June 29, 1937. H. E. TAUTZ 2,085,131

JOINTER FENCE

Filed Jan. 8, 1934

FIG. 1

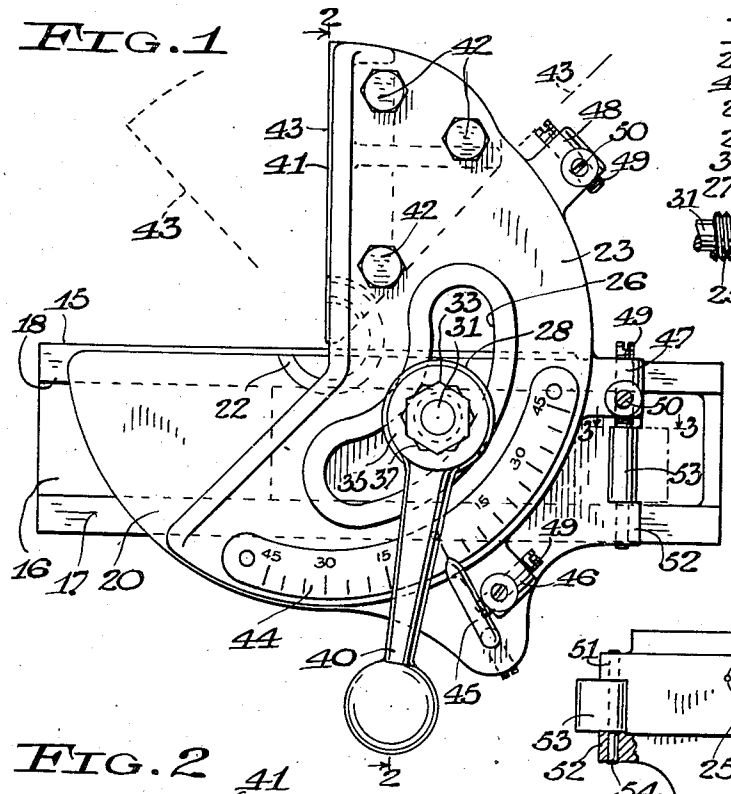


FIG. 8

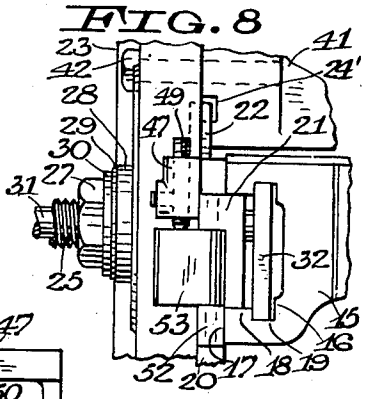


FIG. 3

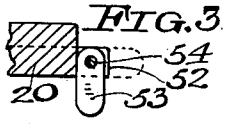


FIG. 4

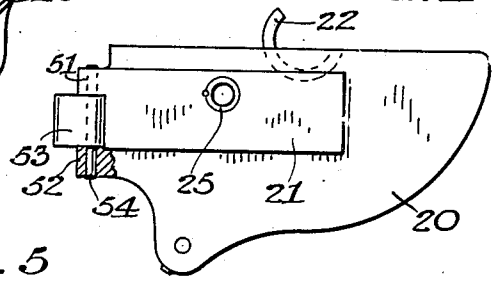


FIG. 2

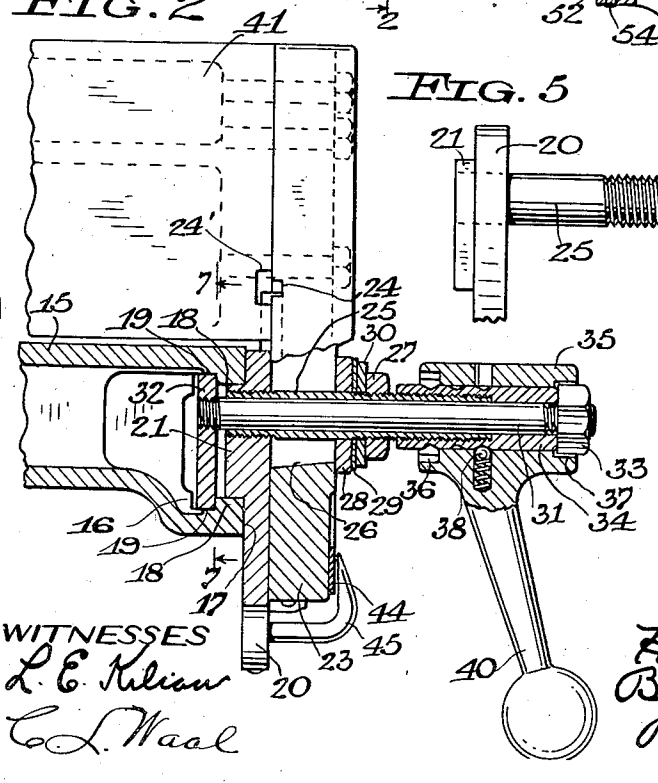


FIG. 5

FIG. 6

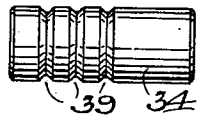
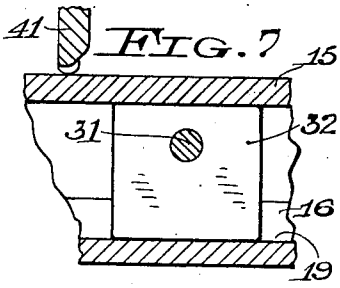


FIG. 7



WITNESSES

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JOINTER FENCE

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Application January 8, 1934, Serial No. 705,687

6 Claims. (Cl. 144—253)

The invention relates to gages or fences for jointers and other machine tools.

An object of the invention is to provide a work-guiding gage or fence for the table of a machine tool, such as a jointer, capable of being tilted to different angular positions with respect to the table, and having a mounting which includes a member slidable along the table and pivotally connected with the fence, the slidable member and fence being independently retained in adjusted position by clamping means so arranged as to facilitate manipulation by the operator.

Another object of the invention is to provide a fence mounting in which the separate clamping operations on the slidable member and fence are effected by an actuating member common to them both.

The invention further consists in the several features hereinafter described and claimed.

In the accompanying drawing,

Fig. 1 is a front end view of a jointer fence embodying the invention, the fence being mounted on a jointer table in perpendicular position with respect to the surface of the table, two other angular positions of the fence being indicated in dotted lines;

Fig. 2 is a sectional elevation of the mounted fence taken along the line 2—2 of Fig. 1;

Fig. 3 is a sectional detail view of a swingable stop member taken along the line 3—3 of Fig. 1;

Fig. 4 is a rear elevation of a slidable bracket for the fence, parts being shown in section, and the stop member being swung out of its stopping position;

Fig. 5 is a side elevation of the slidable bracket, parts being broken away;

