April 21, 1953 Z. W. McCONNELL 2,635,934

FRICTION LATCH FOR EXTENSION TABLES

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Fig. 1.

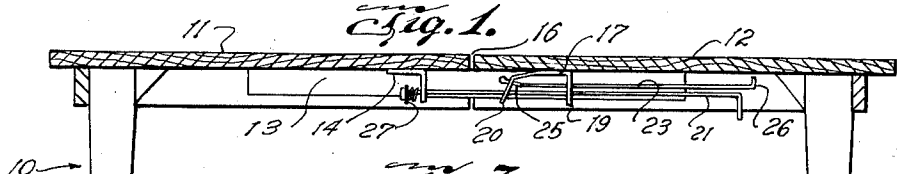


Fig. 3.

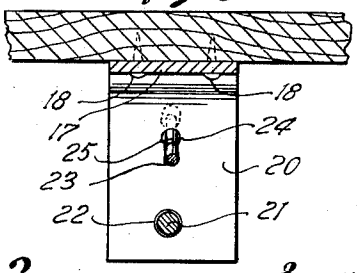


Fig. 2

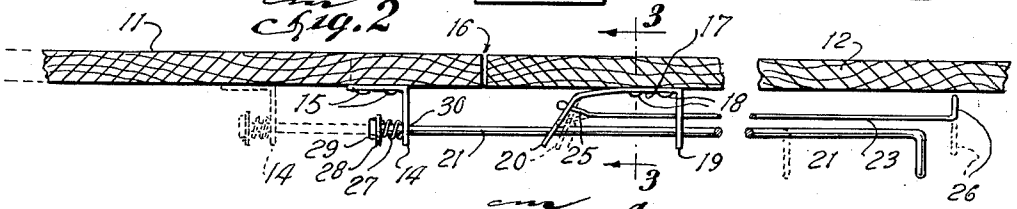


Fig. 4.

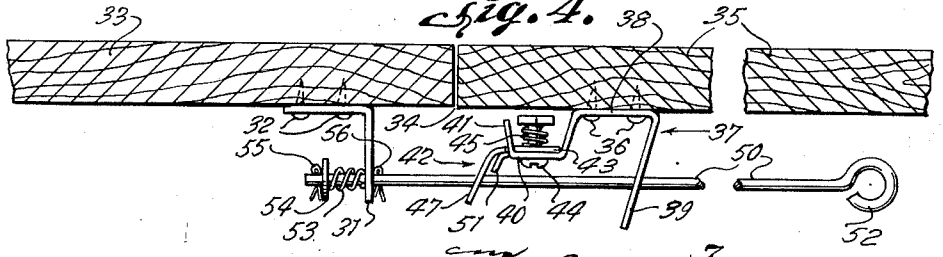


Fig. 6.

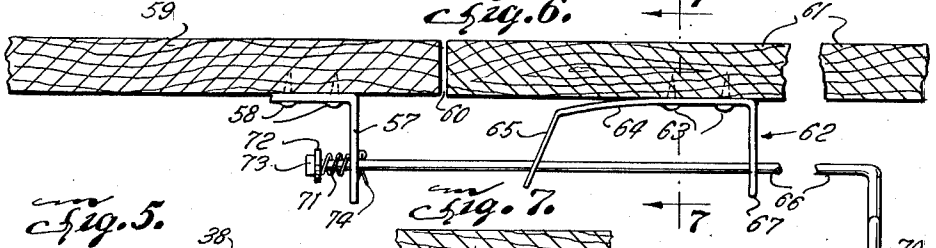


Fig. 5.

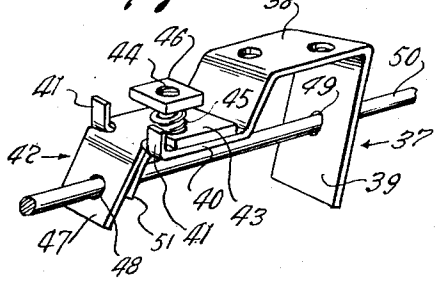
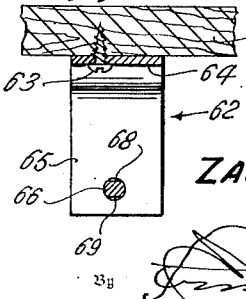


Fig. 7.



