped wire bumpers have end legs 62, 64 bent at a right angle to the plane of the U-shaped upwardly extending bumper 60 and extending from opposite ends of the bumper. These legs extend beneath the bottom wall 38 of each rack and are received within grooves 66 defined by tabs 68 stamped from the bottom wall 38 of each rack.

With reference particularly to Figures 1 and 5, it will be noted that there is a pricing channel 70 depending from the front of each channel-shaped rack 36. These pricing channels each have a rearwardly extending leg 72 within which there are a pair of holes 72a spaced the same distance apart as the distance between the legs of the bumper 60 mounted on the same channel-shaped rack. Thepricing channel 70 rests atop the top surface of the bottom wall 38 of each rack and is secured thereto solely by the passage of the vertical legs of the bumper 60 through the spaced holes 72a of the pricing channel 70. In the use of the rack, pricing tags are simply inserted into vertical recesses 70a, 70b on the front face of the pricing channels 70 so as to enable advertising material or prices to be displayed in combination with the products supported upon the channel-shaped rack 36.
In the use of the storage rack 10, the upright frames 14, 16 are connected to crossbeams 18 by insertion of the hooks or fingers 30c of the beams into vertically spaced slots 26 of the corner posts 20 of the upright frames. The crossbeams are mounted in pairs upon the upright frames with the rear crossbeam 18b of each pair 18a, 18b located in a plane above the front crossbeam 18a such that storage racks mounted atop a pair of crossbeams slope downwardly from back to front. Channel-shaped racks are then placed atop each pair of crossbeams 18a, 18b with the male fitting 40a of one rack received within the female fitting 42a of an adjacent rack. Thereby, the racks are placed in side-by-side juxtaposition with a minimum space between the racks. The anchor brackets 50, 52 are then secured to the underside of the racks with the depending leg of the front bracket 50 engaged with the rear surface of the front crossbeam 18a and with the depending leg 52b of the rear anchor 52 engaged with the front surface of the rear crossbeam 18b. The anchors may then be secured to the beams if so desired by sheet metal screws 54. The front and rear bumpers 60 are then assembled to the racks with the end legs 62, 64 of the bumpers inserted through the holes 36a and received within the grooves 66 of the tabs stamped from the bottom wall 38 of each rack. If pricing channels are to be mounted on the front side of each rack, then the front bumper 60 of each rack is passed
through the holes 72a (aligned with the holes 36a) of the pricing channels during assembly of the bumper to the channel so as to secure the pricing channel to the front edge of the rack. Assembly of the storage rack is then completed by insertion of a low friction slip surface track 80 into each channel. The tracks 80 are sized so as to have a width approximately equal or slightly less than the distance between the sidewalls 40, 42 of the rack within which the track is mounted. The tracks are sized so as to have a length equal to approximately the distance between the front and rear bumpers of each track.

After assembly of the channel-shaped racks and mounting of those racks atop the crossbeams of the storage rack 10, the rack is ready for loading a product, such as bottles 6 and 7 and/or cans 5 and/or cases 4 (Figure 1), into the rack. This loading may occur from either the front or rear side of the storage rack 10, but is most easily accomplished from the rear with the bottles or product, as they are loaded into the rack, sliding forwardly until the forwardmost item in a row of items engages the front bumper 60 of the channel-shaped rack. Thereafter, whenever the forwardmost product in a column of products stored or displayed on a channel-shaped rack is removed from the front of the rack, those products, immediately behind what had formerly been the front item or product, slide forwardly until the new
forwardmost product engages the bumper. In this manner, product is always displayed at the front of the rack where it is most easily accessible by a customer.

