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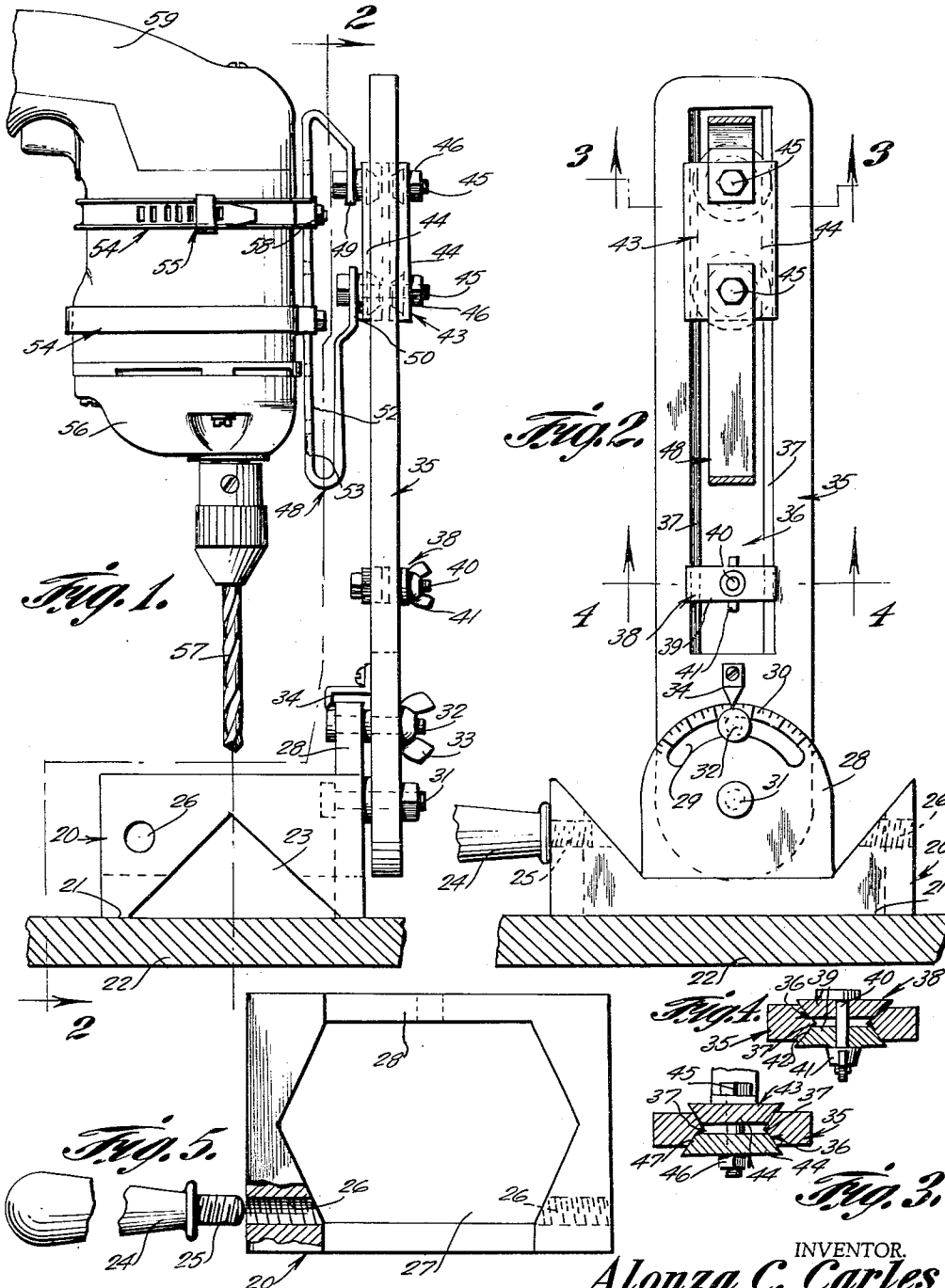
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2,953,045

