

Nov. 9, 1937.

N. S. GILES

2,098,233

EXTENSION TABLE

Filed Nov. 9, 1935

3 Sheets-Sheet 1

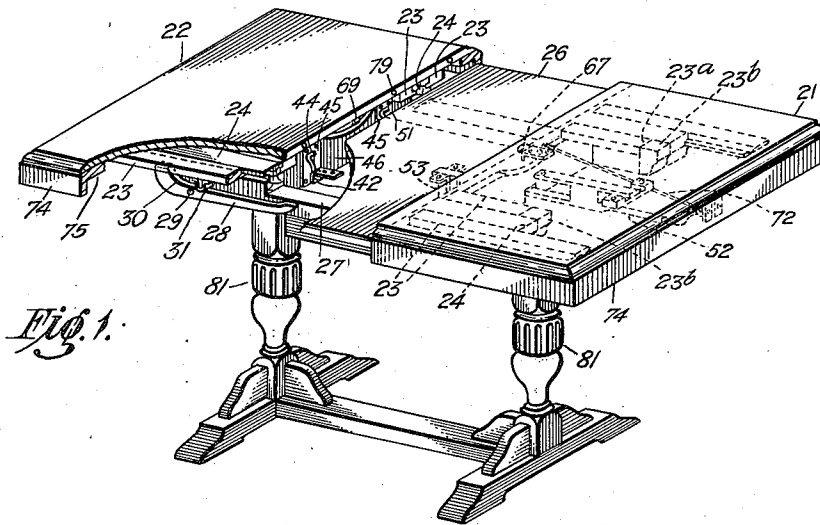


Fig. 1.



Fig. 2.

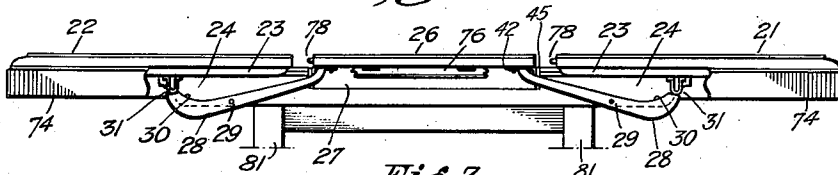


Fig. 3.

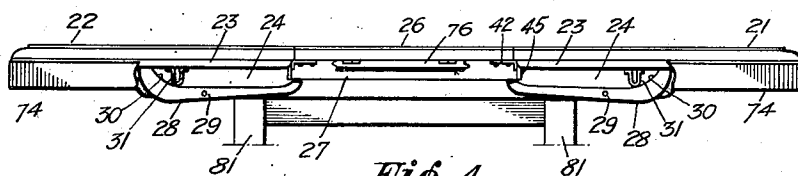


Fig. 4.

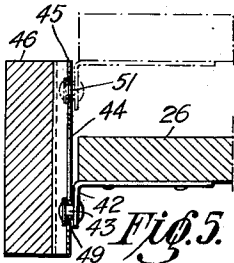


Fig. 5.

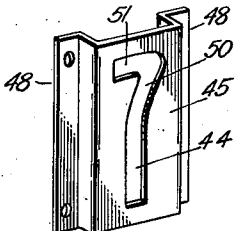


Fig. 6.

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By *Oldham*
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3 Sheets-Sheet 2

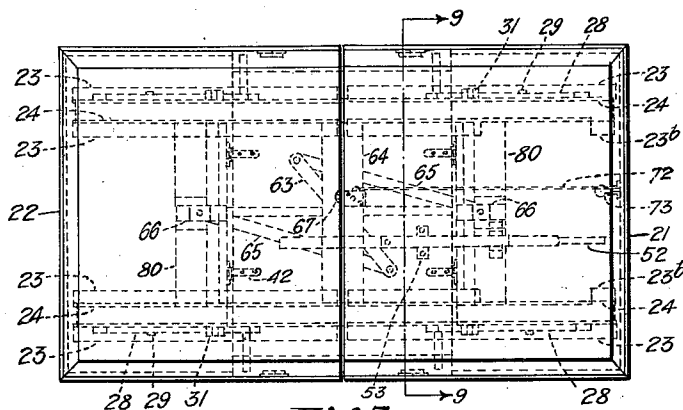


Fig. 7.

