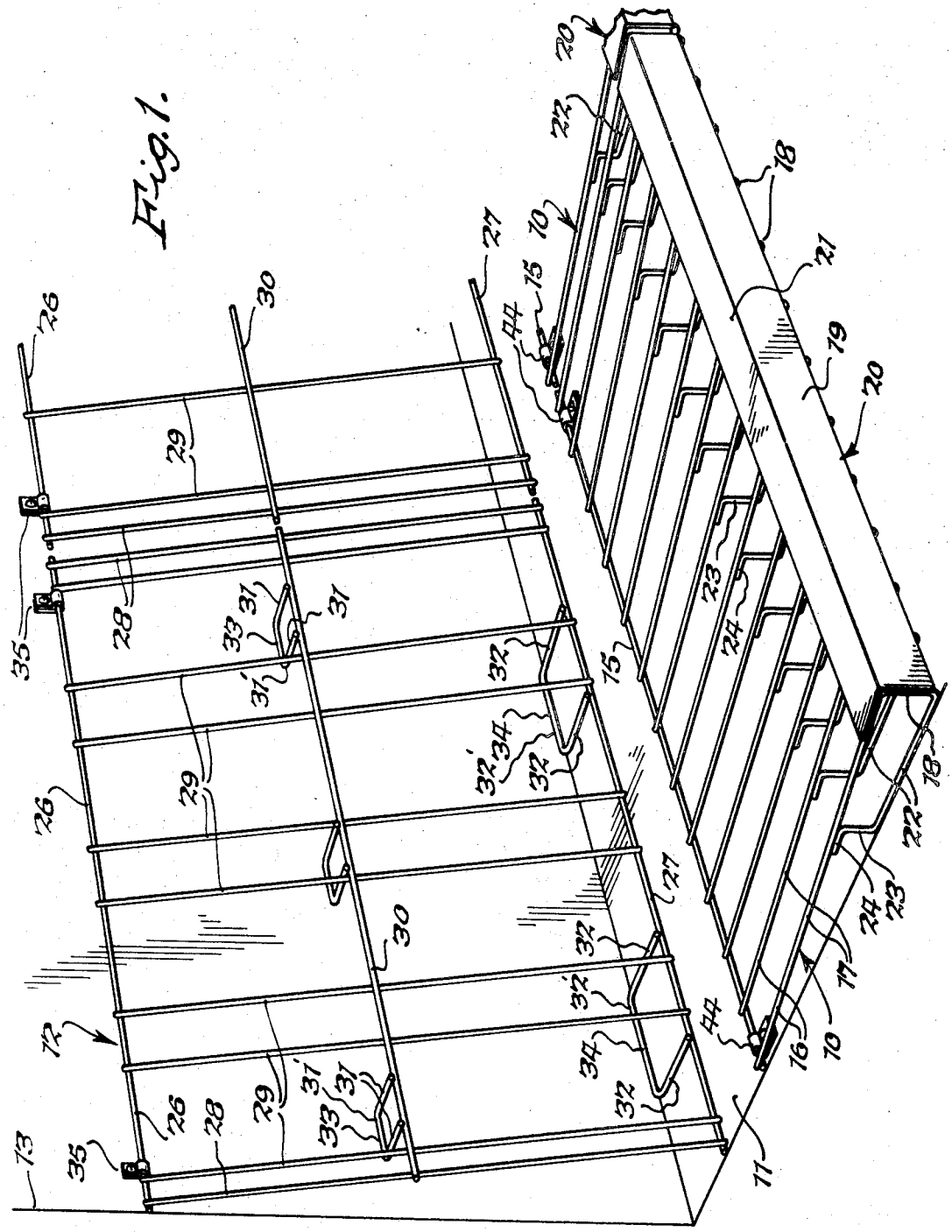
July 30, 1968 B. FINEBERG ET AL 3,394,818

RACK FOR STACKED ARTICLES

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Fig. 1.