DRILL GUIDE

Filed March 17, 1959

3 Sheets-Sheet 1



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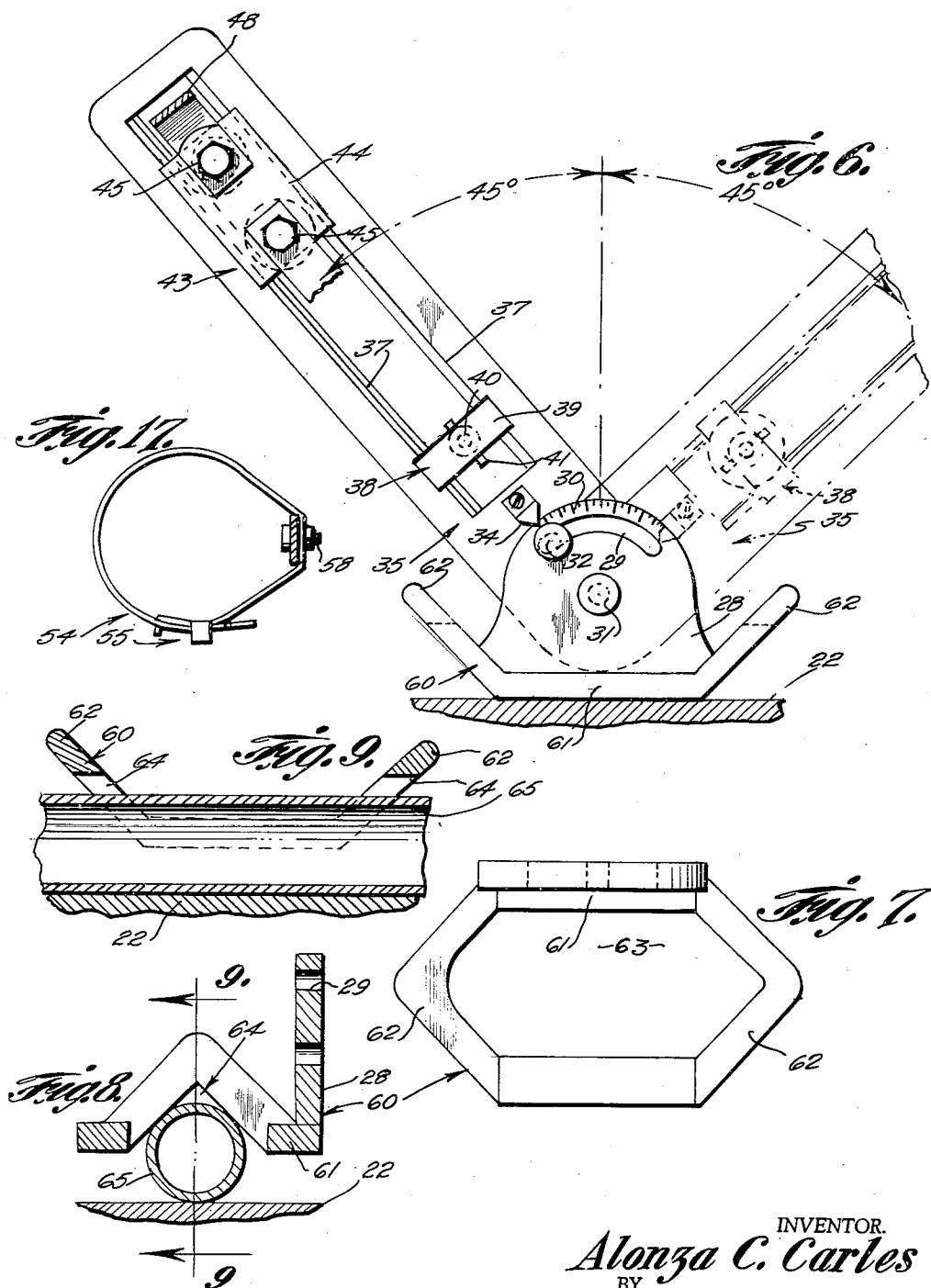
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3 Sheets-Sheet 3

