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(54) **CONTAINER FOR TIE DOWN STRAP**

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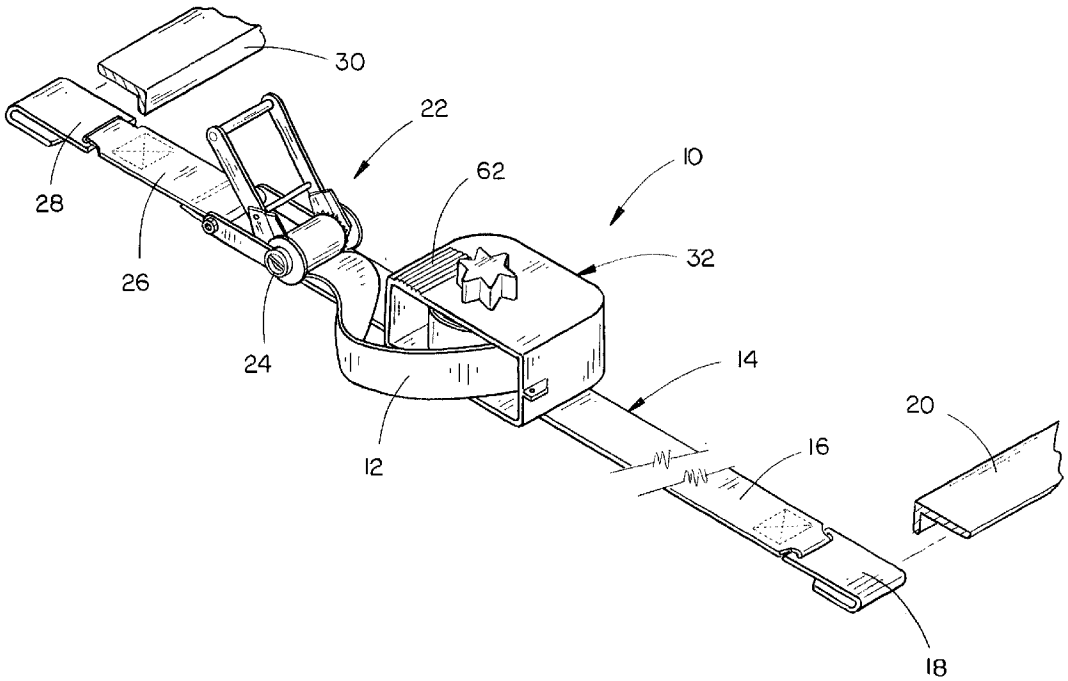
(57) **ABSTRACT**

A container for a tie down strap includes a housing with upper and lower walls and a rotatable shaft extending between the upper and lower walls. The shaft has a slot formed therethrough through which the free end of one strap of the tie down strap is journaled. A handle on the end of the shaft permits rotation of the shaft to wind the strap free end around the shaft. A tensioner member extending inwardly from a side wall of the housing is resilient, and engages the strap wound around the shaft, to frictionally engage the strap and bias against free rotation of the shaft.



