

Aug. 25, 1953

J. STRENG

2,650,148

APRONLESS TABLE AND LEG FASTENING THEREFOR

Filed June 28, 1952

3 Sheets-Sheet 1

FIG. 1

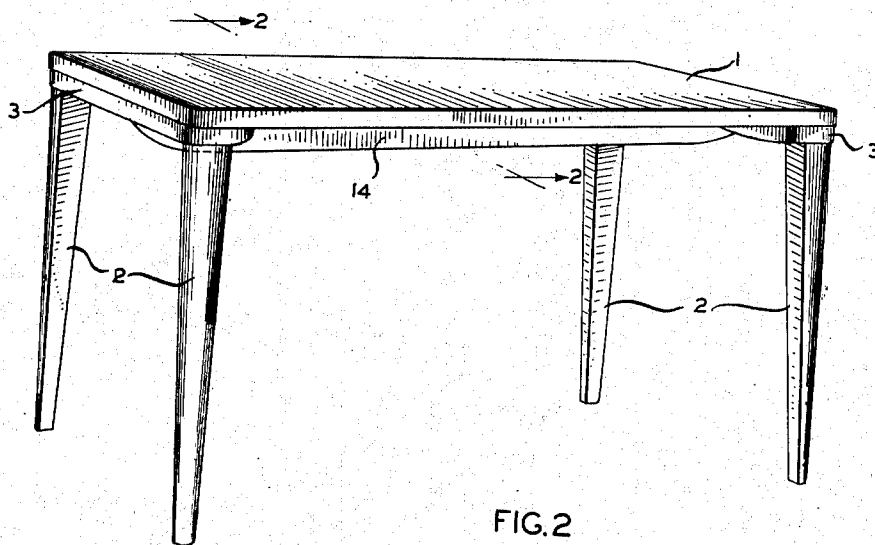


FIG. 2

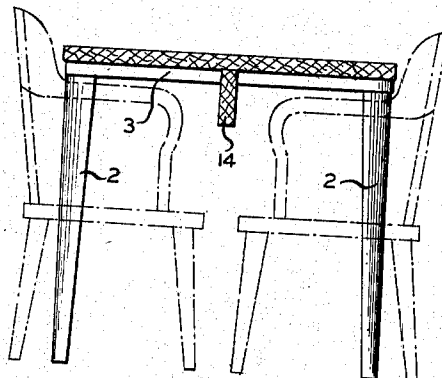


FIG. 3

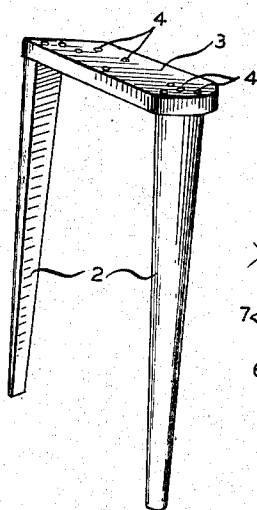
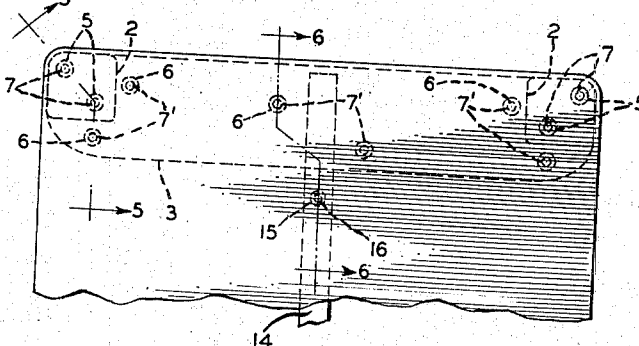