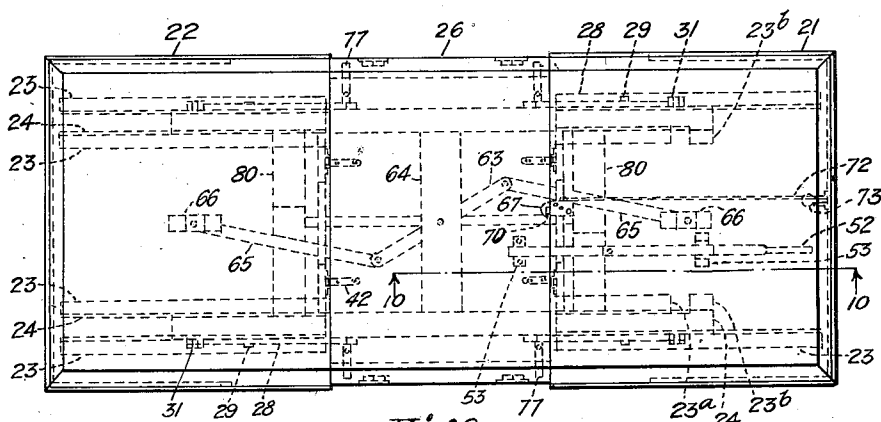


Fig. 8.

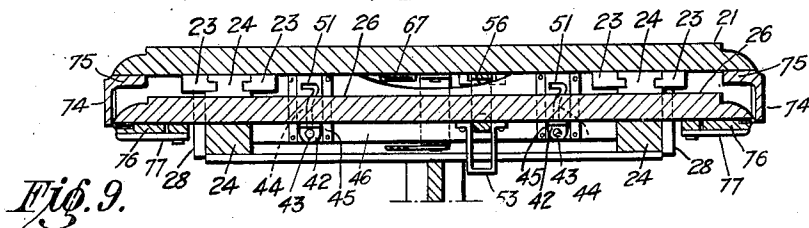


Fig. 9.

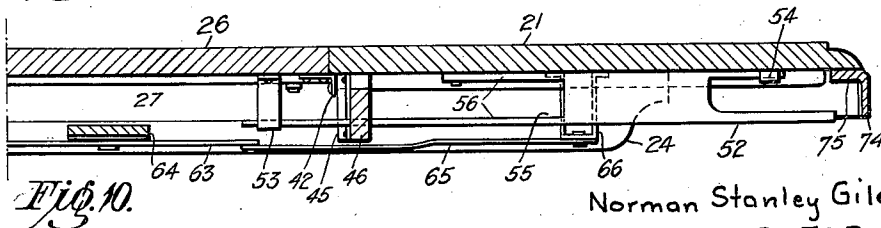


Fig. 10.

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Fig. 11.

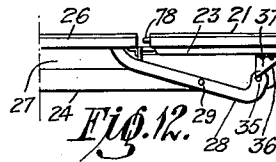


Fig. 12.

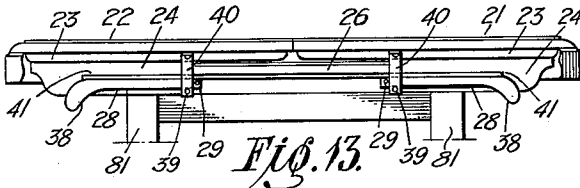


Fig. 13.

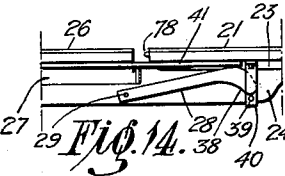


Fig. 14.

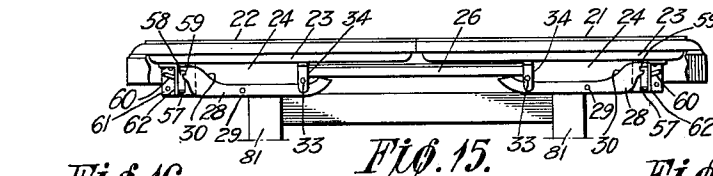


Fig. 15.