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FRICTION LATCH FOR EXTENSION TABLES

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5 Claims. (Cl. 311—51)

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This invention relates to extension tables having relatively moveable sections and which refers more particularly to an improved latch for securing sections of the table against relative movement.

The principal object of the invention is to provide a friction latch consisting of an inverted substantially U-shaped bracket whose legs are provided with lined apertures for the sliding reception of a rod having one end supported by a bracket affixed on the under side of one of the table sections adjacent the dividing line between the sections and opposite the U-shaped bracket which is attached on the under side of the companion table section. At least one of the legs of the U-shaped bracket is resilient to a certain degree and is disposed at an obtuse angle in relation to that portion of the bracket which is affixed to the table section so that in its normal angular position, the rod extending through the aperture therein will be frictionally gripped and held against longitudinal movement until the leg is displaced toward a position perpendicular to the plane of the rod so that the latter may be released for free longitudinal movement to permit movement of the table sections.

Another object of the invention is to provide a latch consisting of the rod held at one end against other than rotative displacement and supported intermediate its ends by the bracket having depending legs, provided with apertures through which the rod is capable of sliding displacement and in which one of the legs of the bracket is disposed at an angle in relation to the rod and to the companion leg of the bracket to frictionally engage the rod and hold the same against longitudinal movement, together with means for changing the angular position of the rod engaging leg of the bracket to free the rod for longitudinal displacement in the U-shaped bracket.

With the foregoing objects in view, the invention has further reference to certain features of accomplishment which will become apparent as the description proceeds, taken in connection with the accompanying drawings wherein:

Figure 1 is a view of an extension table in longitudinal cross section.

Figure 2 is a fragmentary sectional view of a table top on a larger scale showing the manner in which the friction latch is attached to the under side of the table top sections and the manner in which the sections are displaced by the latch mechanism.

Figure 3 is a sectional view on a still larger scale taken on line 3—3 of Figure 2.

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Figure 4 is a view on yet a larger scale showing a modified form of the invention.

Figure 5 is a detailed perspective view of the friction element per se shown in Figure 4.

Figure 6 is a side elevational view of another modification of the invention, and

Figure 7 is a view in transverse section taken on line 7—7 of Figure 6.

Continuing with a more detailed description of the drawing, reference is made primarily to Figure 1 in which reference numeral 10 denotes generally a conventional table having top sections 11 and 12 which are moveable in relation to each other for the incorporation of extension leaves between the sections. To the undersides of the sections 11 and 12 are affixed relatively sliding rails 13 of conventional design for maintaining rigidity between the sections in any position to which they may be adjusted.

The present invention consists of an L-shaped bracket 14 which is secured by screws or other means 15 to the under side of the table section 11 adjacent the meeting point 16 of the table sections. In a corresponding position opposite the bracket 14, a substantially U-shaped bracket or friction latch 17 is affixed by screws or other means 18 to the under side of the companion table top section 12. One leg 19 of the friction latch 17 is perpendicular to the plane of the table section 12 while the companion leg 20 of the latch is disposed at an obtuse angle in relation to the table top section 12 and to the plane of a rod 21 which extends through apertures 22 in aligned relationship in the legs 19 and 20 of the latch 17.

It is to be noted that that portion of the latch 17 which is affixed to the under side of the table top section 12 is secured by the screws 18 nearer the perpendicular leg 19 and that the unsecured portion of the latch is curved slightly downwardly. By virture of this construction the angular leg 20 is possessed of greater resiliency than if that portion of the latch member 17 engaging the table top section 12 is secured at both ends. Accordingly, the greater frictional force is brought to bear by the leg 20 on the rod 21 to hold the latter against longitudinal movement.

