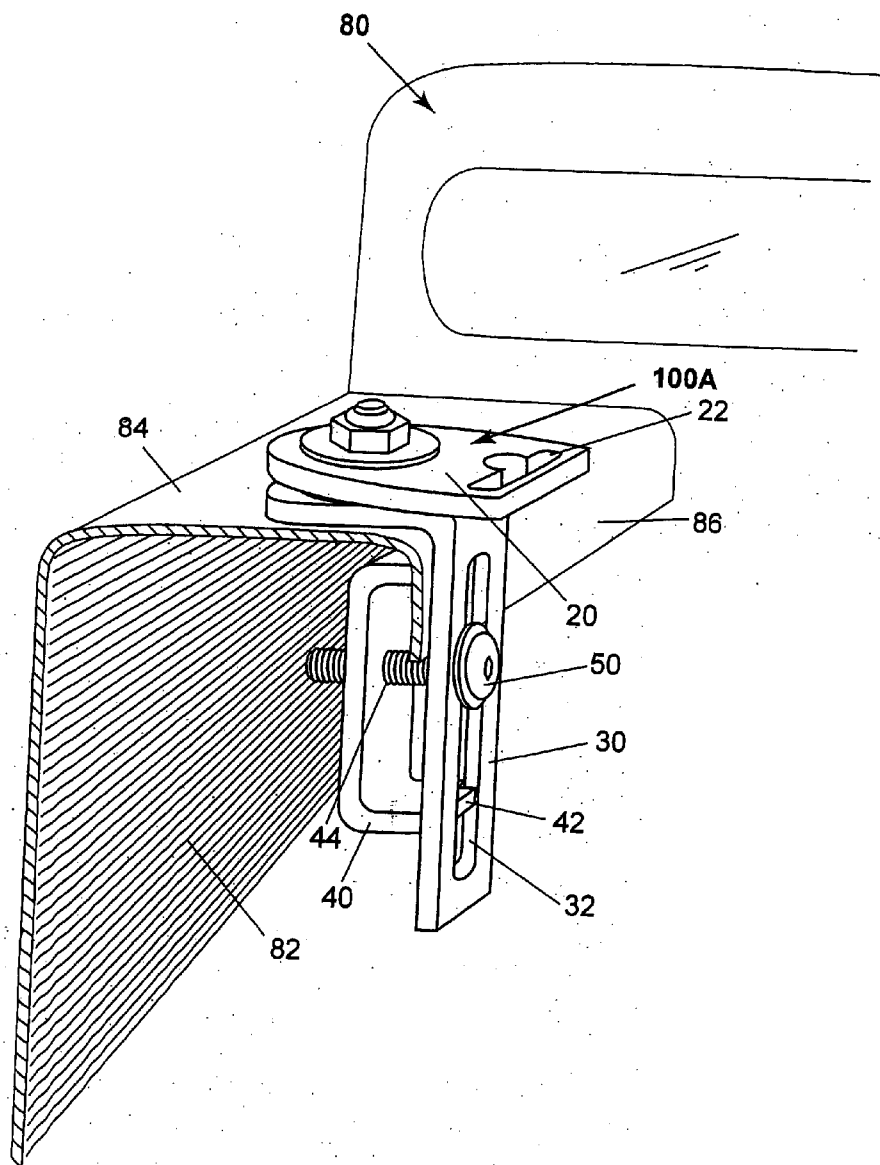




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Roh(10) **Pub. No.: US 2007/0207003 A1**(43) **Pub. Date: Sep. 6, 2007**(54) **CARGO RESTRAINT ANCHOR DEVICE FOR
PICK-UP TRUCKS****Publication Classification**(76) Inventor: **Warren Roh, Littleton, CO (US)**(51) **Int. Cl.**
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COLORADO SPRINGS, CO 80906(52) **U.S. Cl. 410/106**(21) Appl. No.: **11/704,859**(22) Filed: **Feb. 9, 2007****Related U.S. Application Data**(63) Continuation-in-part of application No. 11/365,425,
filed on Mar. 1, 2006.(57) **ABSTRACT**

Herein is disclosed an improvement for a tie-down and attach-point anchor device for pickup truck beds that clamps to the downward protruding flange of a pickup truck's inner side rail or other similar available surface having an exposed edge. The anchor incorporating a slotted head capable of swiveling to accommodate different angles at which straps, bungees, ropes, and rigid members may be placed to secure or support cargo.



