

June 28, 1960

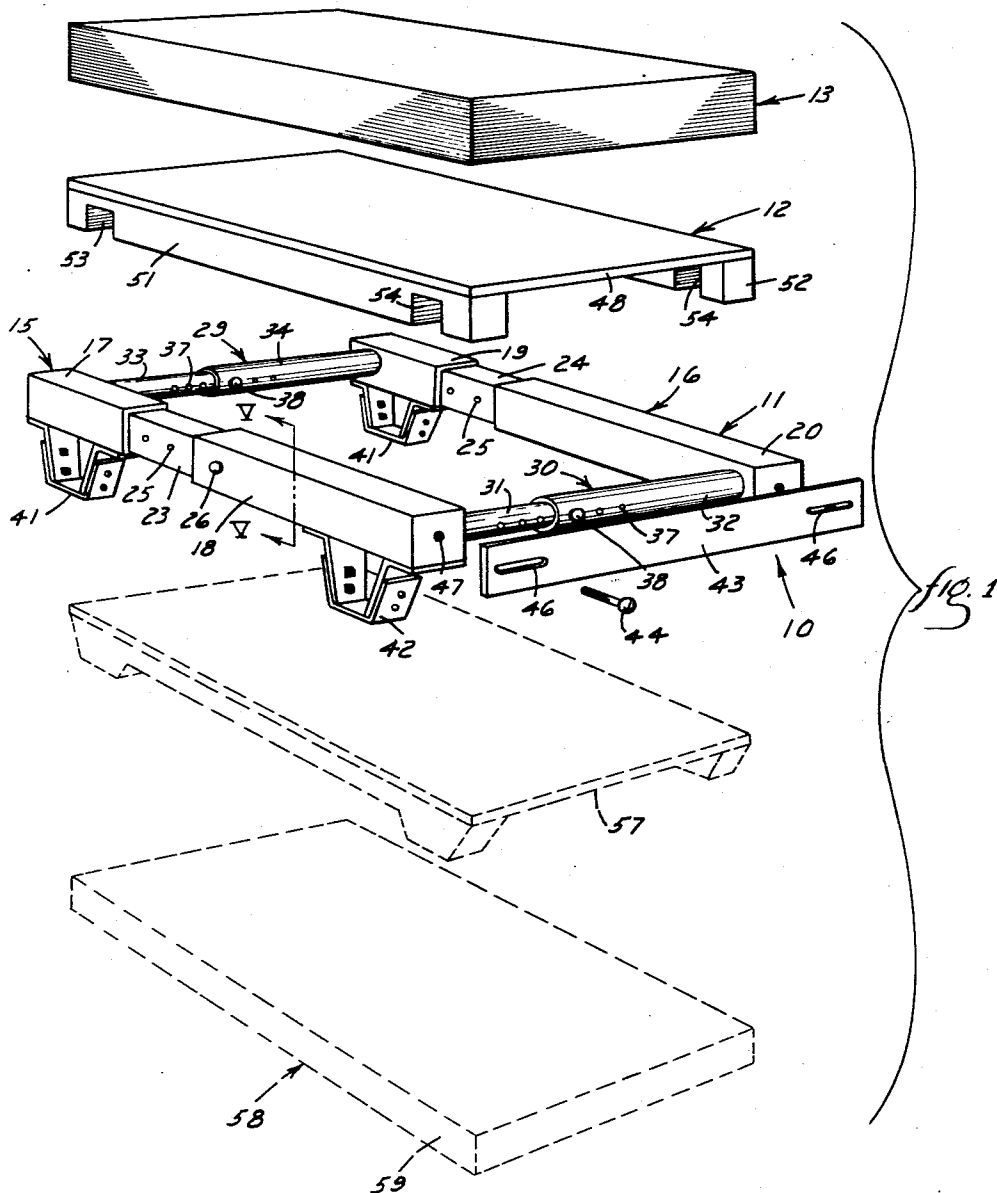
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2,942,827

