Sept. 20, 1960 A. C. CARLES 2,953,045

DRILL GUIDE

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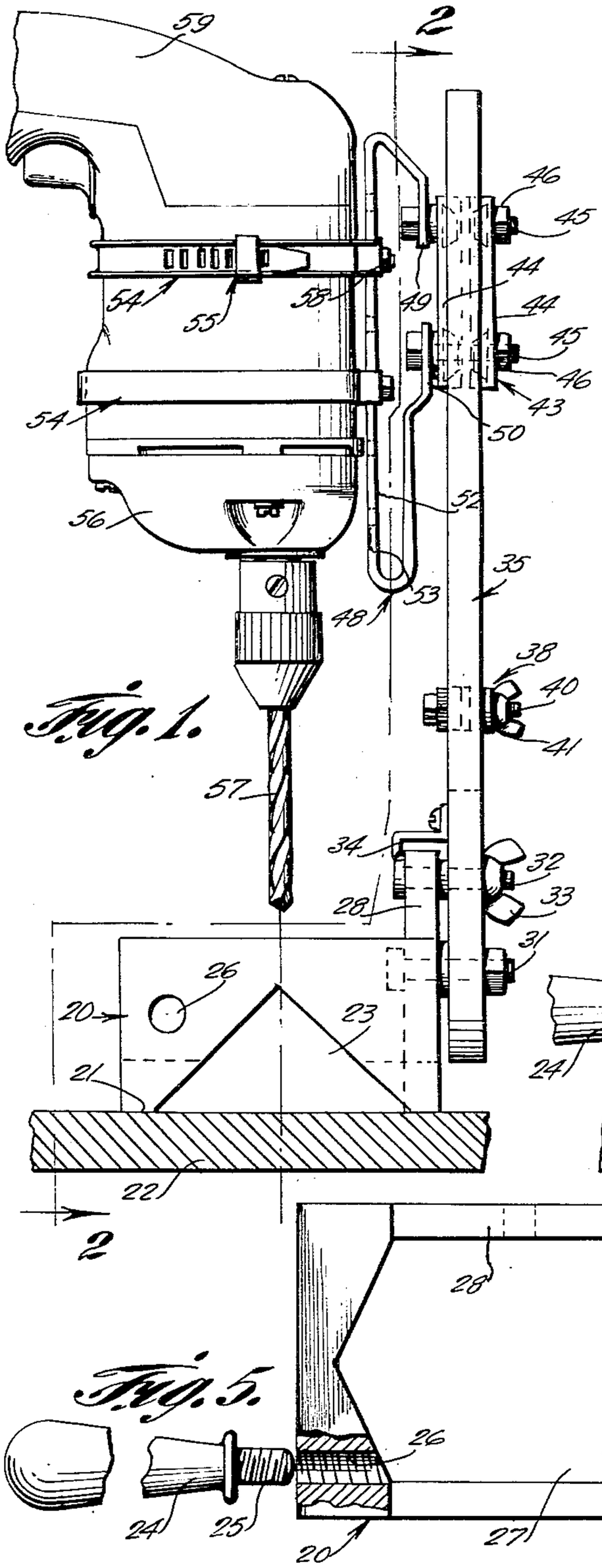

Fig. 1.

