Aug. 9, 1966 R. W. BRETTNER 3,265,342

BRACKET FOR RECEIVING, HOLDING AND LOCKING AN ELONGATED POST MEMBER TO THE BRACKET

Filed Oct. 20, 1964

FIG. 1

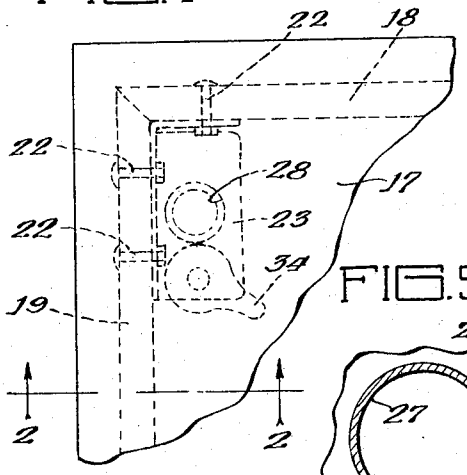


FIG. 3

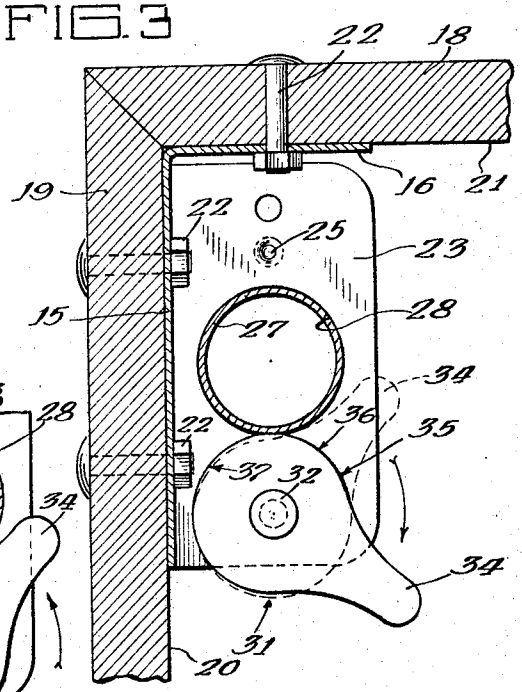


FIG. 5

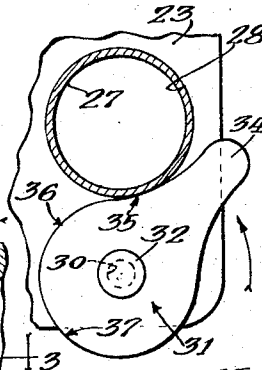


FIG. 2

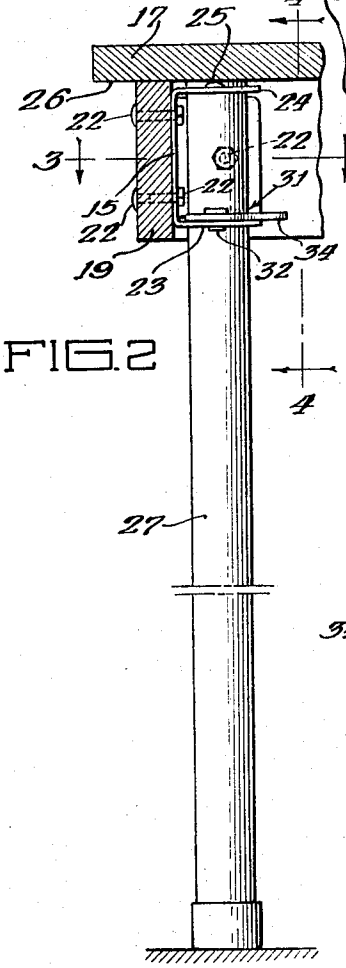
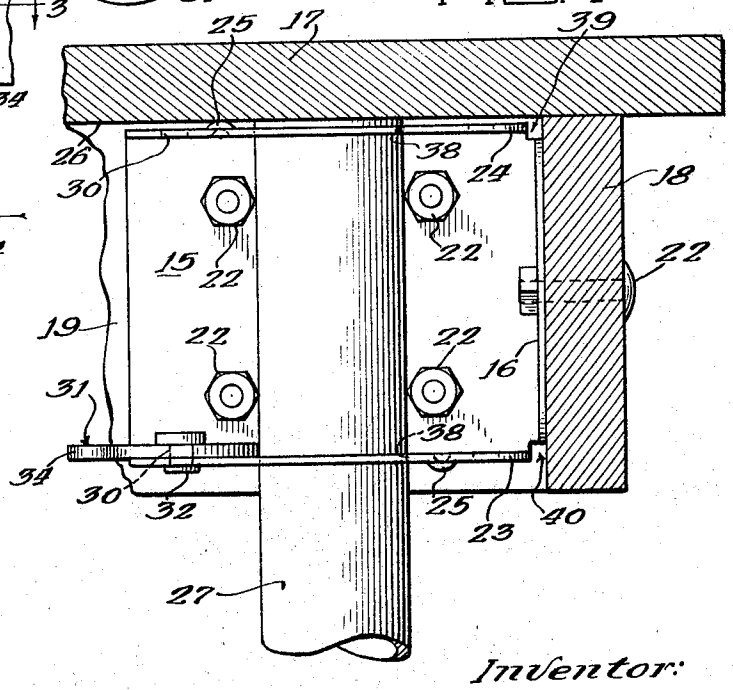


