

Aug. 10, 1965

F. E. BELLOWS

3,199,825

TABLE-EASEL COMBINATION

Filed July 27, 1964

2 Sheets-Sheet 1

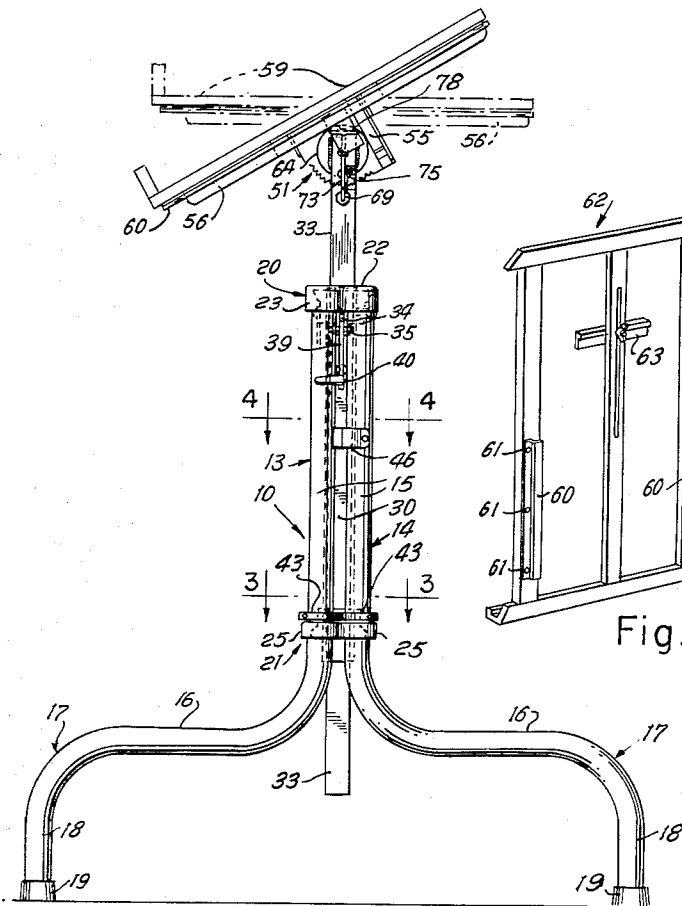


Fig. 1

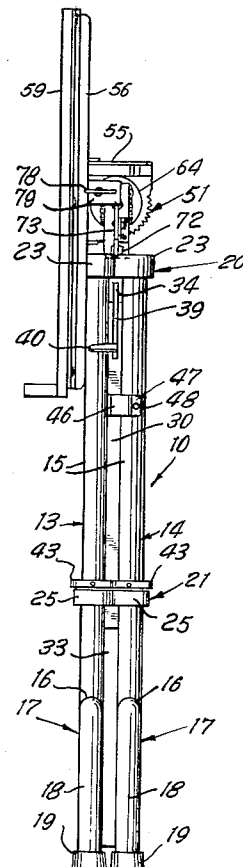


Fig. 2

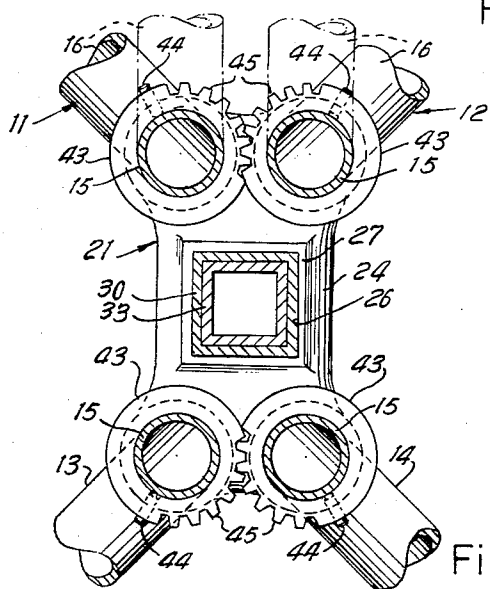


Fig. 3

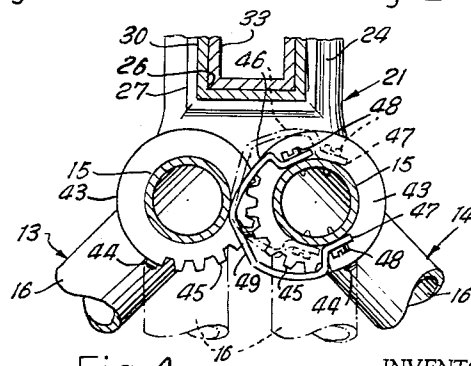


Fig. 4

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2 Sheets-Sheet 2

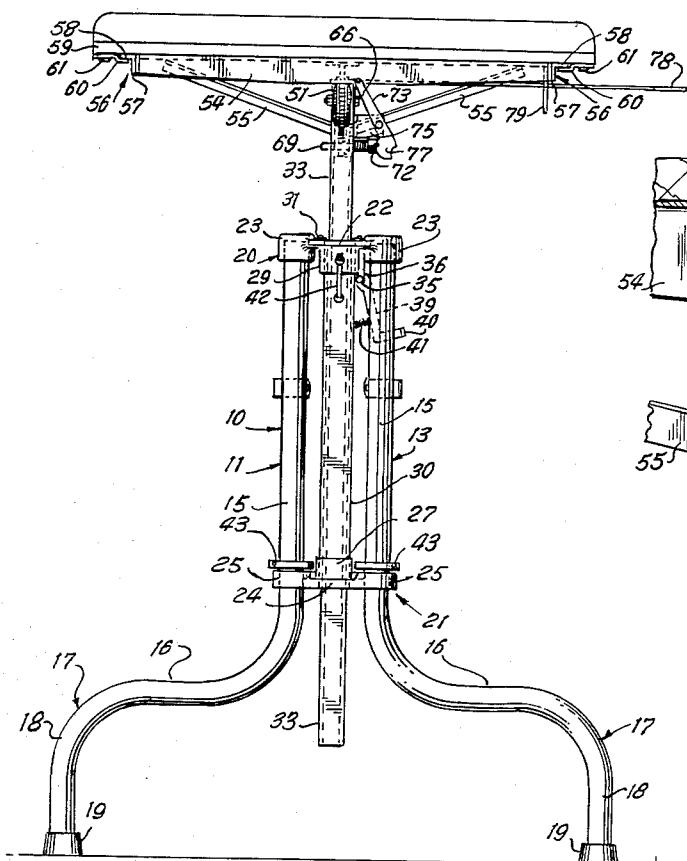


Fig. 5

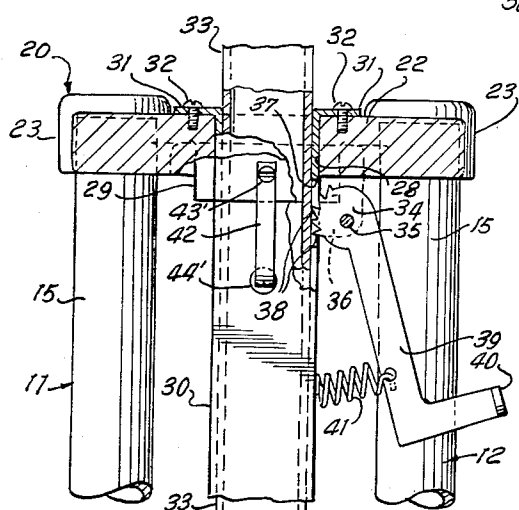


Fig. 6

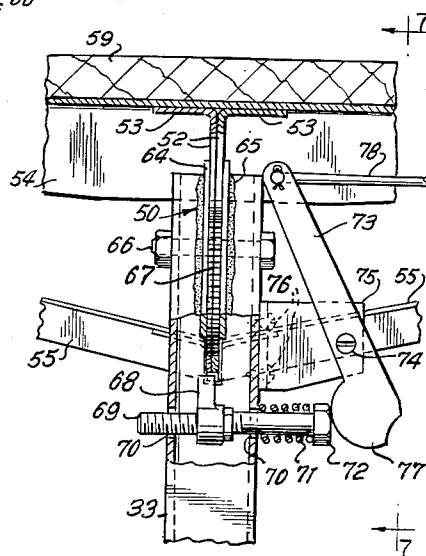


Fig. 7

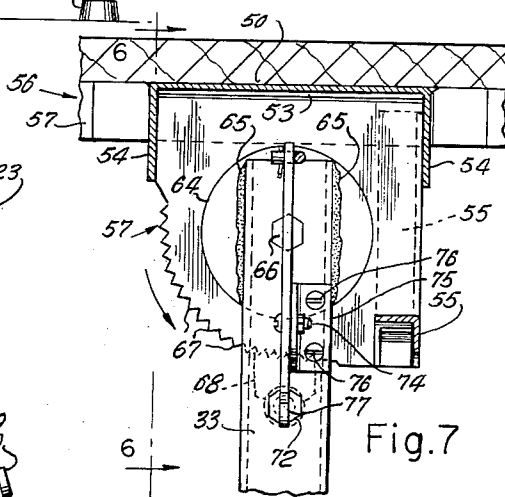


Fig. 8

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3,199,825

TABLE-EASEL COMBINATION

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5 Claims. (Cl. 248—397)

The invention is shown and described in my application filed January 7, 1963, bearing Serial No. 249,632, now abandoned, and of which this application is a continuation-in-part.

This invention relates to adjustable and collapsible tables and stands, and it has particular reference to a utilitarian support for table tops, drawing boards, lecterns, vertical panels, and the like, and embodying a variety of adjustable features, including foldability for storage or transportation.