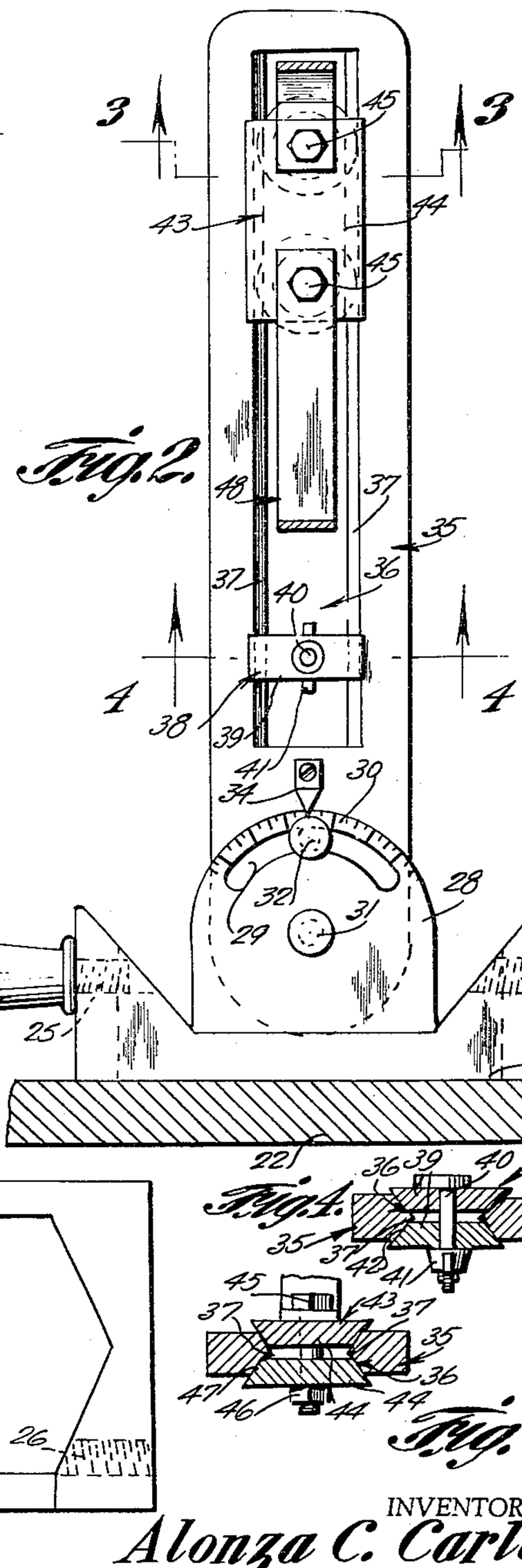

Fig. 2.

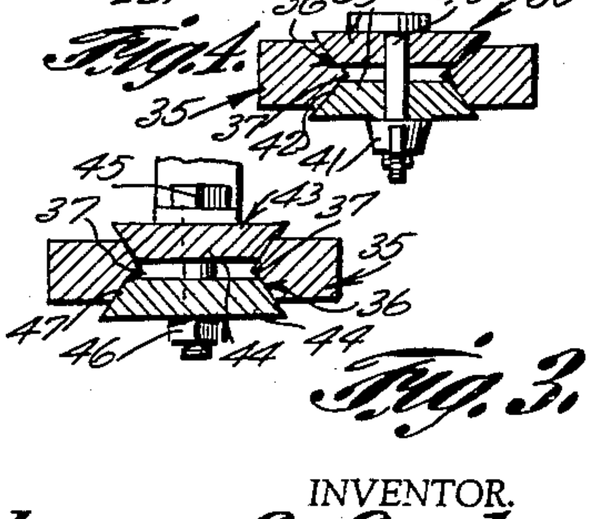

Fig. 3.

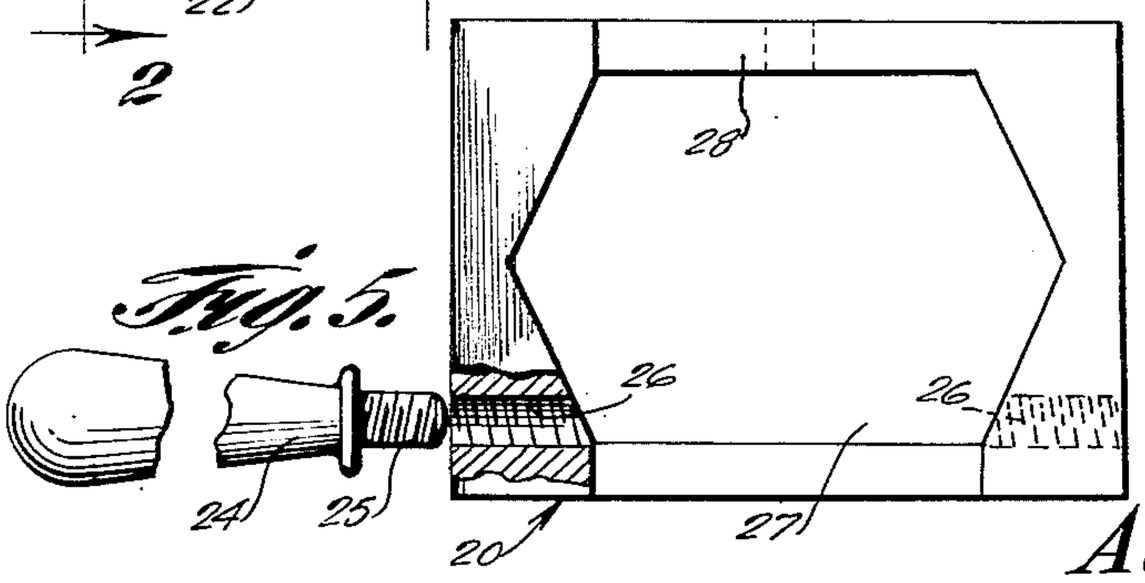

Fig. 5.