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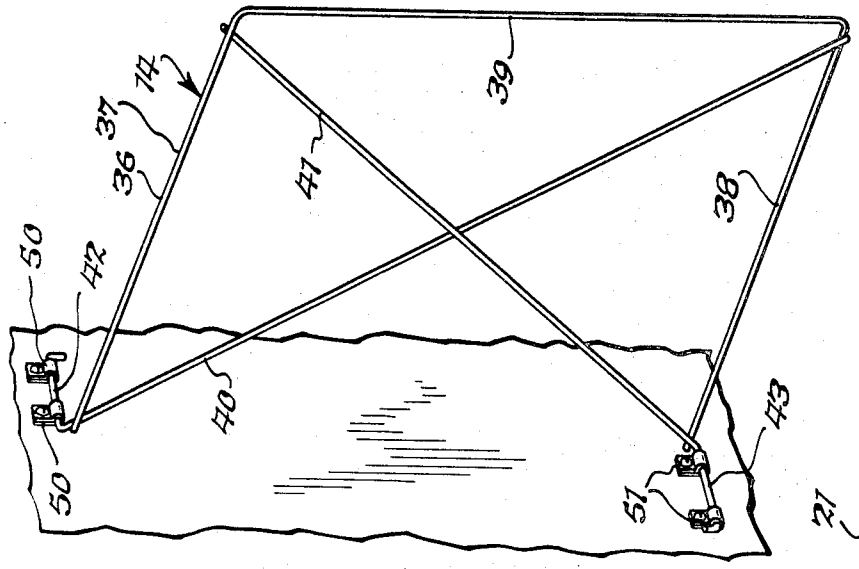


Fig. 2.