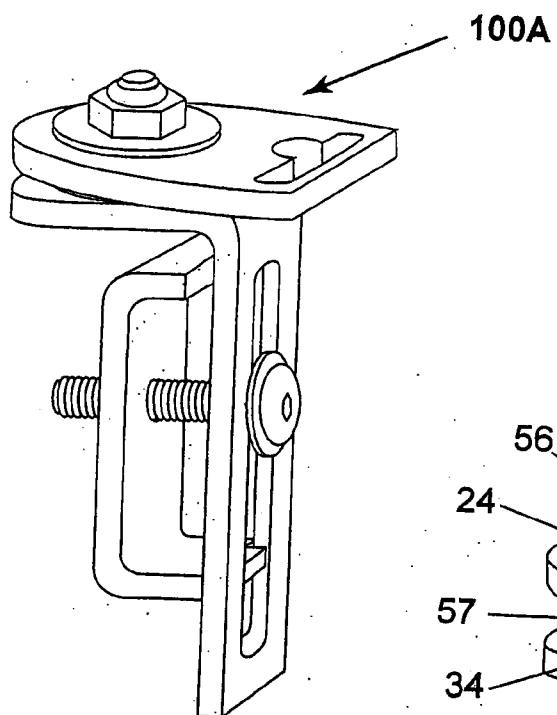


Figure 1