Fig. 4.

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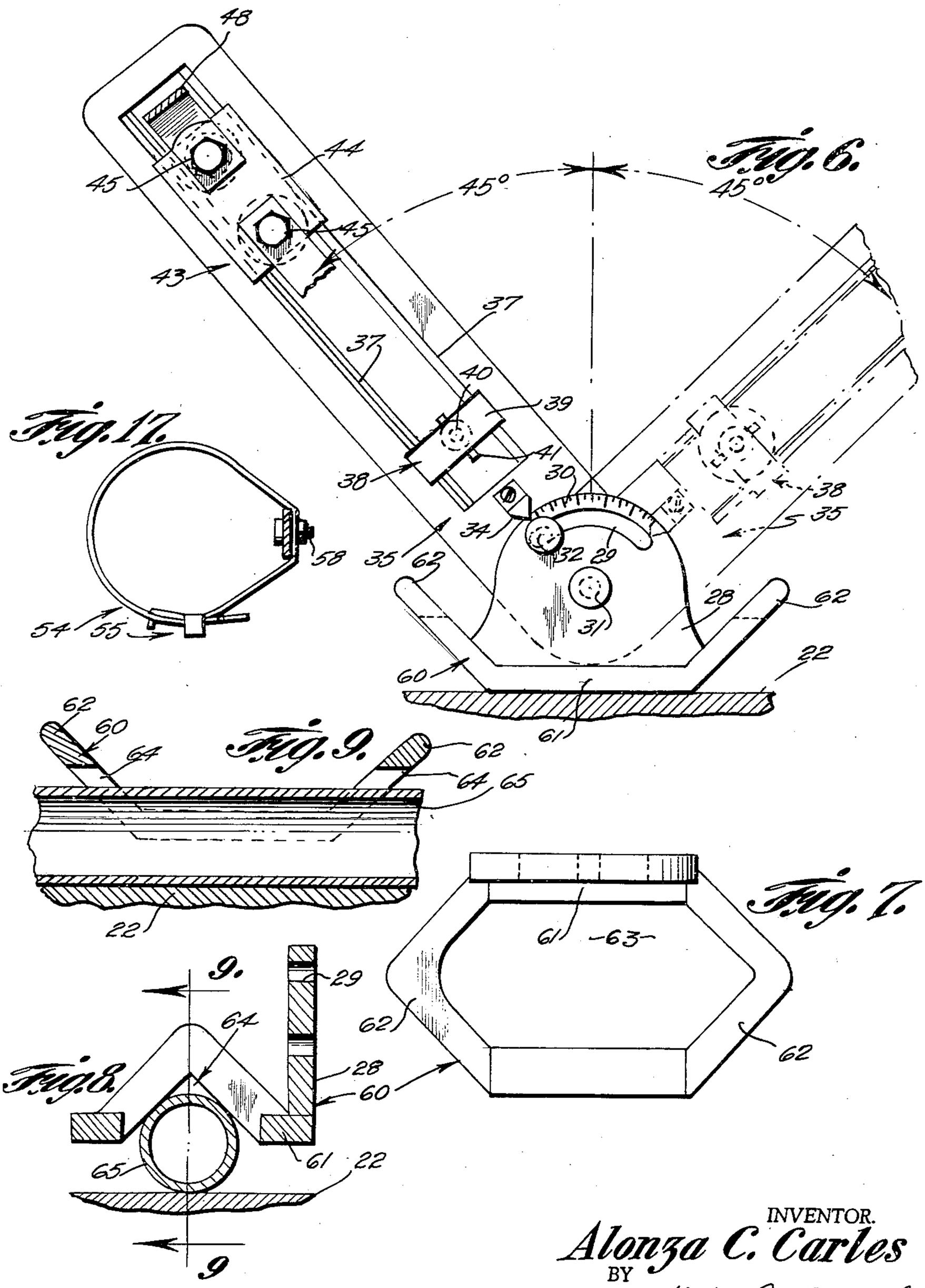

Fig. 6.