Many different types of tables and stands have been devised by which to provide table tops capable of adjustment to different heights and angles, including foldability, affording working surfaces for draftsmen, lecturers, students, and for supporting vertical panels, such as projection screens for motion pictures and slides, or other purposes. Generally, however, such conventional devices are limited to few adjustments with respect to height, work surface planes, and the like.

A prime object of the invention resides in the provision of a foldable supporting stand which is capable of vertical adjustment to provide a working surface at various elevations, as from a sitting to a standing position for the individual using the device, and including convenient means for adjusting the working surface to different planes, from horizontal to vertical, with a minimum of effort.

Another object of the invention is that of providing a collapsible or foldable stand having features of construction by which different types of working surfaces or panels can be interchangeably attached thereto thus affording apparatus capable of many uses.

While the foregoing objects are paramount, other and lesser objects will become apparent as the description proceeds when considered in connection with the appended drawings wherein:

FIGURE 1 is a side elevational view of the base structure, comprising the foldable legs and standard, and showing the angularly adjustable panel frame and detachable panel, both being shown in solid and broken lines.

FIGURE 2 is a side elevational view of the invention in folded or collapsed position.

FIGURE 3 is an enlarged fragmentary sectional view, on line 3—3 of FIGURE 1, showing the central tubular vertical standard and the intermeshed gear segmented collars on the paired leg members.

FIGURE 4 is an enlarged fragmentary sectional view, on line 4—4 of FIGURE 1, showing one of the pairs of leg members in transverse section, the geared collars, and showing the resilient cam retaining element for the leg members in extended positions.

FIGURE 5 is a front elevational view of the invention showing the legs extended, and showing the releasable securing devices for the vertically adjustable standard and the panel frame with an interchangeable panel element thereon, the latter being shown in a horizontal plane.

FIGURE 6 is an enlarged fragmentary sectional view, on line 6—6 of FIGURE 7, illustrating the adjusting mechanism and cam lever for the panel frame.

