

WALL-HUNG SUPPORT RAILS

This invention relates to wall-hung support rails.

In modern manufacturing processes, particularly those employed in the electronics industry, there is a need for a facility to handle large numbers of comparatively small electronic parts such as printed circuit boards and the like. During these manufacturing processes, there is a need to store parts and subassemblies at various stages of the process. For example, the parts and subassemblies need to be stored in large storage areas in large numbers and to have the ability to be moved in large quantities by industrial fork trucks and the like. These parts in similar numbers also need to be moved from storage areas to work areas by handcarts and the like and to be stored at work areas under work surfaces or on vertical wall surfaces for access by manufacturing personnel.

The present invention consists in a support rail for use in connection with a panel or similar vertical support member having spaced vertical slotted standards thereon, said support rail comprising: a pair of vertically spaced rail means, a first L-shaped bracket secured to each end of said pair of rail means, each first bracket being of elongate construction with two flanges, one flange being perpendicular to the axes of the rails and having the respective ends of the rails secured thereto, and a second L-shaped bracket secured to each end of said first L-shaped brackets, said second L-shaped brackets each having two flanges one of which is secured to the other flange of each first bracket and the other of which includes a plurality of hook-shaped connectors on one edge thereof constructed and arranged to co-act with a slotted standard to connect said support rail to a vertical surface.

In order that the invention can be clearly understood, a convenient embodiment thereof will now be

described, by way of example, with reference to the accompanying drawings in which:

Fig. 1 is a partial exploded view of a vertical wall panel, a wall-hung support rail and a material handling tote;

Fig. 2 is a front plan view of the wall-hung support rail of Fig. 1;

Fig. 3 is a top plan view thereof;

Fig. 4 is a side elevation view thereof;

Fig. 5 is a side elevation view similar to Fig. 4 illustrating a large material handling tote thereon; and

Fig. 6 is a side elevation view similar to Fig. 4 illustrating a pair of smaller material handling totes mounted thereon.

Referring now in detail to the drawing wherein like reference characters represent like parts throughout the several views, there is illustrated in Fig. 1 a vertical wall panel 10 of the type employed in known space dividing wall panel systems. The wall panel 10 has a slotted standard at each end thereof with the slotted standards being spaced a predetermined distance one from the other. It should be understood that the present invention can be employed with such a modular space dividing wall panel system or alternatively can be mounted to vertically oriented slotted standards fixed in a predetermined lateral spaced relationship directly on the vertical surface of a permanent wall or the like. Referring further to Fig. 1, there is illustrated a wall-hung support rail generally designated 14 and a material handling tote, generally designated 16. The wall-hung support rail 14 includes, as best illustrated in Figs. 2-4, a pair of spaced horizontal rails 18 which are mounted at their ends, preferably by welding, to a first pair of L-shaped brackets 20 and 22. The L-shaped bracket 20 is welded to a second L-shaped bracket 24 in such a manner that the bottom leg 26 of the second L-shaped bracket 24 forms an extension of the leg of the L-shaped bracket 20 to which the support rails 18

are mounted. At the other end of the wall-hung support rail 14 is another L-shaped bracket 28 which is similar to the L-shaped bracket 24 with the exception that it is provided with apertures therethrough in order that it may be bolted as by, for example bolts 30 and nuts 32 to the L-shaped bracket 22 at the other end of the support rails 18. The rearwardly extending leg 34 of the L-shaped bracket 24 and the rearwardly extending leg 34 of the L-shaped bracket 28 are each provided with a series of hook-shaped connectors 36. The hook shaped connectors 36 of the L-shaped brackets 24 and 28 are constructed to be received within slots 38 of a conventional slotted standard 12 in order to mount the the wall-hung support rail of this invention to a vertical wall surface.

As best illustrated in Fig. 6, the support rails 18 are preferably tubular steel support rails and include a flat back portion 40 and a front portion that is parallel with the back portion for substantially its lower half and tapered toward the back portion 40 for the remaining upper half 44 of the front portion of the tubular steel rail 18. The particular shape of the support rails 18 is important to accommodate material handling totes constructed as illustrated in Fig. 5, the rails being adapted to support the tote 16 in a cantilevered fashion from either a side flange 46 or an end flange 48 with lower support for a larger tote 16 being provided by the lower of the two vertically spaced, parallel support rails 18. The predetermined distance between the support rails 18 should be at least about 1 1/2 inches in order that several smaller material handling totes can be hung from a single support rail in a cantilevered fashion as illustrated in Fig. 6. As will be apparent, with sufficient space being provided between the pair of parallel support rails a similar tote 16 can be cantilevered from a single rail with the lower flat portion 42 of the rail upon which the smaller tote is hung providing the cantilevered lower support.

Having the L-shaped brackets 20 and 24 welded together to form a solid bracket while the L-shaped brackets 22 and 28 are bolted together with, for example bolts 30 permits slight play in the space between the leg 34 of bracket 28 and the leg 26 of bracket 24 in order to compensate for slight variations in the spacing of the slotted standards on a vertical surface. This slight adjustability is provided in connection with limited assembly requirements and therefore quicker and easier mounting than if both of the brackets at the ends of the support rails 18 were bolted together.

As will be apparent from the foregoing a simple and effective wall hung support rail has been provided by the present invention to facilitate the storing of small electronic parts at a particular work station in material handling totes. Through the hook-shaped connectors 36 and the adjustability provided through the association of L-shaped bracket 28 and L-shaped bracket 32 the wall-mounted support rail can be quickly and easily mounted to a vertical surface adjacent a work station to provide access to the parts required in a manufacturing process.



CLAIMS:

1. A support rail for use in connection with a panel or similar vertical support member having spaced vertical slotted standards thereon, said support rail comprising: a pair of vertically spaced rail means, a first L-shaped bracket secured to each end of said pair of rail means, each first bracket being of elongate construction with two flanges, one flange being perpendicular to the axes of the rails and having the respective ends of the rails secured thereto, and a second L-shaped bracket secured to each end of said first L-shaped brackets, said second L-shaped brackets each having two flanges one of which is secured to the other flange of each first bracket and the other of which includes a plurality of hook-shaped connectors on one edge thereof constructed and arranged to co-act with a slotted standard to connect said support rail to a vertical surface.

2. A support rail according to claim 1, wherein the pair of vertically spaced rail means are welded to the first L-shaped brackets in a predetermined spaced relationship.

3. A support rail according to claim 1 or 2, wherein one of the first L-shaped brackets is welded to one of the second L-shaped brackets and the other of the first L-shaped brackets is bolted to the other of the second L-shaped brackets whereby the spaced relationship of the second L-shaped brackets may be varied.

4. A support rail according to claim 1, 2 or 3, wherein the support rails are tubular and include a flat back portion and a front portion parallel with said back portion for its lower half and tapered toward said back portion for its upper half.

5. A support rail as claimed in claim 1, wherein at each end of the support rail the said one flange of the first bracket and the said other flange of the second bracket are disposed in substantially the same plane.

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6. A support rail according to claim 5 when dependent upon claim 2, wherein the pair of spaced parallel rail means are welded at their ends to the said first flanges of the first L-shaped brackets.

5 7. Wall-hung support rails substantially as described herein with particular reference to the accompanying drawings.
