Feb. 3, 1970 J. D. MARRAN 3,493,201

UNIVERSAL SUPPORT BASE FOR PUMPS COMPRESSORS OR THE LIKE

Filed March 15, 1967

FIG. 1

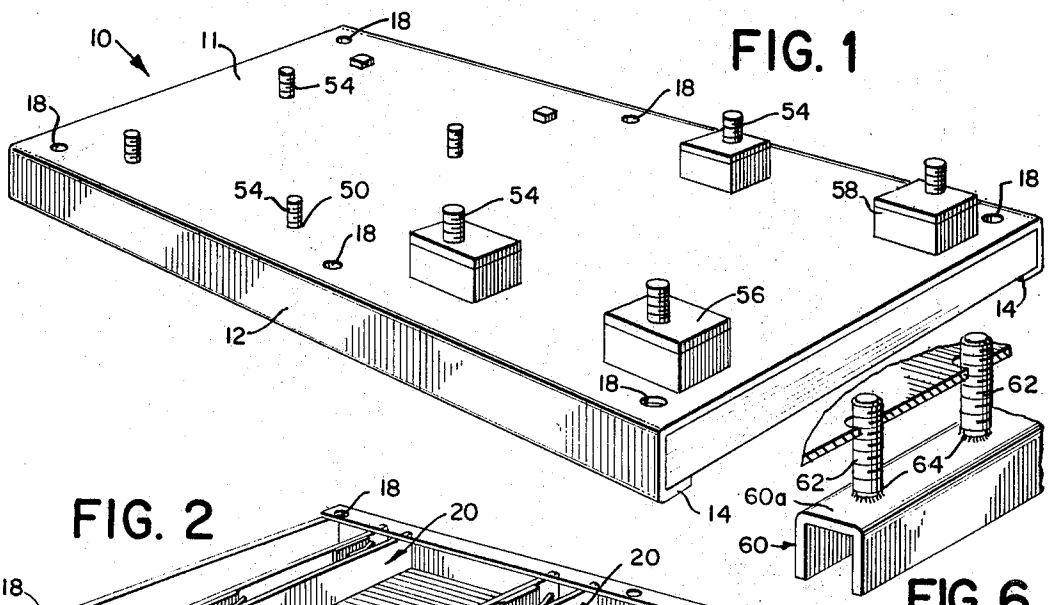

FIG. 6

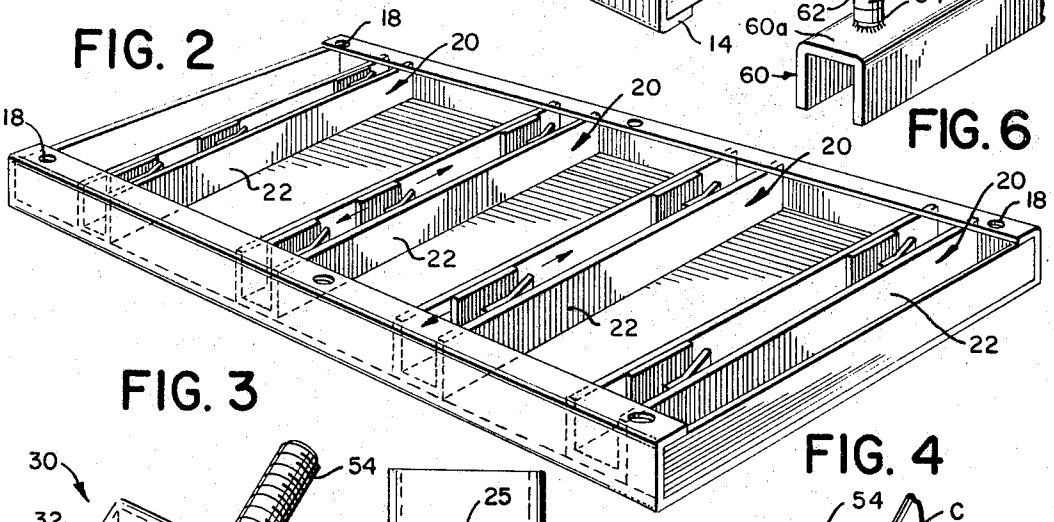

FIG. 2

FIG. 3

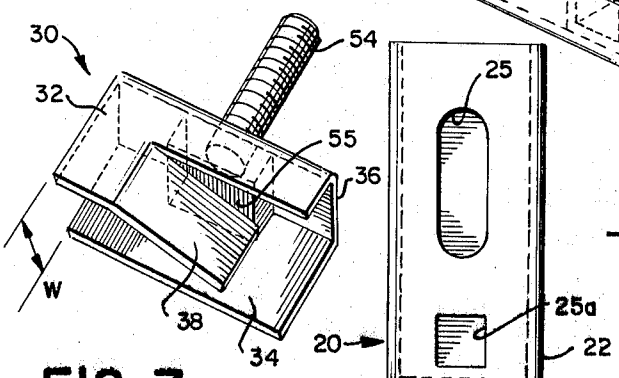

FIG. 7

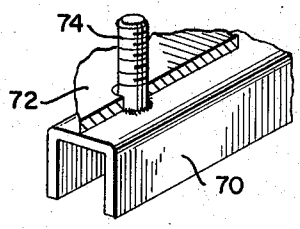

FIG. 4

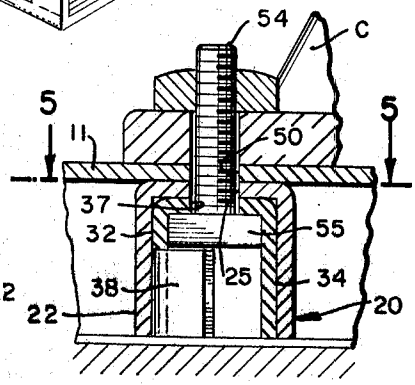

FIG. 5

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UNIVERSAL SUPPORT BASE FOR PUMPS, COMPRESSORS OR THE LIKE

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5 Claims

ABSTRACT OF THE DISCLOSURE

A base member is provided having a flat supporting surface and two opposed longitudinal channel members integral with the underside thereof. At least two elongated, transverse channels having a plurality of elongated, bolt receiving slots are provided with their ends slideably disposed in the inwardly facing longitudinal channels. Bolt retainers are adjustably located within transverse channels. Prior to final assembly the base is drilled in accordance with the mounting dimension of the article to be supported. The bolt retainers also serve to prevent rotational and longitudinal movement of the bolts.

DESCRIPTION OF THE PRIOR ART

Prior art support bases have in the past been custom fabricated to suit the requirements of each unit that is mounted thereon. Normally extra material thickness and stiffeners were used to provide the desired rigidity characteristics at the support points. Accordingly a different base was needed for each type of equipment and each different load. It will be appreciated then that the prior art presents a problem with the stock piling and inventory of the support bases since there is a large variety of equipment that requires this type of mounting.

SUMMARY OF THE INVENTION

It is an object of this invention to provide a standardized support base which is suitable for use with any one of many different size pieces of equipment that have different weight distribution characteristics.