SKID STRUCTURE FOR SUPPORTING MATERIALS

Filed April 18, 1958

2 Sheets-Sheet 1



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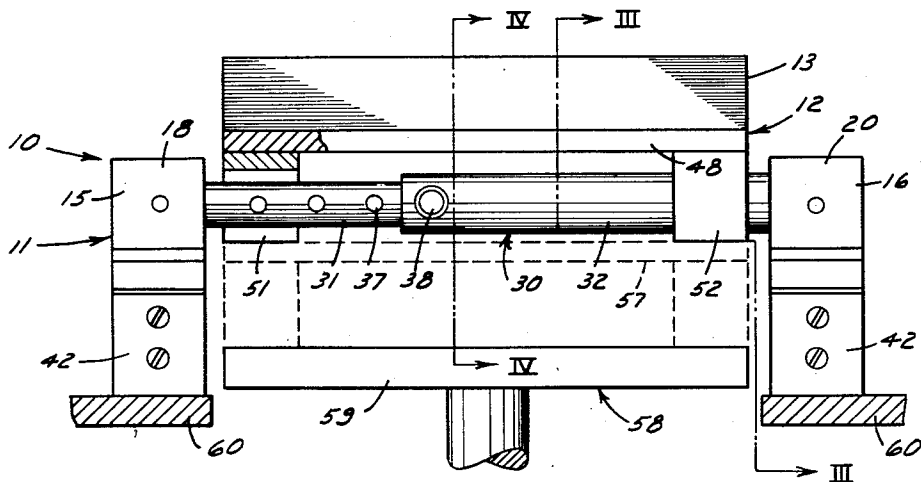


fig. 2

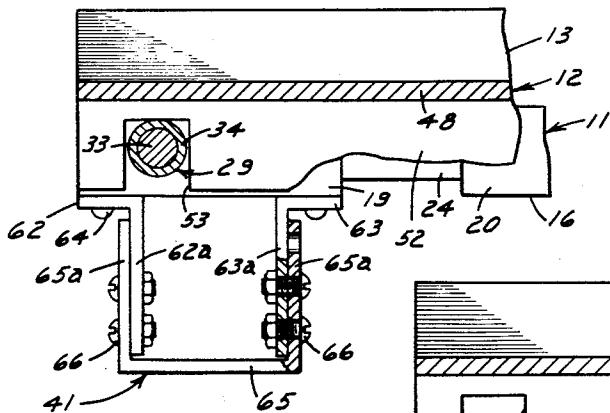


fig. 3

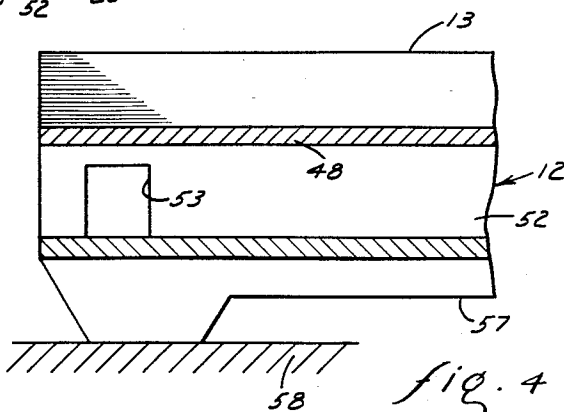


fig. 4

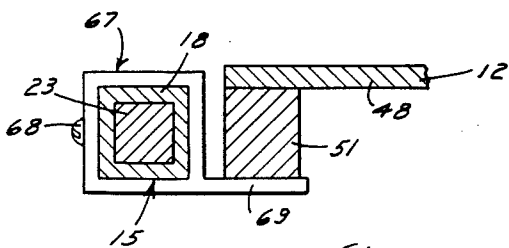


fig. 5

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SKID STRUCTURE FOR SUPPORTING MATERIALS

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Filed Apr. 18, 1958, Ser. No. 729,348

6 Claims. (Cl. 248—120)

This invention relates in general to a device for supporting materials, such as paper, and more particularly to a type thereof including an inexpensive, expendable pallet removably supported upon a collapsible and adjustable base frame.