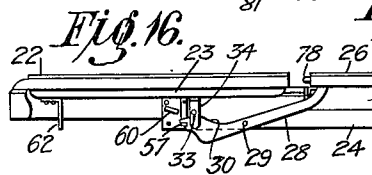


Fig. 16.

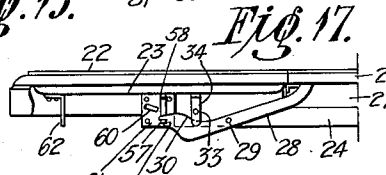


Fig. 17.

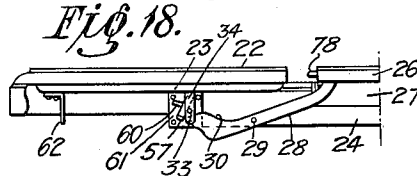


Fig. 18.

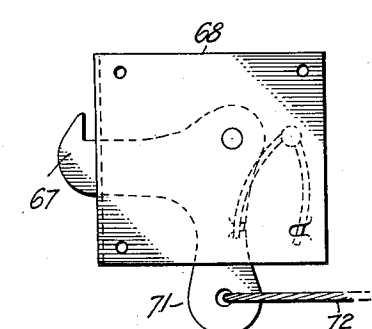


Fig. 20.

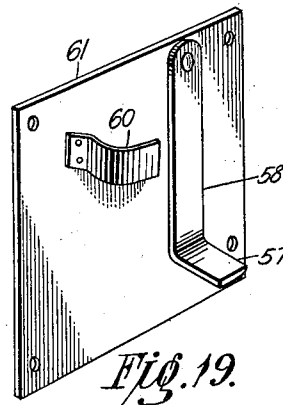


Fig. 19.

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UNITED STATES PATENT OFFICE

2,098,233

EXTENSION TABLE

Norman Stanley Giles, Glen Iris, Australia

Application November 9, 1935, Serial No. 48,959
In Australia November 12, 1934

10 Claims. (Cl. 311—42)

This invention relates to extension tables of the type in which the table top includes two horizontally movable sections and which also have one or more vertically movable leaves arranged to be housed below the meeting ends of the said sections, or to be raised to a position between the said sections when the latter are moved apart.

One object of this invention is to provide improved means whereby the or each leaf of a table of the type stated is automatically raised into the same plane as the movable sections when the latter are moved apart to a predetermined position.

A further object of this invention is to provide an extension table of the type stated, which is so constructed and reinforced that comparatively inexpensive timber may be employed in its manufacture.

Extension tables according to this invention include fixed frame members, sections which are slidable horizontally relatively to the said fixed frame members, one or more vertically movable leaves, pivoted members supported on fixed frame members, means to actuate the said pivoted members to lift the leaf or leaves to a position between the sections when the latter are moved apart to a predetermined position, means to guide the said leaf or leaves and means to retain each leaf in its raised position.

Extension tables according to this invention will now be described with reference to the accompanying drawings in which tables having a single leaf are illustrated by way of example.

In the drawings:—

Fig. 1 is a perspective view of a table, partly extended, with the leaf in its lower position and just before it is lifted, parts being broken away to disclose other parts which are normally not visible.

Fig. 2 is a side elevation (with parts broken away) of the table shown in Fig. 1, with the top sections closed together and with the leaf in its lower position.

Fig. 3 is a similar view to Fig. 2 but with the top sections moved apart and with the leaf raised.

Fig. 4 is a similar view to Fig. 3 but with the top sections moved inwardly to abut against the raised leaf.

Fig. 5 is a detail sectional view of part of a leaf, an adjacent fixed rail and guide means.

Fig. 6 is a perspective view of a guide plate.

Fig. 7 is a plan view of a table with the parts in the position shown in Fig. 2.

Fig. 8 is a plan view of a table with the parts in the position illustrated in Fig. 4.