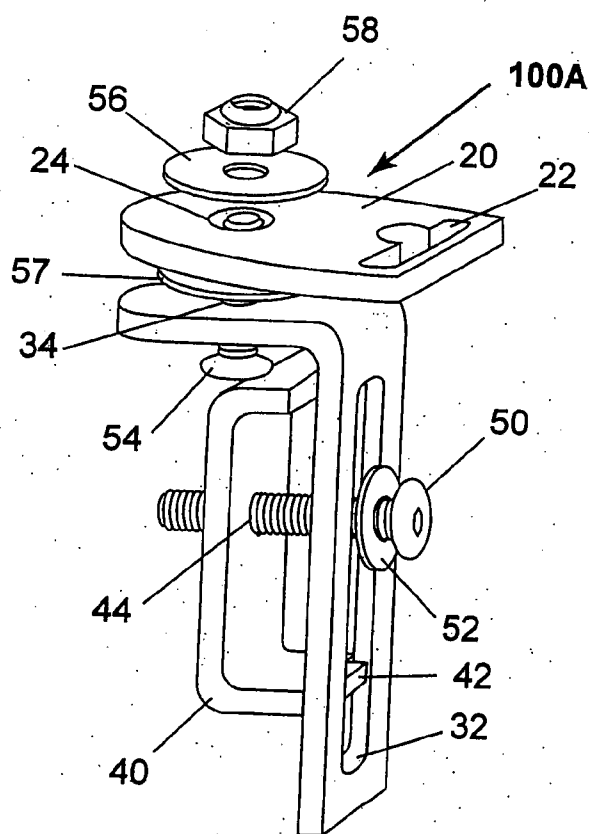
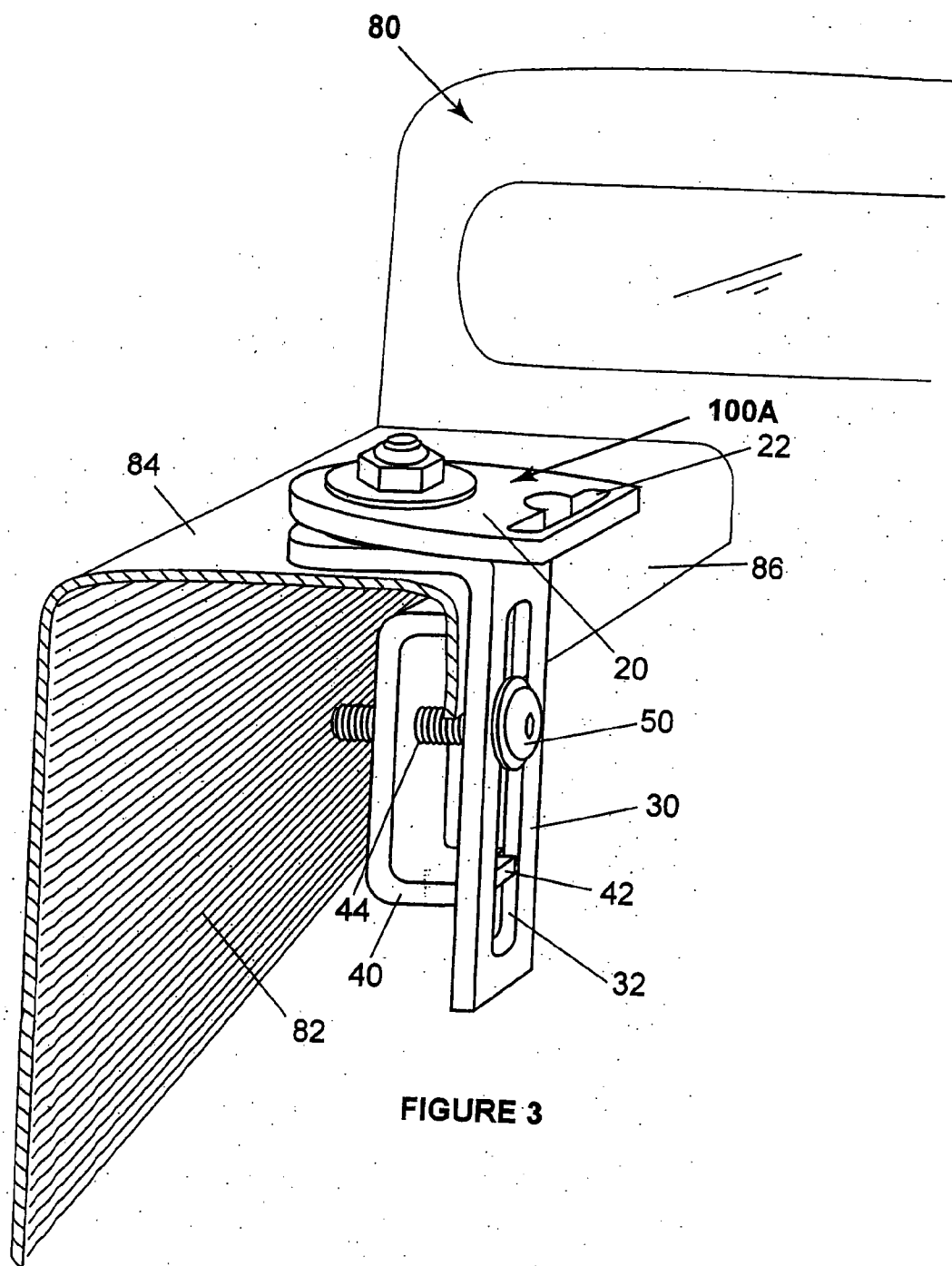


