June 9, 1942. L. F. URBAIN 2,285,632

STORAGE RACK

Filed July 27, 1939

FIG. 1.

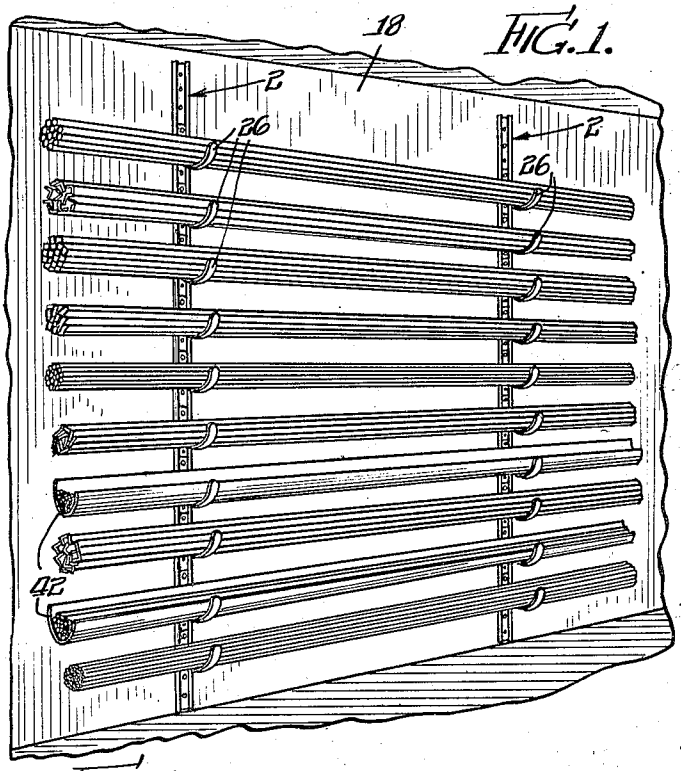


FIG. 2.

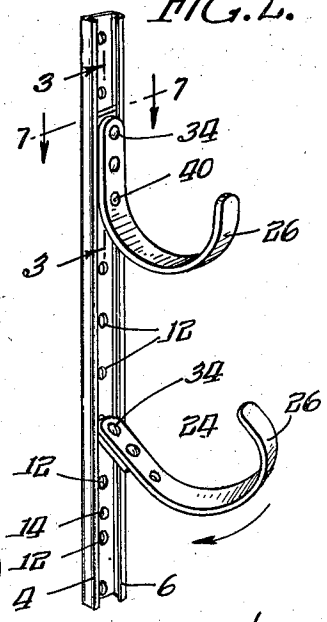


FIG. 3.

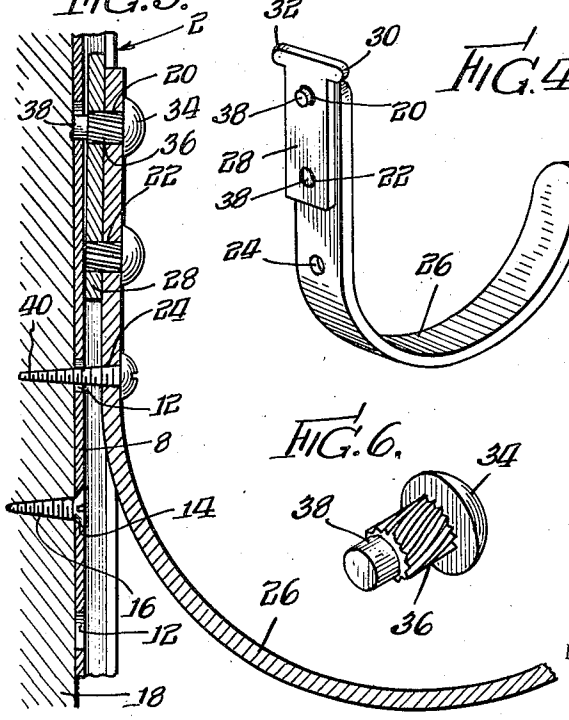


FIG. 4.

FIG. 5.

