FORKLIFT FORK STORAGE RACK

A forklift fork storage rack is disclosed, adapted to form a stable, single or multi-tiered structure for securing forks. The stored forks can be easily accessed by a forklift for adding or removing forks from the rack. The rack secures the forks in parallel sequence on load bearing members. The rack includes one or more tiers for retaining the forks at different elevations. In this manner, variously sized and dimensioned forks, which may have different functions, can be organized into designated tiers and sections of the rack. The rack is fabricated from multiple members that join together to support a plurality of forks and minimize lateral movement, tensile forces, compressive forces, and instability for the rack.
FIG. 1B
Upper fork hook 302

Lower fork hook 304

Fork back 306

Stiffener 156

Vertical post 158b

Right side 162

FIG. 3
Pullout tool 402

Handle 404

Rod 408

Fulcrum member 406

FIG. 4
FORKLIFT FORK STORAGE RACK

BACKGROUND OF THE INVENTION

[0001] Field of the Invention

[0002] This invention relates to an apparatus for storing forklift forks, and more particularly relates to a rack for storing forklift forks (also known as tines).

[0003] Description of the Related Art

[0004] Forklifts and their accompanying fork accessories are well-known in the art. Typically, the forklift is a powered industrial truck used to lift and move materials short distances using a variety of detachable forks which protrude from the fork. Forklifts forks vary in weights and dimensions. Forks are rated for different loads at specific distances. Loads moved by forklifts often require specific lengths of forks to safely pick and handle the load. Different forklifts require forks of different configurations.

[0005] Forklift owners occasionally stock a large variety of forks, placed randomly on the ground, on pallets, and occasionally dangerously placed on pallet racks because operators lack a rack for organizing them. Both styles of forklift forks including hook on and pin on, vary in weight and in height at the machine end of the fork making them very unstable when disconnected and difficult to install on the machine by hand safely. In most cases standard hook on forks must be elevated to be connected to the machine. Pin on forks are less commonly removed but are usually easier to connect or disconnect at ground level.

[0006] Forklifts with hook on forks have hooks both on top and bottom of the back of the vertical member of the fork. Hook on forks attach to the top and bottom rails on the lifting section of the forklift, with the bottom rail notched in a small section in the center where the bottom hook of the fork may pass through during installation and removal. The forks are installed by hooking the top of the fork over the top horizontal rail of the forklift with the bottom hook often off to one side or the other of the bottom horizontal rail notch, resting against the rail in an unsecured position. The fork must then manually be slid left or right horizontally allowing the bottom hook to pass through the notch, and then be slid left or right horizontally to its final secured position.

[0007] Forklifts with pin on forks have an eye or hole on the top of the back of the vertical part of the fork. Pin on forks are attached to the forklift by sliding a pin or shaft through the fork eye and through the lifting section of the forklift. The pin is often retained by bolts or other mechanical keepers.

[0008] When forks are placed on the ground they often must be lifted by hand to connect to the forklift. This is a serious safety concern and may result in injuries including fingers, hands, hernias, back, hips, feet and other injuries.

[0009] When forklift forks are stored on a standard wooden pallet similar to those which are used in warehouse storage operations. The wood structure may fail resulting in the forks tipping over sideways. The pallet cannot be moved with lose forks placed on top safely, since there is no way to secure the forks from tipping or moving. The benefit is that the forks are elevated and physically easier and safer to connect to the forklift than on the ground. In some cases newer OSHA standards have limited the tilt angle of the forklift mast; in these cases the forklift may be unable to lean far enough forward to completely connect the top hook of the fork to the forklift rail, requiring the fork to be manually installed. Additionally the pallets do not provide any organizational structuring of the forks. This can be problematic when trying to locate a desired set of forks. Pallets generally do not form a stable structure for supporting the forks.

[0010] When forklift forks are placed on pallet racks this method of storage does not address industry safety concerns such as the forks tipping over, being pushed through off the rack, problems inherent with handling by hand, connection issues to the forklift while in the rack, and forward pushing forces from the forklift during connection. When the forks are placed side by side to multiple sets the desired set needs to be pulled out approximately 2-6 inches from the shelf and the other forks on the shelf in order to connect them to the machine. Without a safety retaining member (described in this invention) above the forks they can tip off the pallet rack, or tip over sideways and then slide off the shelf. This is very likely to injure the operator, coworkers or bystanders.