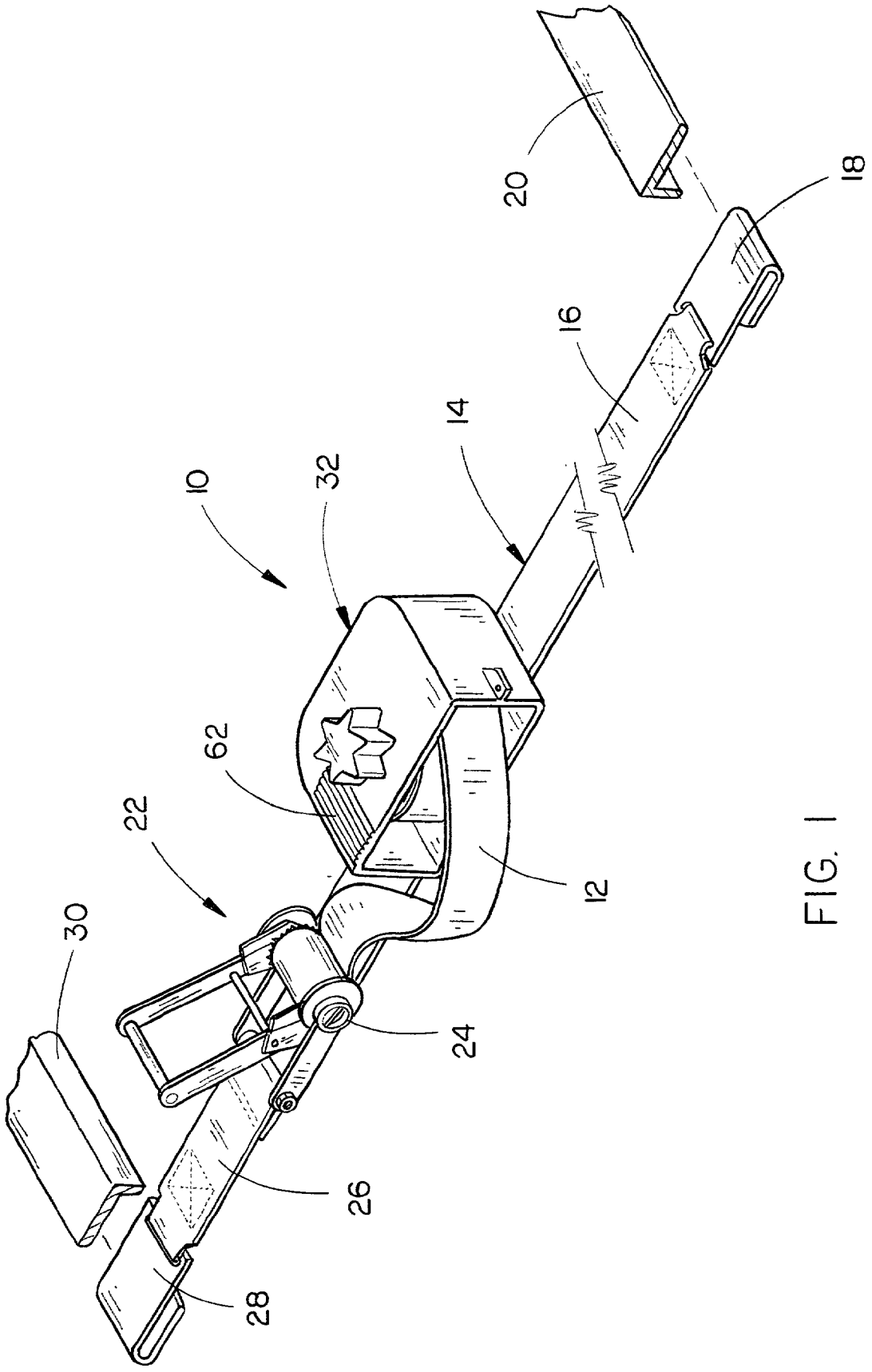


FIG. 1

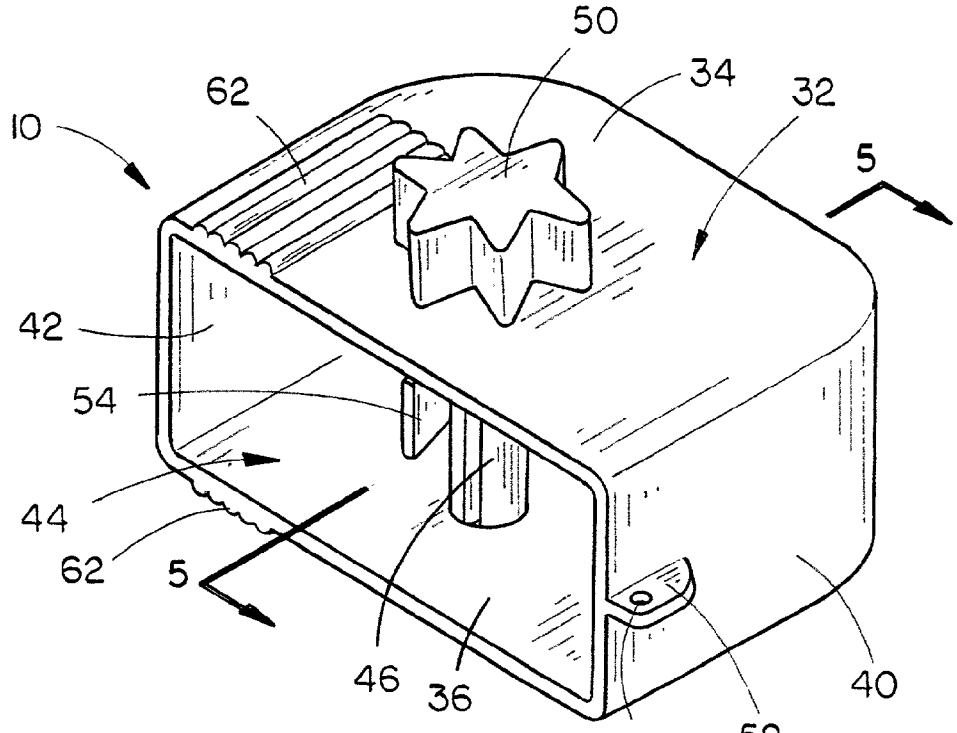


FIG 2

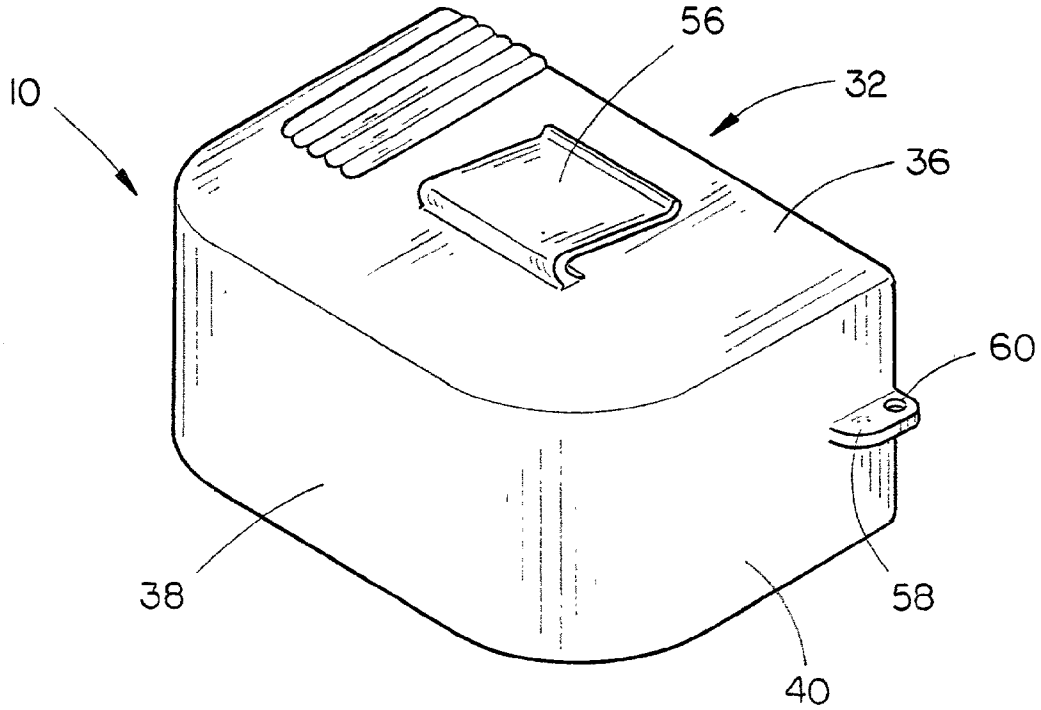


FIG. 3

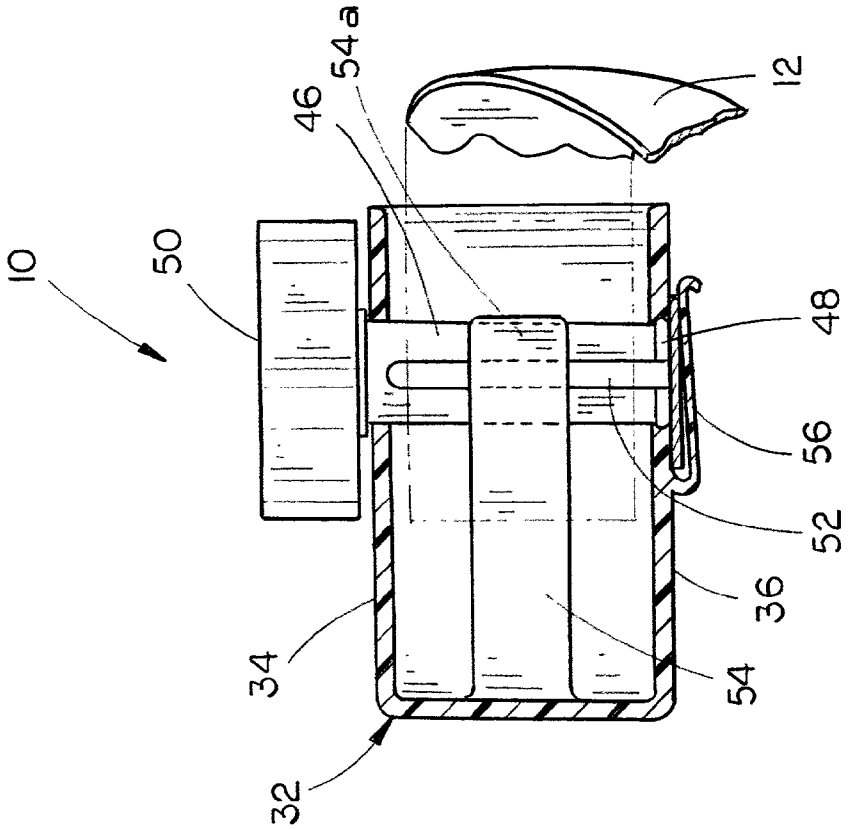

10
50
46
54a
12
48
56
52
36
54
34
32

FIG. 5

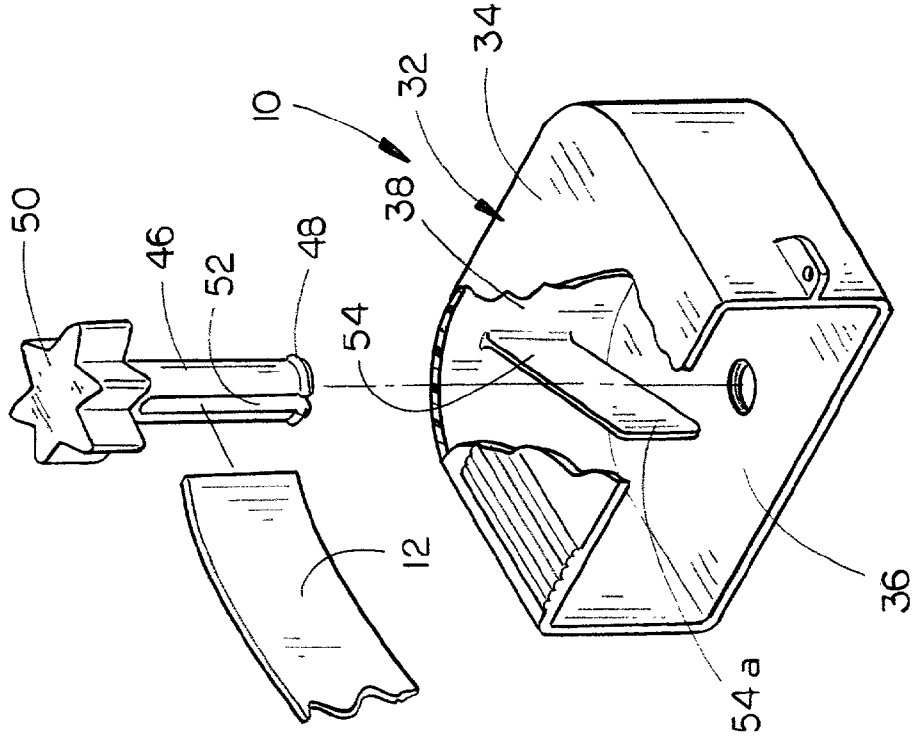

10
32
34
38
50
46
52
48
54
12
36
54a

FIG. 4

CONTAINER FOR TIE DOWN STRAP

CROSS-REFERENCES TO RELATED APPLICATIONS

[0001] This is a continuation of Ser. No. 09/443,541, filed Nov. 19, 1999.

STATEMENT AS TO RIGHTS TO INVENTIONS MADE UNDER FEDERALLY SPONSORED RESEARCH AND DEVELOPMENT

[0002] (Not applicable)

BACKGROUND OF THE INVENTION

[0003] (1) Field of the Invention

[0004] The present invention relates generally to tie down straps used to secure loads on trucks, and more particularly to a container for storage of the loose end of a tie down strap during use, and for long term storage.