FIG. 4



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FIG. 5

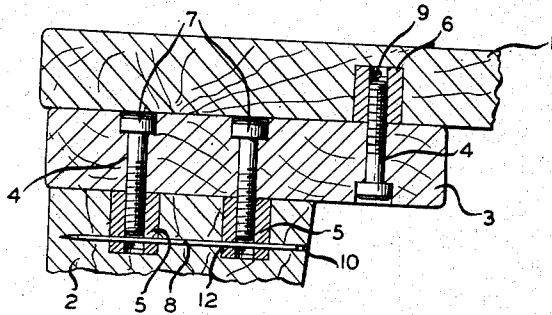


FIG. 8

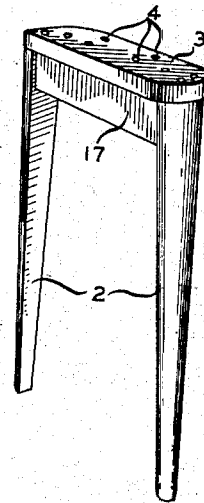


FIG. 6

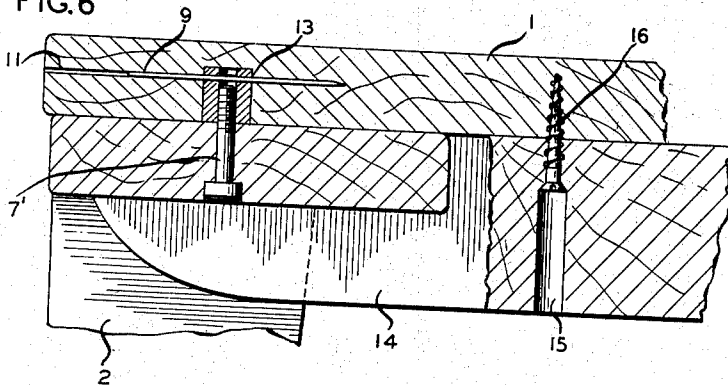
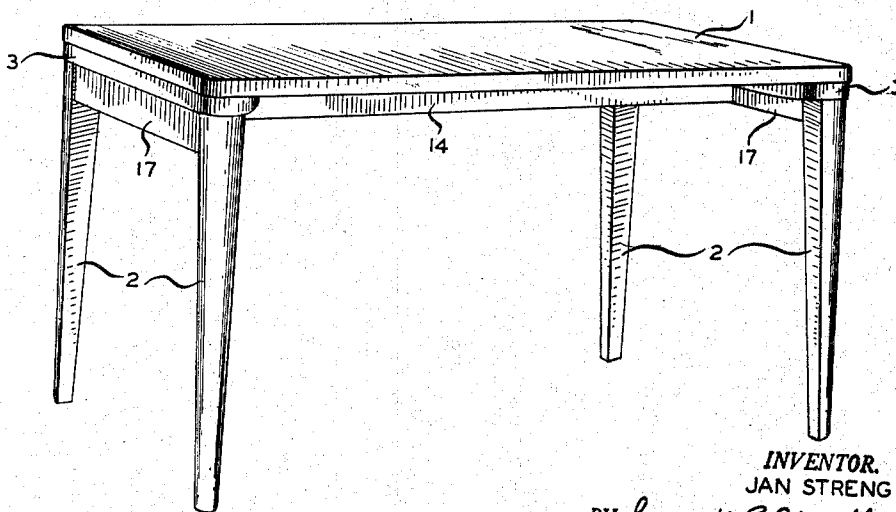