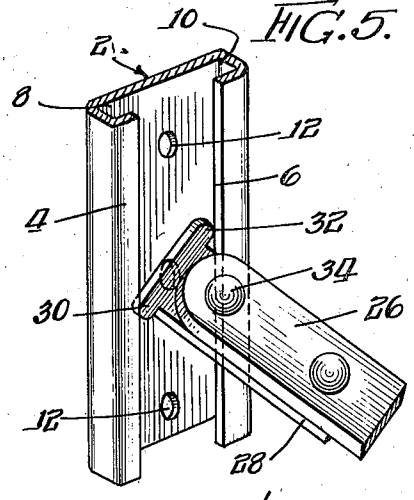
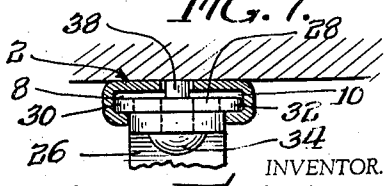


FIG. 6.

FIG. 7.



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STORAGE RACK

Leon F. Urbain, Chicago, Ill.

Application July 27, 1939, Serial No. 286,884

12 Claims. (Cl. 211—60)

This invention relates to racks for storing elongated articles including lengths of pipes, moldings, metal trimmed stock and the like.

Among the objects of the present invention are to provide a new and practical wall type rack which is strong, easily installed, adjustable for various lengths and sizes of elongated articles to be stored, simple and cheap in construction, quickly convertible to a permanent type of rack, constructed to receive halves of tubular paper shipping tubes to support flexible elongated items such as trimmed stock or strips of any flexible material.

Yet another object of the present invention is to provide an adjustable supporting rack consisting of a set of channel-shaped uprights adapted to be fastened to a vertical support and each adapted to receive one or more hook-shaped supports, the hook-shaped supports and the channel members having adjustable connections permitting the hooks quickly and adjustably to be positioned at various heights and in which positions the hooks will support heavy loads running as high as three-hundred pounds.

These and other objects of the invention will be apparent from a perusal of the following specification when taken in connection with the accompanying drawing wherein:

Fig. 1 represents a wall structure with one of my racks installed and supporting a series of elongated articles.

Fig. 2 is a perspective view of one of the channel-shaped uprights showing one of the hooks in place and another hook about to be placed in position.

Fig. 3 is a section on line 3—3 of Fig. 2.

Fig. 4 is a perspective view of one of the hook members.

Fig. 5 is an enlarged view showing the manner of inserting the hook within the channel member.

Fig. 6 is a perspective view of one of the combined rivets and locking members or studs, which not only holds the hook integrally with its support, but also provides an engageable locking member or stud adapted adjustably to hold the hook in position to the channeled upright.

Fig. 7 is a section on line 7—7 of Fig. 2.

Referring now to the drawing in detail, the new storage rack comprises sets of vertical channel-shaped uprights, each set consisting of two or more of such uprights depending upon the length of the elongated articles to be supported. Generally the sets consist of two or three uprights. These uprights are adapted to be fixed by screws or the like to a wall or other vertical support, whereby the uprights are securely held thereto in vertical spaced apart relation. Each upright comprises a desired vertical length of a channel-shaped member 2 composed preferably of metal, the sides 4 and 6 of which are bent inwardly in confronting spaced apart relation as shown clearly in Fig. 5, whereby to provide elongated, parallel, spaced apart, overhanging flange portions forming channels 8 and 10. The vertical members are preferably made in six or eight foot lengths, but may be shorter or longer if desired. Each channel-shaped member is provided intermediate the length of the vertical or main body portion 2 thereof with a series of spaced apart holes 12, which holes are preferably punched every two inches along the length of the central portion 2 of the channel-shaped members. These holes are for the purpose of adjustably receiving a cooperative locking member carried by the hooks hereinafter to be described. In addition to the holes or openings 12, each channel-shaped member is also provided with a plurality of holes 14 which are punched intermediate certain of the holes 12 and are adapted to receive screws 16 for fastening the channel-shaped members to the vertical wall 18 or other vertical supporting member. These additional holes 14 are preferably placed at desired points along the length of the channel-shaped members so that it may be secured firmly at the top, bottom and intermediate portions to the vertical wall 18. Fig. 1 shows two of the vertical uprights so secured vertically to a wall portion.