[0005] (2) Background Information

[0006] It is common in the trucking industry to utilize elongated straps to secure loads on a support surface. Straps are preferred to ropes or cable, because they are less likely to tangle or knot, they provide a greater area of contract on the load, thereby distributing the pressure of the straps and thereby reducing the likelihood of damage to the load by the tie downs.

[0007] However, tie down straps still suffer several problems. First, in use, there is typically a length of strap extending from the securement ratchet which must be tied off or secured in some fashion, to prevent the free end of the strap from flapping and fraying in the wind.

[0008] In order to lengthen the life of a tie down strap, the strap should be wrapped in a coil when not in use. Because the straps are typically exposed to rain, dirt, and are often frayed, the straps are typically bundled in a wad and stowed in a box or other container, without taking the time to properly wind the straps into a coil.

BRIEF SUMMARY OF THE INVENTION

[0009] It is therefore a general object of the present invention to pro vide an improved container for storage of a tie down strap.

[0010] Another object of the present invention is to provide a tie down strap container which will store the free end of a tie down strap during use of the strap to secure loads.

[0011] A further object is to provide a tie down strap holder which permits the majority of the tie down strap to be wound into a small coil and stored in a small protected housing.

[0012] These and other objects of the present invention will be apparent to those skilled in the art.

[0013] The container for a tie down strap of the present invention includes a housing with upper and lower walls and a rotatable shaft extending between the upper and lower walls. The shaft has a slot formed therethrough through which the free end of one strap of the tie down strap is journaled. A handle on the end of the shaft permits rotation of the shaft to wind the strap free end around the shaft. A tensioner member extending inwardly from a side wall of the housing is resilient, and engages the strap wound around the shaft, to frictionally engage the strap and bias against free rotation of the shaft.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

[0014] The preferred embodiment of the invention is illustrated in the accompanying drawings, in which similar or corresponding parts are identified with the same reference numeral throughout the several views, and in which:

[0015] **FIG. 1** is a perspective view of the tie down strap container connected to a tie down strap;

[0016] **FIG. 2** is an enlarged perspective view of the container;

[0017] **FIG. 3** is a view similar to **FIG. 2**, but with the container inverted to show the bottom thereof;

[0018] **FIG. 4** is an exploded perspective view of the container, with a portion of the upper wall removed to show interior detail; and

[0019] **FIG. 5** is a sectional view taken at lines **5-5** in **FIG. 2**.

DETAILED DESCRIPTION OF THE INVENTION

[0020] Referring now to the drawings, and more particularly to **FIG. 1**, the tie down strap container of the present invention is designated generally at **10** and is shown connected to the free end **12** of a conventional tie down strap **14**. Tie down strap **14** includes a first strap **16** having a hook **18** connected thereto, which will be secured to a frame **20** to secure a load. A ratchet mechanism **22** has a rotatable ratcheted shaft **24** upon which an intermediate portion of first strap **16** is wound, which is operable to lengthen and shorten the length of first strap **16** between ratchet mechanism **22** and hook **18**. A second strap **26** has one end fastened to ratchet mechanism **22** and a hook **28** on the opposing end which is secured to a second frame **30**. Thus, a load is secured by operating ratchet mechanism **22** to shorten the length of first strap **16** and pull the strap tight between hooks **18** and **28**.

[0021] It can be seen in **FIG. 1** that free end **12** of first strap **16** would flap in the wind, while the tie down strap is in use securing a load. The container **10** is utilized to enclose and secure the first strap free end **12**, to prevent damage to the strap, and to store the first strap when not in use, as described in detail hereinbelow.

[0022] Referring now to FIGS. **2-5**, tie down strap container **10** includes a lightweight housing **32** of plastic or other weather resistant material. Housing **32** includes an upper wall **34**, bottom wall **36**, a forward wall **38**, opposing side walls **40** and **42**, and an opening **44** formed in the rearward end to permit access within the interior of housing **32**. A shaft **46** extends through openings in the upper and bottom walls **34** and **36**, generally centrally within housing **32**, and has a flared lower end **48** preventing withdraw of the shaft through the bottom wall **36**. A handle or crank **50** is mounted on the upper end of shaft **46** to permit rotation of the shaft within the housing.