While I have described only a single preferred embodiment of my invention, persons skilled in the art to which this invention pertains will appreciate changes and modifications which may be made without departing from the spirit of my invention. Therefore, I do not intend to be limited except by the following appended claims:
I claim:

(1) A warehouse-style shelving system for displaying products on gravity-feed shelves, which system comprises

a plurality of vertical corner posts, each of said corner posts having a plurality of vertically and equidistantly spaced slots formed therein, said corner posts being arranged in pairs with a front one of each of said pairs of corner posts being located at the front of said shelving system and a rear one of each of said pairs of corner posts being located at the rear of said shelving system,

side support bars extending front to rear between each of said pairs of corner posts,

a plurality of pairs of crossbars, each of said pairs of crossbars comprising a front crossbar and a rear crossbar,

each front crossbar extending between two front corner posts, each of said front crossbars having connector means formed on its opposite ends, said connector means of said front crossbars being received within said vertical slots of said front corner posts,

said rear crossbar extending between two of said rear corner posts, said rear crossbar having connector means formed on its opposite ends, said connector means of said rear crossbar being received within said vertical slots of said rear corner posts,
said rear crossbar being located above the front crossbar of each pair of crossbars, and

a plurality of channel-shaped sheet metal racks extending between and supported from each of said pairs of crossbars, each of said channels having a downwardly and forwardly sloping bottom wall and a pair of sidewalls extending vertically from said bottom walls.

(2) The shelving system of claim 1 wherein each of said channel-shaped sheet metal racks has a female fitting formed on one of said sidewalls and a male fitting formed on the other of said sidewalls, and said channels being located in close side-by-side adjacency atop said crossbars with a male fitting sidewall of each channel engaged with a female fitting sidewall of an adjacent channel.

(3) The shelving system of claim 2 wherein each of said male fittings comprises an upper edge on one side of each channel-shaped rack and said female fitting comprises a recess formed on the upper edge of the other side of each channel-shaped rack, said recess being adapted to receive a male fitting upper edge of a sidewall of an adjacent channel-shaped rack.
The shelving system of claim 3 wherein said female fitting recess is formed by an outwardly bent hook-shaped section formed along the upper edge of said other side of each of said channel-shaped racks.

The shelving system of claim 1 wherein each of said channel-shaped sheet metal racks rests atop a pair of said crossbars.

The shelving system of claim 5 wherein each of said channel-shaped racks has a front bracket depending from the underside thereof adjacent the front edge thereof, said front bracket being engaged with the rear surface of said front crossbar to prevent said channel-shaped rack from sliding forwardly off of said supporting crossbars.

The shelving system of claim 6 wherein each of said channel-shaped racks has a rear bracket depending from the underside thereof adjacent the rear edge thereof, said rear bracket being located closely adjacent the front surface of said rear crossbar.

The shelving system of claim 1 wherein each channel-shaped rack has a front end and a wire bumper extending upwardly from the front end of said channel-shaped rack.
(9) The shelving system of claim 8 wherein each wire bumper has a generally U-shaped section extending upwardly from said bottom wall of said channel-shaped rack.

(10) The shelving system of claim 9 wherein each wire bumper has a pair of end sections extending rearwardly from opposite ends of said U-shaped section, each of said end sections being located on the underside of a bottom wall of one of said channel-shaped racks and secured within a fastening element stamped from said bottom wall.

(11) A shelf for use in a warehouse shelving system, said shelf comprising

a plurality of parallel channel-shaped sheet metal racks adapted to extend between and be supported by a pair of crossbars of the shelving system, each of said channels having a bottom wall and a pair of sidewalks extending vertically from said bottom wall, and

one of said vertical sidewalks having a female fitting formed on the top edge of said one sidewall and the other vertical sidewalk having a male fitting formed on the top edge of said other sidewall, said channels being adapted to be located in close side-by-side adjacency atop the pair of crossbars with each of said male fittings, except for an endmost male
fitting, engaged with a female fitting of an adjacent channel.

(12) The shelf of claim 11 wherein each of said male fittings comprises an upper edge on one side of each channel-shaped rack and said female fitting comprises a recess formed on the upper edge of the other side of each channel-shaped rack, each said recess being adapted to receive a male fitting upper edge of a sidewall of an adjacent channel-shaped rack.

(13) The shelf of claim 12 wherein each said female fitting recess is formed by an outwardly bent hook-shaped section formed along the upper edge of said other vertical sidewall of each of said channel-shaped racks.

(14) The shelf of claim 1 wherein each of said channel-shaped racks has a front bracket depending from the underside thereof adjacent the front edge thereof, said front bracket being adapted to engage the rear surface of the forwardmost one of the pair of crossbars to prevent said channel-shaped rack from sliding forwardly off of said supporting pair of crossbars.
(15) The shelf of claim 14 wherein each of said channel-shaped racks has a rear bracket depending from the underside thereof adjacent the rear edge thereof, said rear bracket being adapted to be located closely adjacent the front surface of the rearwardmost one of said pair of crossbars.