FIG. 4



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BRACKET FOR RECEIVING, HOLDING AND LOCKING AN ELONGATED POST MEMBER TO THE BRACKET

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This invention relates to a new and improved bracket for receiving, holding and locking a cylindrical post member to the bracket.

The principal object of this invention is to simplify a bracket construction which will provide a rigid connection for a removable leg or post to a bracket member. The improvements relate primarily to the structure of the bracket which receives the post member and by which such post member may be rigidly locked to the bracket and thus to the supporting structure to which the bracket may be attached.

Another object is to provide a unique means whereby a leg or post may be locked or unlocked in a post receiving bracket solely by rotational movement of the leg or post.

Another object is to provide a new and improved relatively lightweight but extremely strong bracket and leg structure substantially as shown and described.

Other advantages, features and objects of the present invention will be apparent from the following description of a preferred embodiment illustrated in the accompanying drawings in which:

FIGURE 1 is a fragmentary top plan view of the corner of a table showing the bracket and leg structure of this invention in dotted outline in its relative location to the structural portions of the table;

FIGURE 2 is an upright fragmentary sectional view through the table structure shown in FIGURE 1 taken substantially along line 2—2 in FIGURE 1;

FIGURE 3 is an enlarged fragmentary sectional view taken generally horizontally through the bracket and leg structure substantially along the line 3—3 in FIGURE 2, the enlargement being less than actual size by about one-third;

FIGURE 4 is an enlarged fragmentary vertical sectional view taken substantially along the line 4—4 of FIG. 2, showing the bracket and leg structure in elevation; and

FIGURE 5 is a fragmentary horizontal sectional view of the leg and locking cam structure similar to the illustration of FIGURE 3 showing the cam in its unlocked position.

The use of the present bracket and leg structure is contemplated to encompass the many uses of detachable legs for tables, platforms, risers, merchandise display counters and the like which require the holding of a table top or other platform in an elevated position relative to the floor. While the bracket is designed to repose in the corner of a table, riser or other such platform, its structure is particularly well suited for the holding of any elongated round cylindrical post to the bracket which may in turn be mouted upon a base support. Examples of such uses are the mounting of television antenna, supporting posts for domestic home receiving antennas, the supporting of flagstaffs or other outwardly or upwardly extending post structures.

The structure of the bracket is preferably one formed of sheet metal capable of being bent into the shape desired for the finished bracket. Generally, one piece of sheet metal (16 gauge carbon steel cold rolled sheet being found quite satisfactory) may be bent upon itself to provide a base web 15 and a reinforcing web 16 at right angles to the base web so that each web has a flat outer face which may repose or rest against the skirt of a table corner. Referring to FIGURE 1, the table top 17 is provided with one skirt 18 depending below the table top and another skirt 19 at right angles to the skirt 18. The webs 15 and 16 are so constructed that their outer faces will abut directly against the inner surfaces 20 and 21 respectively of the skirts 19 and 18. These webs are provided with fastener receiving openings extending through the metal of the web so as to receive bolts, screws or other fasteners such as the bolts 22 illustrated in the various figures. By means of the fastener, the bracket may be rigidly and firmly secured to the underside of a table or to any other base support in a position to receive a cylindrical post member.