FIG. 7



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FIG. 9

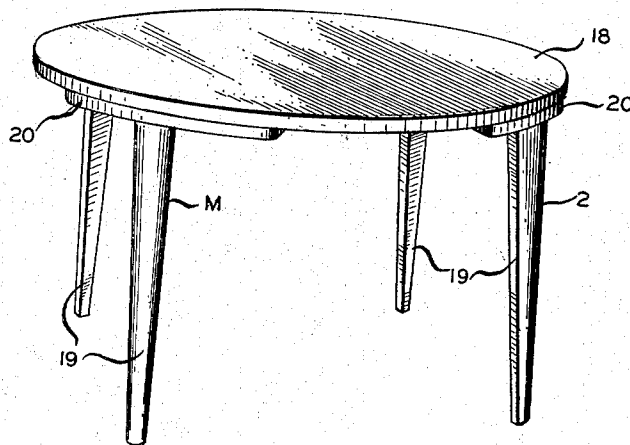


FIG. 10

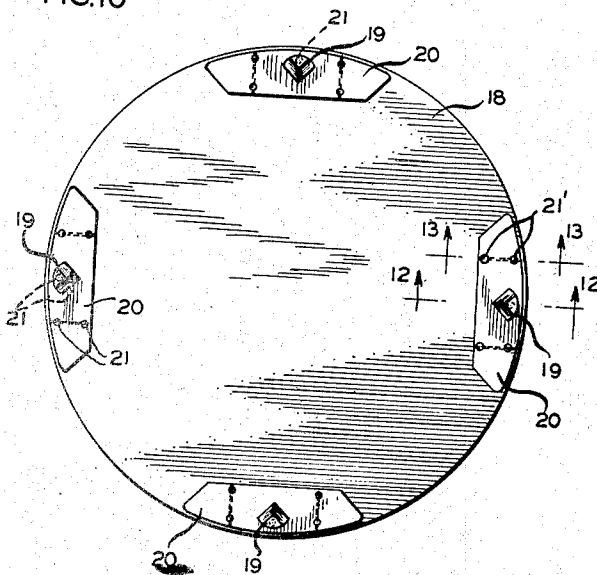


FIG. 11

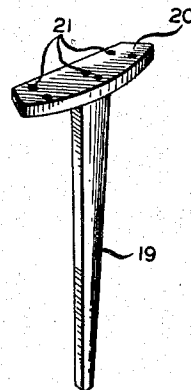


FIG. 13

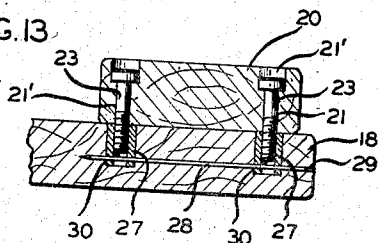
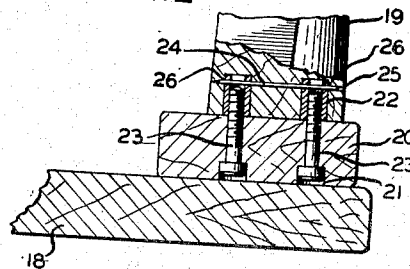


FIG. 12



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UNITED STATES PATENT OFFICE

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APRONLESS TABLE AND LEG FASTENING THEREFOR

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Application June 28, 1952, Serial No. 296,120

2 Claims. (Cl. 311-110)

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This invention relates to table construction, particularly to means of attaching legs to table tops through an intermediate sub-top.

The invention is directed to improving the utility of tables, especially library or other tables used for reading, by eliminating the aprons of conventional construction. Such aprons, which are fastened to each adjacent pair of legs and to the under-edges of the table top, cause objectionable interference with the arms of chairs, and require the tables to be of greater height than studies have shown to be best for general use, in order to provide adequate leg room beneath the aprons. Sufficient leg room to allow a change of position for the reader is considered very important by educators and psychologists in promoting the relaxation essential for good study results. Such tables also cause a considerable wastage of space, since wide aisles must be provided between them to allow adequate space for the chairs.

The invention overcomes the disadvantages of prior constructions by attaching the legs, individually or in pairs, to sub-tops by means of machine screws passing through the sub-tops and fastening in threaded metal bushings secured in the legs, to form leg assemblies. These leg assemblies are then attached to the table top, using only a screw driver, by means of machine screws fastening in threaded bushings secured in the top. The joinder produced by this method of fastening the legs to the top is so strong that external bracing is not necessary.