It is another object of this invention to provide a standardized support base having moveable stiffening means integral therewith.

A different object is to provide a standardized support base having permanently located stiffening members extending in a first direction and moveable stiffening member extending in a second perpendicular direction.

A further object of this invention is to provide bolt retaining means for use in combination with the moveable stiffening members.

With these objects in view, the present invention provides a support base that is universally adaptable to a wide range of equipment such as compressors, pumps or the like. A flat, relatively thin plate of a rigid metal is provided with two elongated, longitudinal channel members depending from the underside thereof along opposed side edges. The longitudinal channel members face inwardly and receive the opposed ends of downwardly facing transverse channels. As will be brought out more fully hereinafter, the ends of the transverse channels are moveable within the longitudinal channel members. Positioned within the transverse channels are a plurality of apertured

pendicular to the movement of the transverse channels. At assembly the transverse channels are suitably positioned and spaced from each other in accordance with one mounting hole coordinate of the equipment to be supported. The bolt retainers in each transverse channel are then moved so that they are spaced in accordance with another mounting hole coordinate of the equipment. The mounting surface which was pre-drilled in accordance with the structure to be supported now has the apertures thereof in registry with elongated slots in the transverse channels and with the aperture in each bolt retainer in order to receive the mounting fasteners. Thus, a given size support plate may be used for a wide range of equipment each piece of which could have different mounting dimensions. The structure of this invention is adapted to provide support at the precise location that it is needed.