FIGURE 7 is an enlarged fragmentary view, partially in section, on line 7—7 of FIGURE 6, showing the serrated segment, locking plate and cam lever for angular adjustments of the panel frame.

FIGURE 8 is an enlarged fragmentary illustration, partially in section, showing the vertical standard slidable

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in the base structure, and showing the releasable latch for the standard, and

FIGURE 9 is a perspective illustration of an easel attachment for the panel frame.

The basic features of the invention reside in the foldable base or pedestal, generally designated by the numeral 10, which comprises the four leg members 11, 12, 13 and 14, preferably of tubular material, and arranged in pairs, each pair being rotatively associated so that when either one of the pairs of legs is rotated toward the other the opposite leg will rotate so as to bring the paired legs together in a compact arrangement such as illustrated in FIGURE 2.

Each leg is formed with an elongated vertical portion 15 which curves downwardly and outwardly providing horizontally extending portions 16 whose outermost ends 17 curve downwardly to provide foot portions 18 which are generally parallel axially with the upper vertical portions 15 and have resilient tips 19 on their extremities, as illustrated in FIGURES 1, 2 and 5.

The two pairs of leg members 11, 12, 13 and 14 are connected in their upright positions by upper and lower castings 20 and 21, each pair being spaced apart, as best shown in FIGURES 2 and 3. The upper casting 20 comprises a web 22 having a pair of cup-shaped elements 23 formed at each end into which the upper ends of pair of legs is inserted and are rotatable therein.

The lower casting 21, which is spaced below the casting 20, has a web 24 on each end of which is formed a pair of integral collars 25 which embrace the lower portions of the vertical elements 15 of the legs 11, 12, 13 and 14 which are capable of rotation therein, as shown in FIGURES 1, 2, 3 and 5. A rectangular opening 26, having an upwardly extending integral flange 27 thereon, is formed in the web 24 of the casting 21, between the collars 25, as shown in FIGURES 3 and 4, and a similar opening 28 is formed in the web 22 of the upper casting 20 whose flange 29 depends between the pairs of cup-shaped members 23, as shown in FIGURES 5 and 8.

A sleeve 30, which is rectangular in transverse section, is supported at its upper end in the rectangular opening 28 by opposing right-angular flanges 31 seated on the web 22 and secured thereto by screws 32, as depicted in FIGURE 8, the lower end of the sleeve 30 being pressed into the flange 27 of the lower casting 21, as illustrated in FIGURES 3 and 5.

A vertically adjustable standard 33, which is rectangular in transverse section, and preferably hollow, is slidably arranged in the sleeve 30 and is capable of being supported therein at different vertical positions by a serrated cam 34 pivoted on a pin 35 arranged through a pair of ears 36 formed on one side of the lower surface of the web 22 of the upper casting 20. The cam 34 is operated in a slot 37 in the upper end of the sleeve 30, the serrations 38 being inclined upwardly to engage the adjacent surface of the standard 33, as shown in FIGURE 8.

The cam 34 has a lever 39 which extends downwardly and outwardly and has a right-angular handle element 40 by which it can be manipulated against the tension of a compression spring 41 by which the lever 39 is biased outwardly to engage the serrated cam 34 with the standard 33. A leaf spring 42 is attached at one end by a screw 43 to the depending flange 29 of the casting 20 and has its opposite and lower end bent inwardly and extending through an aperture 44 in a wall of the sleeve 30 to frictionally engage the standard 33 and aid in stabilizing this member in its sliding movement in the sleeve 30, as shown in FIGURE 8.

FIGURES 1 and 2 show the invention in elevation from the left side, as the device is normally used as a drawing board, lectern, or the like, and in FIGURE 1

the leg members 11, 12, 13 and 14 are shown in extended position to operatively support the device. FIGURE 2 illustrates the invention in folded or collapsed position, the horizontal portions 16 of the leg members being shown folded together, in the manner shown also in broken lines in FIGURES 3 and 4. To facilitate folding the leg members to compact the assembly, as shown in FIGURE 2, each pair is geared together through the medium of a pair of discular collars 43 arranged about the lower portions of the leg members 11, 12, 13 and 14 adjacent to the integral collars 23 formed with the lower casting 21 and secured by set-screws 44 to the leg members, as best illustrated in FIGURES 3 and 4.