In the drawings:

Fig. 1 shows a table in perspective constructed according to the present invention.

Fig. 2 is a cross section taken along line 2-2 in Fig. 1, showing chairs in dot dash outline under the table.

Fig. 3 shows a leg assembly in perspective consisting of a sub-top with two legs attached to it.

Fig. 4 is a fragmentary plan view of one end of a table with a leg assembly and its attaching means shown in dotted lines.

Fig. 5 is an enlarged cross section taken along line 5-5 in Fig. 4, showing the attaching means for the legs and leg assemblies.

Fig. 6 is an enlarged cross section taken along line 6-6 in Fig. 4, showing the attachment of the sub-top to the top, and an auxiliary stringer extending longitudinally in the center of the top.

Fig. 7 is a perspective of a table showing the use of an external brace in a leg assembly as shown in Fig. 3.

Fig. 8 is a perspective showing the leg assembly used in Fig. 7.

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Fig. 9 is a perspective showing the invention applied to a round top table.

Fig. 10 is a bottom view of the table shown in Fig. 9.

Fig. 11 is a perspective showing the leg assembly used in Fig. 9.

Fig. 12 is an enlarged cross section taken along line 12-12 in Fig. 10.

Fig. 13 is an enlarged cross section taken along line 13-13 in Fig. 10.

A table constructed according to the invention may have a rectangular top 1, as in Figs. 1 and 7, a round one 18, as in Fig. 9, or one of any other desired shape for special installation. The legs 2, in Figs. 1 and 7, and 19, in Fig. 9, are attached to sub-top 3, 20 in pairs or singly, as in Figs. 3 and 11, forming leg assemblies which can then be attached at suitable positions about the marginal portion of the table top. Holes 4, Figs. 4 and 5, or 21, Figs. 12 and 13, are pre-drilled and counterbored in sub-tops 3 and 20, respectively, to receive the attaching screws for mounting the legs and fastening the leg assemblies to the top. The counterbores may be substantially larger than the heads of the screws, allowing the use of washers to distribute stresses over a larger area. In tables of extra length, a bracing stringer 14 may be suitably fastened along the center line of the table top. The absence of aprons, which in conventional tables extend between the legs on each side of the table along the under edge, allows arm chairs to be pushed under the table out of the way, and permits freedom of movement to the reader. Stringer 14, when provided, in no way interferes with this.

Threaded metal bushings 5 are mounted in tightly fitting relation in recesses or sockets bored in the abutting ends of the legs and the under side of the top. To prevent the bushings from turning or pulling out, pins 8, 9, Figs. 5 and 6, pass through bores 10, 11 formed parallel to the plane of the table top and leg end surfaces in aligned relation to holes 12, 13 drilled in the ends of the bushings. Bore 10 extends inwardly from the outer edge of the top between the upper and lower faces. Bore 11 extends outwardly from the inner side of a leg in order to be in the least conspicuous position. The pins have the outer ends spaced inwardly from the edge of the top and leg surface. Plugs fill the open ends of the bores to provide a finished surface. Holes 4 are pre-drilled to match the positions of the bushings in the legs and top, and counterbored to receive the heads of machine screws 7, 7', which join the legs to the attaching sub-tops and the

leg assemblies, so formed, to the table top when the table is assembled at the place where it is to be used. Since the threads of the fastening screws mate with threads of equal hardness rather than with comparatively soft wood, as is frequently the case in other constructions, there is no tendency for the holes to enlarge under the working strains and allow the legs to become loose. The large diameter and parallel sides of the bushings, compared with the tapered wood screws of other constructions, offers a large area of smooth surface to the wood in which it is imbedded, distributing the transmitted stresses more widely and evenly, with none of the cutting action of the wood screws. The stresses on the legs are distributed, by means of the bushings, through an area of the sub-top or attaching plate which is substantially larger than the end surface of the leg, and in turn from the sub-top to a still larger area of the top by reason of the attaching screws being spaced a greater distance from one another than the screws attaching the legs to the sub-top. This even, two-stage distribution of stresses provides a structure having superior strength and rigidity.