A set of hooks or supports having substantially semicircular object supporting portion is provided, each hook preferably being formed of heavy metal bent preferably in the shape shown in Fig. 4. The upper end of each metallic strip is provided with preferably three apertures, 20, 22 and 24. The two upper apertures 20 and 22 are for the purpose of receiving fastening means therethrough, such as the rivet for permanently fastening the cradle-shaped piece 26 to a cooperative locking member 28, which is of preferably thinner metal to facilitate manufacture, and which locking member is provided at its top with oppositely extending lugs 30 and 32 adapted and shaped to engage under the overhanging flanges 4 and 6 of the vertical, channel-shaped members, whereby to hold the cradle- or hook-shaped member 26 from disengagement with the channel-shaped upright. The fastening means for fastening the members 26 and 28 together are preferably shown in Fig. 6 and comprise a rivet having a head portion 34, a metal

biting portion 36 and a round land or stud 38. Rivets of this type per se are old in the art and the land portion 38 has heretofore been utilized or been peened over whereby to hold a work piece in place after the metal cutting portion 36 has cut its way into and through two registering holes. In the present instance in the utilization of the lower rivet of this type, the land portion 38 is preferably removed by grinding whereby to make the outer end thereof flush with the face of the piece 28. However, with regard to the upper rivet of this type, it has been found that the metal biting portion 36 is effective securely to hold with the aid of the lower rivet, the two pieces 28 and 26 firmly and integrally together, the round land or stud 38 projecting freely through the end and forming a cooperative locking member adapted to engage any one of the succession of holes 12 in the upright channel portions. This makes a very simple and cheap way of firmly and integrally uniting the hook-shaped member 26 and its locking portion 28 while at the same time utilizing the end 38 of one of the rivets as a cooperative lock for engagement with the channel member.

It will be understood that in adjustably assembling a series of hooks in position on or to the channel member, each hook is turned laterally for insertion as shown in Fig. 5, the opposed lugs 30 and 32 being inserted under the overhanging flanges 36. The hook member is then straightened out to align with the channel member, at which time the locking lug 38 will engage any one of the series of holes 12. In this position the two locking lugs 30 and 32 hold each hook in position while the lug 38 holds the hook in vertically adjusted position so that the hook can neither move laterally nor move vertically. It will be noted that by reason of the present construction, any weight placed on the hook is carried directly in a shearing manner by the pin 38 in the hole, thereby providing maximum strength. The hook-shaped portion 26 is made of very rugged metal and experience has shown that a rack of this type will support a load up to three hundred pounds.

In some instances it may be desirable after trial use to provide means for permanently fastening a pair of hooks in any particular pair of holes. To this end, the third aperture 24 in each hook is formed exactly two inches from the aperture 20 to correspond with the two inch distance between adjacent locking holes 12 of the channel-shaped uprights. In this construction the holes 24 are adapted to receive permanent screws 40 for permanently mounting the hooks in desired adjusted position.

In the utilization of the rack for holding flexible elongated articles the portions of which between hooks are adapted to sag, a novel adaptation may be used. Metal moldings are generally mailed in heavy cardboard elongated cylinders such as five-inch press paper shipping tubes. These tubes may be utilized in connection with the improved rack for holding these flexible articles. In so doing each tube is sawed or cut through at diametrical points to provide elongated trough-shaped members 42 which are placed on the racks, and these trough-shaped members are then utilized for holding therein any quantity of flexible elongated members so as to prevent the flexible members from sagging between their hooked supports.

It is to be noted that the width of the metal strip 28 is such as to fit in the channel between the flanges 4 and 6 whereby to assist in preventing lateral movement of the holding member relative to the vertical upright.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is as follows:

1. A wall type rack comprising two or more channel-shaped uprights having means for fastening the same to a substantially vertical support and in spaced apart relation thereon, each channel-shaped member having opposed, parallel locking flanges and also having a series of holes formed longitudinally and centrally in the wall intermediate the locking flanges for adjustment purposes and also one or more hooks having means adapted in an angular position of the hook with respect to the channel-shaped member to be inserted under the lateral flanges of the channel-shaped portion of the upright and upon turning to lock under said locking flanges, each hook having a rearwardly extending lug fixed to the hook adapted to engage in any of the series of holes in the channel-shaped portion whereby to prevent vertical displacement of the hook thereon, said insertable means being constructed and arranged to permit the hook to swing forwardly from said upright whereby the lug may engage and disengage one of said holes.

2. In a rack construction the combination of a set of vertical uprights each having opposed and confronting longitudinal flanges bent forwardly and inwardly to provide spaced apart, parallel locking flanges, the rear wall of each upright having a plurality of spaced apart holes extending longitudinally of the upright, a substantially hook- or cradle-shaped member having its upper end provided with a pair of holes, a locking piece having a pair of opposed lugs at its top, and having holes registering with the holes of the hook-shaped member, fastening means passing through said holes to hold said members together, one of said means having its end extending beyond the surface of the locking piece to engage in the holes in the channel-shaped member when the opposed lugs of the locking piece underlie the flanges of the channel-shaped member.

