Jan. 29, 1957 W. J. KRANZ 2,779,648

COLLAPSIBLE LEG STRUCTURE FOR ATTACHMENT TO A TABLE TOP AND THE LIKE

Filed April 2, 1954

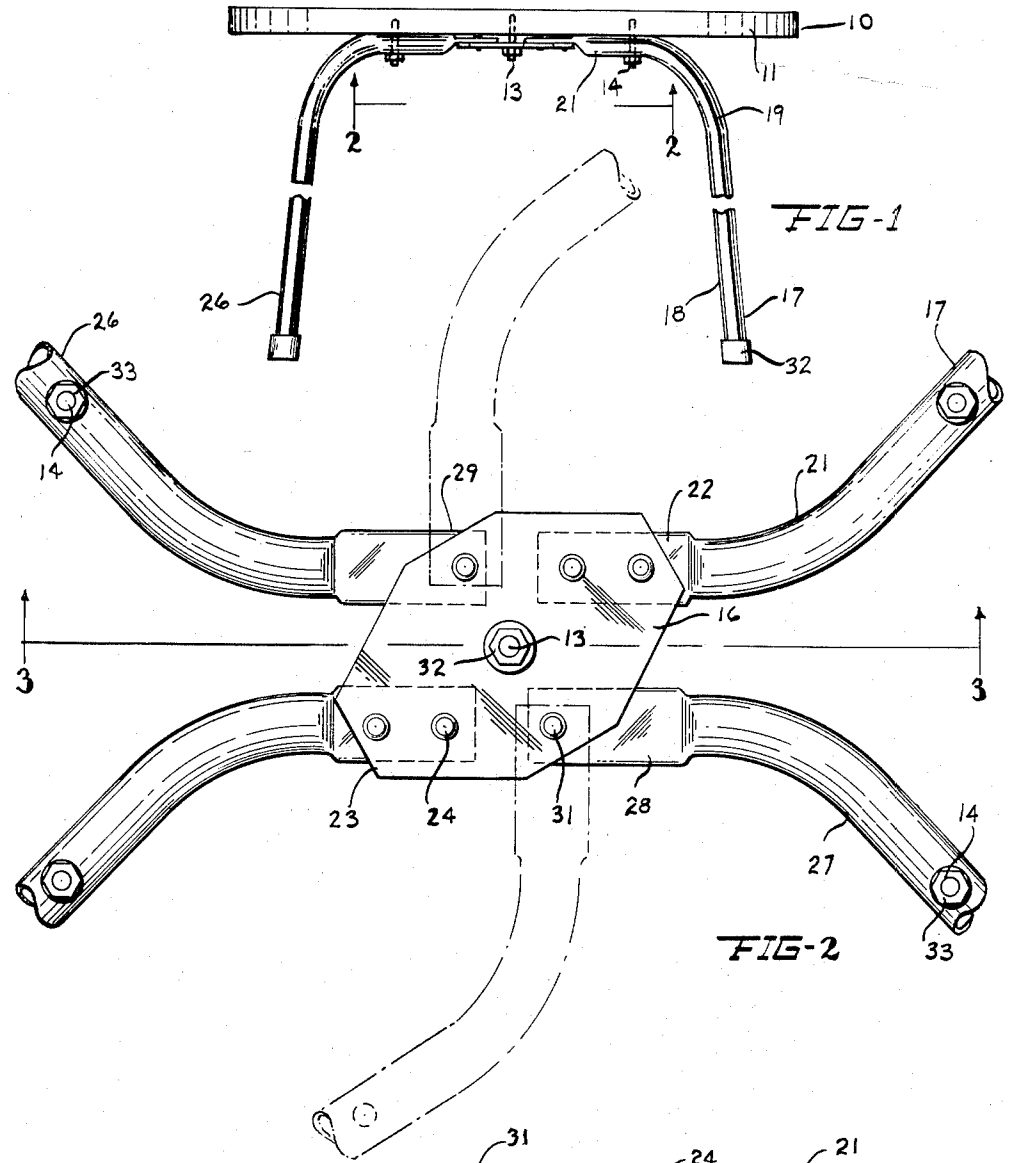


FIG-1

FIG-2

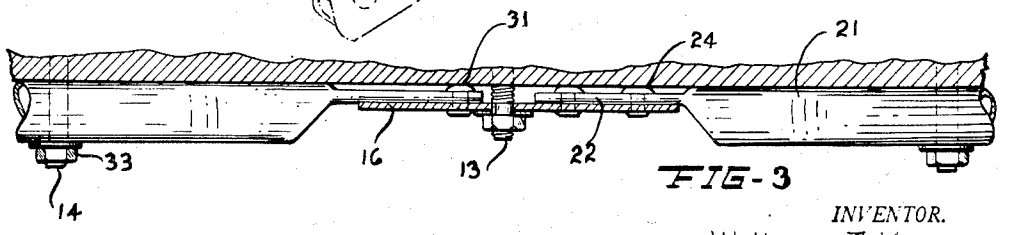


FIG-3

INVENTOR.

William J. Kranz

BY

Richard S. Hayes

ATTORNEY

United States Patent Office 2,779,648 Patented Jan. 29, 1957

2,779,648

COLLAPSIBLE LEG STRUCTURE FOR ATTACHMENT TO A TABLE TOP AND THE LIKE

William J. Kranz, Cuba, N. Y., assignor to Viko Furniture Corporation, Eldred, Pa., a corporation of Pennsylvania

Application April 2, 1954, Serial No. 420,708

3 Claims. (Cl. 311—35)

This invention relates to the structure and assembly of a leg unit with a table top, chair seat, or similar article of furniture.

More particularly, the invention is directed to a leg unit that may be assembled to form the support of an article of furniture at the place of display or use rather than at the place of manufacture.

Articles of furniture, such as chairs, tables, etc., have not only become increasingly costly to manufacture, but to this cost has been added the considerably increased expense involved in packaging and shipping such articles. Manufacturing costs generally cannot be lowered, even though the articles may be produced by high production methods, but it has been found possible to reduce the expense and time involved in packaging, as well as the cost of shipping, by producing articles in separate units or parts that lend themselves to a compact arrangement for transit and may be assembled by the purchaser at the point of destination. Articles produced in separate units or parts have a further advantage beyond that of reducing the cost of packaging and shipping. This advantage derives from the fact that retail stores or similar merchandise outlets need only assemble and display one of any given article, the remaining articles being left in their compact, packaged state. In this manner, stores and other outlets can maintain a greater stock of articles in the same or less storage space than was heretofore required.