It is common practice to place materials, such as paper or paper board which are being prepared for shipment, upon a low, relatively flat support device, such as a skid structure, for ease of handling. The loaded skid structure is usually placed by means, such as a fork lift, upon a vehicle owned or controlled by the manufacturer and transported to the loading dock of a shipper, from which it is shipped to the ultimate user. Heretofore, it has been considered advisable, if not necessary, to leave the load on the manufacturer's support device until it has reached the final destination. As a rule, the shipper places its own support device, such as a pallet, under the manufacturer's skid structure while moving the load to its destination. Accordingly, inasmuch as the ultimate user generally keeps the manufacturer's skid structure until the load thereon is at least partially used, it has often been necessary for the manufacturer to invest a large amount of money in skid structures.

When the manufacturer has customers at a considerable distance from its manufacturing establishment, the cost of returning the support devices or skid structures has become another even more serious problem. That is, the manufacturer has the difficult choice between asking the user to return its skid structures one at a time at a fairly high freight cost or waiting until the user accumulates a number of skid structures and then returns them at the same time. Obviously, the latter alternative results in the need for a considerably greater number of skid structures than would otherwise be required.

It is not unusual for the skid structures to become lost, severely damaged, or misappropriated after they leave the manufacturer's control, thereby resulting in a loss which is usually uneconomical to recover. Thus, the present procedures and structures for supporting sheet materials as they are moved from the manufacturer to the ultimate user have not been satisfactory and, in fact, they have constituted a source of considerable loss to the manufacturer even under the most favorable conditions of operation.

In considering these problems, it occurred to me that many, if not most, of the above problems could be eliminated if the skid structure could be easily disconnected from the load at the shipping dock and returned immediately to the manufacturer by the transportation which delivered the load. This arrangement would reduce to a minimum the number of skid structures required by the manufacturer, would eliminate the cost of shipping such skid structures from the user to the manufacturer and would greatly reduce the many losses in skid structures which occur after they leave the manufacturer's immediate control. Furthermore, by reducing the number of skid structures both used and lost, the manufacturer could then afford to provide more expensive skid structures having a greater flexibility and greater utility, and thereby re-

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duce not only the number of skid structures required, but also the space requirements for storage.

Accordingly, a principal object of this invention has been the provision of a skid structure for supporting sheet materials including a collapsible base frame which can be disassociated from the load which it supports when it reaches the shipping dock and, therefore, can be returned immediately to the manufacturer without interfering in any way with the load supported thereby.

A further object of this invention has been the provision of a skid structure, as aforesaid, comprised of a very inexpensive and expendable pallet supportable upon, and easily removable from, the collapsible base frame, which frame is sturdy in structure, adjustable for supporting a variety of different sizes and shapes of pallets and which can be easily and quickly collapsed and assembled.

A further object of this invention has been the provision of a skid structure, as aforesaid, which is pleasing in appearance, which is simple to operate, which is easy to adjust, which requires little or no maintenance, and which substantially overcomes the problems set forth hereinabove.

Other objects and purposes of this invention will become apparent to persons familiar with this type of equipment upon reading the following specification and examining the accompanying drawings, in which:

Figure 1 is an exploded perspective view of the skid structure embodying the invention associating with the load and one form of means for operating said skid structure.

Figure 2 is an end elevational view of said skid structure and the parts associated therewith as appearing in Figure 1.

Figure 3 is a sectional view substantially as taken along the line III—III of Figure 2 and showing a modified leg structure.

Figure 4 is a sectional view taken along the line IV—IV of Figure 2 with the base frame removed.

Figure 5 is a sectional view substantially as taken along the line V—V of Figure 1 and including a modification thereof.

For convenience in description, the terms "upper," "lower" and derivatives thereof will have reference to a skid structure embodying the invention and parts associated therewith as appearing in Figures 1 and 2. The terms "inner," "outer" and derivatives thereof will have reference to the geometric center of the skid structure and parts associated therewith.