The optional bracing stringer 14 may be attached to the table top simply by wood screws 16, passing through pre-drilled holes 15, since the stresses are much less than on the legs. For further strengthening in conditions of extremely hard usage, an end brace 17 may be fastened between the legs at each end of a table. Brace 17 will have the ends secured to the two legs and the upper edge secured to the attaching sub-top by suitable means, such as are herein described for attaching the legs to the sub-top. Such braces, like stringer 14, in no way interfere with the usable space beneath the table, but are unnecessary for any but the most severe service, such as the constant support of heavy display cases or exhibits.

Where a round top table 18 as in Fig. 9 is desired, legs 19 are fastened individually to sub-tops 20. Holes 21, 21' receive screws 23 fastening into bushings 22, 21, which are secured by pins 24, 28, Figs. 12 and 13, mounted in bores 25, 29, and holes 26, 30, formed in the top and legs in the same manner as previously described in connection with the illustrations in Figs. 5 and 6, and providing the same advantages. In addition to superior strength and utility, this design provides a table of simple, clean lines, pleasing to the eye and highly suitable to modern architectural styling trends.

Pins 8, 9, 24 and 28 are positioned to extend transversely of the grain of the wood in order to obtain the greatest stress distribution and reduce any tendency of the wood to split.

The sub-top is of a size that is substantially larger than the abutting end of a leg or legs so that the leg attaching bushings are spaced inwardly a sufficient distance from the edges to substantially eliminate the likelihood of their splitting the wood. The means for attaching the sub-top to the under side of the top can therefore be located a substantial distance away from the legs. The area of the sub-top occupies only sufficient space on the under side of the top to efficiently attach the legs and provide a top support while providing minimum interference to use of the space under the top, particularly at the

sides. The shape of the sub-top is varied according to its use to support two legs and again where it is used on a rounded form of table, as shown.

The invention claimed is:

1. An apronless wood table composed only of a top having an unobstructed under surface and a plurality of leg assemblies; said top having embedded in said under surface a plurality of internally threaded, metal, fastener-receiving bushings, said bushings having an end surface flush with said under surface of said top and accessible there to receive threaded top fasteners in attachment of said leg assemblies to said top; said leg assemblies each comprising a sub-top having flat parallel faces and at least one leg having an end abutting against the under face thereof and attached thereto, said legs each having embedded in said abutting end a plurality of internally threaded, metal, fastener-receiving bushings, said bushings having an end surface flush with said abutting end and accessible there to receive threaded leg fasteners in attachment of said legs to said sub-top; said sub-tops each having a plurality of threaded metal leg fasteners extending transversely therethrough in predetermined positions matching the positions of said internally threaded bushings embedded in said leg ends and engageable with said bushings in attachment of said legs to said sub-tops, said sub-tops further having a plurality of threaded metal top fasteners extending transversely therethrough, oppositely to said leg fasteners, in predetermined positions matching the positions of said internally threaded bushings embedded in the under surface of said top and engageable with said bushings in attachment of said leg assemblies to said top, said top fasteners and said matching bushings in said top being spaced outwardly from said leg fasteners and said matching bushings in said leg ends beyond the periphery of said abutting end of said legs.

2. In an apronless wood table as claimed in claim 1, means retaining said threaded fastener-receiving bushings in said top comprising a plurality of pins each engaged in a transverse bore in the inner end of at least one of said bushings and extending beyond said bushings in connecting aligned bores in said top extending inwardly from an adjacent edge of said top; and means retaining said threaded fastener-receiving bushings in said legs comprising a plurality of pins each engaged in a transverse bore in the inner end of at least one of said bushings and extending beyond said bushings in connecting aligned bores in said legs extending inwardly from an adjacent longitudinal surface of said legs.

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