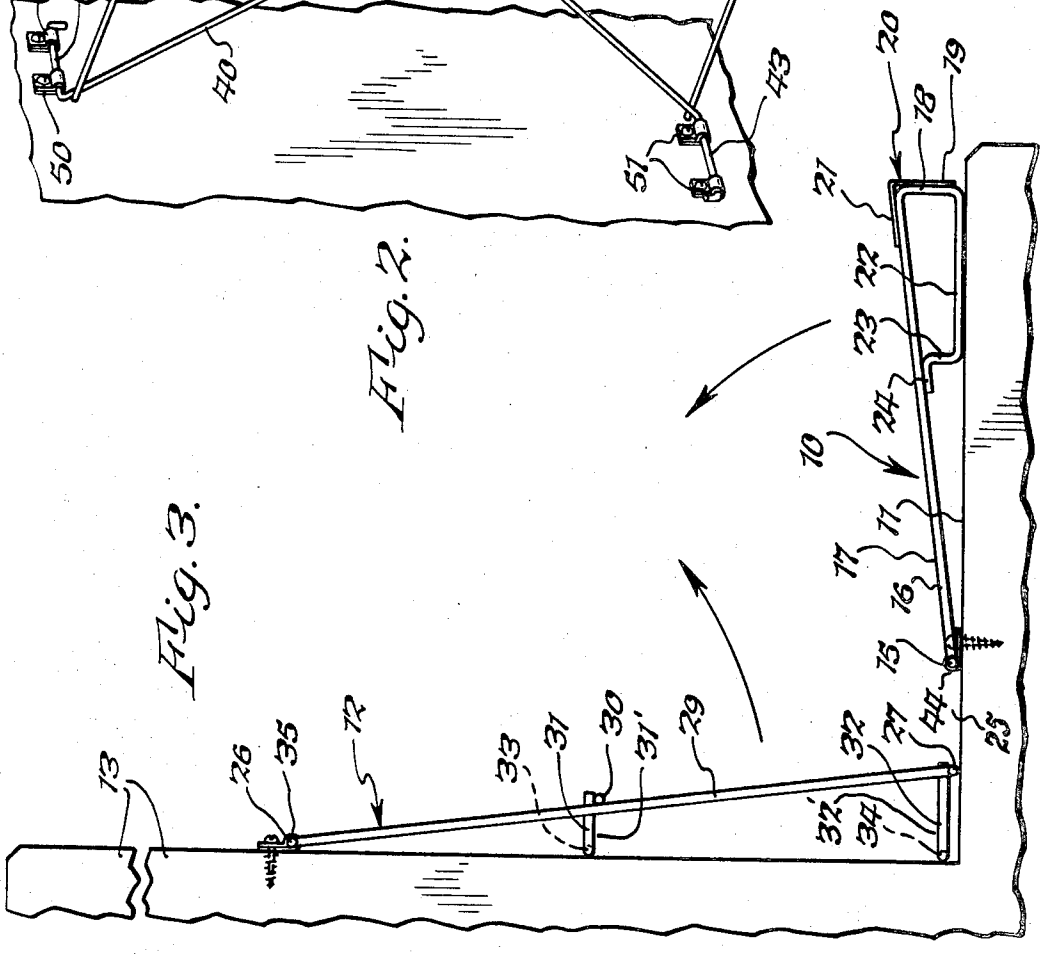


Fig. 3.

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RACK FOR STACKED ARTICLES

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ABSTRACT OF THE DISCLOSURE

A rack construction for supporting stacked articles above a substantially horizontal surface and for causing the stacked articles to tilt rearwardly consisting of a wire frame having an elongated member defining a rear edge with a plurality of wire rods having first ends secured to the elongated member and having first portions thereof extending transversely of said elongated member for defining a substantially planar upper surface, second portions extending downwardly from said first portions to define a front edge which is spaced from the rear edge, third portions of said wire rod extending in a direction toward said rear edge, and fourth portions extending upwardly from the third portions for supplying a vertical support to said first portions in between said front and rear edges, and an elongated angle-like member attached to said front edge to both hold said wire rods together at said front edge and to provide a shield against the entry of foreign matter into the rack. In addition, the foregoing rack construction is used in conjunction with a back rest comprising a wire rack having upper and lower parallel edges with elongated wire rods joining said upper and lower edges and a plurality of U-shaped members increasing in length from said upper edge to said lower edge for holding said frame at an angle to a vertical wall.

The present invention relates to an improved rack construction for stacked articles, such as cartons of soft drinks.

In present day grocery stores and supermarkets where the self-service system is employed, cabinets are provided for stacking the various food products. These cabinets are commonly called "gondolas," which are essentially free standing arrangements mounted on the floor and having a substantially horizontal base and a substantially vertical rear wall extending upwardly therefrom. In the past when cartons of soft drink bottles were placed in stacked relationship on the horizontal base, the rows were relatively wobbly and many times a carton would fall onto the floor or onto the horizontal base with resulting breakage. It is with the providing of an improved rack construction for stacking articles such as cartons of soft drink bottles relative to a horizontal base and an adjacent vertical wall in an extremely stable and efficient manner and which effectively overcomes the problem of breakage that the present invention is concerned.

It is accordingly one object of the present invention to provide an improved rack construction for supporting cartons of soft drink bottles or the like on a horizontal base in a rearwardy tilted attitude to thereby tend to obviate the falling of cartons of bottles from upper rows, thereby, in turn, tending to eliminate breakage in the handling of such cartons of soft drinks.

Another object of the present invention is to provide a rack construction of the foregoing type which can be attached to the horizontal and vertical walls of any "gondola" or the like in an extremely simple and expedient manner and which can easily be moved and replaced for periodic cleaning underneath the rack.

A further object of the present invention is to provide an improved rack construction for stacking articles such as cartons of soft drink bottles in staggered relationship to thereby stabilize the rows by obviating continuous vertical crevices extending through the entire depth of the stacked articles.

Yet another object of the present invention is to provide an improved rack construction for supporting stacked articles such as soft drink bottles, or the like, which is relatively inexpensive to fabricate because it utilizes relatively small amounts of relatively thin wire rods because the manner of fabrication provides the required strength. Other objects and attendant advantages of the present invention will readily be perceived hereafter.

