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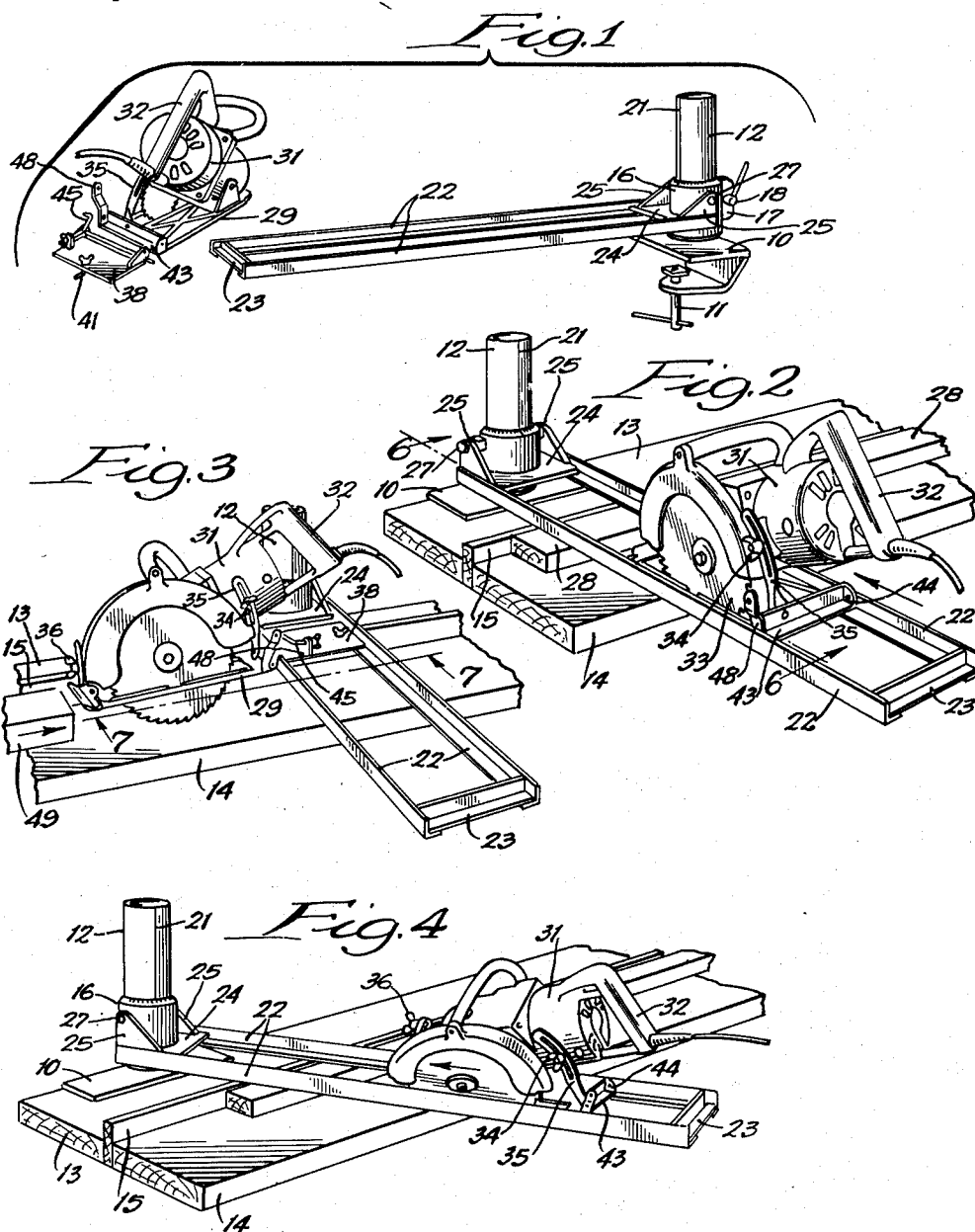
S. E. VAN TUYL

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GUIDE FOR PORTABLE POWER TOOLS