BRIEF DESCRIPTION OF THE DRAWING

The present invention will be more clearly understood from the following description of a specific embodiment thereof together with the accompanying drawings.

FIG. 1 is a perspective view of an assembled support base in condition to receive the equipment.

FIG. 2 is a bottom perspective view of the support base shown in FIG. 1;

FIG. 3 is a perspective view of the bolt retaining means;

FIG. 4 is a sectional elevational view taken through a typical transverse channel and bolt retaining assembly;

FIG. 5 is a sectional plan view taken along line **5—5** of FIG. 4;

FIGS. 6 and 7 are pictorial views of alternative constructions.

Referring now to FIG. 1 and FIG. 2, the support base is designated generally by the reference character **10**, and it is seen to comprise a plate having a substantially flat top surface **11**. The geometry of the plate is determined by the piece of equipment that is to be mounted thereon. Two opposed edges of the plate are bent downwardly such as at **12** and are then bent inwardly as shown at **14** in order to define opposed inwardly directed channel means **16** that provide longitudinal stiffening. At each corner of the support base a hole **18** is formed through the top surface and through the flanges so that the support base may ultimately be mounted on an existing foundation.

For transverse stiffening of the mounting surface **11**, channel members **20** are provided in the form of elongated U-shaped members having sidewalls **22** and a transverse web **24**. In the assembled condition the ends of each channel **20** are slidably disposed in the opposed longitudinal channel members **16**. A plurality of elongated slots **25** and **25***a* to be discussed later are provided in web **24** as shown in FIG. 5. When the equipment is assembled to the support base, the longitudinal channel members in combination with the transverse channel members provide regidizing means for the support surface.

A typical bolt retaining member is shown in FIG. 3. Each bolt retaining member **30** is seen to comprise a short channel having sidewalls **32** and **34** that are connected by a transverse web **36** that includes an aperture **37**. A portion of wall **32** is slotted from one end of the channel in order to define a deformable tab **38**. As shown particularly in FIG. 2 and FIG. 4, the width dimension W of the bolt retaining member is substantially the same as the inside spacing of the transverse channel member sidewalls. This arrangement provides for slidin

Referring now to FIG. 4 and FIG. 5, the present invention is shown in sectional elevation with a fragmentary portion of a piece of equipment such as a compressor C mounted in place. Once the four mounting points of the equipment are determined surface **11** of the support base is appropriately drilled as indicated by reference character **50** (FIG. 5). The two inverted channel members **20** are moved so that slots **25** of each individual channel member are registered directly under the mounting points of the equipment. The bolt retaining members **30** are then moved into place such that aperture **37** in the transverse web **36** thereof is also in registry with the holes in the mounting surface and the channel members. Bolts **54** are set into place such that the threaded shank thereof traverses aperture **37**, the registered holes **50** and slots **25** with the head of the bolt disposed between the side walls of the retaining member. It will be seen that the bolt head **55** has opposed flats dimensioned to closely fit between the sidewalls of the retaining member so that the bolt cannot turn. The tab **38** formed in one of the sidewalls of the retaining member is then inwardly deformed in the direction of the other sidewall so that the bent portion occupies a position directly beneath the bolt head and thereby prevents the bolt from dropping down.

Referring once again to FIG. 1, it will be seen that two sets of four retaining bolts extend upwardly from the support plate. The set of retaining bolts on the right-hand side of the plate have shim members **56** and pads **58** positioned thereon. This construction is used when the load to be supported on the base requires a critical height control. It is to be noted that the shims can be dimensioned to very close tolerances so that the precise height of the equipment can accurately be determined.

It should be understood that the invention is not limited to the size and pattern of slot distribution shown in the transverse channels of FIG. 5. For example all of the slots could be square as indicated by reference character **25***a* or they could all be elongated as shown at **25**. The particuar hole pattern shown in FIG. 5 is for purposes of illustration only. The important consideration is that there be sufficient apertures in the transverse channel members so that regardless of the placement of the holes in the mounting surface they, the mounting plate holes, will always register with two apertures of each transverse channel.