General Description

The objects of the invention, including those set forth above, have been met by providing a skid structure comprised of a collapsible and adjustable base frame upon which a first pallet is removably supported. The base frame has support legs and the pallet has downwardly extending projections which can be engaged by any convenient lift means for the purpose of raising said pallet with respect to the base frame, after which said base frame is collapsed and removed from beneath the pallet. In this particular embodiment, the means for raising said pallet is comprised of a second pallet and a lift mechanism for raising said second pallet. However, it will be recognized that other means, such as a conventional fork lift, may be provided for effecting the same purposes. The first pallet, which is part of the skid structure, is preferably fabricated from inexpensive materials and is often expendable.

Detailed construction

The skid structure 10 (Figures 1 and 2), herein selected to illustrate the invention, is comprised of a base frame 11 upon which the pallet 12 is removably mounted for the purpose of supporting a load 13, as of sheet ma-

terials. The base frame includes a pair of elongated, spaced and substantially parallel side members 15 and 16, which are extensible lengthwise thereof. Said side members 15 and 16, which may be substantially identical, are composed of slidably telescoping side elements 17 and 18, and 19 and 20, respectively. The side elements 18 and 20 are elongated and hollow for slidable reception of the end portions 23 and 24 of the side elements 17 and 19, respectively. The side elements in each side member 15 and 16 may be provided with transversely alignable openings 25 into which a pin 26 may be slidably received for holding the elements said side members 15 and 16 in selected positions with respect to each other.

The base frame 11 (Figure 1) also includes a pair of spaced cross members 29 and 30, which are substantially parallel. Said cross members 29 and 30 are composed of slidably telescoping elements 31 and 32, and 33 and 34, respectively. The outer ends of the cross members 29 and 30 are secured respectively to the side members 15 and 16, near the opposite ends thereof. The cross elements of the cross members 29 and 30 are provided with transversely alignable pin openings 37 into which the pins 38 are slidably received for holding said cross elements 31, 32, 33 and 34 in selected relative positions. Although the side members 15 and 16 are shown as having substantially rectangular cross sections, and although the cross members 29 and 30 are illustrated as having substantially circular cross sections, it will be recognized that such cross sectional contours are illustrative only and are not intended to limit the invention.

A pair of legs 41 and 42 (Figures 1 and 2), which may be and preferably are substantially identical, are mounted upon the lower side of each side member 15 and 16 adjacent to the opposite ends thereof. A bumper bar 43 is supported upon one or both ends of the side members 15 and 16 by means of screws 44 which are slidably received through openings 46 in said bar 43 and threadedly received into the openings 47 in the ends of said side members. The openings 46 in said bumper bar 43 are elongated lengthwise of said bar in order to permit adjustment of the side members 15 and 16 lengthwise of said bar 43 when the width of the base frame 11 is adjusted.

The pallet 12 includes a top plate 48 upon which the load 13 is supported. A pair of elongated, parallel support bars 51 and 52 are mounted upon the lower surface of the plate 48 near opposite edges thereof. The support bars 51 and 52 are each provided with spaced notches 53 and 54 and said notches are located so that the cross members 29 and 30 are simultaneously receivable into said notches in both bars. In this particular embodiment, and as shown in Figures 2 and 3, the notches 53 and 54 are somewhat deeper than the maximum diameter of cross members 29 and 30, so that the support bars 51 and 52 extend below the lower surfaces of the cross members 29 and 30 when the pallet 12 is supported upon said cross members 29 and 30. Accordingly, a shipping pallet, which is indicated in broken lines at 57 in Figures 1 and 2, can be moved upwardly by a lift device 58 into engagement with the support bars 51 and 52 without engaging any other portion of the skid structure 10. The lift device 58 may be of any conventional type having a platform 59 (Figure 2) which is vertically movable with respect to the surrounding floor 60 supporting said base frame 11. For reasons appearing hereinafter, the bars 51 and 52 preferably do not extend below a plane defined by the lower surfaces of the side members 15 and 16. However, this is only a matter of choice.