The improved rack construction of the present invention includes a first rack for resting on the horizontal base of a "gondola" or floor or shelf, said rack including a rear edge, a front edge, and a substantially planar surface defined by wire rods attached therebetween. The planar surface inclines downwardly toward the rear edge to thereby cause articles placed on the rack to tilt rearwardly.

The wire rods extend transversely between the front and rear portions of the rack, and include bent continuations which elevate the front of the rack and which extend vertically to support the upper planar surface intermediate the front and rear edges to thereby provide increased strength to the rack and permit relatively thin wire rod material to be used in its fabrication. The rear edge is pivotally mounted relative to the horizontal base to permit the rack to be swung upwardly, when empty, to provide access to the base for cleaning.

A back rest is also provided. The back rest includes a planar wire frame having an upper edge and a lower edge and projections extending rearwardly from the wire frame to cause the lower edge to extend further from a vertical wall than the upper edge. The surface of the back rest extends substantially perpendicularly to the planar surface of the lower rack to squarely receive the cartons on the rack in abutting relationship. The back rest is preferably pivotally mounted at its upper edge to permit it to be pivoted upwardly about its pivotal mounting for access to the wall for cleaning. Means project from the face of the back rest to stagger certain of the articles relative to others. In addition dividers are provided which are essentially wire frames which are attached to the wall and extend perpendicularly to the first and second racks to provide dividers therebetween. The various aspects of the present invention will be more fully understood by the following portions of the specification read in conjunction with the accompanying drawings wherein:

FIGURE 1 is a perspective view of a rack for a base and a back rest for a wall and also showing fragmentary portions of like articles;

FIGURE 2 is a side elevational view showing the relationship between a rack and back rest relative to a base and wall of a cabinet; and

FIGURE 3 is a perspective view of a wire frame which is used as a divider between adjacent pairs of racks and back rests.

The improved rack construction of the present invention includes a rack frame **10** which is adapted to be placed on the horizontal base **11** of a "gondola" or shelf, a back rest frame **12** which is adapted to be mounted on a wall **13** extending substantially perpendicularly to base **11**, and a divider frame **14** which is adapted to be attached to the wall **13** for placement between adjacent pairs of frames **10** and **12**. The improved rack construction will be described relative to soft drink cartons of the type where a cardboard container holds six or eight bottles. However, it will be appreciated that it has equal

utility with other types of packages such as boxes, canned goods, and the like.

As can be seen from FIGURE 1, rack **10** includes a first wire rod **15** which forms the rear edge of the frame. A plurality of wire rods **16** extend substantially perpendicularly to rear edge **15** and have first ends attached thereto by suitable welding, or the like. The wire rods **16** include first portions **17** which lie substantially parallel to each other and thus define an upper planar surface which provides a base on which the above mentioned soft drink cartons rest. Rod portions **17** merge into portions **18** which form the front edge of the rack. As can be seen from the drawings the upper surface of rack **10** inclines downwardly toward the rear edge **15** and thus any article placed on the surface defined by portions **17** will tilt rearwardly.

The front portions **18** are secured relative to each other by angle member **19** having portion **20** which shields the inside of rack **10** against the entry of foreign matter from the front edge. In addition angle **19** includes an upper portion **21** which fits against the front portions of rod portions **17**. It will readily be appreciated that, in fabrication, the front portions of rod **16**, after having been bent to the configuration shown in the drawings can be aligned by being placed in abutting relationship with angle **19** and thereafter the angle **19** is welded to each of the rods to provide the desired finished configuration.

Rod portions **18** merge into horizontal portions **22** which extend toward rear edge **15**. Portions **22** provide a good firm base which elevates the plane defined by upper portion **17** to its desired inclined rearwardly oriented position. Portions **22** merge into vertically oriented portions **23** which in turn merge into portions **24** which underlie their respective rod portions **17** and are secured thereto by welding, or the like. Portions **23** provide a vertical support intermediate the ends of rod portions **17** to thereby prevent excessive bending of the latter when the rack is subjected to the load of soft drink bottles and their contents stacked about four deep, three high, and four to five across, as will be apparent from the dimensions set forth hereafter. It will be appreciated that by using vertical portions **23** a lighter gauge metal can be used for rods **16** than would have been required if portions **23** were absent. In addition by locating portions **23** in the position shown in the drawings the necessity for continuing portions **22** into engagement with rod **15** is obviated thereby saving about a third of the material which would otherwise have been required.