Fig. 6 is a side view of a sleeve forming part of the fence clamping means;

Fig. 7 is a sectional view taken along the line 7—7 of Fig. 2, and

Fig. 8 is a side elevation of the fence and its mounting, parts being broken away, and the swingable stop member being shown in stopping position.

In the drawing, 15 designates the work-supporting table of a jointer having the usual cutter-head, not shown. The front end of the table is provided with an open-ended guide channel 16, which extends transversely of the table in parallel relation to the axis of the cutter-head. The channel opens laterally at the flat front end wall 17 of the table, the plane of this wall being parallel to the axis of the cutter-head and perpendicular to the top surface of the table. The top and bottom portions of the channel at the front thereof are formed by parallel ribs 18, behind which extend parallel grooves 19.

A metal bracket or plate 20 has a flat rear face slidably bearing against the flat front end wall 17 of the jointer table, and has a rearwardly projecting guide portion 21 which enters the guide channel 16 and has parallel top and bottom edges slidably fitting between the parallel ribs 18 of the channel. The bracket 20 has a flat front face parallel to its rear face and therefore perpendicular to the top surface of the table. The upper edge of the bracket is slightly lower than the upper surface of the table. An arcuate rib 22 is secured in the upper portion of the bracket 20 and projects from the front face of the bracket, a portion of the rib also projecting above the bracket. The axis about which the arcuate rib extends is normal to the front face of the bracket and lies in, or slightly above, the plane of the top surface of the table.

A crescent-shaped sector plate 23 has a flat rear face slidably bearing against the flat front face of the bracket 20, and is provided with an arcuate groove 24 within which slidably fits the arcuate rib 22 on the bracket, to thereby define for the sector plate an axis of angular displacement lying in or near the top surface of the table and perpendicular to the front end face of the table.