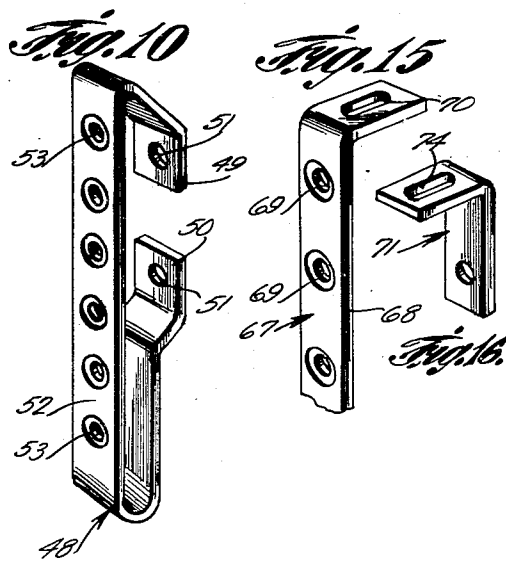
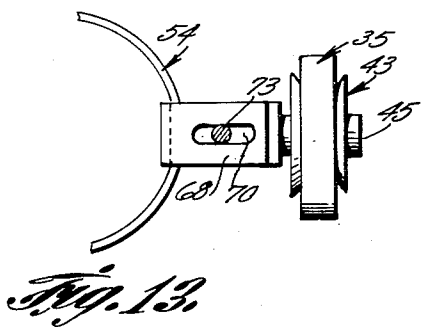
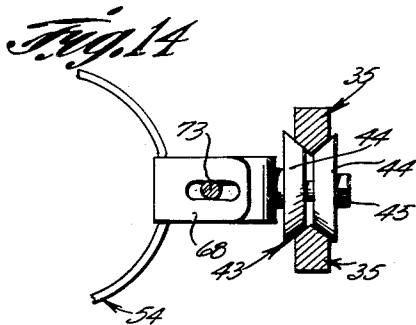
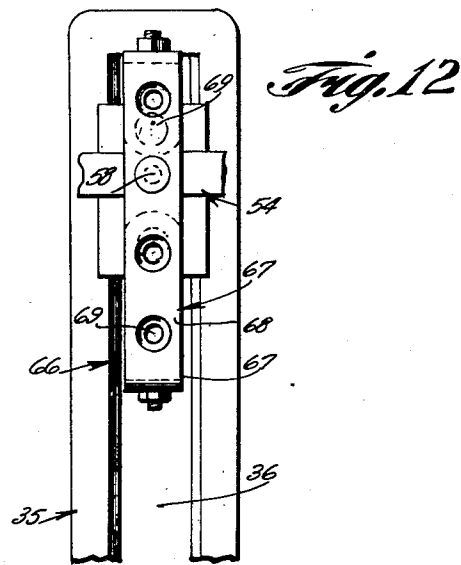
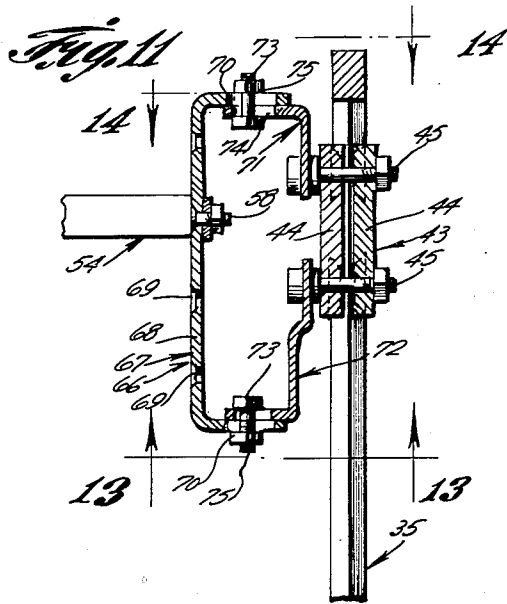


Fig. 16

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DRILL GUIDE

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1 Claim. (Cl. 77—7)

This invention relates to a guide for a tool, and more particularly to a guide for a drill.