3. In a device of the class described, the combination of a plurality of channel-shaped uprights having means for securing the same in spaced apart relation on the vertical wall support, said channel-shaped uprights having parallel spaced apart confronting flanges to provide a locking channel coextensive with the length of the upright and said channel members having intermediate said flanges a series of spaced apart holes extending longitudinally of the upright, a set of load supports for each upright comprising a metallic strip bent to receive thereacross an elongated object such as pipes, strips and the like, the upper portion of said load supporting member having a plurality of holes spaced apart therealong, a cooperative locking member comprising a metallic strip having laterally extending opposed lugs at its top and having holes registering with the plurality of holes in said load supporting member and rivets passing through said registering holes, each rivet having a head and having a helically formed metallic cutting portion of slightly larger diameter than the registering holes whereby to cause said rivet bitingly to engage the marginal metal of the registering holes, one of said rivets having its end aligned flush with the rear face of the lock member and the other of said rivets having a projecting end ex-

tending beyond the rear face of the locking member of a size sufficient to engage any of the holes in the channel-shaped member.

4. In a device of the class described, the combination of a plurality of channel-shaped uprights having means for securing the same in spaced apart relation on the vertical wall support, said channel-shaped uprights having parallel spaced apart confronting flanges to provide a locking channel coextensive with the length of the upright and said channel members having intermediate said flanges a series of spaced apart holes extending longitudinally of the upright, a set of load supports for each upright comprising a metallic strip bent to receive thereacross an elongated object such as pipes, strips and the like, the upper portion of said load supporting member having a plurality of holes spaced apart therealong, a cooperative locking member comprising a metallic strip having laterally extending opposed lugs at its top and having holes registering with the plurality of holes in said load supporting member and rivets passing through said registering holes, each rivet having a head and having a helically formed metallic cutting portion of slightly larger diameter than the registering holes whereby to cause said rivet bitingly to engage the marginal metal of the registering holes, one of said rivets having its end aligned flush with the rear face of the lock member and the other of said rivets having a projecting end extending beyond the rear face of the locking member of a size sufficient to engage any of the holes in the channel-shaped member, said load supporting member having an additional hole therein below said first mentioned holes, the distance between the center of said third hole and the hole through which the rivet having the projecting end passes being equal to the distance between two of the spaced apart holes on the channel-shaped member whereby when said hook is adjustably fastened in position an additional screw may be passed through said third hole of the load supporting member and through the next adjacent hole of the channel-shaped strip whereby permanently to fasten said load supporting member to said channel-shaped strip.

5. A load supporting member for a wall rack comprising a relatively thick metallic strip bent to cradle-shaped formation, the upper end of the strip having spaced apart holes therein, a short metallic strip having registering holes and carrying in its top oppositely extending lugs lying in the plane of said second mentioned strip and means connecting said strips, said means passing through the registering openings of said strips, one of said means extending beyond the united strips to provide a projecting lug, the end of the other means terminating flush with the second or short face of the strip.

6. A wall rack comprising a channel-shaped strip having parallel overhanging flanges to form opposed underlying shoulders, said strip having in its rear wall a series of spaced apart holes, a metallic strip of a width about equal to the width of the space between said opposed overlying flanges, said strip being formed to provide a trough-shaped work receiving support, a short metallic strip of a width slightly less than the width of the space between said overhanging flanges fastened to the top of said first-mentioned metallic strip by fastening means, the top of said short strip being arranged to provide opposed shoulders lying in the plane of the strip, said shoulders being constructed and arranged to be inserted under the confronting flanges of the upright strip to underlie said shoulders and whereby said short strip will lie within the channel of the upright when the strip is angularly shifted into parallel relation to the upright, one of said fastening means having its end projecting beyond the rear face of said short strip to provide a locking lug to engage within any one of the holes formed in the vertical upright whereby to provide a shear bearing load for the load supporting member and whereby to hold the load supporting member in vertical adjusting position.

7. A hook adapted to be used in a wall type rack which comprises a channel shaped upright having opposed, parallel locking flanges and having a series of holes formed longitudinally and centrally of the wall intermediate the locking flanges, said hook having laterally projecting means adapted in an angular position of the hook with respect to the longitudinal axis of the channel-shaped member to be inserted under the lateral flanges of the channel-shaped portion of the upright and upon turning to lock under said flanges, and said hook also having a rearwardly extending lug fixedly attached thereto adapted to engage in any of a series of holes in the channel-shaped portion whereby to prevent vertical displacement of the hook thereon, said laterally projecting means being constructed and arranged to permit the hook to swing forwardly from the upright whereby the lug may engage and disengage one of said holes.