Fig. 9 is a transverse section (on a larger scale) on line 9—9 of Fig. 7.

Fig. 10 is a longitudinal section (on a larger scale) on line 10—10 on Fig. 8.

Fig. 11 is a side elevation (with parts broken away) of a table having modified levers and lever actuating means.

Fig. 12 is a fragmentary side elevation depicting some of the parts shown in Fig. 11, in another position.

Fig. 13 is a side elevation (with parts broken away) of a table having further modified levers and lever actuating means.

Fig. 14 is a fragmentary side elevation depicting some of the parts shown in Fig. 13, in another position.

Fig. 15 is a side elevation (with parts broken away) of a table having further modified levers and lever actuating means.

Figs. 16, 17 and 18 are fragmentary side elevations depicting some of the parts shown in Fig. 15, in other positions.

Fig. 19 is a detail perspective view of a fitting employed in the arrangement shown in Figs. 15 to 18.

Fig. 20 is a detail plan view of a latch part of lock mechanism.

21, 22 are horizontally movable sections of a table top to the underface of each of which are fixed pairs of cleats 23 each part of which is slidably connected to a longitudinal frame bar 24. To limit the outward movement of sections 21, 22, cleats are cut away as at 23a to co-operate with stops 23b fixed to frame bars 24.

A vertically movable leaf 26 is arranged so that it may be supported in a lowered position in a recess 27 in each frame bar 24, below the level of the underface of sections 21, 22, or be raised to align with the said sections.

Levers 28, each of which is pivotally supported relatively to a fixed longitudinal frame bar 24 on a fulcrum pin 29, are actuated by means carried by a movable part, when the sections 21, 22 are moved apart, to lift the leaf 26 to its raised position.

In the arrangement shown in Figs. 1 to 4 each lever 28 has an upwardly extending part 30 which co-operates with a member 31 that projects downwardly from the underside of a cleat 23 to depress the outer end of lever 28 and so lift the inner end of said lever.

In another arrangement (Figs. 15 to 18) the upwardly extending part 30 of each lever 28 co-operates with a pin 33 which extends transversely

from a bracket 34 that projects downwardly from a cleat 23.

In a further modified arrangement (Figs. 11 and 12) the outer end of each lever 28 carries a transversely extending pin 35 which co-operates with an inclined face 36 on a bracket 37 that projects downwardly from a cleat 23.

In another case (Figs. 13 and 14) each lever 28 has a downwardly extending part 38 that co-operates with a transversely extending pin 39 on a bracket 40, a member 41 that is fixed to the underside of the leaf 26 projecting above the levers 28.

Guide means for the leaf 26 include a plurality of brackets 42 each fixed to the underside of the leaf and each carrying a pin 43 that projects outwardly and engages a guide slot 44 in a plate 45 that is fixed to a transverse frame bar 46. Four sets of guide means are illustrated but more or less may be employed according to circumstances. Each plate 45 is set outwardly relatively to supporting flanges 48 to provide a clearance for the end of co-operating pin 43. To minimize wear and noise each pin 43 may be fitted with an anti-friction roller 49.

Part 50 of each guide slot 44 is oblique and terminates in a transverse extension 51 the end of which is above the lower part of slot 44. A lever 52 which is pivoted on the underface of section 21 engages a bracket 53 fixed on the under face of leaf 26, and is operable to move leaf 26 transversely to cause each pin 43 to enter the extension 51 of its guide slot 44, to hold the leaf 26 in its raised position. Retaining guide loops 54 prevent the lever sagging. Part of the lever is cut away at 55 and cross bar 46 is suitably slotted or recessed to provide clearances for the remaining parts 56 of the lever.

In a modified arrangement (Figs. 15 to 18) each lever 28 co-operates with means to hold the said lever so that it supports the leaf 26 in its raised position. In this case a pawl 57 on a gravity trigger 58 automatically engages a notch 59 in the outer end of each lever 28 when the latter is actuated to raise leaf 26 to its elevated position. A resilient member 60 supported on a plate 61 is arranged to engage the trigger 58 to hold it in a retracted position to which it is actuated by the end of bracket 34 when the sections 21, 22 are moved apart a sufficient distance. A member 62 that projects downwardly from the underside of section 22 frees the trigger 58 from member 60 when the sections are returned to normal closed position.