It will be appreciated that the base **11** may become dirty incidental to use, as the result of deposit of foreign matter. Accordingly, provision is made for lifting rack **10** in order to clean base **11**. To this end brackets **44** are provided. Each of these brackets include a circular portion which receives a part of rear edge rod **15** and a pair of apertures not numbered which receive a screw not numbered which attaches the bracket **44** to base **11**. However when cleaning is desired it is merely necessary to swing rack **10** in a counterclockwise direction about the pivot provided by rod **15** in FIG. 2, thereby to obtain access to base **11**. After the cleaning has been completed it is merely necessary to pivot rack **10** in the opposite direction to thereby return it to the same original predetermined position which it occupied before it was lifted. If it is desired to remove the rack from shelf **11**, in the event that it is desired to utilize base **11** for another product which does not require stacking in the same manner, it is merely necessary to loosen the screws and remove the rack **10**. As is obvious it can be relocated in another position with relative ease.

As noted briefly above, rack **10**, by being rearwardly inclined, will cause articles carried thereby to also assume a rearwardly inclined attitude. This, as stated briefly above, will tend to prevent the top articles from falling onto the floor.

In order to complete the assembly and provide an extremely stable stacked arrangement, a back rest frame **12** is provided for placement against vertical wall **13**. It will be appreciated that the articles to be stacked on the rack **10** are substantially square in the sense that their base and sides extend at substantially right angles. This being the case, since the rack **10** causes the articles to be rearwardly inclined, they will not rest squarely against rear wall **13**. Accordingly, back rest **12** provides a surface which extends substantially perpendicularly to the surface defined by the top of rack **10** to thereby provide a square rest for the articles supported on rack **10**.

Back rest **12** includes an upper wire rod **26** which defines an upper edge and a wire rod **27** which defines a lower edge. Rods **28** form the edges of the back rest and are secured to rods **26** and **27**, as by welding. Extending between rods **27** and **26** are rods **29**. A horizontal rod **30** is secured to the face of rack **12**, as by welding, and helps maintain the rack in its planar configuration. A plurality of relatively short U-shaped members **31'** have legs **31** attached to horizontal rod **30** and extend rearwardly therefrom. A plurality of substantially U-shaped members **32'** have legs **32**, which are longer than legs **31**, attached to lower rod **27** and extend rearwardly therefrom. The bases **33** of U-shaped members **31** lie in a line through rod **26** and base **34** of members **32** (see FIG. 3). Therefore when frame **12** is placed up against wall **13**, bases **33** and **34** of U-shaped members **31** and **32**, respectively, will also rest up against the wall **13**. Thus U-shaped members **31** and **32** will provide a good firm support for frame **12** against wall **13**. As noted previously, the length of the legs of the U-shaped members **31** and **32** is selected so as to cause the planar face of the rack **12** to extend substantially perpendicularly to the surface defined by rack **10**.

As noted above relative to rack **10**, it is sometimes necessary to have access to wall **13** for cleaning. To this end brackets **35** are provided. Each bracket includes a circular portion which encircles rod **26** and another portion having aligned apertures not numbered for receiving a screw (not numbered) which attaches brackets **35** to wall **13**. The mounting is sufficiently loose so that rod **26** can pivot within brackets **35**, and this pivotal motion is effected by lifting the bottom edge of frame **12** away from wall **13** to thereby cause the rack to pivot about rod **26** as an axis. This will permit access to the space between frame **12** and wall **13** for cleaning. Upon release, frame **12** will drop into the position shown in the drawings to thereby assume its abutting relationship with wall **13**. It will be appreciated that it returns to a position which it originally occupied without any requirement for manipulation on the part of the person who lifted the rack. If it is desired to remove frame **12** from its position on wall **13** it is merely necessary to loosen the screws associated with brackets **35**. Reinstallation in another location is equally easy, as is readily apparent.