[0011] In some cases fork tubes welded to a frame are used to store the forks when they’re not in use, whereby each fork rests in an individual tube. This provides an organizational structure. However, the fork tube adds other problems, such as the flexibility to store different sizes and weights of forks. This approach makes it difficult to align the machine in the proper vertical and horizontal positions to install and remove the forks and to connect or disconnect them from the forklift. This difficulty increases if the surface the forklift and rack are on may be at different angles, or uneven as often required for surface drainage.

[0012] Current methods and apparatus are not configured to safely organize and retain a plurality of various forks, such that a fork can easily add and remove the desired forks. It is therefore desirable that a fork rack be provided that can be safely used by a fork lift operator to install and remove forks from the forklift.

[0013] This invention/fork rack will increase safety for a forklift operator during the installation and removal of forks from the forklift.

SUMMARY OF THE INVENTION

[0014] From the foregoing discussion, it should be apparent that a need exists for a rack for storing forks. Beneficially, such an apparatus would overcome many of the difficulties and safety concerns expressed, by providing a stable rack for storing forklift forks constructed with vertical and horizontal members designed to secure and store a plurality of forks in an organized manner and enable a safe selective, efficient access and connection to the forks by a forklift.

[0015] The present invention has been developed in response to the problems and needs in the art that have not yet been fully solved by currently available apparatus and methods. Accordingly, the present invention has been developed to provide a forklift fork rack having a front, back, right side and left side comprising: a plurality of load bearing members extending horizontally between one or more support members, vertical posts, and cross members; wherein one or more forks can be rested across one or more load bearing members; a plurality of retention members extending horizontally between one or more support members, vertical posts and cross members, wherein each retention member is spaced above a load bearing member, wherein a slot forms between each retention member and each load bearing member, the slot for receiving one or more forks, wherein the retention members prevent lateral movement of the forks; a plurality of support members, each support member extending horizontally, each support member disposed perpendicularly to the load bearing members and retention members.
In some embodiments, the forklift rack further comprises a plurality of vertical posts affixed to, and rising vertically from, a lower support member. In other embodiments, the forklift rack further comprises a plurality of horizontal cross members affixed to one or more vertical posts. In still further embodiments, each load bearing member and each retention member may span one of a front and a back.

The forklift rack may further comprise a plurality of tiers, wherein two load bearing members form a tier, each tier for securing a plurality of forks.

The load bearing members spanning the back of the rack may be elevated above corresponding load bearing members spanning the front of the rack within the same tier.

The forklift rack may further comprise a plurality of feet. The forklift rack may further comprise a pullout tool comprising a rod, a handle and fulcrum, the pullout tool for moving a pair of forks resting on the rack away from a load bearing member to facilitate access by a forklift.

The pullout tool may be formed as one integrated piece. The forklift rack may be configured to be lifted and moved by a forklift.

One or more of the load bearing members and retention members may form a component, the component detachable from one or more vertical posts, support members and cross members.

The support members, vertical posts and horizontal cross members may be detachable from one another. One or more of the load bearing members, retention members, and support members may comprise one or more of rods, bars, angles, square tubing, rectangular tubing, round tubing, oval tubing, channels, round pipe, plates, and I-beams.

One or more of the load bearing members, retention members, and support members may comprise one or more of metal, alloy, carbon steel, cast iron, aluminum, stainless steel, carbon fiber, fiberglass, resins, elastomeric materials, composites, GFRP, wood, and concrete.

The support members may each extend outwardly from the vertical posts.

These features and advantages of the present invention will become more fully apparent from the following description and appended claims, or may be learned by the practice of the invention as set forth hereinafter.

