Dec. 5, 1961 W. L. GASKELL 3,011,531

SAW-TABLE GUIDE-FENCE CONSTRUCTION

Filed Oct. 14, 1957 2 Sheets-Sheet 1

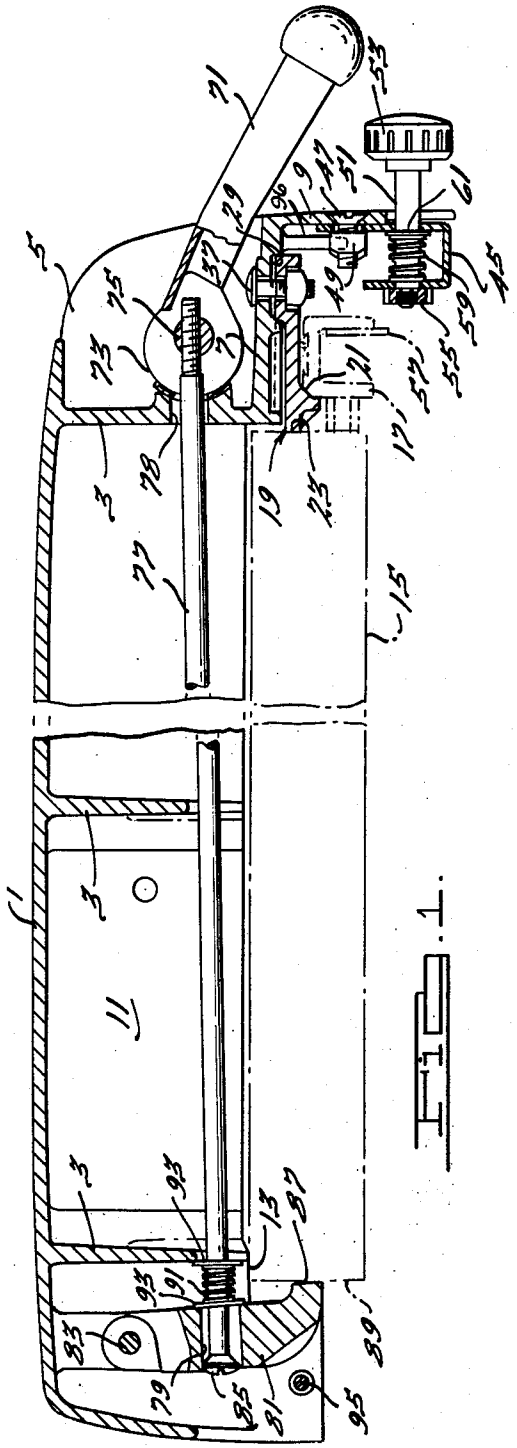


Fig. 1.

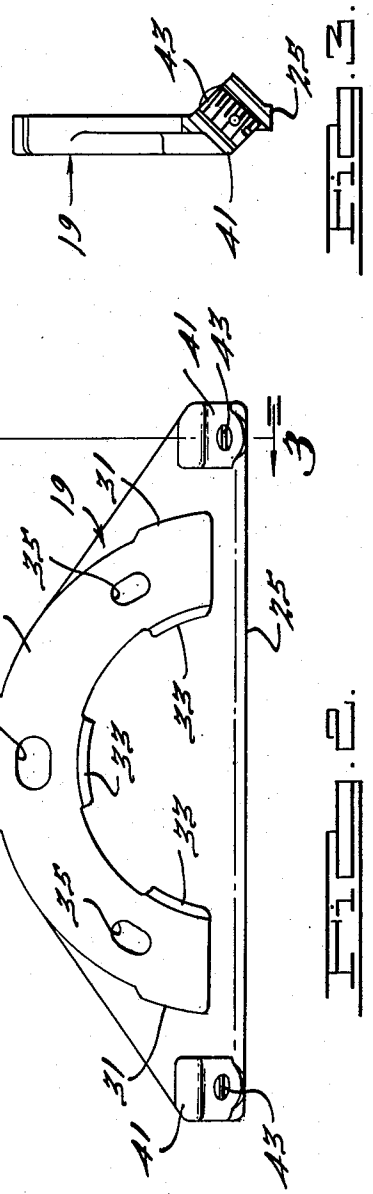


Fig. 2.