Filed Sept. 15, 1949

2 SHEETS—SHEET 1



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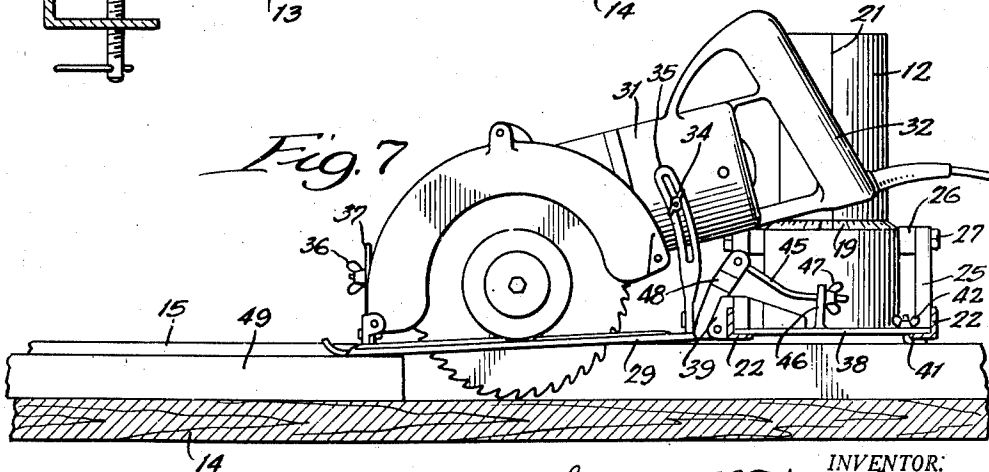
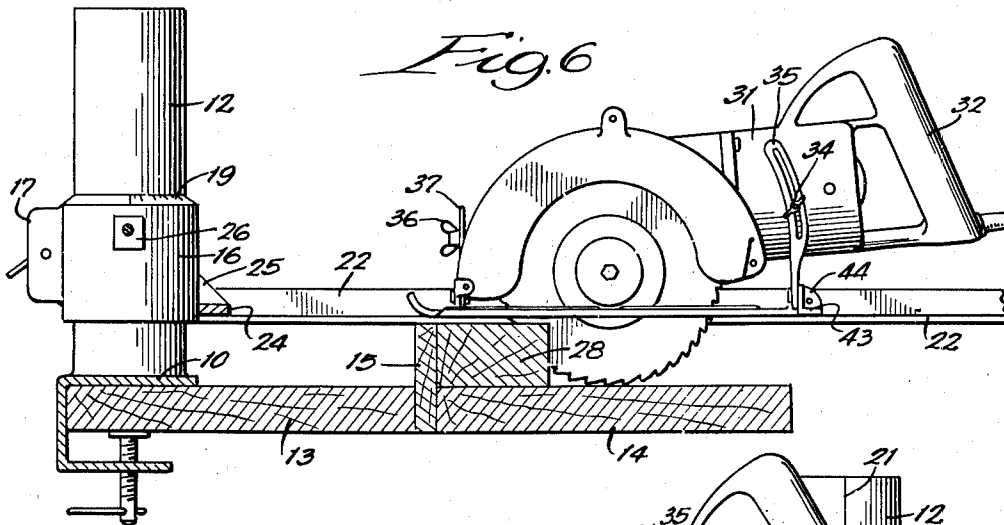
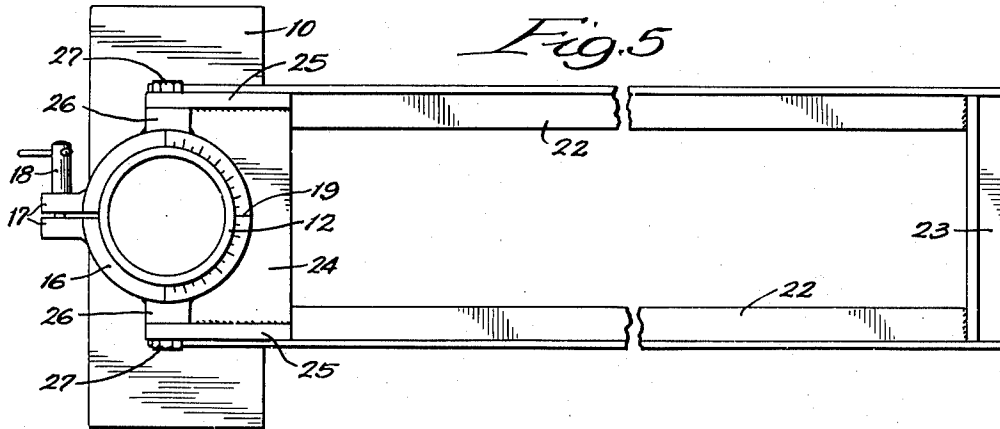
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GUIDE FOR PORTABLE POWER TOOLS

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2 SHEETS—SHEET 2



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UNITED STATES PATENT OFFICE

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GUIDE FOR PORTABLE POWER TOOLS

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6 Claims. (Cl. 143-6)

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This invention relates to guides for portable power tools and more specifically to a guide for a portable electric saw to enable rapid and accurate work to be performed.