Several other methods of assembly are possible with the structure of this invention. Once the mounting points for the structure to be supported are known the properly positioned transverse channels, together with the mounting plate could be drilled together, as a unit. Alternatively, preslotted transverse channels, such as described in connection with the first embodiment could be properly positioned in accordance with the required mounting coordinate and then the load supporting surface drilled for both mounting coordinates.

In some instances, secondary holes other than those required to secure the equipment would be formed in the top surface of the support base. The secondary holes would be utilized when the load is to be located near the center of the base and some distance away from the longitudinal channels. Secondary bolts would pass through the top surface of the support base and secure the ends of the transverse channels to the longitudinal channels.

FIGS. 6 and 7 pictorially illustrate two additional embodiments of this invention. The construction shown in particular in FIG. 6 includes a transversely disposed stiffening member in the form of a U-shaped, inverted channel **60**. A plurality of upwardly extending, threaded studs **62** are welded or otherwise rigidly secured to the web **60***a* of the channel member and each stud is proportioned above, then the weld should not be larger than the stud diameter which is reduced at that point.

The embodiment of FIG. 7 is substantially the same as FIG. 6 except that stiffening member **70** is welded to the underside of plate **72** at the same time that threaded studs **74** are welded to the web of the stiffening member. It will be noted that in both of the last two mentioned embodiments the holes in the plate **72** are somewhat larger than the stud diameter in order to permit some adjustability of the transverse stiffening channel with respect to the support plate for the equipment.

It will be evident from the foregoing that the present invention provides a standard base which can be utilized to support loads of various sizes and of various weight distribution. The rigidity requirements of the supporting base are provided by the transverse U-shaped channels that are slideably disposed beneath the support surface and which extend across the entire base as well as by the longitudinal channels at the side edges of the base. The moveable channels provide means for accommodating the mounting points of the equipment in one coordinate direction while the bolt retainers, which are moveable within the channels, provide means for acommodating the mounting points in the other coordinate direction.

What is claimed is:

1. A support member having a compressor or the like secured thereto comprising; a plate member, a first elongated stiffening means on said plate member being a downwardly and inwardly turned edge portion of said plate member, a second elongated stiffening means being an inverted U-shaped channel having a pair of spaced legs interconnected by a bight portion, said bight portion engaging and supporting the underside of said plate member, said second stiffening means being positioned substantially transverse to said first stiffening means, fastener means extending through said bight portion of the second stiffening means and said plate member, and fastener retaining means in the form of a U-shaped member with one leg thereof being slotted and bent inwardly at an angle to said opposed leg, said fastener retaining means being located between the legs of said U-shaped channel thereby preventing the fastener means from falling out of said channel.

2. A support member as claimed in claim **1**, wherein said one leg is slotted in a direction parallel to the length of said fastener retaining means.

3. A support member as claimed in claim **1**, wherein said fastener retaining means interfits in said U-shaped channel with sliding frictional engagement with the inner surfaces of the legs of said U-shaped channel whereby said fastener retaining means may be slidable along the length of said channel and selectively located therein.

4. A support member having a compressor or the like secured thereto comprising; a plate member, a first elongated stiffening means on said plate member being a downwardly and inwardly turned edge position of said plate member, a second elongated stiffening means being an inverted U-shaped channel having a pair of spaced legs interconnected by a bight portion, said bight portion engaging and supporting the underside of said plate member, said second stiffening means being positioned substantially transverse to said first stiffening means, fastener means extending though said bight portion of the second stiffening means and said plate member, said fastener means being a stud rigidly connected to the bight portion of said second stiffening means, said stud being reduced in diameter in the part thereof adjacent to the point of connection between said stud and the bight portion of said stiffening means, the opening in said plate member for said fastener means having a predetermined clearance between the former and the latter, a weld bead in the space formed by said clearance integrally joining said plate member and second stiffening means whereby said

5. The apparatus in accordance with claim 4, wherein said bight of the second stiffening member is welded to the underside of said plate member.

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