The legs 41 and 42 (Figure 1) may, as shown in Figure 3, be vertically adjustable if desired. For example, the leg 41 (Figure 3) may be comprised of a pair of spaced L-shaped elements 62 and 63 which are secured to the side members 15 or 16 by means of the screws 64. A U-shaped foot element 65 is adjustably supported upon the downwardly extending flanges 62a

and 63a of said leg elements 62 and 63 by means of the bolts 66. The flanges 62a and 63a, and the arms 65a of the foot element 65 are provided with a plurality of aligned bolt openings 66a through which said bolts can extend to effect adjustment.

The base frame 11 may be fabricated from metal and/or wood of appropriate strength, and the pallet 12 may be fabricated from wood, metal or even pressed paper pulp. The top plate 48 of the pallet 12 is preferably about the same size as the sheet materials 13 supported thereby. Thus, said sheet materials often tend to provide a certain amount of self-support, which permits the use of a less rigid pallet 12. On the other hand, where the pallet 12 is relatively long and the load provides little or no self-support, it may be desirable to provide not only a rigid pallet, but also intermediate support brackets 67 for the support bars 51 and 52. As shown in Figure 5, the support bracket 67 is slidably and non-rotatably mounted upon one or both of the side members, such as the side member 15, and held against accidental lengthwise movement with respect thereto by a set screw 68. Said bracket 67 has an integral, inwardly extending support arm 69, which is disposed beneath and snugly engages the adjacent support bar 51, for example.

Operation

Prior to use of the skid structure 10, the length and width of the base frame 11 are adjusted for proper engagement with, and support of, a pallet 12 of a selected size. This is easily accomplished by removing the pins 26 and 38 from the side members 15 and 16 and the cross members 29 and 30, respectively, and then positioning the various side elements and cross elements with respect to each other as desired or required, after which the pins 26 and 38 are returned to their respective positions within the pin openings 25 and 37. When the base frame 11 is thus properly adjusted, the cross members 29 will be received into the notches 53 and 54 in the support bars 51 and 52 on said pallet 12 with said support bars respectively adjacent to the side members 15 and 16. Accordingly, and as shown in Figures 2 and 3, a load 13 placed upon the pallet 12 will be supported primarily by that portion of the base frame 11 adjacent to the legs 41 and 42 thereof. That is, the support bars 51 and 52 will engage the cross members 29 and 30 close to the side members 15 and 16 at points where said side members are supported by the legs 41 and 42. This arrangement is highly advantageous in that it permits the use of cross members 29 and 30 which may be relatively weak between their ends as long as they are strong at their ends and rigidly secured to the side members.

After the skid structure 10, including the pallet 12 and frame 11, is assembled and loaded with materials 13, the entire skid structure may be moved from one place to another including onto a truck by means such as a fork lift (not shown) and then transported to a shipping dock in a substantially conventional manner. The lift fork usually engages the lower surface of the base frame 11 by extending under, and crosswise of, the side members 15 and 16 between the legs 41 and 42 on each thereof. As stated above, the side members are below the support bars 51 and 52 on the pallet 12, so that the pallet is not disturbed from its position upon the base frame by such movement of the skid structure 11. In some instances, the skid structure is simply shoved along the floor. The bumper bar 43 serves to protect the pallet and its load during such operations.

When it becomes desirable to separate the base frame 11 from the total skid structure 10, such may be accomplished by positioning the skid structure over a lift device 58 (Figures 1 and 2) and placing means, such as a shipping pallet 57 (Figures 1 and 2), beneath the cross members 29 and 30 and between the side members 15 and 16. The platform 59 of the lift device 58 is raised until it causes the shipping pallet 57 to engage the lower

surfaces of the support bars 51 and 52 and then raise the pallet 12 and the sheet stock 13 supported thereon away from the base frame 11. No harm is done if the entire skid structure 10 is raised during such operation. The pins 38 are removed from the cross members 29 and 30, after which said side members are manually or otherwise engaged and pulled sidewardly away from each other until the elements of the cross members 29 and 30 become fully disconnected. The base frame 11 can then be immediately returned to the manufacturer and the expendable, low-cost pallet 12 will remain upon the shipping pallet 57 for transfer to the final user. The shipping pallet is normally the property of the shipper and is conventionally used regardless of the type of skid structure provided by the manufacturer.