In order to release the rod 21 for free longitudinal displacement in the apertures of the legs 19 and 20 of the friction member 17, the leg 20 is required to be moved toward a position perpendicular to the plane of the rod 21. To accomplish this, a second and smaller rod 23 is arranged above and parallel with the rod 21 and extends through apertures 24 in the legs 19 and 20 of the latch member 17. One end 25 of the rod 23 is bent slightly at a point spaced from its

extremity in the manner shown in Figures 1 and 2 and at its opposite end there is provided a finger loop 26 at right angles to the plane of the rod so that the rod 23 may be rotated 180° to cause the leg 20 of the latch member 17 to be moved in the manner prescribed to relieve the rod 21 of frictional engagement by the leg 20 to permit the table top sections 11 and 12 to be moved in relation to each other.

The end of the rod 21 which extends through the bracket 14 is embraced by a short length of coil spring 27 and which spring is interposed between the depending leg of bracket 14 and a washer 28 which latter is held on the rod by an enlarged head 29 formed on the end of the latter. On the opposite side of the leg of the bracket 14 is a protuberance 30 formed on the rod 21 to limit the degree of movement of the rod in relation to the bracket 14, which movement is under the control of a spring 27 and is provided so that maximum frictional restriction may be obtained between the bracket 14 and latch 17 to hold the table sections 11 and 12 securely together.

Referring now to Figures 4 and 5, an L-shaped bracket 31 is secured by means of screws or other means 32 to the under side of a table section 33 adjacent the meeting point 34 between section 33 and the companion table section 35. Secured by screws 36 to the under side of the table section 35 adjacent the meeting point 34 is a latch member 37. This latch member is in two parts, a stationary part 38 has a depending leg 39 and whose end opposite the leg 39 is bent in substantially U-shape at 40, the upstanding end of the stationary portion 38, forming the leg of the U-shaped portion of 40 being formed by spaced apart legs 41 between which is disposed a moveable part 42. The moveable part 42 has a tail portion 43 which lies on the base of the U-shaped portion 40 of the stationary part 38 and is held thereon for slight tilting displacement by means of a screw 44 passing through apertures in the base of portion 40 of part 38 and an aperture in the portion 43 of part 42. The portion 43 is biased by a coil spring 45 surrounding the screw 44 intermediate the portion 43 of part 42 and a nut 46 threaded on to the end screw 44. The part 42 has a leg 47 which is provided with an aperture 48 in alignment with an aperture 49 in the leg 39. A rod 50 extends through the apertures 48 and 49 and is held frictionally against longitudinal movement by the angular position of the leg 47, under pressure imposed by the coil spring 45. That portion of the stationary part 38 between the upstanding legs 41 is bent downwardly to form a stop 51 against which the leg 47 of part 42 engages when it is moved towards the perpendicular position to relieve frictional tension on the rod 50. This is accomplished manually by engaging the leg 47 with a finger to tilt the part 42 against the resistance of spring 45, while the rod 50 is engaged by the loop 52 and moved longitudinally to correspondingly move the table top sections 33 and 35.

Embracing the inner end of rod 50 is a coil spring 53, held in position by a washer 54 and a cotter key 55. A cotter key 56 is shaped through a transverse aperture in the rod 50 on the side of the bracket 31 opposite the side against which the spring 53 bears. This arrangement provides limited longitudinal displacement of rod 50 to obtain maximum of friction on the rod by the angular leg 47 of part 42 of the friction latch to hold the table sections firmly together.

Referring now to Figures 6 and 7 showing a further modified form of the invention an L-shaped bracket 57 is secured by means of screws 58 to the under side of a table top section 59 adjacent the meeting point 60 between the section 59 and a companion section 61. Adjacent the meeting point 60 a friction latch 62 is secured to the under side of table section 61 by means of screws 63. The latch member 62 is substantially inverted U-shape and the portion 64 thereof which is secured to the table section 61 is free at one end and curved slightly downwardly to lend resiliency to the leg 65 which is disposed at an obtuse angle in relation to a rod 66 which extends through the lined apertures in the leg 65 and the perpendicular leg 67 of the latch member 62. The angular relationship between leg 65 and the rod 66 imposes a frictional force on the rod 66 in one position of the latter, due to the fact that the rod 66 is flattened longitudinally at diametrically opposite points 68 and 69, as revealed in Figure 7.

