July 16, 1963 A. R. READER 3,097,880

SIDE RACK STAKE AND SIDE WALL CONSTRUCTION

Filed Feb. 21, 1961

FIG. 1.

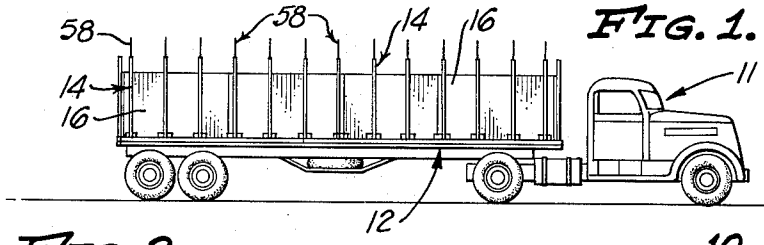
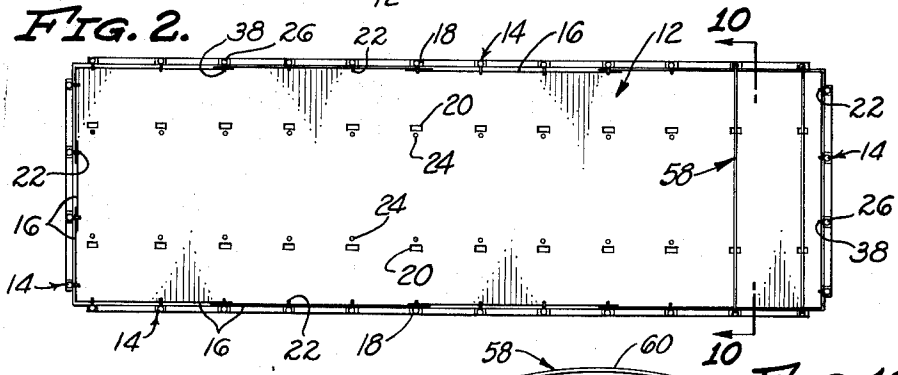


FIG. 2.



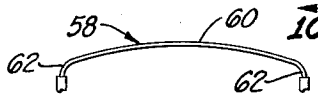


FIG. 10.

FIG. 3.

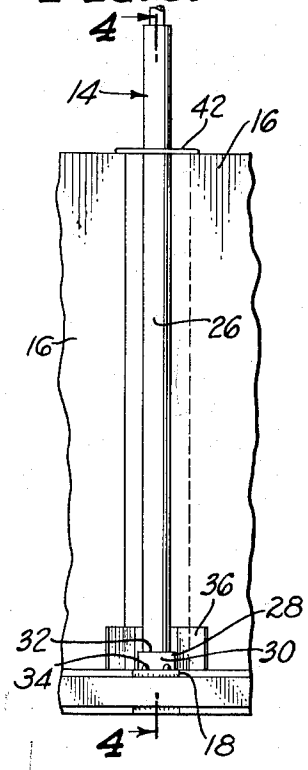


FIG. 4.

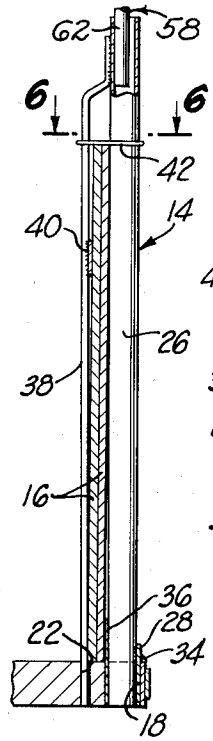


FIG. 5.

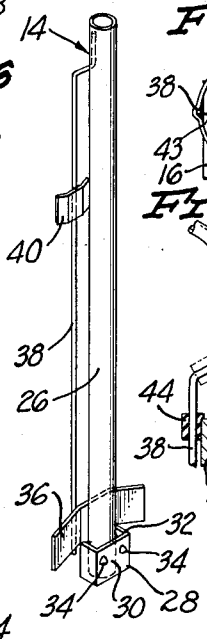


FIG. 6.

FIG. 9.