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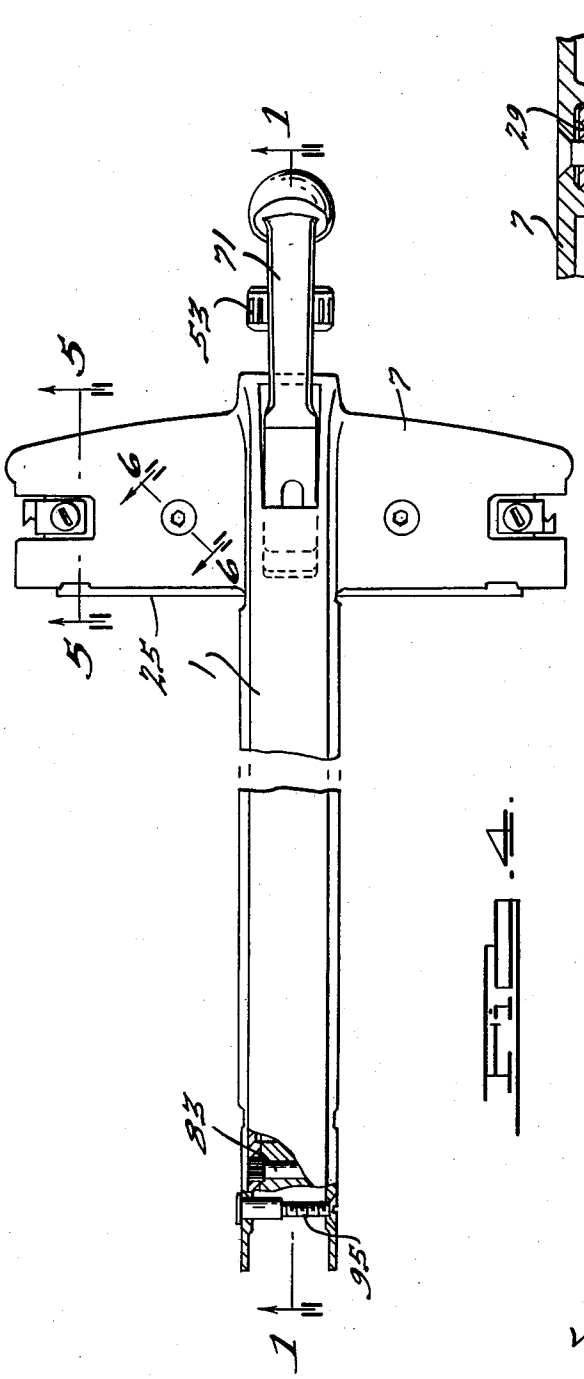


Fig. 4.

Fig. 3.

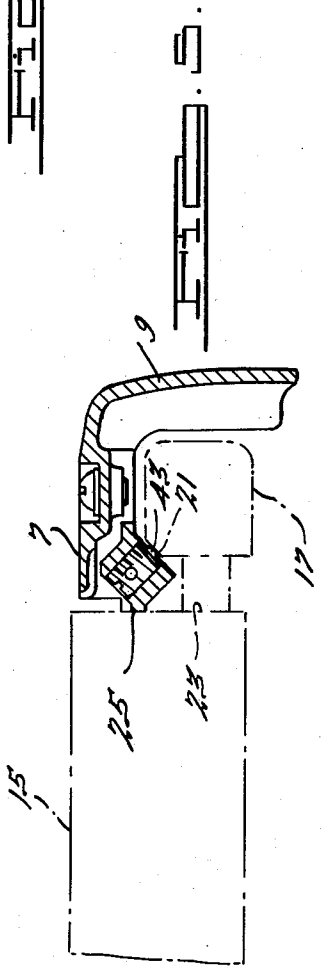


Fig. 5.

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SAW-TABLE GUIDE-FENCE CONSTRUCTION

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7 Claims. (Cl. 143—174)

My invention relates to work guide fences of the types commonly used with woodworking arbor saws.

It is an object of my invention to provide a fence construction which may be readily adjusted to and maintained in a squared position with respect to the axis of the arbor saw or other tool with which it may be used.

Another object of my invention is to provide a fence construction having an improved slide means for mounting it on the table over which it traverses.

It is also an object of my invention to provide a fence construction embodying means for holding relatively movable parts in adjustable positions.