**BRIEF DESCRIPTION OF THE DRAWINGS**

In order that the advantages of the invention will be readily understood, a more particular description of the invention briefly described above will be rendered by reference to specific embodiments that are illustrated in the appended drawings. Understanding that these drawings depict only typical embodiments of the invention and are not therefore to be considered to be limiting of its scope, the invention will be described and explained with additional specificity and detail through the use of the accompanying drawings, in which:

**FIG. 1A** is an elevational frontal-side perspective view of a forklift fork storage rack in accordance with the present invention;

**FIG. 1B** is an elevational frontal-side perspective view of a forklift fork storage rack in accordance with the present invention;

**FIG. 2** is an elevational rearward-side perspective view of a forklift fork storage rack in accordance with the present invention;

**FIG. 3** is an elevational frontal-side perspective view of a forklift fork storage rack in accordance with the present invention; and

**FIG. 4** is an elevational frontal-side perspective view of a forklift fork storage rack in accordance with the present invention.

**DETAILED DESCRIPTION OF THE INVENTION**

Reference throughout this specification to “one embodiment,” “an embodiment,” or similar language means that a particular feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment of the present invention. Thus, appearances of the phrases “in one embodiment,” “in an embodiment,” and similar language throughout this specification may, but do not necessarily, all refer to the same embodiment.

Furthermore, the described features, structures, or characteristics of the invention may be combined in any suitable manner in one or more embodiments. In the following description, numerous specific details are provided to provide a thorough understanding of embodiments of the invention. One skilled in the relevant art will recognize, however, that the invention may be practiced without one or more of the specific details, or with other methods, components, materials, and so forth. In other instances, well-known structures, materials, or operations are not shown or described in detail to avoid obscuring aspects of the invention.

**FIG. 1A** is an elevational frontal-side perspective view of a forklift fork storage rack in accordance with the present invention. The rack **100** comprises feet **102a-d**, cross members **106a-b**, and load bearing members **108a-d**.

**FIG. 2** comprises multiple members, junctions, and organizational spacing configured to receive a plurality of forks in an organized manner, and to stabilize the rack **100** against lateral movements, tensile forces, compressive forces, and instability while a forklift (not shown) racks or removes the forks, or while the rack **100** is lifted for transport. The rack **100** is sufficiently rigid to support a plurality of forks and withstand constant agitation from forklifts; and thus, may be manufactured from a rigid material, including, without limitation, steel, aluminum, magnesium, titanium, metal alloys, polymers, wood, carbon-fiber, and the like.

**FIG. 3** illustrates a frontal perspective view of the rack **100** in accordance with the present invention. The rack **100** comprises at least four vertical posts **158a-d** (some shown in **FIG. 1B**) arranged to form a front, back, left side and right side. In one embodiment, the posts **158a-d** form generally rectangle or quadrilateral from an upper perspective view. Each post **158** extends in a substantially vertical direction from a ground surface. Those skilled in the art will recognize that the capacity of the forklift to raise and lower the forks for racking and removal allows the posts **158** to have a height at least equivalent to the maximum lifting height of the forklift.

**FIG. 4** may include at least one load bearing member **108** that extends horizontally between support members **114**, vertical posts **158**, or cross members **106** on each side of the rack **100**. The load bearing members **108** and the vertical posts **158** may be welded or bolted together, overlay one another, or may be fastened through various fasteners at a junction. In many embodiments, the load bearing members **108** and the vertical posts **158** are affixed at right angles (i.e. 90 degree angles) to one another. The load bearing members **108** bear most of the direct weight from the forks.
In one embodiment, a pair of load bearing members 108 position on opposite sides of the rack 100. The forks align in parallel sequence along the pair of load bearing members 108. Furthermore, the multiple load bearing members 108 can be positioned at different elevations on the rack 100, forming multiple tiers of load bearing members 108 to support the forks. In the shown embodiment, three tiers of parallel load bearing member 108 support three sets of forks. However, any number of tiers may be used.

Fig. 13 is an elevational front-side perspective view of a forklift fork storage rack 150 in accordance with the present invention. The rack 150 comprises retention members 152a-c, a load bearing member 108c, a support member 114a, vertical posts 158a-b, a cross member 106b, a stiffener 156b, and left side 160.

Retention members 152 interconnect vertical posts 158 parallel to, and above, corresponding load bearing members 108. These retention members 152 may be interconnected with the load bearing members 108 at the vertical post 158.

The retention members 152 prevent upward and lateral movement toward the back of the rack by the forks resting on the load bearing members 108.