A lever 63 pivoted at its centre to a transverse frame bar 64 is connected at each end by a link 65 to a bracket 66 fixed to the underface of the respective sections 21, 22 so that as one section is moved outwardly the other section is moved in unison.

A spring actuated latch 67 is pivoted on a base 68 that is fixed on the under side of section 21 in such a position that the latch 67 will engage a catch 69 on section 22, or a catch 70 on leaf 26 to hold the respective parts together when they are so positioned that their adjacent sides abut. Latch 67 has a tail 71 which is connected by a flexible member 72 to a trigger lever 73 that is supported at or near the end of section 21.

The sections 21, 22 have a peripheral flange or rim 74 of any suitable depth which projects from cleats 75 that are fixed to the underface of the sections in such manner that they further reinforce the said sections.

Members 76 which are supported on hinges connected to the underface of leaf 26 near each end thereof, may be swung under the leaf when the latter is in its lower position or be set in alignment with the rim 74 when the leaf is in raised position. A pivoted button 77 is arranged so that it may be set to hold each member 76 in its folded position and also in its projecting position.

The meeting faces of the sections 21, 22 and the sides of leaf 26 are provided with known interlocking means such as dowels 78 and complementary sockets 79.

The framing of the table may be supported in any suitable manner. As illustrated bars 24 are connected by transverse bars 80 which are fixed to the upper ends of a pair of legs 81, but a single leg or four or more legs may be provided and be fixed in position in known manner.

In operation, referring particularly to Figs. 1 to 4, and assuming the parts to be in the position shown in Fig. 2, when it is desired to extend the table, trigger 73 is actuated to free the latch 67 from catch 69 and section 21 is pulled outwardly. Lever 63 and links 65 transmit movement to section 22 so that it also moves outwardly in unison with section 21. When the sections 21, 22 are a sufficient distance apart, the members 31 meet the upwardly extending parts 30 of the respective levers 28 and actuate said levers so that their inner ends 32 rise and lift the leaf 26 until it is in the same plane as sections 21, 22, as shown in Fig. 3. As the leaf 26 rises it is moved transversely by reason of the movement of the pins 43 in the oblique part 50 of the respective guide slots 44. When the leaf 26 reaches its uppermost position, lever 52 is actuated to move leaf 26 transversely thus locating pins 43 in the transverse extensions 51 of the guide slots 44 to hold the said leaf in its raised position. The sections 21, 22 are then moved inwardly to the position shown in Fig. 4, and latch 67 engages the catch 70.

When it is desired to return the leaf 26 to its lower position, trigger 73 is actuated to free latch 67 from catch 70 and the sections 21, 22 are moved outwardly to the position shown in Fig. 3 after which the lever 52 is actuated to move leaf 26 transversely so that the pins 43 are displaced from the transverse extensions 51 of the respective guide slots 44 into the oblique parts 50 of the said guide slots. The leaf is then free to gravitate to its lower position as the levers 28 fall when the sections 21, 22 are moved inwardly to the position shown in Fig. 2.

The operation of the construction shown in Figs. 11 and 12 is as described, with reference to Figs. 1 to 4 with the exception that levers 28 are actuated when the inclined faces 36 of brackets 37 meet pins 35.

The operation of the construction shown in Figs. 13 and 14 is as described with reference to Figs. 1 to 4 except that when the sections 21, 22 are moved outwardly, the parts 38 of the respective levers 28 are lifted by the pins 39 to raise members 41 on which the leaf 26 is supported.