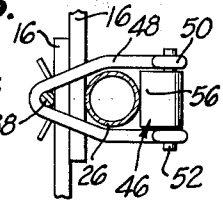
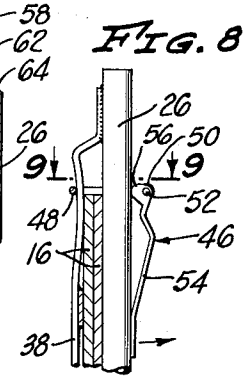


FIG. 7.

FIG. 8



INVENTOR
ANGE R. READER
BY HIS ATTORNEYS
HARRIS, KIECH, RUSSELL & KERN

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SIDE RACK STAKE AND SIDE WALL CONSTRUCTION

Ange R. Reader, Lynwood, Calif., assignor to Reader Properties, Inc., Los Angeles, Calif., a corporation of California

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The present invention relates generally to the vehicle art and more particularly to a novel side rack stake or the like and to a side wall or fence which can be erected employing such stakes.

Although the following disclosure is principally directed toward the use of such stakes in providing side walls for flat rack bodies of trailers and trucks, it is to be understood that stakes or posts embodying the teachings of this invention can be utilized in providing removable fences or windbreaks around swimming pools, patios and the like, where it is advantageous to have lightweight, inexpensive, removable walls or fences.

Briefly stated, the subject stake construction includes an elongated member having an upper end, and a lower end for removable engagement with a supporting stake pocket. The upper end of a flexible rod is fastened to the upper end of the elongated member and the lower end of the rod is adapted to be positioned in an opening spaced from the stake pocket a distance such that the overlapped ends of wall panels can be received between the rod and the elongated member. Guide plates may be fastened between the rods and the elongated members to guide the panels therebetween. Also, means may be provided for releasably maintaining the overlapped panels in position between the rod and the elongated member. When the stakes are to be used in combination with top bow members to provide an enclosure for the vehicle, the upper ends of the stakes are open to receive the depending ends of the bows in supporting relationship.

Considering first the problems involved with wooden stake sections of the type used with flat rack stake bodies, it is well known in the trucking field that such stake sections are custom manufactured for each model so that when a stake section is broken or lost, or it is necessary to replace one or more of said sections due to wear or the like, the expense involved is quite appreciable and there is considerable delay in obtaining a replacement section. Another disadvantage is that the conventional stake sections are made from heavy wood boards and posts which are fastened together with metal bolts whereby some sections may weigh close to 100 pounds. It is obvious that removing and/or installing such stake sections on a large flat rack body is a time-consuming and tiring operation. It is also obvious that the weight of the stake sections reduces the amount of the pay load which can be carried by the vehicle.

It is an object of the present invention, therefore, to provide a novel side rack stake and side wall construction which is relatively inexpensive, which is of light weight, and which can be used with substantially all types and sizes of flat rack bodies. More particularly, it is an object to provide such a construction which comprises separate standard posts or stakes and panels of uniform size which can be used with substantially all flat rack bodies. Specifically, it is an object to provide a side rack stake which can be used with standard size panels of half-inch plywood and the like for erecting removable side walls for stake body trucks and trailers.

A further object is to provide a novel side rack stake and side wall construction which is easily and quickly installed and removed. More particularly, it is an object to provide such a construction in which the stakes and panels are separate and of relatively light weight and

which can be easily and quickly placed together in operative position to provide a continuous side wall, and just as easily and quickly removed for storage or use on another vehicle. More particularly, it is an object to provide a side rack stake which can be used with plywood panels and the like, and which includes means for maintaining the panels in position and for selectively releasing them when it is desired to have an access door or opening at a particular portion of the side wall construction.

Yet another object is to provide a novel top bow construction in combination with the aforementioned stakes for supporting a tarpaulin or similar type of covering over the vehicle.

A further general object is to provide a post and panel construction which can be used to provide lightweight, easily removable fences and windbreaks around swimming pools, patios, and the like.

Further objects and advantages of the present invention will be apparent from the following detailed description, reference being had to the accompanying drawing wherein preferred embodiments of the present invention are shown.