The rack 150 comprises an upper cross member 106b extending horizontally between the front and back between vertical posts 106. The upper cross members 106 provide structural integrity to a top of the rack 100. The cross member 106 can especially be beneficial to restrict torqueing forces on the rack 150 when the forklift engages the rack 150. Additionally, the cross member 106 helps support the weight of the forks 200, which can destabilize the rack 100. Retention members 152 may be connected to the cross members 106.

The rack further comprises support members 114 extending horizontally between the front of back of the rack 150 and the vertical posts 158. The support member 114 serves the same structural strengthening capacity as the upper cross member 106, but along a bottom of the rack 150.

As referenced in FIG. 2, the rack 200 comprises at least one retention member 110 spaced above at least one load bearing member 108. The retention members 152 helps balance the forks against the load bearing member 108. A slot forms between each retention member 152 and each load bearing member 108. The slot is generally sized and dimensioned to receive the forks for racking and removal. The retention members 152 extend along the front or back of the rack 100.

In various embodiments, the retention members 152 and load bearing members 108 which span the front of the rack 100 are disposed at a different elevation above the ground than corresponding retention members 152 and load bearing members 108 spanning the back of the rack 100.

Fig. 2 is an elevational rearward-side perspective view of a forklift fork storage rack 200 in accordance with the present invention. The rack 200 comprises a retention member 152a, a retention member 152c, a back 164, and forks 202a-d.

The forks 202 are shown in this figure. As shown, the forks 202 rest across parallel load bearing members 108, one load bearing member 108 on the front of the rack 200 and one load bearing member 108 on the back of the rack 200.

As racking and removing of the forks 202 progresses, the subsequent engagement between the forklift and the rack 300 tends to warp, contort, or strain the vertical posts 106a-d and the load bearing member 108 causing pressure to be exerted at the junctions. For this reason, the cross members 106 and the vertical posts 158 may be reinforced with at least one stiffener 156.

As shown in some embodiments, the rack 150 may include at least one support member 114 extending horizontally under posts 158. The support member 114 is oriented perpendicularly to the load bearing member 108. The support members 114 may extend further outward than the load bearing member 108. The support members 114 also provide an additional level of stability to the rack 150.

FIG. 3 is an elevational front-side perspective view of a forklift fork storage rack 300 in accordance with the present invention. The rack 300 comprises a plurality of forks 202, each fork 202 comprising a fork back 306, the fork back 306 comprising an upper hook 302 a lower hook 304. The rack 300 comprises a right side 162.

All of the components of the rack 300 may be affixed together using welded joints, bolts, screws, magnets, nails, gusset plates, and the like. These components may include, without limitation, bar stock, angle iron members, I-beams, and generally rectangular-shaped members having flanges. These components may include or define apertures drilled through the members and posts 106a-118a for fastening them together. In one embodiment, the rack 200 is configured to fasten to a mounting structure (not shown). In other embodiments, the rack 300 is configured to be lifted and moved by the forklift.

In one embodiment, each of the plurality of forks 202 includes a vertical fork section oriented substantially perpendicular to the horizontal fork section. The vertical fork sections rests against a retention member 152, balancing against the adjacent load bearing member 108 positioned on the front or back of the rack 300. The forklift mates with the vertical fork back 306 to rack or remove the forks 202. Various fork fastening mechanisms, such as a spring tensioned clamp, may be used to lock, clamp, pull and pin, may be used to lock and detach the forks 202 from the forklift.

The rack 300 provides a structurally stable and safe forklift rack that stores and secures a plurality of forks 202 for a forklift in an approximately parallel sequence and optionally at elevated tiers to enhance the safe organization of the forks and enable selective access and connection to the forks by a forklift.

The rack 300 a multi-tiered structure that is easily accessed by a forklift for inserting or removing a plurality of forks. Additionally, the rack may comprise one or more tiers for retaining the forks at different elevations. In this manner, variously sized and dimensioned forks, which may have different functions, can be organized into designated tiers and sections along the forklift side of the rack. This can be useful in industrial or rental settings where multiple forks or fork lift sizes are utilized.