[0023] An elongated slot **52** is formed along the longitudinal axis of shaft **46** and extends therethrough. Slot **52** is of a length to permit the strap free end **12** to be journaled therethrough, as shown in **FIGS. 4 and 5**.

[0024] Once strap free end **12** has been threaded through slot **52**, crank **50** is rotated to rotate shaft **46** and thereby wind strap free end **12** around shaft **46**. A tensioner **54** formed of a rigid but flexible piece of plastic or spring steel is mounted to an interior surface of forward wall **38**, and has a free end **54***a* positioned substantially tangent to the cylindrical surface of shaft **46**. As strap free end **12** is wrapped around shaft **46**, the strap will form a coil of increasing diameter which will contact the free end **54***a* of tensioner **54**, bending tensioner **54**. Tensioner **54** is a resilient member, which thereby applies a biasing force against strap free end **12**, thereby holding the strap in position to prevent free rotation of shaft **46**, and thereby preventing accidental uncoiling of strap free end **12** from the shaft **46**.

[0025] As shown in **FIGS. 3 and 5**, a clip **56** is mounted on the exterior surface of housing bottom wall **36**, which will permit removable securement of housing **32** to first down strap **16**, as shown in **FIG. 1**. Thus, clip **56** prevents housing **32** from being blown about in the wind during use.

[0026] A flange **58** is formed on side wall **40**, and has an aperture **60** formed therethrough, as shown in **FIGS. 2 and 3**, which will permit attachment of a safety lanyard to housing **32**.

[0027] A plurality of ridges **62** are formed on the exterior surfaces of upper and bottom walls **34** and **36**, adjacent side wall **42**, to permit gripping of housing **32** by the hand. Substantially all of first strap **16** may be wound within housing **32**, when the tie down strap is not in use, such that hooks **18** and **26** and ratchet mechanism **22** are the only portions of the tie down strap which are not wound within housing **32** Thus, the entire tie down strap is stored neatly in a small package and may be easily stored and retrieved. In addition, the strap is maintain in good condition by virtue of the fact that the strap is wound in a coil and protected from the elements within housing **32**. Also, housing **32** is quickly and easily removed from the tie-down strap, for use with other straps, as desired.

[0028] Whereas the invention has been shown and described in connection with the preferred embodiment thereof, many modifications, substitutions and additions may be made which are within the intended broad scope of the appended claims.

I claim:

1: In combination:

a tie down strap including first and second independent straps, the first strap including a free end and an engagement end;

a ratchet mechanism operably connected to the first strap to selectively lengthen and shorten an engagement portion of the strap between the ratchet mechanism and the engagement end of the first strap;

said second strap having a first end fastened to the ratchet mechanism, and a second engagement end; and

a container for storage of the free end of the first strap, removably attached to the first strap at a location spaced away from the ratchet mechanism, said container including:

a housing including opposing upper and bottom walls, opposing side walls, forward wall, and an open rearward end;

a shaft extending between the upper and bottom walls and rotatably mounted on a longitudinal axis;

said first strap free end journaled through the open rearward end of the housing and selectively removably connected to the shaft; and

means connected to the shaft for selectively rotating the shaft on the longitudinal axis of the shaft to wind the first strap free end around the shaft.

2. The combination of claim 1, wherein said container includes a resilient clip mounted on the bottom wall, removably attaching the container to the tie down strap.

3. The combination of claim 1, wherein said upper and bottom walls, opposing side walls, and forward wall of said housing form a substantially enclosed housing with an open rearward end.

4. The combination of claim 1, wherein the shaft has an upper end extending through the upper wall, and wherein the means for selectively rotating the shaft includes a handle connected to the shaft upper end exteriorly of the housing.

5. The combination of claim 1, wherein said shaft includes an elongated slot extending therethrough, and said strap free end is journaled through the slot to selectively removably engage the shaft.

6. The combination of claim 5, wherein the slot extends upwardly from a lower end of the shaft.

7. The combination of claim 1, further comprising a tensioner member having a first end mounted on the housing and a second end positioned generally tangent to the shaft.

8. The combination of claim 7, wherein the tensioner member first end is mounted on one of said forward wall and side walls and extends inwardly therefrom, a tensioner member formed of a resilient flexible material permitting bending of the tensioner member as the strap is wound around the shaft and biases against the tensioner member second end.

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