In the drawing:

FIG. 1 is a side elevational view of a trailer flat rack body provided with side rack stakes, a side wall construction, and top bows embodying the teachings of the present invention;

FIG. 2 is an enlarged top plan view of the flat rack body;

FIG. 3 is a side elevational view of one of the stakes or posts viewed from the outside of the stake body;

FIG. 4 is a vertical sectional view taken on the line 4—4 in FIG. 3, with the pipe member shown in elevation;

FIG. 5 is a perspective view of a side rack stake;

FIG. 6 is a horizontal sectional view taken on the line 6—6 in FIG. 4;

FIG. 7 is a fragmentary vertical sectional view of the top of a stake showing a modified construction utilizing a resilient sleeve;

FIG. 8 is a fragmentary vertical sectional view of the top of a stake showing another modified construction employing a lower-type locking device;

FIG. 9 is a horizontal sectional view taken on the line 9—9 in FIG. 8; and

FIG. 10 is a fragmentary vertical sectional view taken on the line 10—10 in FIG. 2 illustrating the top bow construction.

Referring to the drawing more particularly by reference numerals, 11 indicates a tractor and trailer containing a flat rack body or bed 12 which is rectangular in shape and which is provided with novel stakes 14 and panels 16 constructed in accordance with the teachings of the present invention. The side edges of the body or bed 12 are provided with spaced-apart metal stake pockets or female sockets 18 of conventional rectangular construction and the body may also have two or more rows of inner stake pockets or sockets 20 provided inwardly of the side stakes pockets. Such stake pockets or sockets are conventional with flat rack body constructions.

Inwardly of the side edge stake pockets 18 and adjacent the inner stake pockets 20 are vertically extending openings 22 (FIG. 4) and 24 (FIG. 2), respectively, in the bed 12 which are spaced from the adjacent stake pocket a predetermined distance which is dependent on the thickness of the panels 16, as will be discussed more fully hereinafter.

Referring to the stakes 14 (FIG. 5), each comprises a length of metal pipe 26 which has a rectangular sleeve-like member or means 28 with an outer face 30 and an upper edge 32 welded to the lower end thereof. The outer dimensions of the sleeve member 28 are slightly

smaller than the inner dimensions of the stake pockets 18 and 20 so that the former can be easily inserted into and removed from the stake pockets. As shown in FIG. 4, the height of the sleeve member 28 can be greater than the height of the pocket 18 and the outer face 30 of the sleeve member provided with detents 34 which engage the upper edge 32 of the pocket and thereby limit the downward movement of the stake 14 relative to the pocket.

Fastened to the pipe 26 adjacent the upper edge of the sleeve member 28 so as to face inwardly relative to the bed 12, is a lower guide plate 36 which has the ends thereof bent outwardly for a purpose to appear. The sleeve member 28 and the lower guide plate 36 are arranged so that when the sleeve member is positioned in a stake pocket 18, the guide plate rests upon the bed 12. This prevents the stake from tilting longitudinally of the body as might occur if the stake pockets 18 are worn and enlarged.

The upper end of a flexible metal rod 38 is fastened to the upper end of the pipe 26 as by way of welding, and the body of the rod is substantially parallel with and spaced away from the pipe a predetermined distance dependent on the thickness of the aforementioned panels 16. The lower end of the rod 38 is adapted to fit in either of the openings 22 or 24 associated with the stake pockets, and the length of the rod is such that the lower end thereof projects into one of said openings as shown in FIG. 4 when the stake is fully inserted in a stake pocket.

Fastened adjacent the upper end of the rod 38 there can be an upper guide plate 40 (FIG. 5) which has the ends thereof bent outwardly so as to be in oposed guiding relationship with the lower guide plate 36 so that panels can be inserted between the rod and the pipe.

The panels 16 which are used with the stakes 14 in forming the side walls are preferably four feet by eight feet pieces of one-half-inch plywood, but panels of other sizes and other materials may be used as will be discussed more fully hereinafter.

To install the stakes and panels to provide a totally enclosed flat rack body or bed, a number of stakes 14, as for example four, are placed in operative position starting from one end of the bed or body whereby the sleeve member 28 of each stake is inserted in a stake pocket 18 and the lower end of the rod 38 is inserted in the adjacent opening 22 in the bed 12. The panel 16 is then positioned on one of its longer edges and slid along the bed 12 between the pipe 26 and rod 38 of each of the stakes 14 until it is in the desired position. The upper and lower guide plates 40 and 36, respectively, guide the panels 16 easily into position between each pipe and rod assembly, and if there is any binding, as may occur when the panels overlap, additional space can be achieved by grasping the body of the flexible rod and pulling it away from the pipe.