The rack 300 comprises multiple approximately vertical, horizontal, and optional angled members joined together in various directions to form strategic junctions. The members are comprised of different dimensions effective for stabilizing the rack against lateral movements, tensile forces, compressive forces, and instability while the forks are inserted or removed, or while the rack is lifted for relocating. These members may be formed from metallic or polymeric substances. Additionally, the rack 300 may be configured to receive the forks directly onto horizontal members, such that individual fork tubes are not used for retaining the forks 202.
Rather than utilizing fork tubes, the forks 202 may rest upon, and balance between a pair of rigid, horizontal load-bearing members 108 and a minimum of one parallel spaced retention member 152 placed at a desired space above the fork. The retention members 152 restrain the forks 202 from tipping over sideways, falling between the lower load bearing members, and assists the forklift with inserting and removing forks 202 from the fork rack. In cases where an optional second retention member 152 is utilized at a distance parallel to another retention member 152 and above the forks, this will increase safety when forks 202 are slid out a short distance from the rack 300 to be connected to the forklift, by retaining the forks 202 in a way to keep them from tipping backwards and sliding out from the rack 300.

[0056] The load bearing members 108 bear a substantial amount of weight from the forks. In one embodiment, a pair of load bearing members 108 positioned on the front and back distribute the center of gravity between them depending on the forks length and weight. The forks 202 align in parallel sequence along the pair of load bearing members 108. Also, multiple load bearing members 108 can be positioned at different elevations along the rack 300, forming multiple tiers of load bearing members 108 to support the forks 202. In one embodiment, two sets of forks 202 rest on two tiers of parallel load bearing members 108.

[0057] A slot forms between each retention member 152 and each load bearing member 108. The slot is sized and dimensioned to receive the forks 202 when inserted and removed from the rack 300.

[0058] Forks 202 comprise a horizontal fork section and a vertical fork section (the fork back 306). The horizontal fork section passes through the slot, resting on the pair of parallel load bearing members 108. The forks 202 further include a back 306, oriented substantially perpendicular to the horizontal fork section. The back 306 rests against the retention member, bearing on the adjacent load bearing member 308 positioned on the rack 300. The forklift attaches to the back 306 of the fork 202 when installing or removing a fork 202 from the rack 300.

[0059] The rack may further include at least one stiffener 156 extending between a pair of junctions and two posts 158. The stiffener 156 may be disposed between a cross member 106 and post 158. The stiffener 156 may create structural integrity for the rack 300 through a variety of angles and junctions. The stiffener 156 may be affixed to either a cross member 106 or post 158 at one end, and extend diagonally with the other end connected to a support member 114 or post 158. The stiffener 154 is designed to withstand tensile and compressive forces imposed upon the rack 300 by the forklift as it is inserting and removing forks 202, or lifting the rack 300 for relocating. The stiffener 154 is configured to help restrict lateral movement in the forklift rack.

[0060] The support member(s) 114 may extend outwardly from the posts 106, either forward, backward, laterally, or any combination of these.

[0061] Feet 102 may be attached or integrated under the support member(s) 114 such that the feet 102 engage a ground surface and support the entire rack 300 and the plurality of forks 202, distributing the load toward the furthest point(s) away, from the horizontal center. When placed on surfaces that have high and low spots, uneven cracks in pavement and concrete, the feet 102 of a specific height may be needed to increase the clearance of the support members 114 over the high points in the ground surface, also ensuring proper weight distribution. One or more feet 102 may be vertically adjusted to level the rack 300 relative to the surface. In this manner, the feet 102 are used to adjust the structure of the rack 300 to a parallel or level position relative to the surface. In one embodiment, the forklift rack 300 comprises two support members 114 at each end and four feet 102, one at each corner of the rack 300 or quadrilateral.

[0062] The forklift rack 300 may be comprised of structural components including, without limitation to, rod, bar, angle, square tube, rectangular tube, round tube, channel, pipe, I-beams, plate, and other structural components known in the art including bolts, nuts and other fasteners in some embodiments.

[0063] The forklift rack may be comprised of many types of materials including, without limitation to, metals, carbon steel, cast iron, aluminum, stainless steel, alloys, carbon fiber, fiberglass, resins, plastics, composites, wood, and other structural materials known in the art.