It is, of course, known that so-called "knocked-down" articles of furniture of the general class to which the present invention relates, have long been marketed and that many such articles, when assembled, adequately serve their intended purpose. Such articles as chests, desks, and bookcases would fall in this class, as their various parts or units can be securely joined by screws, bolts, etc., and invariably have considerable areas for interfitting of the parts. However, it is also known that certain articles of furniture, such as chairs and tables, are not as susceptible to unital construction without sacrificing a measure of stability of the leg structure, either initially or after a period of use. No difficulty has been encountered in designing a leg and top structure that could be opened up, unfolded, or swung into assembled position, but when a manufacturer attempts to produce such a structure without loss of stability and rigidity in the legs thereof, additional braces or supports must be provided. Thus, any advantage of collapsing or folding the article is partially lost, since the extra supports or braces make it impossible to pack into a small crate or carton.

It is a purpose and object of the present invention to provide a leg structure for tables, chairs, and the like that includes collapsible parts which enable compact packaging for shipment.

It is another object and advantage of the invention to provide leg structure that may be easily applied and readily secured to a chair seat, table top, or the like without the aid of special tools or instructions.

A further object of the invention lies in the provision

of leg structure of so-called "knocked-down" design that, when assembled with a seat or table top, is extremely rigid and will remain so throughout its period of use.

Another and further object of the invention lies in the provision of leg structure that, by reason of its duplication of parts, is relatively inexpensive to produce and is also adaptable, without any change or appreciable change, as a support for a variety of articles of furniture.