The object of the invention is to provide a drill guide which will permit the drill to be conveniently moved towards or away from the work being drilled, and wherein the present invention is constructed so that a hole or opening can be drilled at any desired angular position.

Another object of the invention is to provide a drill guide which is adapted to be used with a conventional drill such as an electric drill and wherein a means is provided for conveniently engaging and holding the work which is being drilled, and wherein there is also provided an adjustable stop means for limiting travel of the drill.

A further object of the invention is to provide a drill guide which is extremely simple and inexpensive to manufacture.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings, forming a part of this application, and in which like numerals are used to designate like parts throughout the same.

Figure 1 is a side elevational view illustrating the drill guide of the present invention.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a sectional view taken on the line 4—4 of Figure 2.

Figure 5 is a top plan view of the base, with parts broken away and in section.

Figure 6 is an elevational view showing a modified base, and showing the standard adjusted to a 45° position.

Figure 7 is a top plan view of the base of Figure 6.

Figure 8 is a sectional view taken through the base of Figure 7.

Figure 9 is a sectional view taken on the line 9—9 of Figure 8.

Figure 10 is a perspective view of the bracket for use with the assembly of Figures 1—5.

Figure 11 is a vertical sectional view showing a modified bracket.

Figure 12 is an end elevational view of the assembly of Figure 11.

Figure 13 is a sectional view taken on the line 13—13 of Figure 11.

Figure 14 is a sectional view taken on the line 14—14 of Figure 11.

Figures 15 and 16 are fragmentary perspective views showing the members which form part of the bracket of Figure 11.

Figure 17 is a plan view illustrating one of the strap assemblies.

Referring in detail to the drawings and more particularly to Figures 1—5 of the drawings, there is shown a drill guide which includes a base that is indicated generally by the numeral 20, and the base 20 includes a lower

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flat surface 21 for engagement with a work surface such as a table 22. The base 20 is provided with a V-shaped recess 23 in the lower portion thereof whereby workpiece to be drilled such as a pipe can be extended through the recess 23, in order to help hold the pipe or other member stationary or steady while being worked on.

The numeral 24 indicates a handle which includes a threaded shank 25 that threadedly engages one of the threaded openings 26 in the base 20, and the handle 24 provides a handgrip for use in steadying the device when a workpiece is being drilled. As shown in Figure 5 for example, the base 20 is provided with an enlarged opening 27, and extending upwardly from the base 20 is a flange 28 which is provided with a curved slot 29, Figure 2. The numeral 30 indicates scale markings or indicia which is arranged on the flange 28 so as to define a gauge or scale, and a securing element or bolt 31 serves to connect the lower end of an adjustable standard 35 to the flange 28. The numeral 32 indicates a securing element or bolt which extends through the slot 29 in the flange 28 and the securing element 32 also extends through the standard 35 and has a wing nut 33 thereon, Figure 1. A pointer 34 is carried by the standard 35, and the pointer 34 is adapted to coast with the scale 30 so as to provide an accurate means of setting the standard 35 to the desired angular position.

As shown in Figures 2 and 4, there is provided an adjustable slide stop which is indicated generally by the numeral 38, and the standard 35 is provided with an elongated longitudinally extending cutout which is indicated by the numeral 36. Portions of the standard 35 contiguous to the cutout 36 are tapered as indicated by the numeral 37. The adjustable slide stop 38 includes a pair of members 39 which are fastened together by means of a securing element such as the bolt 40 which has a wing nut 41 thereon. Edge portions of the members 39 are tapered or inclined as indicated by the numeral 42 so as to conform to the configuration of the adjacent portions 37 of the standard 35.