[0064] In some embodiments the structural components of the rack 300 may comprise, or define, a number of apertures or holes drilled through the structural components for fastening the components together to the corner posts and other members. In one embodiment, the forklift rack 300 is configured to fasten load bearing members 108 and retaining members 152 as components to the end structures.

[0065] In other embodiments the load bearing members 108 and retaining members 152 may be designed to interlock incrementally at adjustable heights. By interlocking incrementally this embodiment also facilitates adjustability in the distance between the tiers of vertical fork storage. In other embodiments, the rack comprises incrementally-increasing in height apertures spaced apart to allow bolts to be used to fasten the load bearing members 108 and retaining members 152 to the posts 158. In other embodiments the structural components may be designed to be assembled from smaller parts allowing for more compact shipping, recognizing that these parts may also be assembled to an increased height where multiple vertical components are stacked or joined together to reach a desired height. Support members 114, vertical posts 158, and cross members 106 may be assembled as a component for use as a left, center, or right end component, facilitating the ability to add sections onto an existing rack.

[0066] In some embodiments for lateral stability considering the overall height of the forklift rack 300, the forklift rack 300 is designed to be secured to a foundation by use of mounting brackets, feet with holes, anchor bolts, or other methods known in the art. In other embodiments the back or sides of the forklift rack 300 may be secured to an existing structure giving it lateral stability.

[0067] However, in other embodiments, the forklift rack 300 may be configured to be lifted and moved by a forklift. In some cases the forklift rack 300 may be loaded with forks 202, adding weight and changing the center of gravity. Lifting and moving the loaded fork rack 300 allows for snow removal, and access to the areas behind where the rack is located. Moving the loaded fork rack 300 may allow forks 202 to slide out of the rack 300 resulting in a dangerous situation for the forklift lifter operator. In this situation safety must be engineered into the rack to keep the forks from moving. Optional tie down points or other retaining methods known in the art of load securing should be attached if necessary.

[0068] In one embodiment tie down points for temporarily securing the forks from sliding while moving the loaded fork
rack or in seismic areas of the world are attached on the forklift side of the rack 300, positioned at an elevation to allow load binding products known in the art of load securement to go across behind the back 306 of the forks 202, from one post to the post on the other side. Tie down points would be multiplied by the number of tiers.

[0069] In some embodiments the horizontal members 108 and 152 of the rack are inset slightly from the post 158, facilitating a structural appearance and leaving a recess to add optional tie down points.

[0070] In some embodiments the opposing horizontal load bearing members 108 forming the same tier may be placed at different elevations causing the resting forks 202 to tilt back aiding in the ideal angle for connecting the forks' 202 upper hooks 302 to the rail on the forklift. In some embodiments the opposing retention members 154 will be the same elevation. In other embodiments the opposing load bearing members 108 will be at the same elevation. In some embodiments the opposing retention members 154 will be at different elevations facilitating extra clearance while inserting the fork 202 through the slot that is formed between the load bearing member 108 and the retention member 154.

[0071] FIG. 4 is an elevational frontal-side perspective view of a forklift fork storage rack in accordance with the present invention. The rack 400 comprises a pullout tool 402, a pullout tool 402 comprising a handle 404, a fulcrum member 406, and a rod 408.

[0072] The pullout tool 402 is configured to pull the desired forks 202 out from the load bearing members 108 to a desired distance for facilitating access to the forks 202 by a forklift. The pullout tool 402 can be described best as a simple lever or pry bar that forms a fulcrum against any of the load bearing members 108 to move the forks 202 out away from the load bearing member 108. In some embodiments, the pullout tool 402 will include a rod 408 on one side for hooking the fork 202 allowing the pullout tool 402 to pull the fork 202 when used as a lever. In the present configuration the pullout tool 402 will have a rod 408 on both sides of the tool 402 allowing the tool 402 to hook two forks 202 at a time or one on each side, allowing the tool 402 to pull out two forks 402 concurrently.