Fig. 11.

Fig. 9.

Fig. 7.

Fig. 8.

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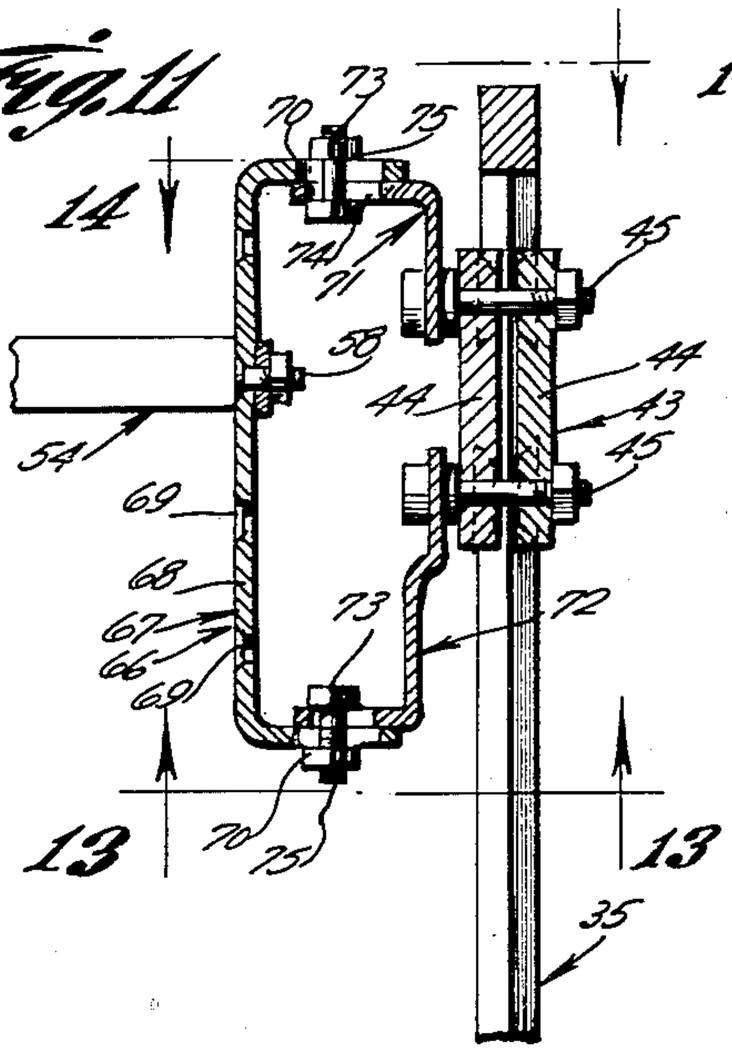
Fig. 11



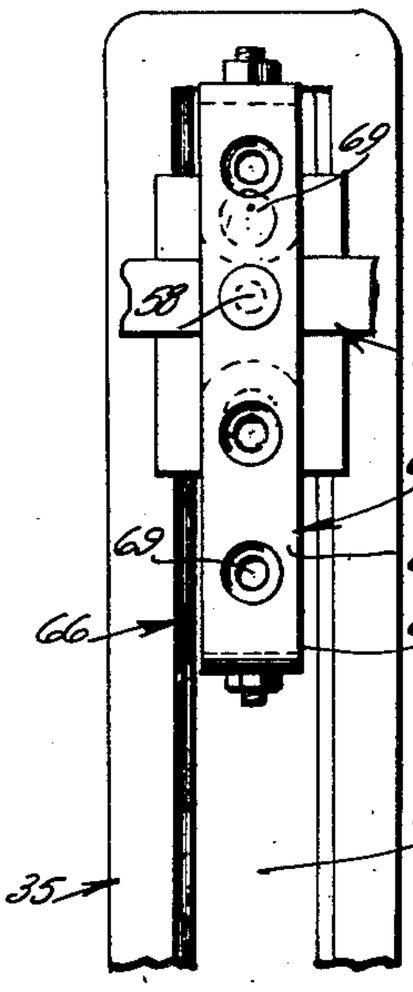
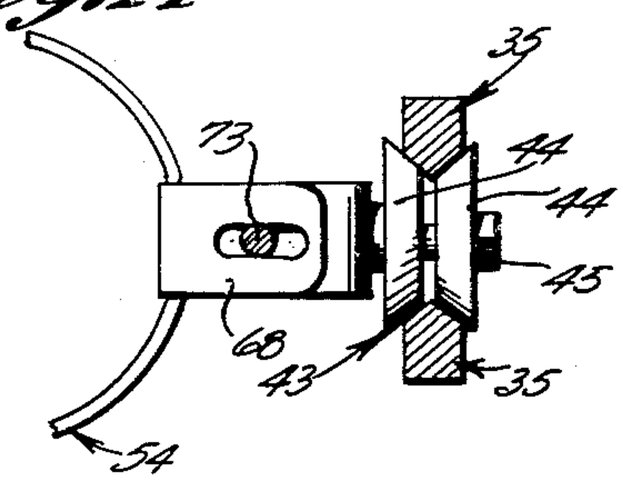