Figure 2



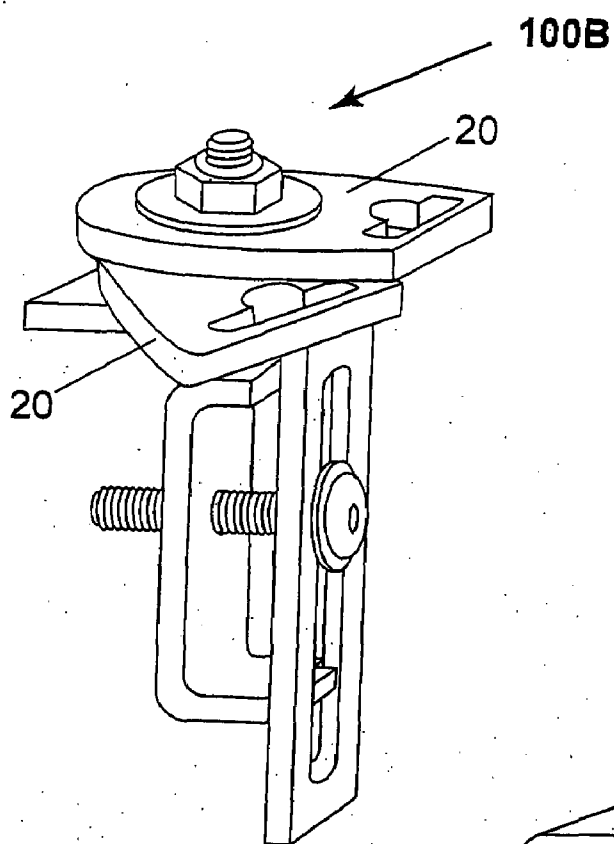


Figure 4

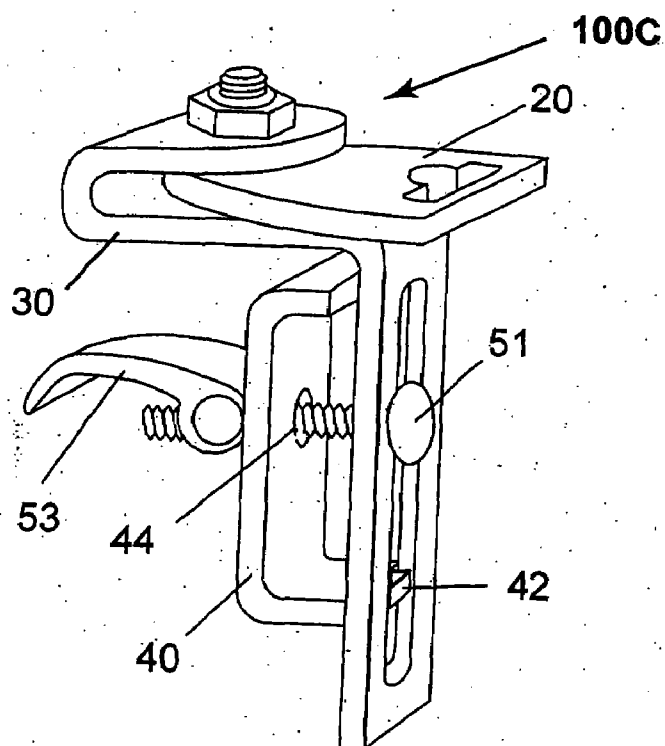


Figure 5

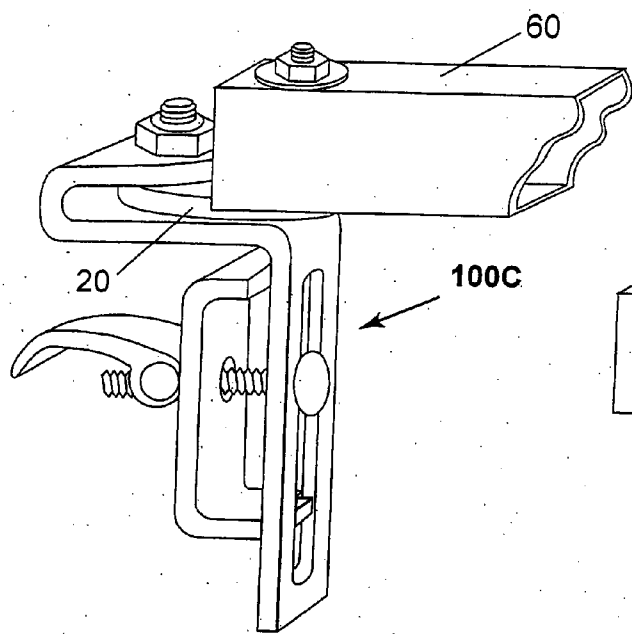