The invention is illustrated in the accompanying drawings in which:

FIGURE 1 is a longitudinal section through a fence construction embodying the invention taken along line 1—1 of FIG. 4;

FIG. 2 is a bottom plan view of the shoe used to support the front end of the fence construction;

FIG. 3 is a section through the shoe of FIG. 2 taken along the line 3—3;

FIG. 4 is a plan view of the top of the fence construction with a portion broken away;

FIG. 5 is a section taken along the line 5—5 of FIG. 4; and

FIG. 6 is a section taken along the line 6—6 of FIG. 4.

The fence construction of this invention includes an elongated channel-shaped body 1 which has a series of transverse strengthening ribs 3 cast therein. The forward end of the body 1 is provided with vertical side walls 5 and a horizontal flange 7 which is provided at its extreme front end with a downwardly extending vertical flange 9. The side walls 11 of the fence are lengthened on the bottom at 13, near the rear end of the fence body 1, and this portion slides along the surface of the table 15 (shown in phantom) while the front end of the fence is supported on a fence rail 17 (also shown in phantom) which is rigidly but spacedly attached to the front of the table 15.

The horizontal flange 7 is directly secured to the shoe 19 (FIGS. 2 and 3) which rides on the inclined surface 21 of the rail 17 and also abuts the front face 23 of the table 15 through engagement of the shoe nose 25 therewith. The shoe 19 has a raised up semicircular pad section 27 which slidably fits in a corresponding recess 29 in the bottom face of the flange 7, three bearing sections 31 and 33, respectively, on the inner and outer sides of the pad 27 engaging the straight and the tapered sides respectively of the recess 29. It is clear that the engagement of the surfaces 31 and 33 with the tapered type recess 29 will provide a close fit lengthwise of the bar and adjustment in a transverse direction is provided by means of three slots 35 in the pad 27. Screws and nuts 37 are passed through round holes in the flange 7 and extend through the slots 35 so that when the nuts are tightened, the shoe will be fixed in position relative to the flange 7. However, by loosening the screws slight adjustments may be made by sliding semicircular section 27 in recess 29. This arrangement makes it possible to properly align the parts at assembly of the fence and minimize the need for close manufacturing tolerances, thus reducing the cost of manufacture.

Opposite ends of the shoe 19 are provided with enlarged sections 41 which are tapped at an angle to receive set screws 43. These set screws are adjusted so that they project slightly beyond the bottom surfaces of the portions 41 and thus engage and ride upon the rail surface 21 to provide low friction two-point sliding contact. They also permit squaring adjustment of the fence construction to remove slop or misalignment.

The foregoing description shows how the fence is slidably mounted on the table and means are also included to provide a mechanical advantage arrangement for forcing the fence to move transversely of its length across the table. This includes a J-shaped bracket 45 which has its long leg held in vertical alignment by guide ribs 96 and engaging the inside face of the vertical fence body flange 9. A countersunk screw 47 passes through a vertical slot in the bracket 45 so that when it is screwed tight to its nut 49 the bracket will be held in vertically adjusted position. Rotatably supported in both the long and short legs of the bracket 45 is a horizontally extending shaft 51 carrying a knob 53 on its forward or outer end, the shaft 51 extending through a slot in the flange 9. The shaft 51 carries a gear 55 at its inner end which is urged out of engagement with teeth on the bottom of a rack plate 57, secured to the rail 17, by a spring 59 which is based against the inside leg of the bracket 45 and presses against a ring 61 seated in a groove in the shaft 51. It is clear that when the knob 53 is pushed to the left in FIG. 1 so that the teeth of the gear 55 engage rack teeth in the rack 57 and the knob 53 is then rotated, the bar 1 will move in accordance with the direction of rotation. During such movement the engagement of the nose 25 of shoe 19 with the front face 23 of the table 15 and of the points of the set screws 43 with the rail surface 21 will serve to hold the fence in squared position.