Under circumstances where the load 13 is comprised of relatively stiff and self-supporting materials, such as paperboard, the top plate 48 serves primarily to hold the support bars 51 and 52 with respect to each other and does not support any material load. In such case, the top plate may be fabricated from relatively flimsy material, such as pressed paper pulp, and the support bars will carry the load.

Although a particular preferred embodiment of the invention has been disclosed above in detail for illustrative purposes, it will be understood that variations or modifications of such disclosure, which lie within the scope of the appended claims, are fully contemplated.

I claim:

1. A device for supporting sheet materials, comprising: a rectangular collapsible base frame having a pair of elongated, substantially parallel side members and a pair of spaced, elongated and substantially parallel cross members, each cross member being composed of a pair of elongated slidably engaged and separable elements, each element being secured respectively near one end thereof to one of said side members; a plurality of legs secured to said frame and extending from one side thereof in a direction substantially perpendicular to a plane defined by said frame; and a pallet supportable upon and extendable between said cross members, said pallet having projections near to said cross bars extending in said direction when said pallet is supported upon the diametrically opposite sides of said cross members, whereby said pallet can be supported upon said projections while said side members are separated from each other.

2. The structure of claim 1 wherein said side members are extensible lengthwise thereof and said elements of each cross member are telescopically engaged.

3. The structure of claim 1 wherein said pallet includes a substantially planar top plate and a pair of substantially parallel bars secured to one side of said plate near the opposite edges thereof, said bars each having a pair of similarly spaced and transversely aligned notches

into which said cross members are simultaneously and slidably receivable, said notches being of greater depth than the portions of said cross members receivable therein.

4. The structure of claim 3 wherein an intermediate support element is adjustably and non-rotatably supported upon each of said side members, said side element having means engageable with the adjacent support bar on said pallet for supporting same between said notches therein.

5. In a device for supporting heavy sheet materials, the combination comprising: a substantially planar base frame having a pair of spaced and elongated side members and a pair of spaced, parallel and extensible cross members, each cross member being composed of a pair of separably engaged elements, and the opposite ends of said cross members being secured respectively to said side members; a plurality of legs secured to said base frame and extending in substantially the same direction from the lower side of said base frame; a pallet having a substantially planar top member and a plurality of support members secured to one side of said top member, said support members defining recesses into which said cross members are simultaneously received when said pallet is supported upon the upper side of said base frame, portions of said support members adjacent said recesses being simultaneously engageable from said one side of said base frame for raising said pallet with respect to said base frame, whereby said side members can be moved away from each other and said base frame can be removed from beneath said pallet.

6. In a device for supporting heavy sheet materials, the combination comprising: a substantially rectangular base frame having a pair of spaced elongated and parallel side members and a pair of spaced, parallel and extensible cross members, each cross member being composed of a pair of separably engaged elements, and the opposite ends of said cross members being secured respectively to said side members; a plurality of legs secured to said base frame and extending in substantially the same direction from the lower side of said base frame; a pallet having a top plate supportable upon the upper side of said base frame and a plurality of support members secured to, and extending from, the lower side of said plate adjacent said cross members, portions of said support members remote from said plate being simultaneously engageable from said lower side of said base frame when said pallet is supported thereon for raising said pallet with respect to said base frame, whereby said side members can be moved away from each other and said base frame can be removed from beneath said pallet.

References Cited in the file of this patent

UNITED STATES PATENTS

2,570,757 Bowman et al. Oct. 9, 1951