Divider frames **14** are provided for permitting division of sections of the racks provided by adjacent pairs of frames **12** and **10**. Divider rack **14** includes a U-shaped portion **36** having horizontal legs **37** and **38** and vertical portion **39**. Cross members **40** and **41** are secured to upper and lower legs **37** and **38** and to each other, as by welding. Legs **37** and **38** terminate in perpendicular portions **42** and **43**, respectively, and these portions extend in opposite directions. Brackets **50**, which are identical to brackets **35** and **44**, may be used to secure divider **14** in a relatively stable manner relative to wall **13**. The dividers **14** can thus segregate different sections of a gondola for different products. Removal of divider frame **14** is relatively simple inasmuch as it requires only the removal of the brackets which fasten it to the wall.

As noted above, a rod **30** extends horizontally across the face of vertically oriented rack **12**. This rod serves the additional function of staggering the horizontal row of articles which abut it relative to the row immediately

below this row. More specifically it can readily be seen that if the articles, such as soft drink carrying packs are of substantially the same size, if the back rest **12** provided a substantially planar surface, vertical rows of articles would have continuous crevices running vertically between them. However by utilizing rod **30** an upper horizontal row is staggered relative to a lower horizontal row so that these vertical crevices do not exist and a more stable stacked arrangement is provided. In addition the horizontal row of articles which abuts rod **30** extends forwardly of the row below it and thus provides somewhat of a ledge extending beyond the row stacked immediately above it. This also tends to stabilize the stacked relationship and also further tends to minimize the possibility of cartons pivoting onto the floor.

It is to be noted that a space or clearance **25** exists between rod **15**, forming the rear edge of rack **10** and rod **27**, forming the lower edge of rack **12** (FIG. 2). This clearance permits each of the racks to be swung relative to each other without interference. More specifically, upper rack **12** can be swung upwardly from the wall without hitting the rear edge of rack **10**. In addition, rack **10** can be swung upwardly and, in its vertical position, rested against rack **12** so that it need not be held in a vertical position when base **11** is being cleaned. In addition, the rack **10** is located relative to rack **12** so that an extension of rod portions **17** will substantially intersect rod **27**. This permits the base **11** itself to be used for supporting portions of the cartons.

In addition, by making the length of rod portions **17** relatively short, the rack **10** is universal in its application in that it can be mounted on different sized gondolas with equal facility. In this respect, assuming rod portions **17** are nineteen inches long, the rack **10** will fit on bases having a depth of nineteen, twenty-four or thirty inches. The difference between the positioning on each of the foregoing sizes of bases merely amounts to providing a different spacing **25**. In other words, by varying the space **25**, the above described rack unit can be mounted on any size gondola.

Typical dimensions of rack **10** are: 19 inches wide; 3 inches high at the front edge; and 31 inches long. The wire rod is approximately ¼ inch in diameter. Typical dimensions of back rest **12** are: 31 inches long and 25 inches high. U-shaped members **31'** and **32'** are 2½ inches deep and 3¾ inches deep respectively. The wire rod is approximately ¼ inch in diameter. Typical dimensions of a carton of six soft drink bottles, including the bottles is: 7¾ inches long; 5¼ inches wide; and 9¾ inches high. Rod **30** is located approximately 13 inches above rod **27**. Therefore it will abut the second horizontal row of cartons. The cartons are preferably placed with the 7¾ inch dimension against back rest **12**.

It can thus be seen that the improved rack construction of the present invention has the advantage of providing cleanliness and ventilation behind and below the product. In addition, breakage is avoided by the inclined and stable manner in which the cartons are mounted in the racks. Because of the uniformity which the rack construction produces on the stacked articles, there is also a beautification of the display.

While preferred embodiments of the present invention have been described, it will readily be appreciated that it is not limited thereto but may be otherwise embodied within the scope of the following claims.