Another group of stakes is then placed in operative position so as to continue the line of stakes along one edge of the body or bed 12, and additional panels 16 are inserted between the pipes 26 and co-operating rods 38 as previously described. As shown in FIGS. 2, 3 and 6, the ends of adjacent panels 16 may be overlapped, preferably at a stake 14, whereby the side wall is continuous. As mentioned hereinabove, the distance between the pipe 26 and rod 38 (as determined by the position of the openings 22 relative to the stake pockets) is approximately twice the thickness of a panel 16 so that the overlapped ends of the panels can be received between the pipe and the rod adjacent thereto. Thus, by starting at one end and proceeding around the bed or body 12, the later can be easily and quickly closed with a continuous side wall.

On the other hand, the side walls can be erected by first placing all of the stakes in position in the stake pockets and then inserting the panels from the end of each row of stakes, but this procedure is a little more time-consuming because it requires the panels to be inserted from the ends. Regardless of which procedure is used, however, it is abundantly clear that the present stake and panel construction can be erected and dismantled much faster than one can lift heavy stakes sections into position.

After the panels are positioned in overlapping relationship, preferably at a stake, an oval metal ring 42 with a notch 43 (FIG. 6) may be dropped over the upper end of the pipe 26 and the rod 38 to hold the upper guide plate 40 firmly against the panels 16 adjacent thereto. Thus, the smaller diameter of the ring 42 is slightly less than the distance between the outermost opposed portions of the pipe 26 and the rod 38 so as to pull the upper portion of the rod toward the pipe and thereby bind the panels 16 firmly in overlapping relationship. To release the rod, the ring 42 is rotated 90 degrees so that the rod is positioned adjacent the larger diameter thereof. Obviously, rings of smaller diameters can be used at intermediate stake positions where there is only a single thickness of panel between the rod and pipe adjacent thereto.

As an alternative construction, a short length of resilient tubing 44 (FIG. 7), such as rubber hose, can be inserted on the rod 38 above the upper guide plate 40 prior to the welding of the rod to the pipe 26, so that it will bind against the upper edges of the panels 16 and thereby aid in maintaining them in position. In order to insert and remove the panels 16, the tubing is moved upwardly on the rod to the position shown in broken lines in FIG. 7.

Another modified construction is shown in FIGS. 8 and 9 wherein a locking bracket 46 is used to maintain the rod 38 in holding engagement with the panels 16. The bracket 46 includes a U-shaped member 48, preferably made of metal rod, which has the free ends thereof formed into eyes 50 which pivotally receives the shaft 52 of a lever 54. The upper end of the lever 54 contains an off-center protuberance 56 so as to automatically maintain the bracket 46 in the locked position when the lower end of the lever 54 is against the pipe 26. However, when the lower end of the lever is pivoted away from the pipe 26, the bracket is released and can be moved upwardly to rest on the inclined upper portion of the rod 38, thereby permitting the ready removal or installation of the panels 16.

One of the main outstanding advantages of the instant construction is that a loading or unloading opening can be provided anywhere in any side wall by merely rotating the ring 42 (or pivoting the lever 54 outwardly when the locking bracket 46 is used) and sliding one or more of the panels 16 to either side.

Furthermore, it will be obvious that the panels and stakes can be easily and quickly removed from the bed or truck body because they are light in weight and easy to handle. Also, what is of paramount importance, the stakes and panels from one flat rack body can be moved to and used on any other truck or trailer body which has similar stake pockets. In short, the instant construction is of universal application.