Figure 6

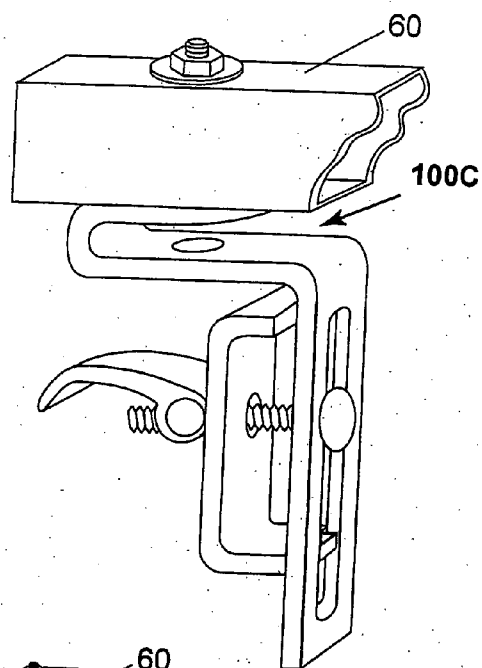


Figure 7

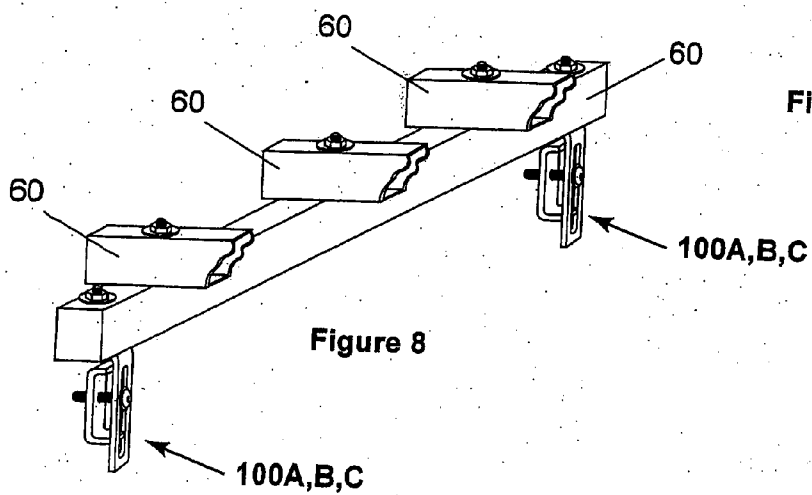
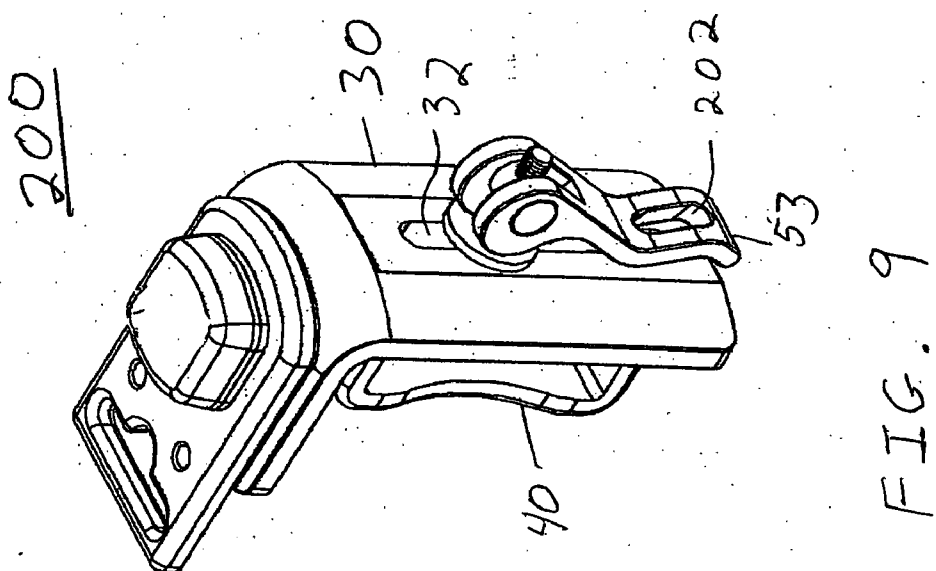