The post receiving portions of the bracket member comprise a pair of inturned flanges 23 and 24 at the upper and lower extremities of the web 15 of the bracket. The flanges are generally parallel and each is provided in one or more locations with a stamped protrusion 25 which serves to mount the flange away from the underside of the table. For example, referring to FIGURES 2 and 4, it may be noted that the flange 24 is in spaced relation to the underside 26 of the table top 17 since the protrusion 25 engages the underside 26 to hold the flange 24 slightly spaced below the underside of the table top.

Each extending flange is provided with an opening or aperture sized to receive a round cylindrical elongated leg member. The leg or post member 27 herein shown is a hollow cylindrical member of about 1½ inches in diameter so that the openings or apertures 28 in the flanges may be only slightly larger than the outer diameter of the leg so that the leg may freely pass sequentially through the aperture in the flange 23 and then through the aperture in the flange 24. If the end of the leg 27 is relatively flat, it may pass through the aperture in the flange 24 and abut the underside 26 of the table top 17 and bear against the underside of the table top. In this instance, the bracket serves only to take side thrust from the legs 27 of the table, all end thrust being absorbed by the table top itself. In instances where the bracket is used to support a flagstaff, television antenna or the like, side thrust as well as end thrust would be absorbed by the bracket itself. It is desirable that the leg be freely inserted through the openings in the flanges but not be excessively loose since the leg is intended to be clamped against the periphery of the apertures in the flanges.

The locking structure employed is activated by rotation of the leg structure in its assembled relation in the bracket. Both flanges are provided with a pierced opening 30 which may receive a locking cam 31 for swinging movement on a pivot rivet 32. The cam may be installed between the flanges 23 and 24 upon either one of the flanges by passing the rivet through the pierced openings provided for this purpose. In a four-legged table diagonally opposite brackets will be identical; however, in opposite corners the locking cam 31 will be applied to the same flange. In one set of corners it will be attached to the flange 23 and in the opposite diagnonal set of corners, it will be attached to the flange 24 and in either event between the flanges. It is preferred that the locking cam be mounted on the side of the flanges so that the cam reposes between the flanges and within the envelope of the bracket so that there would be no interference with the movement of the locking cam member should the bracket be mounted adjacent a support such as a table top.

The cam is provided with a handle 34 merely for convenience in easily moving the cam so that its periphery is in touching relationship with the leg. The handle 34 is not used for locking or unlocking the cam. In fact, it is impractical to apply sufficient force to the cam to per-

form a locking or unlocking function by the use of the handle **34**.

The structure of the cam is such that its main body is generally round but with a spiralled periphery, part of the periphery in the area **35** being a distance from the center of the rivet **32** such that it may be just tangent to a leg **27** inserted in the apertures as illustrated in FIGURE 5. Movement of the cam in a clockwise direction from the position shown in FIGURE 5 will cause a portion of the periphery to engage the outer surface of the leg lightly. From the cam periphery at **35** near the handle to the point **36** about 90° from the handle, there is little change in cam radius. From the point **36** counterclockwise on the cam periphery, as shown in FIG. 3, the radius increases toward the point **37** on the cam periphery. After initial contact between the leg and cam is established, manual rotation of the leg in the bracket apertures may cause additional rotation of the cam by friction to the position illustrated in FIGURE 3. The cam periphery between the areas **36** and **37** increases about .040 inch in radius from the center of the rivet **32**. Additionally, the portion between **36** and **37** of the cam will overlie and project into the periphery of the apertures which receive the leg so that the turning of the leg causes a powerful binding locking of the cam against the leg structure. In this fashion a very tight and secure locking of the leg in the bracket may be accomplished.

The cam **31** may be stamped from cold roll sheet steel and given treatment as desired. In some applications the roughness of the cam periphery obtained from the stamping operation may be sufficient to perform well in frictional contact with the particular leg or post structure employed. In some instances, the periphery of the cam may be roughened as by knurling. Different materials may be used as well as steels of different tempers and various known hardening and heating treatments. The strength needed in the parts may be met in part by choice of material, thickness of the bracket metal and cam metal. In some applications, the bracket may be strengthened by securing the web **16** at its upper and lower edges to the adjacent edges of the top and bottom flanges **23** and **24**. Thus, the spaces such as at **39** and **40** (FIGURE 4) may be filled with weld metal joining web **16** to the flanges or some other mechanical joining may be used.

It should be noted that the positioning of the cam **31** between the flanges urges the leg structure **27** against the opposite side such as the side **38** of the apertures shown in FIGURE 4. The leg is clamped against the flanges **23** and **24** opposite the cam by the clamping action.