Each of the discular collars 43 has a segment of teeth 45 formed thereon whereby the toothed segments are intermeshed in such manner as to cause the paired portions 16 of the leg members to be moved simultaneously when one or the other is manipulated toward the opposite member, as indicated in broken lines in FIGURES 3 and 4.

The leg portions 16 are retained in their extended or folded positions by cam elements 46 formed of a strip of resilient spring steel, or other suitable material, and have a generally U-shape with the ends turned inwardly and then outwardly providing flanges 47 by which the members 46 are attached to each side of one of each pair of the vertical portions 15 of the leg members 11, 12, 13 and 14 by screws 48, as shown in FIGURE 4, so that the substantially semicircular outer surfaces of the cam members 46 bear against the opposite member 15 under tension. A cam action is provided by forming a flat portion 49 across the outer curvature of the cam elements 46 whereby the greater tension is applied between the leg members 15 at each side of the flat portion 49, or when the legs are extended or folded together, as illustrated in broken lines in FIGURE 4.

Attached to the upper end of the standard 33 is a frame comprising an inverted channel-shaped member 50 arranged perpendicular to the longitudinal axis of the standard 33 and pivotally attached thereto by a bracket 51 comprising a pair of plates 52 in planar juxtaposition and having opposing right-angular flanges 53 along their upper edges which are secured, as by spot-welding, to the undersurface of the member 50 and having their vertical edges, which are right-angular to their upper edges, engaging the depending flanges 54 thereof, as shown in FIGURES 6 and 7. The front edges of the plates 52, below the lower edge of the adjacent flange 54 of the member 50, are semi-circular, curving downwardly and rearwardly to the rear edges of the plates 52 which are perpendicular to the plane of the channel-shaped member 50.

A pair of brace members 55, right-angular in transverse section, are arranged on each side of the bracket 51 and extend upwardly and outwardly from the lowermost edge thereof toward the ends of the member 50 and secured to the rear flange 54 thereof near its outer ends, as shown in FIGURES 5, 6 and 7. Attached transversely across each end of the member 50 is an angle bar 56. The outer ends of the depending flanges 54 of the member 50 are bent at right-angles on opposite sides thereof to which the depending flanges 57 of the angle bars 56 are attached, as by spot welding, or other suitable device. The opposing flanges 58 of the bars 56 extend outwardly in a horizontal plane, as shown in FIGURE 5, and may be of any desired length.

A panel 59, providing a work surface, such as a drawing board, lectern, table, or the like, is detachably arranged on the bars 56, an example of which is shown in FIGURES 1, 2 and 5, and in fragmentary section in FIGURES 6 and 7. The panel 59 has a keeper element 60 secured along the undersurface of each opposing side edge by screws 61 whereby the horizontal flanges 58 of the bars 56 can be slidably engaged therewith, as illustrated in FIGURE 5. The panel 59 is interchangeable with any type of supporting device, such as a frame

62, shown in FIGURE 9, which may be used as an easel or for the support of a projection screen, or other device. The frame 62 has keeper members 60 thereon similar to those on the panel 59, as well as an adjustable cross-bar 63 for holding various types of panels, and the like.

The upper end of the standard 33 is slotted axially to receive a pair of spaced disks 64, which are welded at 65 to the standard 33, between which the bracket 51 is concentrically pivoted on a bolt 66 arranged through the standard 33 and the disks 64, as illustrated in FIGURES 6 and 7, by which the panel 59 can be tilted to a variety of inclinations, as indicated in broken lines in FIGURE 1. The semi-circular portion of the bracket 51 has serrations 67 formed thereon which are engaged by a serrated latch member 68 threadedly secured on a pin 69 internally of the standard 33, as shown in FIGURES 6 and 7. The serrated upper edge of the member 68 is contoured to conform to the arcuate arrangement of the serrated portion of the bracket 51.