Figure 8



CARGO RESTRAINT ANCHOR DEVICE FOR PICK-UP TRUCKS

RELATED APPLICATIONS

[0001] The present application is a continuation-in-part of the patent application entitled "Cargo Restraint Anchor Device for Pick-Up Trucks", having application Ser. No. 11/365,425, filed on Mar. 1, 2006 and claims priority from this application.

FIELD OF THE INVENTION

[0002] The present invention relates to a cargo anchor device designed to allow the restraint of articles that are loaded into the cargo bed of a pick-up truck, and specifically addresses a novel device that attaches anywhere along the downward protruding flange of the inner side rail of the cargo box and functions as an anchor for a cargo restraining strap, bungees, ropes, leashes, solid members, and the like.

BACKGROUND OF THE INVENTION

[0003] Pickup trucks are typically purchased to provide a means for transporting cargo. Cargo can be anything loaded into the truck's bed from large commercial palletized loads, building supplies purchased at the local lumber yard, and everything in between. Ideally, to be safe, when cargo is carried in a pickup truck's bed it should be restrained from movement. Restraint is often accomplished by tying the cargo down with a strap or rope utilizing a conveniently located tie-point or accomplished by tying the cargo down with a strap or rope utilizing a conveniently located tie-point or attach-point. However, most manufactures of pickup trucks do not incorporate convenient tie-points or attach-points within the bed or along the bed's side rails to aid in the securing cargo from movement within the bed. In addition, the advent of bed liners used to protect the surface of the bed, side panels, and rails from damage by cargo have further complicated the addition or availability of tie-points if factory installed.

SUMMARY OF THE INVENTION

[0004] The present invention solves these problems by providing an aftermarket, easily installable tie-point that can be positioned anywhere along the pickup truck bed's downward protruding flange portion of the inner bed side rail. The present invention can be installed in minutes, and incorporates a swiveling, slotted head for attaching a strap, rope, leash, bungee cord, solid member, and the like. By allowing the head to swivel, a strap or straps threaded through the head can cross at any angle thus providing optimal restraint without bunching or twisting the strapping material.

[0005] The present invention is directed at anchoring cargo to the side rail(s) of a pickup truck's bed. The present invention may also be mounted on any a sheet surface similar to that available on the downward protruding flange of the inner side rail of a pickup truck's bed. The invention consists of a combination of an L-body portion, a C-body portion, and a slotted, swivel head. The inventive cargo anchor's L-body portion and a C-body are tied together with a threaded bolt and nut that cooperate to form a compression clamp, clamping the anchor device on opposing sides of a downward protruding flange of a pickup trucks inner side rail or similar solid sheet surface with an exposed edge. Typically, one or more of the inventive cargo anchors

would be mounted to one or both bed side rails. The inventive anchors would then be used to secure cargo within the bed. The inventions unique swiveling head allows optimal stress relief when straps are strung at acute angles to the bed rails.