A threaded metal tube 25 is rigidly secured in the bracket 20 and projects forwardly at right angles to the bracket. The tube passes through an arcuate slot 26 formed in the sector plate. A rotatable nut 27 on the tube serves to clamp the sector plate 23 to the bracket 20, the clamping pressure being transmitted through washers 28, 29, and 30 on the tube, the intermediate washer 29 being a spring washer.

A bolt 31 extends through the bore or aperture of the tube 25 and is rigidly secured at its threaded rear end to a rectangular plate 32 which slidably fits in the grooves 19 and bears against the rear faces of the ribs 18. The front end of the bolt projects forwardly beyond the tube and is threaded to receive a nut 33. A sleeve 34 is threaded onto the tube 25 to form a front extension thereof, and is engaged at its front end by the nut 33. The rotatable nut 33 serves to clamp the bracket 20 to the front end face of the table, clamping pressure being transmitted through the sleeve 34 and tube 25. A wrench member 35 is slidably and rotatably mounted on the sleeve 34 between the clamping nuts 27 and 33 and is provided at opposite ends with serrated

nut sockets 36 and 37 to selectively engage and turn these nuts. The wrench member is movable axially to three different positions, these being two nut-engaging end positions and an intermediate neutral position. The wrench member is selectively held in these positions against rattling by a spring-pressed detent ball 38 therein entering any one of three axially spaced peripheral grooves 39 formed on the sleeve 34. The wrench member 35 is here shown to have a ball-ended hand lever 40. The rear end of the sleeve 34 limits the loosening movement of the nut 27, so that the spring washer 29 will not lose its friction-imparting action on the sector plate 23.

A suitably ribbed fence member or gage plate 41 is rigidly secured to the upper portion of the sector plate 23 by means of screws 42, and presents a flat work-engaging face 43. The fence member 41 overlies the table and may tiltably engage the table at a point spaced from the sector plate, as disclosed in my United States Patent No. 1,790,288, issued January 1, 1931. A clearance groove 24' is formed in the front end face of the fence member to receive the arcuate rib 22.

An arcuate scale 44 is secured to the sector plate 23 and co-operates with a pointer 45 carried by the bracket 20. In the present instance, the scale is of the zero-center type, and the fence is tiltable 45° in either direction from its vertical position, the extreme tilted positions of the fence being indicated by dotted lines in Fig. 1.

In order to expedite and insure the accurate placement of the fence in any one of several much-used angular positions, such as the vertical position and positions spaced 45° from each side of the vertical position, stop means are provided for limiting the angular movement of the sector plate 23. The sector plate carries a plurality of spaced lugs 46, 47, and 48 on its arcuate marginal portion. Stop screws 49 are threaded into the respective lugs to form abutments and each is secured in adjusted position by a set screw 50. Vertically spaced lugs 51 and 52 are formed on one end of the bracket 20 to present a recess between them in which fits a swingable stop member 53 pivotally carried on a vertical hinge pin 54 connecting the lugs 51 and 52. The stop member 53 is swingable forwardly to the full line stopping position shown in Figs. 1 and 3, where it strikes the vertical wall of the recess, as seen in Fig. 3, and is swingable rearwardly out of stopping position to the dotted line position of Figs. 1 and 3. In its stopping position, the stop member lies in the arcuate path of movement of the stop screws 49, a selected one of the stop screws being engageable with the upper face of the stop member in a direction substantially parallel to the axis of the hinge pin 54. The plane of the stopping face of the stop member is perpendicular to the axis of the hinge pin 54, and the dimension of the stop member along the pivotal axis thereof is relatively long to insure rigidity, such axial dimension being at least as great as the distance from the pivotal axis to the abutment-engaging point of the stop member. The stop member is frictionally held in its stopping and inactive positions.

The assembly comprising the fence member 41, sector plate 23 and bracket 20 is of unitary character and is capable of being shifted transversely of the table, or removed from the table, after loosening the nut 33 by the slidable wrench member 35. During such shift or removal, the clamping plate 32 and projection 21 of the bracket 20 slide along the ways of the channel 16, which is open at opposite ends. When the fence assembly is to be replaced on the table, the bracket 20 and clamping plate 32 are entered on the ways and slid therealong a selected distance, whereupon the nut 33 is tightened to clamp the assembly firmly in place with the fence member 41 extending longitudinally of the table and at right angles to the axis of the cutter-head.