(16) The shelf of claim 11 wherein each channel-shaped rack has a front end and a wire bumper extending upwardly from the front end of said channel-shaped rack.

(17) The shelf of claim 16 wherein each wire bumper has a generally U-shaped section extending upwardly from said bottom wall of said channel-shaped rack.

(18) The shelf of claim 17 wherein each wire bumper has a pair of end sections extending rearwardly from opposite ends of said U-shaped section, each of said end sections being located on the underside of a bottom wall of one of said channel-shaped racks and being secured within a fastening element stamped from said bottom wall.
(1) A warehouse-style shelving system for displaying products on gravity-feed shelves, which system comprises

a plurality of vertical corner posts, each of said corner posts having a plurality of vertically and equidistantly spaced slots formed therein, said corner posts being arranged in pairs with a front one of each of said pairs of corner posts being located at the front of said shelving system and a rear one of each of said pairs of corner posts being located at the rear of said shelving system,

side support bars extending front to rear between each of said pairs of corner posts,

a plurality of pairs of crossbars, each of said pairs of crossbars comprising a front crossbar and a rear crossbar,

each front crossbar extending between two front corner posts, each of said front crossbars having connector means formed on its opposite ends, said connector means of said front crossbars being received within said vertical slots of said front corner posts,

said rear crossbar extending between two of said rear corner posts, said rear crossbar having connector means formed on its opposite ends, said connector means of said rear crossbar being received within said vertical slots of said rear corner posts,
said rear crossbar being located above the front crossbar of each pair of crossbars,

a plurality of channel-shaped sheet metal racks extending between and supported from each of said pairs of crossbars, each of said racks having a downwardly and forwardly sloping bottom wall and a pair of sidewalls extending in a vertical plane from said bottom walls, and

a low-friction slip-surface track located within each of said racks, said track having a width approximately equal to the distance between said sidewalls and a length approximately equal to the length of said racks.

(2) A warehouse-style shelving system for displaying products on gravity-feed shelves, which system comprises

a plurality of vertical corner posts, each of said corner posts having a plurality of vertically and equidistantly spaced slots formed therein, said corner posts being arranged in pairs with a front one of each of said pairs of corner posts being located at the front of said shelving system and a rear one of each of said pairs of corner posts being located at the rear of said shelving system,

side support bars extending front to rear between each of said pairs of corner posts,
a plurality of pairs of crossbars, each of said pairs of crossbars comprising a front crossbar and a rear crossbar,

each front crossbar extending between two front corner posts, each of said front crossbars having connector means formed on its opposite ends, said connector means of said front crossbars being received within said vertical slots of said front corner posts,

said rear crossbar extending between two of said rear corner posts, said rear crossbar having connector means formed on its opposite ends, said connector means of said rear crossbar being received within said vertical slots of said rear corner posts, said rear crossbar being located above the front crossbar of each pair of crossbars,

a plurality of channel-shaped sheet metal racks extending between and supported from each of said pairs of crossbars, each of said racks having a downwardly and forwardly sloping bottom wall and a pair of sidewalls extending in a vertical plane from said bottom wall,

each of said channel-shaped sheet metal racks having a female fitting in the form of a downwardly open hook-shaped recess formed on the top portion of one of said sidewalls and a male fitting formed on the top portion of the other of said sidewalls, and said sidewalls of said channels being
located in close side-by-side adjacency atop said crossbars with a male fitting of an upper portion of one sidewall of each channel engaged with a female fitting of an upper portion of a sidewall of an adjacent channel.

(3) The shelving system of claim 2 wherein each of said male fittings comprises an upper edge portion on one side of each channel-shaped rack which is offset from the vertical plane of the one side and said female fitting comprises a downwardly open hook-shaped recess formed along the upper edge portion of the other side of each channel-shaped rack, said recess being adapted to receive an offset male fitting upper edge portion of a sidewall of an adjacent channel-shaped rack.