There is further provided an adjustable support member which is indicated generally by the numeral 43, and the support member 43 includes a pair of elements 44 which are of similar construction, and the elements 44 have portions thereof projecting into the cutout 36. The elements 44 are fastened together by means of bolts 45 which have nuts 46 thereon, Figures 2 and 3. The stop member 38 is adapted to be used for limiting downward travel of the support member 43, and the stop member 38 can be adjusted on the standard 35 so as to permit the length of travel of the support member 43 to be varied or regulated as desired. The edge portions of the elements 44 are tapered or beveled as at 47 so as to insure a snug fit with the portions 37 of the standard 35.

There is further provided a bracket which is indicated generally by the numeral 48, and the bracket 48 includes spaced apart portions 49 and 50 which are provided with openings 51, Figure 10, whereby the securing elements such as the bolts 45 can extend through these openings 51 in order to fasten the bracket 48 to the support member 43. The bracket 48 further includes a straight section 52 which is provided with a plurality of spaced apart apertures 53, and the numeral 54 indicates each of a plurality of adjustable straps which are arranged contiguous to the bracket 48. The straps 54 are provided with adjustable clasps 55, and the numeral 56 indicates a conventional tool such as an electric drill which is surrounded or held by the straps 54, the drill 56 being provided with the usual bit 57. The straps 54 are fastened to the bracket 48 by means of securing elements such as the bolts 58 which have nuts thereon, and the bolts 58 are adapted to extend through the apertures 53 in the bracket 48. The drill 56 is provided with the usual handle 59.

Referring now to Figures 6-9 of the drawings, there is shown a modified base which is indicated generally by the numeral 60, and the base 60 is adapted to be used in lieu of or instead of the base 20. The base 60 includes a bottom portion 61 as well as a pair of angularly arranged ears 62, and the ears 62 may be arranged at a 45° angle with respect to the bottom portion 61, Figure 6. The base 60 is provided with an enlarged opening 63 as well as a V-shaped recess 64 through which is adapted to extend or project a member such as the pipe 65 which is being drilled or worked on.

Referring now to Figures 11-16 of the drawings, there is illustrated a modified bracket which is indicated generally by the numeral 66, and the bracket 66 is adapted to be used in place of the bracket 48. The bracket 66 comprises a main body member 67 which includes a flat section 68 which is provided with a plurality of spaced apart apertures 69. The member 67 further includes end portions which are provided with slots 70, and there is further provided L-shaped members 71 and 72 which have slots 74 through which extend bolts 73, and the bolts 73 are adapted to have nuts 75 thereon. Straps such as the straps 54 are adapted to be fastened to the bracket 66, and the bracket 66 is adapted to be connected to the support member 43, as for example by means of the bolts 45.

From the foregoing, it is apparent that there has been provided a guide which is especially suitable for use with a tool such as the drill 56. When using the assembly of Figures 1-5, the base 20 may be arranged on a suitable work surface such as a table 22, and the V-shaped recess 23 serves to receive a member to be worked on such as a pipe or the like. As shown in Figure 3 for example, there is a space between the pair of elements 39 which permits the support member 43 to slide up and down on the standard 35. Thus, with the workpiece extending through the recess 23, it will be seen that the drill 56 can be gripped by its handle 59 and then the drill can be moved up or down so as to drill a hole in the member such as the pipe. In view of the fact that the drill 56 is connected to the bracket 48 by means of the straps 54, and since the bracket 48 is fastened to the support member 43 by means of the bolts 45, it will be seen that up and down movement of the drill 56 with respect to the standard 35 is permissible so that the bit 57 can be moved to the desired position.

The stop member 38 is fastened to the standard 35 by means of the bolts 40, and when the bracket 48 and its associated parts moves downward a sufficient distance, the stop 38 will be engaged or contacted so as to limit further downward travel or movement of the support member 43. By loosening the wing nut 41, the position of the stop 38 can be adjusted on the standard 35, and then the wing nut 41 can be tightened so as to maintain the stop immobile in its desired position.