Another feature of the instant invention is the inexpensive and easily used top bow construction 58 which can be used in combination with the previously described stake construction for supporting a tarpaulin or other type of cover (not shown) and thereby provide a complete enclosure for the truck or trailer. Thus, each bow 58 is preferably made from resilient metal pipe having an outside diameter somewhat smaller than the inside diameter of the pipe 26 so that the ends of the bow can fit within the latter. Each bow 58 (FIG. 10) has a convex arcuate center portion 60 and depending end portions 62 which are adapted to fit within the upper ends of the pipe 26 of the body stakes as shown in FIGS. 4 and 7. The distance between the opposed ends of the bow is slightly less than the distance between the upper ends

of opposed stakes on opposite sides of the truck or trailer bed so that it is necessary to pull the upper ends of the stakes toward one another or flex the center portion of the bow in the downward direction in order to position the ends of the bow in the tops of the stake pipes **26**. After the bows are in position, the resiliency of the center portions thereof holds them firmly in place, and any load on the truck or trailer body which bears against the side panels **16** tends to push the stakes **14** outwardly and further aids in maintaining the bows in position. Obviously, the bows also aid in holding the stakes in the upright position. To remove the bows, it is only necessary to strike one end of the center portion **60** a sharp upward blow with a hammer or similar object, and the end portion **62** will readily slip out of the end of the pipe **26**, thereby simultaneously releasing the other end of the bow member. It is preferable to form the upper end of the pipe **26** with an outwardly facing bevel **64** of about 45 degrees as shown in FIG. 7 to minimize wear and cutting of the tarpaulin used with said bows. This construction also aids in readily inserting the bows in the ends of the pipe members.

Turning to a consideration of other embodiments of the instant invention, it will be readily appreciated that the novel stake construction previously described can also be used to provide removable fences and windbreaks around swimming pools, patios, and the like. Thus, if one provides sockets and openings in the concrete slab surrounding the patio or swimming pool, similar in construction to the stake pockets **20** and openings **24**, respectively, previously described, panels or fence sections can be used with the stakes **14** to provide a fence or windbreak. One type of panel which makes an attractive and effective windbreak (and fence) is the conventional corrugated plastic panel which can be obtained in any desired color and size. Thus, by using the plastic panels in an overlapping end-to-end relationship as previously described relative to the use of the plywood panels **16**, a windbreak and fence can be easily and quickly erected around a patio or swimming pool, and just as easily and quickly removed when it is desired to enlarge the space for other usage.

If it is desired to use a type of panel construction which does not obstruct the view or prevent the passage of air therethrough, suitable panels can be made from sections of wire fencing fastened in a light-weight rectangular metal frame.

Thus, it is apparent that there has been provided a novel stake and side wall construction which fulfills all of the objects and advantages sought therefor.

When the novel stake and panel assembly is used with a truck body or trailer bed, the stakes and panels can be easily and quickly installed and removed without tiring the driver of the vehicle. Also, the stakes and panels are of universal application and can be transferred from one vehicle to another if they have the same size stake pockets. Furthermore, the stake is relatively inexpensive to manufacture and the panels are readily available and are also relatively inexpensive.

It is to be understood that the foregoing description and the accompanying drawing have been given only by way of illustration and example and that changes and alterations in the present disclosure which will be readily apparent to one skilled in the art are contemplated as within the scope of the present invention.

I claim:

1. A wall stake, comprising: an elongated member having an upper end and a lower end; and a flexible rod having the upper end thereof fastened to the upper end of the elongated member and including a body portion substantially parallel with and spaced a predetermined distance from the elongated member for receiving panel members therebetween, the body portion being free of the elongated member and the lower end of the rod extending to adjacent the lower end of the elongated member.

2. A wall stake, comprising: an elongated member having an upper end and a lower end; and a rod having the upper end thereof fastened to the upper end of the elongated member and including a body portion substantially parallel with and spaced a predetermined distance from the elongated member for receiving panel members therebetween, the lower end of the rod being free from the elongated member and extending to adjacent the lower end thereof.

3. A wall stake, comprising: an elongated member having an upper end and a lower end; a rod having the upper end thereof fastened to the upper end of the elongated member and including a body portion substantially parallel with and spaced a predetermined distance from the elongated member for receiving panel members therebetween, the lower end of the rod being free from the elongated member and extending to adjacent the lower end thereof; and a curved guide plate fastened to the elongated member above the lower end thereof for guiding the panel members between the elongated member and the rod.