Other objects and advantages of the invention will be more fully understood from a consideration of the following specification, taken in conjunction with the accompanying drawing; in which

Fig. 1 is a fragmentary side elevational view of a table top fitted with the leg structure embodying one form of the invention;

Fig. 2 is a greatly enlarged fragmentary bottom plan view of the table, showing the legs and anchor plate in position of use, with two of the opposite legs in collapsed, packaged position in dotted lines; and

Fig. 3 is a fragmentary elevational view (partly in section), showing the complete securing means for one pair of the legs, being taken substantially as suggested by the line 3—3 of Fig. 2.

Referring more particularly to the drawing, the reference numeral 10 is employed to generally designate a table of which the present invention constitutes a part. Insofar as the invention is concerned, the table top 11 may be the seat of a chair or settee, the top of a taboret, bookstand, or, in fact, any other article that requires a receiving area to be located at some height above the floor. For convenience, the top 11 may be considered to be circular. Projecting downwardly from the exact center of the bottom face 12 thereof is a screw 13. This screw is embedded and anchored in the table top. The present disclosure contemplates the provision of four legs as a support for the top 11 and, for this reason, four additional screws 14 are embedded in the top 11 and project downwardly from the under face thereof.

An anchor plate 16 is provided and, for convenience, may be of the shape shown in the drawing. Insofar as the present invention is concerned, the plate could be circular or any other shape so long as it did not interfere with movement of certain of the legs hereinafter described. Four tubular legs are provided as a support for the top 11. Diagonally opposite pairs of these legs are of identical construction, one pair being fixed and the other movable with respect to the plate 16. Reference is now had to the pair of fixed legs 17. Each of these legs consists of an upright portion 18 of desired length that continues through a suitably curved portion 19 into a horizontal supporting part 21. Near its end the part 21 is curved in a horizontal direction, substantially to the extent shown, for the purpose of increasing the extent of contact with the top. Beyond this horizontal curve the part 21 terminates in a securing end 22. This end is formed by flattening the top and bottom of the tube to change the cross sectional contour from round to substantially flat form. It will be noted that the plane of the flattened part 22 is close to, but not in the plane of the top surface of the part 21. The reason for this will be understood from further consideration of the structure and its assembly. The end 22 of each leg 18 is permanently and rigidly secured to opposite ends 23 of the plate 16 in any suitable manner, as by the rivets 24 that are shown.

A pair of swingable legs 26 are provided. These legs are identical and, with the exception of the direction of the horizontal bend in the supporting parts 27, are identical with the other legs 17 previously described. Therefore, they terminate in flattened ends 28 similar to the ends 22. The ends 28 of these legs are secured to opposite sides 29 of the plate 16 by single rivets 31. This,

of course, enables swinging the legs **26** about said rivets with respect not only to the plate **16**, but the legs **17** as well. A vertical opening is made in each of the four legs approximately midway between the bend **19** and the innermost ends **22** and **28**.

The table top **11**, including the depending screws **13** and **14**, constitutes one unit of the entire article. The leg unit, consisting of legs **17** and **26** and mounting plate **16**, represents the balance of the entire article. By reason of the pivotal connection of legs **26** with the plate **16**, it is possible to swing these legs into a position such that the feet **32** abut the corresponding feet of the fixed legs. With the legs in this relative position, the entire leg unit is greatly compacted. The top **11**, being flat, may be placed against the folded leg unit, or, if of small enough diameter, between these legs. The entire structure then may readily be placed in a comparatively small carton for shipping. It will be clear that by having a leg unit separate from a table top it is possible to greatly decrease the bulk of the container and the cost thereof as against attempting to package the table in assembled form, as it is shown in Fig. 1.