Means are also provided to clamp the fence body 1 to the front and rear faces of the table 15 so as to prevent inadvertent movement of the fence. This means is actuated by a hand lever 71 which has cam surfaces 73 that are arranged off center from the cross pin 75 which pivots on opposite side walls of the bifurcated cam end of the lever. The cam surfaces 73 engage a shim of nylon or other suitable low friction material that may be attached to an arcuate surface formed in the front of the front web 3 in the fence body. Threaded through the pivot pin 75 is a rod 77 which runs through suitably enlarged openings in the ribs 3 to the back end of the fence body 1 and which carries and supports the lever 71 since the front end thereof can have only limited movement up and down in slot 78. The rod 77 extends through an enlarged opening 79 in a clamp 81 that is pivoted at 83 to the side walls 11 of the fence body. The tapered head 85 of the rod 77 serves as means to turn the rod to adjust its length and arrange the rod to exert suitable pressure on the clamp 81 which has a curved nose 87 that engages the rear face 89 of the table 15. A spring 91 is confined between washers 93 on the rod to press against the rib 3 and against the clamp 81 to urge the clamp to unlocked position. A transverse adjustment screw and sleeve 95 extends across the bottom rear ends of the side wall 11 and can be turned to move the side walls toward each other and eliminate all side play of the lock arm 81 while still permitting it to pivot freely in the pin 83.

To clamp the fence in place, the lever 71 is moved to downward position so that the shoe 81 will be forced tightly against the rear face 89 and the nose 25 will be forced tightly against the face 23 of the table 15. The fence is unclamped by reversing movement of lever 71.

Modifications may be made in the specific construction shown without departing from the spirit and scope of the invention.

I claim:

1. In a fence construction, an elongated body having a horizontal bottom flange at the front end, an arcuate recess facing downwardly located on the bottom of said flange, said recess being arcuate about an axis perpen-

dicular to said flange, a shoe having bearing surfaces encompassing an arc substantially as great as that encompassed by the recess and fitting into and engaging the sides of said recess, and means for adjustably positioning the shoe in said recess so that it moves arcuately along the length of the recess.

2. The invention set forth in claim 1 wherein said last mentioned means comprises slots in said shoe and attachment means extending through said slots.

3. In a fence construction, a fence body comprising an inverted channel having side legs, a lock clamp pivoted to said side legs and arranged to engage a surface on a table, and an adjustable screw separate from the pivot for said clamp extending transversely between and secured to said side legs adjacent the bottoms thereof, and adapted to adjust the spacing between the side legs and hold said side legs in adjusted spaced positions.

4. In a fence construction, a fence body having a vertical skirt at its forward end with a vertical slot opening out of the bottom edge of the skirt, a bracket engaging a face of the skirt and aligned with the slot and adjustable vertically therein, a screw and nut extending through the skirt and bracket and clamping the two together, means to traverse the fence including a spindle rotatably mounted on the bracket and extending through the slot, and rib means on the skirt holding the bracket in a vertical position aligned with said slot.

5. In a fence construction, to extend across a surface and be supported upon a table having a top horizontal surface and a front vertical surface, an elongated fence body the side of which forms a guide surface to extend perpendicularly to and move across the top surface of a table in a direction transverse to the length of the body, said body having a front end provided with a horizontal bottom section, said front end being adapted to cooperate with a fence rail to provide support for said body and guide it in said transverse movement, said front end including adjustable means for squaring up said body surface with said table front surface, said adjustable means comprising a plate-like shoe extending in a plane that is substantially perpendicular to said fence guide surface,

one side of said shoe being adapted to engage a support surface for the fence, and means providing a three point pin and slot connection between said shoe and bottom section, said pins and slots being located on an arc of a circle so that said shoe can be bodily shifted along such arc to vary the included angle between the one side of said shoe and said fence body guide surface.

6. The invention set forth in claim 5 wherein said bottom section and said shoe are interfitted in a groove and projection joint which is formed on said arc, the forward side of said groove and projection joint being inclined and the rear side thereof being perpendicular with respect to the plane of said plate-like shoe.

7. In a fence construction to ride on a horizontal slide rail adjacent a vertical bearing surface, a fence body, a shoe mounted on said fence body to ride on said rail, said shoe having a nose on one edge thereof adapted to engage said vertical bearing surface, said shoe having a pair of pins inclined at an angle to said surface and rail and projecting from opposite ends of the shoe so that the ends of the pins ride upon said slide rail, and means providing for separate adjustment of the lengths of the pins projecting from said shoe, uniform adjustment in length of both said pins providing vertical movement of shoe and body and different adjustments in length of the respective pins providing angular adjustment of the body with respect to said vertical bearing surface.

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