[0006] The above and other features and advantages of the present invention will become more clear from the detailed description of a specific illustrative embodiment thereof, presented below in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] FIG. 1 is a top right perspective view of a universal tie down in accordance with one embodiment of the invention;

[0008] FIG. 2 is a partially exploded top perspective view of a universal tie down in accordance with one embodiment of the invention;

[0009] FIG. 3 is a cut away perspective view of a universal tie down attached to a vehicle in accordance with one embodiment of the invention;

[0010] FIG. 4 is a top right perspective view of a universal tie down in accordance with one embodiment of the invention;

[0011] FIG. 5 is a top right perspective view of a universal tie down in accordance with one embodiment of the invention;

[0012] FIG. 6 is a top right perspective view of a universal tie down in accordance with one embodiment of the invention;

[0013] FIG. 7 is a top right perspective view of a universal tie down in accordance with one embodiment of the invention;

[0014] FIG. 8 is a top right perspective view of a universal tie down in accordance with one embodiment of the invention; and

[0015] FIG. 9 is a perspective view of a universal tie down in accordance with one embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0016] The following discussion focuses on the preferred and other inventive embodiments of the Cargo Restraint Anchor Device for Pick-up Trucks. However, as will be recognized by those skilled in the art, the disclosed Cargo Restraint Anchor Device for Pick-up Trucks is applicable to a wide variety of situations beyond those discussed. It will be readily apparent that this device will mount on any flat surface with an exposed edge and can be used as a cargo restraint, tie-point for pets, attach point for solid members, as well as many other single-point and multi-point tie-down applications.

Preferred Embodiment

[0017] The preferred embodiment is illustrated in FIGS. 1, 2, and 3. FIG. 1 illustrates a perspective view of anchor device 100A assembled but not attached to the bed rail of a pickup truck. FIG. 2 illustrates a perspective view of 100A exploded, illustrating individual components. 100A is constructed of three major components consisting of swivel head 20, L-body 30, and C-body 40. Head 20 is fastened to L-body 30 by flat head bolt 54 which passes through bore 34 of L-body 30 and bore 24 of head 20. Flat washers 56 and

57 on the top and bottom sides of head 20 act as spacers and to reduce friction when head 20 swivels. Typically, nut 58 would be lightly torqued but not torqued fully on bolt 54 allowing head 20 to swivel around bolt 54's longitudinal axis. Slot 22 is cut in head 24 to facilitate the insertion of a tie-down strap or hook when used with strapping materials or a through-bolt when used with solid a solid member, FIGS. 6, 7, and 8 solid member 60. C-body 40 contains tapped bore 44 to receive the treads of bolt 50. treads of bolt 50. Washer 52 provides an buffer interface between slot 32 and the head of bolt 50. FIG. 3 illustrates a perspective view of 100A attached to the downward protruding flange portion 86 of the left inner bed side rail 84 of pickup truck 80. It can be seen in the cut of the left pickup truck bed side wall 82, rail top 84, and flange 86, that C-body 40 and L-body 30 are being drawn together by tightening bolt 50, thus clamping anchor 100A to flange 86. The higher the torque applied to bolt 50, the tighter the clamping action. When bolt 50 is loosened, the entire 100A assembly can be moved anywhere along flange 86. When installed on a pickup truck's side rail, the horizontal portion of L-body 30 is essentially parallel to top rail 84. The bottom of the horizontal portion of L-body 30 is typically contiguous to top rail 84; however, if a bed liner, not illustrated, were installed in the pickup truck's bed, the bottom of the horizontal portion of L-body 30 would be contiguous to top of the bed liner. Slot 32 allows for an adjustable fit based on different height flange rails 86 and bed liner thicknesses. Tab 42 fits into slot 32 and cooperates with bolt 50 to prevent C-body 30 from rotating when bolt 50 is torqued. When one or more anchor 100A's are installed on opposing side rails of a pickup truck's bed, tie-down strapping or solid members may be attached between them. Strapping can then act to apply bias force against cargo being carried thus reducing the chance of the cargo shifting. In the case of solid members, FIG. 8-60, the members may be bolted through slot 22 to provide a strong, stable mounting. Anchor 100A can also be used on only one side rail to restrain such articles as ladders, bicycles, and the like. Swivel head 20 allows straps installed through slot 22 to always be optimally stress loaded no matter what angle the always be optimally stress loaded no matter what angle the straps are strung at across the truck's bed.