The pin 69 on which the latch member 68 is arranged extends through apertures 70 on each side of the standard 33 and is capable of endwise movement to disengage the serrated latch member 68 from the serrations 67 of the bracket 51 to permit the latter to be partially rotated on its pivot 65. The pin 69 is biased in one direction by a compression spring 71 embracing the pin 69 and bearing against the head 72 thereof and the standard 33.

In operation, the panel 59 may be readily adjusted to various positions by the manipulation of a cam lever 73 pivoted on a bolt 74 to a bracket 75 secured to a side of the standard 33 by screws 76. A cam 77 is formed on the inner end of the lever 73 which engages the head 72 of the pin 69 to depress the same inwardly against the tension of the spring 71 to release the latch 68 from the bracket 51. Connected to the upper end of the lever 73 is a rod 78 which is extended to one side of the panel 59 through a supporting bracket 79 depending from one of the elements 56 for easy access to the operator.

The adjustable features embodied in the invention will enable the panel 59 to be fixed in any plane from vertical, as indicated in FIGURE 2, to horizontal, as shown in FIGURE 1. The height of the panel 59, or the frame 62, as desired, can be adjusted from desk level to any elevation suitable to use while in a standing position. Disposition of the device for storage, or for transportation, is readily accommodated by the foldability of the legs when arranged in the manner shown in FIGURE 2.

The invention, although described with great particularity, is capable of substantial changes and modifications in structure and design without departing from the spirit and intent thereof, or the scope of the appended claims.

What is claimed is:

1. In a combination table and easel having a foldable base and a vertically adjustable standard supported in said base, the combination comprising, two pairs of leg members having elongated vertical portions and outwardly and downwardly extending foot elements, each pair of said leg members having rotatively interconnecting means for providing for synchronous rotative movement with respect to each other to extend and retracted positions, upper and lower castings connecting and rotatively supporting the two pairs of leg members and providing guide means for said vertically adjustable standard, a spring biased serrated cam on one of said castings for releasable securing said standard in adjusted positions, a frame pivotally attached to the uppermost end of said standard for detachably supporting a panel thereon, and a latch mechanism on said frame whereby to releasable secure the same in horizontal, vertical and inclined planes.

2. In a collapsible stand for a frame for supporting a detachable panel, the said stand comprising, in com-

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bination, two pairs of leg members, each having elongated vertical portions and outwardly and downwardly extending foot portions, the said two pairs of leg members being spaced laterally and connected by upper and lower castings providing rotative support therefor, geared means rotatively connecting each pair of said leg members whereby to cause said members to be rotated in unison to extended and folded positions, releasable means in one of said castings for securing said standard in vertically adjusted positions between said pairs of leg members, a panel supporting frame pivotally attached to the upper end of said standard, and latch means releasable securing said frame in adjusted inclined planes with respect to said stand.

3. In a stand for supporting a frame for holding interchangeable panels, the said stand comprising, in combination, two pairs of leg member having elongated vertical portions and extended foot portions, upper and lower castings for rotatively supporting said leg members and laterally spacing each pair thereof, geared means connecting each pair of said leg members providing for unitary movement thereof from extended to folded positions, a cam for each pair of leg members for securing the same extended and folded positions, the said frame having a serrated segment thereon pivotally connected to said standard, and releasable latch means for engaging said serrated segment for securing

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said frame in different inclined positions with respect to said standard.

4. In a device as described in claim 1 wherein the said interconnecting means between said paired legs comprise gear segments secured to said legs.

5. In a collapsible stand for a frame for supporting a detachable panel, as described in claim 2, in which a cam is arranged on one of each pair of said paired legs whereby to yieldably secure said paired legs in extended and folded positions.

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