Fig. 12

Fig. 14



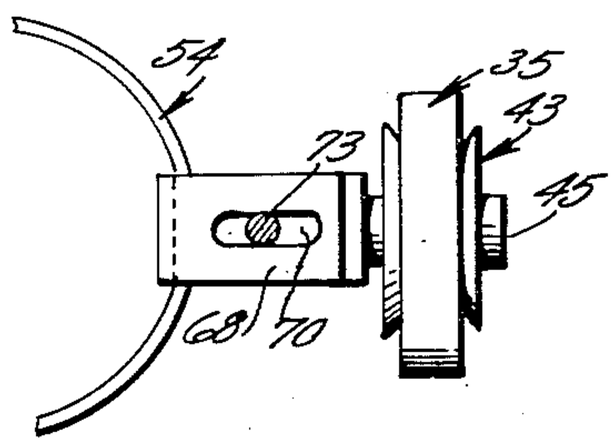


Fig. 13.

Fig. 10

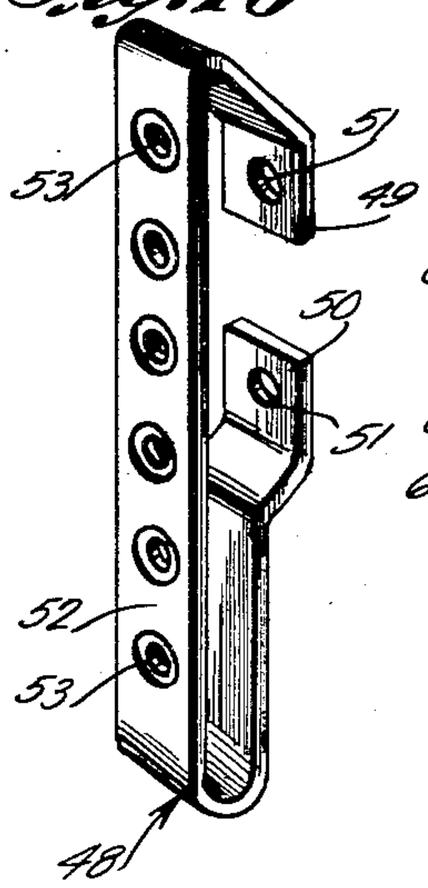


Fig. 15

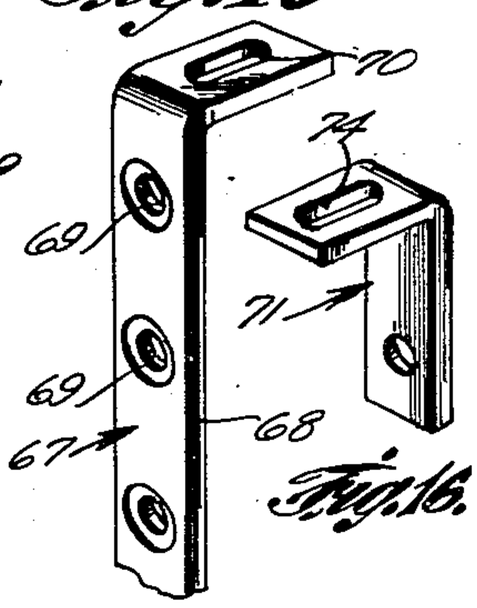


Fig. 16.

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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

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 coact 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

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

through said apertures for connecting said straps to said bracket.

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