When it is desired to assemble the leg unit with the top **11**, the folded legs **26** are swung about their pivots **31**, from dotted to full line position, as viewed in Fig. 2. The ends **28** of the swingable legs are now in the plane of the corresponding ends of the fixed legs **17** and, viewing the horizontally curved portions of one fixed and one swingable leg, it will be noted that they are substantially U-shaped. The table top **11** is placed upside down on a suitable surface and the leg unit is inverted and placed thereon, screw **13** projecting through a centered opening in the plate **16**, and screws **14** projecting through the openings in the horizontal parts **21** and **27** of the legs. A nut **32** is applied to screw **13** and, when turned down, draws the plate **16** toward the under face of the top **11** and, by so doing, causes the heads of rivets **24** and **31** to press into the under face of the table top. At this point in the assembly, attention is directed to the fact that, due to the plane of the flattened ends of the legs with respect to the tops of the parts of which the legs are formed, there is a tendency for the horizontal parts **21** to bend slightly away from the adjacent portion of the top. By applying additional nuts **33** to screws **14**, the supporting parts of the legs **21** are drawn into abutment with the under side of the table top and, by reason of the slight springing of each leg, the nuts **32** are locked against loosening as well as though lock washers had been applied.

With the parts thus assembled, it will be noted that each leg, by reason of the securement provided by screws **14**, in conjunction with the screw **13** for securing plate **16**, is prevented from twisting. Furthermore, by horizontally bowing the parts **21** or **27** of each leg, greater support is provided for the table top **11** and any weighty item that may be placed thereon. Since there can be no relative swinging or twisting of the legs with respect to each other or to the table top, it is evident that the present invention provides not only an extremely sturdy and rigid sructure but one that is fully collapsible for compact shipping as well. The leg unit is inexpensive to manufacture since each pair of legs is identical and the only difference between the pairs is noted in the opposed bowing of the table top supporting parts.

Although applicant has shown and described only one application of use of a collapsible leg structure, it will be apparent that such structure may be applied to other articles of furniture and that the design of the legs, for artistic purposes, may also be altered without in any way departing from the spirit and scope of the invention as set out in the annexed claims.

Having thus set forth my invention, what I claim as new and for which I desire protection by Letters Patent is:

1. Collapsible leg structure attachable to a table top and the like comprising a plate, a set of four tubular legs, the upper parts of said legs extending substantially horizontally and adapted to provide a considerable area of contact support for said top, flattened ends on said parts, the plane of said ends being adjacent the top surfaces of said horizontal parts, said ends overlapping said plate, diagonally opposite leg ends being rigidly joined to said plate, the other of said ends being pivotally joined to said plate, means securing said plate in abutment with the under face of said top, and further means remote from said plate for drawing said parts into abutment with said top.

2. Collapsible leg structure attachable to a table top and the like comprising a plate, a set of four tubular legs, the upper parts of said legs extending substantially at right angles to the lower parts thereof and adapted to provide a considerable area of contact support for said top, flattened ends on said parts, the plane of said ends being adjacent the top surfaces of said horizontal parts, said ends overlapping said plate, and being in abutment with said top when said structure is assembled therewith, diagonally opposite leg ends being rigidly secured to said plate, the other ends being pivotally joined to said plate, the last mentioned ends enabling swinging the legs thereof into a collapsed position.

3. Collapsible leg structure attachable to a table top and the like wherein is provided a centered depending screw, said structure comprising a plate having a centered aperture for receiving said screw, a set of four legs, the upper parts of said legs extending substantially horizontally and adapted to provide a considerable area of contact support for said top, said upper parts terminating in ends that overlap said plate, two of said legs being rigidly secured to said plate, the remaining two legs being pivotally joined to said plate and movable into and out of proximity with the first two legs whereby to selectively collapse said structure or expand it into position for use, and means for individually securing said horizontal parts to said top under pressure when the pivotal legs are expanded and said plate is secured to said top by a nut engaged with said screw.

References Cited in the file of this patent

UNITED STATES PATENTS

156,784	Gesser	Nov. 10, 1874
312,039	Tucker	Feb. 10, 1885
899,383	Canniff	Sept. 22, 1908
933,474	Lindow	Sept. 7, 1909
1,885,635	Schweitzer	Nov. 1, 1932
2,210,047	Stieglitz	Aug. 6, 1940
2,425,370	Giberson	Aug. 12, 1947
2,537,128	Giberson	Jan. 9, 1951
2,540,254	Garber	Feb. 6, 1951
2,563,891	Wallance	Aug. 14, 1951
2,706,670	Heifetz	Apr. 19, 1955