If the fence is to be used in the vertical position shown in full lines in Fig. 1, it is tilted to a position permitting the stop member 53 to be swung forwardly into the path of the stop screw 49 of the lug 47. The fence is then tilted in a clockwise direction, as viewed in Fig. 1, to bring this stop screw into engagement with the stop member, which places the fence in an accurate vertical position. If the fence is to be used in angular positions other than the vertical position, the stop member is swung to its rearward position out of the path of the lugs 46, 47, and 28, either by the operator's fingers, or by cam action of one of the lugs. By tilting the fence counter-clockwise from the Fig. 1 position, the lug 46 is brought into cam engagement with the lower and side edges of the stop member 53 to swing the stop member out of stopping position. The lug 46 may thus pass the stop member if the fence is to be used in the 45° position indicated by dotted lines to the left in Fig. 1, or the lug 47 may pass the stop member if the fence is to be used in the 135° position. For each of the latter positions, the stop member is returned to its forward stopping position to insure accurate placement of the fence. Upon tilting the fence counter-clockwise from the 135° position indicated by dotted lines at the right in Fig. 1, the stop member can be swung rearwardly out of stopping position by cam engagement with the lug 47.

By means of the adjustably mounted fence, the work-piece may be guided for receiving cuts at various selected angles. If desired, the stop screws can be adjusted to provide for fence angles other than those indicated. The swingable stop member and stop abutments are here shown to be mounted on the bracket and fence member, respectively, but in some instances this relation may be reversed.

When the sector plate 23 is to be clamped to, or released from, the bracket 20, the wrench member 35 is slid rearwardly along the sleeve 34 to engage the nut 27, and when the bracket is to be clamped to, or released from, the table, the wrench member is slid forwardly to the position shown in Fig. 2 to engage the nut 33. The fence may thus be clamped at a selected position along the table without disturbing the angular adjustment of the fence, and while the fence is clamped to the table the fence may be adjusted to a desired angular position, both adjustments being effected independently by the same actuating member, which is so placed as to be convenient to the operator. The threads on the tube 25 and bolt 31 are preferably both right-hand, so that both clamping operations are effected by clockwise rotation of the wrench member.

While the invention is here shown to be embodied in a fence for a jointer table, it will be obvious that it is applicable generally for guiding work on the tables of various machine tools.

What I claim as new and desire to secure by Letters Patent is:

1. The combination, with a machine table having ways, of a member slidable along said ways, an angularly adjustable gage having a pivotal connection with said member, means for clamping said member to said table, means for clamping

said gage to said member in angularly adjusted position, and an actuating member movably carried by said slidable member and shiftable thereon to different positions for selectively operating said member-clamping means and gage-clamping means.

2. The combination, with a machine table having ways, of a member slidable along said ways, an angularly adjustable gage having a pivotal connection with said member, means for clamping said gage to said member including a tube, and means passing through said tube for clamping said member to said table.

3. The combination, with a machine table having ways, of a member slidable along said ways and having a projecting hollow portion, an angularly adjustable gage having a pivotal connection with said member and having an opening receiving said hollow portion therethrough, a nut threaded on said hollow portion to clamp said gage to said slidable member, a bolt extending through said hollow portion and having a head portion engageable with said table, and a nut threaded on said bolt to clamp said slidable member to said table.

4. The combination, with a machine table having ways, of a member slidable along said ways, an angularly adjustable gage having a pivotal connection with said member, a threaded tube secured to said member and passing through said gage, a nut on said tube for clamping said gage to said slidable member, a bolt passing through said tube and having a head portion engageable with the table, a nut on said bolt spaced axially from said first nut for clamping said slidable member to said table, and a wrench member surrounding said bolt at a region between said nuts and shiftable axially to selectively engage said nuts.

5. The combination, with a machine table, of an angularly adjustable gage movable along said table, means for releasably retaining said gage against movement along said table and for clamping said gage in angularly adjusted position, said means including a pair of rotatable members one of which effects the retention of said gage against movement along said table and the other of which effects the clamping of said gage in angularly adjusted position, and an actuator movably mounted on said means and shiftable thereon to different positions for selectively operating said rotatable members.

6. The combination, with a machine table, of an angularly adjustable gage movable along said table, and means for releasably retaining said gage against movement along said table and for clamping said gage in angularly adjusted position, said means including a pair of clamping members one of which effects the retention of said gage against movement along said table and the other of which effects the clamping of said gage in angularly adjusted position, one of said members passing through the other.

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