The rod 66 has a depending loop 70 on its outer end which provides a handle for rotating and longitudinally moving the rod. When the flat sides 68 and 69 are disposed on a horizontal plane as shown in Figure 7, the rod 66 may be freely moved to displace the table sections 59 and 61. However, when the handle 70 is moved 90° or to a horizontal position to dispose the flat sides 68 and 69 in a vertical plane the rod is frictionally engaged by the leg 65 of the latch member 62 and holds the table sections together or in adjusted positions by preventing longitudinal displacement of the rod 66.

On the inner end of the rod 66 is mounted a coil spring 71 which is held thereon by a washer 72 and the enlarged head 73 of the rod. A cotter key 74 is extended through the rod on the side of the bracket 57 opposite the spring 71. The spring 71 provides for limited longitudinal movement of the rod to oppose maximum friction on the latter to hold the table sections firmly together.

It is understood that while the invention has been described as providing a friction latch for the moveable sections of an extension table, it is clearly evident that the invention may be used wherever such a friction latch may be applicable.

Manifestly, the construction (and process) as shown and described is capable of some modification and such modification as may be construed to fall within the scope and meaning of the appended claims is also considered to be within the spirit and intent of the invention.

What is claimed is:

1. A friction latch for relatively moveable members comprising a rod in a plane parallel with said members and secured at one end to one of said members for limited longitudinal and rotative displacement, a substantially U-shaped bracket defining a friction latch member affixed to the other of said relatively moveable members having a leg perpendicular to the plane of said rod and a companion leg disposed at an obtuse angle in relation to said rod, said legs having aligned apertures to which said rod is capable of longitudinal and rotative displacement and means for moving said obtuse angled leg toward a plane perpendicular to said rod to relieve friction between said leg and rod to release the latter

for free longitudinal displacement to effect corresponding movement of said relatively moveable members.

2. A friction latch for a pair of members mounted for relative displacement, comprising a friction member of resilient material affixed adjacent one end to one of said moveable members and having a portion curved away from said one of said members and having one end turned at right angles to the plane of said one of said members, a second leg formed on the end of the curved portion of said latch member and disposed at an obtuse angle in relation to the plane of said one of said members, a bracket affixed to the companion moveable member adjacent the meeting point between said members, a rod parallel with the plane of said members and having one end mounted in said bracket for limited longitudinal and oscillative displacement, said rod extending through aligned apertures in the legs of said friction member and held against longitudinal displacement by frictional engagement between said rod and the obtuse angled leg of said friction member and means for changing the annular position of said obtuse angled leg in relation to said rod to free said rod and said relatively moveable members for longitudinal movement.

3. In a friction latch for relatively moveable members, a bracket fixed to one of said relatively moveable members, a friction member affixed to the other of said relatively moveable members, said friction member having one leg at right angles to the plane of said relatively moveable members and the companion leg disposed at an obtuse angle in relation to the plane of said relatively moveable members, said legs having aligned apertures, a rod extending through the apertures of said legs and journaled at one end in said bracket for oscillative and limited longitudinal displacement and held against longitudinal displacement by the annular relationship of said obtuse angled leg with said rod and means for displacing said obtuse angled leg towards a perpendicular plane with respect to said rod to release the latter for free longitudinal displacement and to effect corresponding displacement between said relatively moveable members.

4. The structure of claim 3 in which the latch member is secured only adjacent one end to a relatively moveable member and curved away from said member to contribute resiliency to said opposite end of said friction member.

5. The structure of claim 3 in which the end of said rod journaled in said bracket is embraced by a coil spring and held against longitudinal displacement to a degree permitted by said spring to impose maximum frictional restraint on said rod to hold the relatively moveable members in secure juxtaposition.

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