4. A wall stake, comprising: an elongated member having an upper end and a lower end; a rod having the upper end thereof fastened to the upper end of the elongated member and including a body portion substantially parallel with and spaced a predetermined distance from the elongated member for receiving panel members therebetween, the lower end of the rod being free from the elongated member and extending to adjacent the lower end thereof; and a curved guide plate fastened to the rod for guiding the panel members between the rod and the elongated member.

5. A wall stake, comprising: an elongated member having an upper end and a lower end; a rod having the upper end thereof fastened to the upper end of the elongated member and including a body portion substantially parallel with and spaced a predetermined distance from the elongated member for receiving panel members therebetween, the lower end of the rod being free from the elongated member and extending to adjacent the lower end thereof; and curved guide plates fastened to the rod and to the elongated member in opposed relationship to guide panel members therebetween.

6. In combination: a substantially flat surface containing a plurality of aligned stake pockets; an opening formed in the flat surface adjacent each pocket and spaced laterally therefrom a predetermined distance; a wall stake operably associated with each stake pocket and its adjacent opening and including an elongated member having an upper end and a lower end, the lower end being removably positioned in the stake pocket; and a rod having the upper end thereof fastened to the upper end of the elongated member and including a body portion substantially parallel with and spaced a predetermined distance from the elongated member for receiving panel members therebetween, the lower end of the rod being removably positioned in the opening adjacent the stake pocket.

7. The combination set forth in claim 6 in which plate-like guide means are fastened to at least one of the elongated member and the rod to guide the panel members therebetween.

8. The combination set forth in claim 6 in which panel members are inserted between the rods and the elongated members with the ends of the panel members in overlapping relationship.

9. The combination set forth in claim 6 in which panel members are inserted between the rods and the elongated members with the ends of the panel members in overlapping relationship at a wall stake; and retaining means are associated with each rod for releasably maintaining the overlapped ends of the panel members between the elongated member and the rod.

10. The combination set forth in claim 6 in which panel members are inserted between the rods and the elongated members with the ends of the panel members in overlapping relationship at a wall stake; and a metal ring member is positioned over the upper end of at least one elongated member for engagement with the upper part of the body portion of the rod to move the latter toward the elongated member and maintain the overlapped ends of the panel members in position.

11. The combination set forth in claim 6 in which panel members are inserted between the rods and the elongated members; and a length of resilient tubing is positioned on the upper part of the body portion of at least one rod for engagement with the panels to maintain them in position.

12. The combination set forth in claim 6 in which panel members are inserted between the rods and the elongated members; and a releasable clamping member including a lever is positioned over the upper end of at least one elongated member for engagement with the upper part of the body portion of the rod to move the latter toward the elongated member.

13. In combination: a flat rack bed containing a plurality of spaced stake pockets about the periphery thereof; an opening formed in the bed adjacent each pocket and spaced inwardly therefrom a predetermined distance; a truck stake operably associated with each stake pocket and its adjacent opening and including an elongated member having an upper end and a lower end, the lower end being removably positioned in the stake pocket; and a rod having the upper end thereof fastened to the upper end of the elongated member and including a body portion substantially parallel with and spaced a predetermined distance from the elongated member for receiving panel members therebetween, the lower end of the rod being removably positioned in the opening adjacent the stake pocket.

14. The combination set forth in claim 13 in which plywood panels are inserted between the rods and the elongated members to totally enclose the flat rack bed, the ends of some of the panels being in overlapped relationship at a truck stake.

15. The combination set forth in claim 13 in which plywood panels are inserted between the rods and the elongated members with the ends of some of the panels in overlapping relationship at a stake; and means are provided in engagement with each rod for releasably maintaining the panels between the rods and the elongated members.

16. A side rack stake comprising: a length of pipe having an upper end and a lower end; sleeve-like means fastened to the lower end of the pipe and adapted to fit in a stake pocket; and a flexible rod having the upper end thereof fastened adjacent the upper end of the pipe and including a body portion substantially parallel with and spaced a predetermined distance from the pipe for receiving panel members therebetween, the lower end of the rod being free from the pipe and extending to adjacent the sleeve-like means.

17. The side rack stake set forth in claim 16 which includes guide means between the pipe and the rod for guiding panel members therebetween.

18. The side rack stake set forth in claim 16 which includes releasably locking means for moving the body portion of the rod toward the pipe.

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