The operation of the construction shown in Figs. 15 to 18 is similar to the operation of the construction shown in Figs. 1 to 4 but when the levers 28 are actuated to lift the leaf 26, the notch 59 in each lever is engaged by a pawl 57 (see Fig. 16). The levers will then support the leaf in its raised position while the sections 21, 22 are moved inwardly to abut against the leaf, see Fig. 17. When the leaf 26 is to be lowered the

sections 21, 22 are moved apart as shown in Fig. 18 until each bracket 34 strikes a pawl 57 moving its trigger 58 rearwardly until it is engaged and held by a resilient member 60. The levers 28 are then free and when the sections 21, 22 are moved inwardly the said levers and the leaf 26 fall to their lower position. Just before the sections 21 and 22 reach their closed position the member 62 strikes the pawl 57 and frees the trigger 58 from the resilient member 60 so that it may swing to its normal position.

What I claim is:—

1. In an extension table having top sections arranged to be moved horizontally toward and from each other, a vertically movable leaf arranged to be housed below the said sections and to be raised to align therewith, means to raise the leaf when the sections are moved apart, means arranged to hold the leaf in raised position, and means on the leaf adapted to engage said holding means and arranged so that when the lifted leaf is moved horizontally, it is supported independently of the lifting means.

2. In an extension table having top sections arranged to be moved horizontally toward and from each other, a vertically movable leaf arranged to be housed below the said sections and to be raised to align therewith, means to raise the leaf when the sections are moved apart and means arranged to hold the leaf in raised position, said leaf being movable horizontally in a direction at right angles to the direction of movement of the top sections to engage the holding means.

3. In an extension table as claimed in claim 2, guide means for the leaf comprising slotted guide members and means engaging the said slotted members characterized in that each slotted member is so arranged that as the leaf is raised it is moved laterally at right angles to the direction of movement of the top sections and when raised, movement of the leaf in the opposite direction causes the said member to engage part of the slot to support the leaf in the raised position.

4. In an extension table as claimed in claim 2, guide means for the leaf comprising slotted plates that are fixed on the table framing and members that project from the underside of a leaf and engage said slotted plates characterized in that part of each slot extends obliquely and part extends horizontally or substantially so, the latter part being engaged by said members to hold the leaf in its raised position.

5. In an extension table as claimed in claim 2, guide means for the leaf comprising a slotted plate fixed on table framing and a bracket projecting from the underside of a leaf and engaging said slot, characterized in that part of the guide

slot extends obliquely in one direction and part extends horizontally in the opposite direction, the terminal end of the horizontal part being in vertical alignment with the lower end of the oblique part.

6. In an extension table as claimed in claim 2, guide means for the leaf comprising a plurality of plates attached to fixed frame bars, a guide slot in each said plate, a plurality of brackets attached to the underside of the leaf, a member projecting from each said bracket and engaging a guide slot, the upper end of each guide slot being so arranged that it receives the engaging member to hold the leaf in its raised position.

7. In an extension table as claimed in claim 2, guide means for the leaf comprising a guide slot and means to engage said slot, a lateral extension at the upper end of said slot and means arranged to be actuated when the leaf is raised to cause the engaging means to enter said lateral extension.

8. In an extension table as claimed in claim 2, a plurality of plates supported on fixed frame bars in spaced apart position, brackets affixed to the underside of the leaf, a pin projecting from each said bracket and entering a guide slot, a lateral extension at the upper end of each guide slot, a lever pivotally supported below a horizontally movable top section, and a member fixed to the underside of the leaf and engaged by said lever, so arranged that when the lever is actuated the leaf is moved laterally in a direction at right angles to the direction of movement of the top sections to cause each pin to enter a lateral extension of a guide slot or to move it therefrom.

9. In an extension table having horizontally movable sections, a leaf arranged to be housed below the said sections when they are closed together, means to lift the leaf into the same plane as the sections when the said sections are moved apart a sufficient distance, means to guide said leaf during its vertical movement, means to retain said leaf in its raised position and means to be actuated after the leaf is raised to move such leaf laterally in a direction at right angles to the direction of movement of the top sections to engage or disengage said retaining means.

10. In an extension table having horizontally movable sections, a leaf arranged to be housed below the said sections when they are closed together, means to raise the leaf vertically when the sections are moved apart, means to guide the leaf and move it laterally as it is raised in a direction at right angles to the direction of movement of the top sections and means to support the leaf in raised position when it is moved laterally in the opposite direction.

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