[0073] In the present configuration the pullout tool 402 will have a bend or angle change near the rod 408 used to hook a fork 202, thus facilitating ergonomics during use. The rod 408 will be located at an appropriate distance between the fulcrum 406 at the far end and the handle 404. The rods 408 on the sides of the pullout tool 402 may be made of many types of shapes and sizes of materials but not limited to round, square, or rectangular bar, pipe, and rod. The pullout tool may be made of many combinations of types, shapes, and sizes of materials but not limited to only one including, bar, pipe, cast, metallic, steel, aluminum, plastics, composites, wood, and other materials. In other embodiments the pullout tool may be 3D printed out of a single material, cast or mold injection with materials known in the art to be suitable for use as a tool.

[0074] In some embodiments optional hooks to hang and store the pullout tool on the rack may be attached to the rack 300.

[0075] In the process of disconnecting the bottom of the fork 202 in preparation for inserting and removing forks 202 from the fork rack 300, all of manual work must be exerted by an operator to slide the forklift the tip of the forks 202. With this manual work, operators may become injured in their backs shoulder, arms, hands, hips, and knees.

[0076] Recognizing this step as part of the process for using the fork rack, the rack may further comprise an optional fork slide and unhook too tool for assisting in removing down pressure while sliding the rail forks left or right on the forklift rail and holding the tip of the fork up while unhooking the bottom of the fork thru the notch of the rail. When used correctly the fork slide and unhook tool eliminates the operator from manually unhooking the forks 202 and needing to manually apply lifting forces with a body to free the fork 202 from binding while sliding and unhooking.

[0077] In one embodiment the fork slide and unhook tool is constructed of steel using a pipe for the rail, and square tubes used as support members placed at or near a right angle to the rail with the rail connected atop of the support members. In another embodiment the fork slide and unhook tool is constructed of aluminum using pipe for the rail and I beam for the support members.

[0078] The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than by the foregoing description. All changes which come within the meaning and range of equivalency of the claims are to be embraced within their scope.

What is claimed is:
1. A forklift fork rack having a front, back, right side and left side comprising:
   a plurality of load bearing members extending horizontally between one or more support members, vertical posts, and cross members;
   wherein one or more forks can be rested across one or more load bearing members;
   a plurality of retention members extending horizontally between one or more support members, vertical posts and cross members, wherein each retention member is spaced above a load bearing member, wherein a slot forms between each retention member and each load bearing member, the slot for receiving one or more forks, wherein the retention members prevent lateral movement of the forks;
   a plurality of support members, each support member extending horizontally, each support member disposed perpendicularly to the load bearing members and retention members.
2. The fork rack of claim 1, further comprising a plurality of vertical posts affixed to, and rising vertically from, a lower support member.
3. The fork rack of claim 2, further comprising a plurality of horizontal cross members affixed to one or more vertical posts.
4. The fork rack of claim 3, wherein each load bearing member and each retention member span one of a front and a back.
5. The fork rack of claim 4, further comprising a plurality of tiers, wherein two load bearing members form a tier, each tier for securing a plurality of forks.
6. The fork rack of claim 5, wherein the load bearing members spanning the back of the rack are elevated above corresponding load bearing members spanning the front of the rack within the same tier.
7. The fork rack of claim 1, further comprising a plurality of feet.
8. The fork rack of claim 1, further comprising a pullout tool comprising a rod, a handle and fulcrum, the pullout tool for moving a pair of forks resting on the rack away from a load bearing member to facilitate access by a forklift.

9. The fork rack of claim 1, wherein the pullout tool is formed as one integrated piece.

10. The fork rack of claim 1, wherein the fork rack is configured to be lifted and moved by a forklift.

11. The fork rack of claim 6, wherein one or more of the load bearing members and retention members form a component, the component detachable from one or more vertical posts, support members and cross members.

12. The fork rack of claim 6, wherein the support members, vertical posts and horizontal cross members are detachable from one another.

13. The fork rack of claim 1, wherein one or more of the load bearing members, retention members, and support members comprise one or more of rods, bars, angles, square tubing, rectangular tubing, round tubing, oval tubing, channels, round pipe, plates, and I-beams.

14. The fork rack of claim 1, wherein one or more of the load bearing members, retention members, and support members comprise one or more of metal, alloy, carbon steel, cast iron, aluminum, stainless steel, carbon fiber, fiberglass, resins, elastomeric materials, composites, GFRC, wood, and concrete.

15. The fork rack of claim 6, wherein the support members each extend outwardly from the vertical posts.

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