What is claimed is:

1. A rack construction for supporting stacked articles above a substantially horizontal surface and for causing said stacked articles to tilt rearwardly comprising a wire frame having a front edge and a rear edge and spaced wire rods effectively extending between said front edge and said rear edge to define a substantially planar upper surface, means located proximate said front edge for inclining said planar upper surface downwardly toward said rear edge when said frame rests on said substantially horizontal surface, and means for fastening said frame relative to said substantially horizontal surface and for permitting movement of said frame relative to said horizontal surface to permit access to said horizontal surface and for insuring return of said rack to a predetermined position on said substantially horizontal surface, and a back rest for use in conjunction with said wire frame, said back rest including a substantially planar vertically oriented surface extending substantially perpendicularly to said upper surface of said wire frame, and means for movably attaching said back rest relative to a wall which extends substantially perpendicularly to said substantially horizontal surface, said means for movably attaching said back rest permitting access to said wall for cleaning purposes and for causing said back rest to return to a predetermined position on said wall.

2. A rack construction as set forth in claim **1** including means mounted on said back rest and extending outwardly from said substantially planar vertically oriented surface for causing certain of said stacked articles to be staggered relative to adjacent like articles thereby to provide a stable stacked arrangement.

3. A rack construction as set forth in claim **1** wherein said back rest comprises a second wire frame having an upper edge and a lower edge, means extending rearwardly from said substantially planar vertically oriented surface for resting against said wall for causing the lower portion of said vertically oriented surface to lie a greater distance from said wall than the upper portion of said vertically oriented surface.

4. A rack construction as set forth in claim **1** wherein said means for movably attaching said back rest relative to said wall comprises hinge means effectively connecting the upper portion of said back rest to said wall.

5. A rack construction as set forth in claim **3** wherein said upper edge of said second frame includes second wire rod means, and second clip means pivotally mounted on said second wire rod means and adapted to be secured to said wall for permitting said lower portion of said second frame to pivot upwardly away from said horizontal surface.

6. A rack construction as set forth in claim **1** including third frame means, and means for attaching said third frame means relative to said wall and said horizontal surface to cause said third frame means to extend substantially perpendicularly to both said wire frame and said second wire frame.

7. A rack construction comprising a wire frame including an elongated member for defining a first edge of said frame, a plurality of wire rods having first ends secured to said elongated member and having first portions extending transversely of said elongated member for defining a substantially planar upper surface, second portions formed on each of said wire rods and extending downwardly relative to said first portions to define a second edge of said rack which is spaced from said first edge, third portions on said wire rods extending from said second portions in a direction toward said first edge, fourth portions extending upwardly from said third portions and effectively secured to said first portions for supplying a vertical support to said first portions intermediate said first and second edges, and means spaced from said elongated members for joining said wire rods together at positions remote from said elongated member.

8. A rack construction as set forth in claim **10** wherein said third portions of said wire rods extend only partially between said first and second edges.

9. A rack construction as set forth in claim **7** wherein said last-mentioned means comprises a plate member having a substantially planar portion extending across said second portions of said wire rods for securing said second portions to each other and for acting as a shield to prevent foreign matter from entering between said wire rods from said second edge.

10. A rack construction as set forth in claim 9 wherein said plate member includes a second planar portion attached thereto for forming an angle with said substantially planar portion, said second planar portion overlying a portion of said first portions of said wire rods.

11. A wire rack for providing a back rest for articles inclined relative to a vertical wall comprising a wire frame having an upper edge and a lower edge, said upper edge comprising a first elongated wire rod, said lower edge comprising an elongated member extending substantially parallel to said first elongated wire rod, second wire rods extending transversely to said first wire rod and said elongated member and attached therebetween to define a substantially planar surface, and projections comprising substantially U-shaped members extending rearwardly from said frame for abutting said substantially vertical wall and thereby orienting said substantially planar surface in predetermined relationship to said wall, said U-shaped members being located in rows and including relatively short members located intermediate said upper and lower edges and relatively long members located proximate said lower edges.

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