8. A load support adapted to be used in a rack which includes a plurality of channel-shaped uprights having opposed, parallel locking flanges and being provided in the wall intermediate said locking flanges with a series of centrally-located holes extending longitudinally of said channel-shaped members, said load support comprising a metallic strip bent to receive thereacross elongated objects such as pipes, strips and the like, the upper portion of said strip having a plurality of holes spaced apart therealong, a locking member comprising a metallic strip having laterally-extending, opposed lugs at its top and having spaced holes registering with the plurality of holes in said strip, and rivets passing through said registering holes, each rivet having a head and having a helically formed, metallic cutting portion of slightly larger diameter than the registering holes whereby to cause said rivet bitingly to engage the marginal metal of the registering holes, one of said rivets having its end aligned flush with the rear face of the locking member and the other of said rivets having a projecting end extending beyond the rear face of the locking member and being of a size sufficient to engage any of the holes in the channel-shaped member.

9. A load support adapted to be used in a rack which includes a plurality of channel-shaped uprights having opposed, parallel locking flanges and being provided in the wall intermediate said locking flanges with a series of centrally-located holes extending longitudinally of said channel-shaped members, said load support comprising a metallic strip bent to receive thereacross elongated objects such as pipes, strips and the like, the upper portion of said strip having a plurality of holes spaced apart therealong, a locking member comprising a metallic strip having laterally-extending, opposed lugs at its top and having spaced holes registering with the plurality of holes in said strip, and rivets passing through

said registering holes, each rivet having a head and having a helically formed, metallic cutting portion of slightly larger diameter than the registering holes whereby to cause said rivet bitingly to engage the marginal metal of the registering holes, one of said rivets having its end aligned flush with the rear face of the locking member and the other of said rivets having a projecting end extending beyond the rear face of the locking member and being of a size sufficient to engage any of the holes in the channel-shaped member, said load supporting member having an additional hole therein below said first-mentioned holes, the distance between the center of said third hole and the hole through which the rivet having the projecting end passes being equal to the distance between two of the spaced-apart holes on the channel-shaped member whereby when said load supporting member is adjustably fastened in position an additional screw may be passed through said third hole of the load supporting member and through the next adjacent hole of the channel-shaped upright whereby permanently to fasten said load supporting member to said channel-shaped upright.

10. In a device of the class described, the combination of a plurality of uprights arranged in vertical, spaced-apart relation and comprising channel-shaped portions, each having opposed, parallel locking flanges, and each having in the wall intermediate the locking flanges a series of centrally-located holes extending longitudinally thereof for adjustment purposes, and a plurality of hooks having oppositely extending means adapted in an angular position of the hook with respect to the longitudinal axis of the channel-shaped member to be inserted under the locking flanges of the upright and upon turning to lock under said flanges, each hook having a rearwardly extending lug fixedly attached to said hook adapted to engage in any of said series of holes in the wall opposite the locking flanges whereby to prevent vertical displacement of the hook on the upright, said oppositely extending means being constructed and arranged to permit the hook to swing forwardly from the upright whereby the lug may engage and disengage one of said holes.

11. A load supporting member for a wall rack comprising a relatively thick, metallic strip bent to cradle-shaped formation, said strip at its top having a portion of greater thickness having oppositely extending lugs lying in the plane of said portion, and another lug rigidly secured to said load supporting member on the face of said lug-bearing portion opposite to that in contact with said strip, said last-named lug extending in a direction perpendicular to the plane of said lug-bearing portion.

12. A wall rack construction including in combination a plurality of channel-shaped, upright portions having parallel, confronting flanges forming underlying locking shoulders and also having a plurality of longitudinally spaced-apart openings centrally located in the wall of said channel-shaped portion intermediate to said confronting flanges, and a plurality of load supporting members, each comprising a relatively thick, metallic strip bent to cradle-shaped formation, a portion of about the same thickness secured thereto and having at its top oppositely extending lugs lying in the plane of said portion, and another lug rigidly secured to said load supporting member on the face of said lug-bearing portion opposite to that in contact with said strip, said last-named lug extending in the direction perpendicular to the plane of said lug-bearing portion and being adapted to be received in said series of openings.

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