Guides for portable power tools such as electric saws have heretofore been proposed but have generally been relatively complicated and expensive to build, cumbersome and awkward to transport, set up and use, or insufficiently flexible to enable different types of work to be done effectively. A desirable guide should be simple and inexpensive to construct, should be small and light for easy transportation, should be easy to set up without requiring special tables or bases and should be easy to use in performing various types of operations. It is one of the objects of the present invention to provide a guide having all of these desirable characteristics.

Another object is to provide a guide in which the frame supporting the tool for normal cross cutting operations is pivoted on a horizontal axis to be raised and lowered toward and away from the work. This enables the work pieces to be inserted and removed easily and insures proper holding thereof during operation.

Still another object is to provide a guide in which the tool supporting frame is mounted for vertical and angular adjustment to accommodate different thicknesses of workpieces and different angles of cuts. In the preferred construction the frame is supported by a collar which is slidable and rotatable on a post carried by a supporting clamp formed for connection to a table.

A further object is to provide a guide in which the tool may be pivotally mounted at one end on a horizontal axis adjacent one side of the frame for ripping or analogous operations. In one desirable construction a supporting plate is connected across the frame and is formed at one end for pivotal mounting to a bracket connected to one end of the tool.

The above and other objects and advantages of the invention will be more readily apparent when read in connection with the accompanying drawings, in which—

Figure 1 is a perspective view showing the several elements of the invention in disconnected position;

Figure 2 is a perspective view showing the guide set up for a cross cutting operation;

Figure 3 is a similar view showing the guide set up for a ripping operation;

Figure 4 is a similar view showing the guide set up for an angular cut;

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Figure 5 is a top plan view of the clamp and frame;

Figure 6 is an enlarged vertical section with parts broken away showing the guide set up for cross cutting; and

Figure 7 is an enlarged section showing the guide set up for ripping.

The guide of the present invention comprises a clamp 10 formed of channel shaped metal strips having a bolt 11 threaded in one flange thereof for gripping the edge of a table. The opposite flange carries an upright cylindrical post 12 for supporting the frame of the guide. The clamp 10 is adapted to engage the edge of any suitable supporting table with the post 12 projecting vertically above the table. According to the present invention no special type of table is required, and a satisfactory table may be formed of planks laid across saw horses or other supports. As shown, for example, in the drawings, the table comprises a pair of planks 13 and 14 lying in parallel relation with a strip 15 between them projecting above their upper surfaces to form a guide for the work. The clamp 10 may be securely clamped to the edge of one of the planks, as shown.

The post 12 slidably and rotatably receives a split collar 16 which is formed with a pair of outwardly extending flanges 17 to receive a tension fastening such as a threaded rod 18 to draw the collar tightly together around the post, thereby to hold it in a desired adjusted position. The collar is preferably provided at its upper edge with a series of calibrations 19, as best seen in Figure 5, which cooperate with a vertical reference line on the post 12 to indicate the angular adjustment of the frame. For this purpose the edge of the plank to which the clamp 10 is secured becomes a reference line, and the frame can be set at any desired angle with respect thereto through the calibrations 19 for angular cuts. The collar can also be adjusted vertically on the post to accommodate workpieces of different thicknesses so that the frame will extend horizontally in contact with the top of the workpiece.

The collar supports an elongated guide frame formed of a pair of flanged strips 22 which are preferably L beams connected at their outer ends by a short cross strip 23 welded or otherwise permanently secured thereto. At their opposite ends the strips 22 are connected by a plate 24 having upwardly extending flanges 25 at its sides through which the frame is pivotally connected to the collar. As best seen in Figure 5,

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the flanges register with horizontally extending pieces 26 on the collar and are pivotally connected thereto by screws 27. In this way the frame can swing vertically toward and away from the table so that when it is raised the workpieces, as indicated at 28 in Figure 2, can easily be inserted or removed. When the frame is swung downward, it will rest on the work pieces and will hold them in place against the guide strip 15 for accurate cutting without requiring the operator to hold the work pieces by hand. Also due to elevation of the pivots 27 above the plane of the frame, the plate 24 will engage the collar 16 as seen in Figure 6 to limit downward movement of the frame during ripping or when it is desired to support the frame above the work.

The frame is adapted to receive and guide a conventional power saw unit having a generally rectangular base 29 on which a motor 31 is pivotally supported for swinging about axes at right angles to each other. The motor unit carries a handle 32 through which the tool may be manipulated and in the form shown drives a transversely extending shaft for carrying a circular saw blade 33. The unit, as shown, is representative of any one of several standard portable power tools with which the guide of the invention may be utilized.