(4) The shelving system of claim 3 wherein said female fitting recess is formed by an outwardly bent hook-shaped section formed along the upper edge of said other side of each of said channel-shaped racks.

(5) The shelving system of claim 2 wherein each of said channel-shaped sheet metal racks rests atop a pair of said crossbars.
(6) The shelving system of claim 5 wherein each of said channel-shaped racks has a front bracket depending from the underside thereof adjacent the front edge thereof, said front bracket being engaged with the rear surface of said front crossbar to prevent said channel-shaped rack from sliding forwardly off of said supporting crossbars.

(7) The shelving system of claim 6 wherein each of said channel-shaped racks has a rear bracket depending from the underside thereof adjacent the rear edge thereof, said rear bracket being located closely adjacent the front surface of said rear crossbar.

(8) The shelving system of claim 2 wherein each channel-shaped rack has a front end and a wire bumper extending upwardly from the front end of said channel-shaped rack.

(9) The shelving system of claim 8 wherein each wire bumper has a generally U-shaped section extending upwardly from said bottom wall of said channel-shaped rack.
The shelving system of claim 9 wherein each wire bumper has a pair of end sections extending rearwardly from opposite ends of said U-shaped section, each of said end sections being located on the underside of a bottom wall of one of said channel-shaped racks and secured within a fastening element stamped from said bottom wall.
STATEMENT UNDER ARTICLE 19

The amended claims submitted herewith are being submitted in order to reduce the number of claims and more clearly distinguish the claimed invention from the prior art.

Claim 1 is directed to a warehouse-type shelving system for storing large quantities of relatively heavy objects utilizing angled shelves with low-friction, slip-surface tracks supported within racks which form the shelves of the rack. Nowhere in the prior art is there any teaching of this combination which gives rise to high density and ease of use of the shelving system.

Claim 2 is directed to a warehouse-style shelving system with channel-shaped sheet metal racks supported upon the shelves of the rack, which sheet metal racks have interfitting, hook-shaped locks on the upper edges of the racks. This feature is not disclosed in the prior art.

Claims 3-10 depend from claim 2 and add to claim 2 features which further distinguish these claims from the prior art.
INTERNATIONAL SEARCH REPORT

According to International Patent Classification (IPC) or to both National Classification and IPC

I. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. (5): A47F 47/00
U.S. Cl. 211/187

II. FIELDS SEARCHED

Classification System: Classification Symbols
211/187, 192, 135, 153, 49.1, 59.2, 126
108/107

III. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of Document, 11 with indication, where appropriate, of the relevant passages 12</th>
<th>Relevant to Claim No. 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>US.A,3,019,907 (Belejack) 06 February 1962</td>
<td>1-18</td>
</tr>
<tr>
<td>Y</td>
<td>US.A,3,273,720 (Seiz) 20 September 1966</td>
<td>1-18</td>
</tr>
<tr>
<td>Y</td>
<td>US.A,4,069,941 (Popplewell, Jr. et al) 24 January 1978</td>
<td>2-6, 11-14</td>
</tr>
<tr>
<td>Y</td>
<td>US.A,4,461,388 (Bustos) 24 January 1984</td>
<td>8-10, 16-18</td>
</tr>
<tr>
<td>Y</td>
<td>Husky Systems Incorporated, Reliable Rack Brochure, 1988 (5 pages) Skid Channel</td>
<td>7, 15</td>
</tr>
<tr>
<td>A</td>
<td>Husky Systems Incorporated, Wide Span Brochure, 1988 (4 pages)</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>US.A,3,055,507 (Kobs) 25 September 1962</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>US.A,4,742,925 (Henderson) 10 May 1988</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>US.A,4,790,707 (Magretta et al) 13 December 1988</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>US.A,4,128,177 (Bustos)05 December 1978</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>US.A,4,314,648 (Spamer) 09 February 1982</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>US.A,4,705,175 (Howard et al) 10 November 1987</td>
<td></td>
</tr>
</tbody>
</table>

IV. CERTIFICATION

Date of the Actual Completion of the International Search: 17 April 1990

Date of Mailing of this International Search Report: 08 May 1990

International Searching Authority: ISA/US

Signature of Authorized Officer: [Signature]