It has been found that the leg may be locked quite securely by turning the leg in the apertures against the friction of the cam and may be securely unlocked by reverse rotation or turning of the leg. The cam itself is practically immovable by handling the handle **34** once it is locked in position, yet the turning of the leg itself can easily lock and unlock the cam against the leg and thus the leg to the bracket.

The foregoing detailed description has been given for clearness of understanding only and no unnecessary limitations should be understood therefrom as some modifications may be obvious to those skilled in the art.

I claim:

1. A combination bracket and leg lock for use with tables and the like, comprising:

a post member generally circular in cross section defining a generally cylindrical outer surface;

a bracket adapted for mounting on a table or the like and including a pair of outwardly extending flanges each having walls forming an aperture to receive and loosely embrace said post member;

and a cam lock swingably mounted on one of the flanges and having a periphery closely adjacent the post receiving aperture in such flange, the periphery of said cam lock defining a surface of varying radius about the swingable mounting on the flange and being progressively movable into and out of overlying registry with the post receiving aperture, said cam lock being freely swingable to bring its peripheral surface into a frictional contact with the cylindrical outer surface of said post member in the post receiving aperture so that turning of the inserted post member alone may turn the cam lock into and out of lock clamping of the post member against one wall of the post receiving aperture.

2. A combination bracket and leg lock for use with tables and the like, comprising:

a post member generally circular in cross section defining a generally cylindrical outer surface;

a bracket adapted for mounting on a table or the like and including at least an opening to receive and loosely embrace said post member, said bracket having means forming a side of such opening against which the post member may bear;

and a cam lock swingably mounted on said bracket and having a periphery closely adjacent to the post receiving opening, the periphery of said cam lock having a surface of varying radius about the swingable mounting on the bracket and being progressively movable into and out of overlying registry with the post receiving opening, said cam lock being freely swingable to bring its peripheral surface into a frictional contact with the cylindrical outer surface of said post member in the post receiving opening so that turning of the inserted post member alone may turn the cam lock into and out of lock clamping of the post member against said side of the post opening.

3. A combination bracket and leg lock for use with tables and the like, comprising:

a bracket adapted for mounting on a table or the like and including a pair of spaced outwardly extending flanges each having walls forming an aperture therethrough;

a post member insertable sequentially through one of said apertures into the other such aperture and being rotatably mounted therein;

a cam lock swingably mounted on one of the flanges and having a periphery closely adjacent to the aperture in such flange, the periphery of said cam lock defining a surface of varying radius about the swingable mounting on the flange and being progressively movable into and out of overlying registry with the post receiving aperture;

and means defining a generally cylindrical surface on said post member closely adjacent the post receiving aperture of said one flange and in the path of the swinging movement of said cam lock about its mounting so that said cam lock can be freely swung to bring its peripheral surface into a frictional contact with the cylindrical surface of said post member in the post receiving aperture so that turning of the inserted post member alone may turn the cam lock into and out of lock clamping of the post member against one wall of the post aperture.

4. A combination bracket and leg lock for use with tables and the like, comprising:

a leg member;

a bracket adapted for mounting on a table or the like and including walls forming an opening to rotatably receive and loosely embrace said leg member;

a cam lock swingably mounted on said bracket and having a periphery closely adjacent the leg receiving opening, the periphery of said cam lock defining a surface of varying radius about the swingable mounting on the bracket and being progressively movable into and out of overlying registry with the leg receiving opening;

and means defining a generally cylindrical surface on said leg member closely adjacent the leg receiving opening of said bracket and in the path of swinging movement of said cam lock about its mounting

whereby said cam lock can be freely swung to bring its peripheral surface into a frictional contact with the cylindrical surface of said leg member in the leg receiving opening whereby turning of the inserted leg member alone may turn the cam lock into and out of lock clamping of the leg member against one wall of the leg receiving opening.

5. A combination bracket and leg structure for use with tables and the like, comprising:

a leg member,

a bracket having a wall forming an opening to rotatably receive and loosely embrace said leg member,

a cam member rotatably mounted on said bracket and having means defining a peripheral camming surface closely adjacent to and movable into and out of overlying registry with the leg receiving opening,

and means defining a cooperating camming surface on said leg member closely adjacent said leg receiving opening and in alignment with said peripheral camming surface on said cam member,

said camming surfaces cooperating so that turning of

the leg member may effect an increasing frictional contact between said camming surfaces and movement of the cam into said overlying registry with the leg receiving aperture to clamp the leg member against said wall of the leg receiving opening.

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