[0018] FIG. 4 illustrates a perspective view of an alternative embodiment of 100A, labeled 100B. 100B is identical to the preferred embodiment 100A with the exception that it contains a plurality of swivel head 20s.

[0019] FIG. 5 illustrates a perspective view of an alternative embodiment of 100A, labeled 100C. 100C is identical to the preferred embodiment 100A with the exception that Horizontal support portion of L-body 30 is folded back on itself, thus limiting head 20 from swiveling through 360 degrees as in embodiments 100A and 100B. In embodiment 100C, friction or spring bias may be used to automatically move head 20 to the side when not in use, thus preventing or reducing head 20's encroachment into the pickup truck's bed, thus reducing the risk of scratching or catching while loading and unloading cargo. FIG. 5 also illustrates that a camlock 53 or a common nut could be used in place of threaded bore 44 to allow easy adjustment and clamping of any of the disclosed embodiments herein.

[0020] FIGS. 6 through 8 illustrate how rigid members 60 could be used in conjunction with embodiments 100A, 100B, or 100C. In FIG. 6, swiveling head 20 is installed and a bolt is used to secure rigid member 60. In FIG. 7, head 20

is removed and rigid member 60 is bolted in place using the bores used to attach head 20.

Embodiments 100A, 100B, or 100C may be used with swivel head 20 installed on L-body 30 or removed, as in FIG. 7, to facilitate attachment of rigid members 60 or other bolt-on devices.

[0021] FIG. 9 is a perspective view of a universal tie down 200 in accordance with one embodiment of the invention. This embodiment is similar to the embodiment shown in FIG. 6 except the camlock 53 or lever has a slot 202 and the lever 53 is on the L-body 30. The slot 202 allows a padlock to be placed through slot 32 and slot 202 to lock the clamp 200 in place.

[0022] Thus there has been described universal tie-down that is easily an installable tie-point that can be positioned anywhere along the pickup truck bed's downward protruding flange portion of the inner bed side rail. The present invention can be installed in minutes, and incorporates a swiveling, slotted head for attaching a strap, rope, leash, bungee cord, solid member, and the like. By allowing the head to swivel, a strap or straps threaded through the head can cross at any angle thus providing optimal restraint without bunching or twisting the strapping material.

[0023] While the invention has been described in conjunction with specific embodiments thereof, it is evident that many alterations, modifications, and variations will be apparent to those skilled in the art in light of the foregoing description. Accordingly, it is intended to embrace all such alterations, modifications, and variations in the appended claims.

What I claim is:

1. An anchor device, comprising:
 - a clamping system releasably attaching to a flange; and
 - a swiveling head attached to the clamping system.
2. The anchor device of claim 1, wherein the swiveling head contains an opening through which a cargo restraint may be attached.
3. The anchor device of claim 1, wherein the clamping system includes an L-body having a slot.
4. The anchor device of claim 3, wherein the clamping system has a C-body that engages the L-body.
5. The anchor device of claim 4, further including a bolt extended from the C-body through the slot in the L-body.
6. The anchor device of claim 6, further including a lever attached to the bolt.
7. The anchor device of claim 6, wherein the lever has a slot.
8. An anchor device, comprising:
 - a clamping system releasably attaching to a flange; and
 - a lever attached to the clamping system.
9. The anchor device of claim 8, wherein the lever has a slot.
10. The anchor device of claim 8, further including a swiveling head attached to the clamping system.
11. The anchor device of claim 10, wherein the clamping system includes a L-body and a C-body.
12. The anchor device of claim 11, wherein the L-body has a slot.
13. The anchor device of claim 11, further including a bolt attached to the C-body, extending through the slot in the L-body and attached to the lever.

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