The straps 54 which surround the drill 56 are provided with adjustable clasps 55 and this arrangement serves to insure that the straps will accommodate or fit on drills of different shapes or sizes. Furthermore, the provision of a plurality of apertures 53 provides a further adjustment since the bolts 58 can be extended through different of these apertures 53 whereby the drill 56 can be supported in the desired position.

Furthermore, by loosening the wing nut 33, the standard 35 can be pivoted about the pin 31, and then the wing nut 33 can be tightened so as to maintain the standard 35 immobile in its adjusted position. The pointer 34 which is carried by the standard 35 coacts with the scale markings 30 which provides a means for accurately setting the standard 35 and its associated parts at the desired angular position. For example as shown in Figure 6 the standard 35 can be moved from the solid line position to the broken line position so that the drill can be used for drilling holes or openings in the workpiece at different angles.

The handle 24 is adapted to be gripped so as to provide a means for steadying the device and the handle 24 may have its shank 25 engage either of the pair of threaded openings 26 in the base 20.

In the modification of Figures 6-9, the base 60 is adapted to be used instead of the base 20, and otherwise the use and construction of the device is the same as previously described. Thus, the base 60 includes the V-shaped recess 64 through which extends the pipe 65, and the flange 28 on the base 60 provides a pivotal support for the standard 35 in the same manner that the flange 28 provides a pivotal support on the base 20.

In Figures 11-16 there is illustrated a modified bracket 66 which can be used instead of the bracket 48. Thus, the bracket 66 is adapted to have straps such as the straps 54 fastened thereto as for example by means of the bolts 58, and the bracket 66 is adapted to be connected to the support member 43 by means of the bolts 45. The straps 54 will engage the drill such as the drill 56 so that by manually moving the drill up or down, the bracket 56 will move up and down and at the same time the support member 43 will move up and down in the cutout 36 of the standard 35. The provision of the slots such as the slots 74 and 70 permit the nuts 75 to be loosened on the bolts 73 until the elements 67 and 71 and 72 are in their desired position and then these nuts 75 can be tightened so as to maintain the parts immobile in their desired position. The bolt 58 can be extended through any of the openings or apertures 69 in the member 67 so as to provide a further adjustment.

The parts can be made of any suitable material and in different shapes or sizes.

The handle 24 can be used optionally on either side of the block or base 20. With the guide of the present invention, the drill can be used for drilling holes or openings in various types of workpieces. Holes in a vertical or horizontal or angular position can be drilled, and the device can be used in hard to reach places.

The device is adapted to be used with an electric drill and it will permit or insure more stable operation of a hand drill and it will make possible straight or angle holes in any type of normally used operation of an electric hand drill. Difficult to reach places can be drilled, and the device can be used to facilitate the drilling of straight or angle holes in pipes or corners where the use of a V block would normally be used.

The flange 28 may be made integral with the block or base or else it can be made as a separate piece. One or two of the straps 54 may be used and the device will fit drills of different sizes.

Minor changes in shape, size and rearrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

I claim:

In a drill guide, a base including a lower flat surface, there being a V-shaped recess in the lower portion of said base, a handle detachably connected to said base, there being an enlarged opening in said base, a flange extending upwardly from one side of said base and provided with a curved slot, there being indicia on said flange contiguous to said slot defining a scale, a standard pivotally connected to said flange, a securing element extending through said standard and through the slot in said flange, a pointer carried by said standard for coaction with said scale, there being an elongated longitudinally extending cutout in said standard, edge portions of said standard contiguous to said cutout having a tapered formation, a slide stop having a pair of members fastened together and said slide stop being adjustably mounted contiguous to said cutout, a support member adjustably connected to said standard and said support member including a pair of elements fastened together contiguous to said cutout, edge portions of said support member and edge portions of said stop having a tapered formation to conform

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to the tapered configuration of the adjacent portions of the standard, a bracket including spaced apart portions fastened to said support member, said bracket further including a straight section provided with a plurality of spaced apart apertures, adjustable straps arranged contiguous to said bracket, and securing elements extending

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through said apertures for connecting said straps to said bracket.

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