The beams 22 are positioned, as shown in Figure 2, with their side flanges extending upwardly and their horizontal flanges extending inwardly toward each other. The beams are so spaced that the frame 29 of the tool will fit slidably between them resting on the horizontal flanges and being guided for sliding movement by the vertical side flanges. This is the normal position of the tool for cross cutting or analogous operations, as shown in Figures 2, 4, and 6.

To use the tool for operations of this type, the work may be positioned against the guide strip 15, and the frame may be swung downward against the work to hold it in place. The depth of cut desired is regulated by swinging the motor unit and saw vertically about a pivot at the forward end of the frame, the unit being held in adjusted position by engagement of a wing nut 34 with an arcuately slotted strip 35 on the frame. With the motor running the operator may simply grasp the handle 32 and slide the tool along the beams 22 across the work to perform a cut thereon. When it is desired to cut the work at an angle the frame may be turned about the post 12 to the desired degree, as shown in Figure 4, and the operation may be carried out in exactly the same way. With the set up illustrated in Figure 4, the saw is tilted about an axis longitudinal to its direction of travel through its pivotal mounting on the frame 29 and is held in adjusted position by a wing nut 36 engaging an arcuately slotted strip 37 on the saw frame. Through these adjustments of the saw, the work piece may be cut at any desired angle to its length and the operation can be carried out rapidly and accurately.

For ripping operations, as illustrated in Figures 3 and 7, the tool is pivotally mounted at one side of the frame with the saw parallel to the guide strip 15. For this purpose a supporting plate 38 is provided of a length to extend across the frame and to rest on the flanged beams 22. At one end the plate carries a pair of upwardly projecting flanges 39 which are notched to fit over the vertical flange at one side of the frame and to lie at the outside of the flange, as best seen in Figure 7. At its opposite end the plate

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carries a clamping means shown as an angular rod or strip 41 extending through the plate and threaded to receive a wing nut 42 above the plate. When the plate is assembled on the frame, the clamping strip 41 engages beneath the horizontal flange on one of the beams to secure the plate in position and to hold it against tilting or shifting.

A bracket 43 is secured to one end of the saw frame and is provided at its opposite ends with flanges 44 to register with the flanges 39. The flanges 44 and 39 may be pivotally connected on a horizontal axis by any desired type of pivot pin so that the entire tool unit can swing vertically relative to the plate 38. Downward swinging movement of the tool unit is limited by an adjustable tension link 45 extending through a vertical lug 46 on the plate 38 and having a wing nut 47 threaded thereon. At its opposite end the link 45 is bent over as best seen in Figure 1 to hook through an opening in the upper end of an arm 48 on the bracket 43. With this construction the tool can swing upward about its pivotal connection to the supporting plate 38 but its downward movement is limited.

For a ripping operation the tool is mounted, as described, and the desired depth of cut is set by adjusting the position of the motor and saw unit on its frame 29 through the adjustment 34-35, as described above. The wing nut 47 is adjusted so that the frame 29 of the tool unit will rest on the upper surface of a work-piece to be ripped, as indicated at 49 in Figures 3 and 7. With the tool set up as described, the work piece may be placed against the guide strip 15 and fed past the tool so that it will be cut, as desired. It will be noted that in this set up the frame 29 of the tool rests on the work piece to hold it down and to prevent any tendency of the tool to kick the work piece back. This enables a ripping or analogous operation to be performed very effectively and simply with a minimum liability of injury to the operator.

From the foregoing it will be seen that the guide unit of the present invention is relatively simple and light in weight so that it can be manufactured inexpensively and transported easily. It can further be set up very simply without requiring any special tables or bases and can be used easily and safely to perform a wide variety of operations.

While one embodiment of the invention has been shown and described in detail herein, it will be understood that this is illustrative only and is not to be taken as a definition of the scope of the invention, reference being had for this purpose to the appended claims.

What is claimed is:

1. A guide for a portable power operated tool comprising a clamp formed to engage a table and to project above the top thereof, an elongated frame formed of L beams connected at their ends in spaced parallel relationship, means extending above the plane of the frame pivoting one end of the frame to the upper part of the clamp on a horizontal axis for swinging in a vertical plane movably to overlie a work piece, a cross member at said one end of the frame engageable with the clamp to limit downward swinging of the frame, the L beams having upwardly extending flanges to guide a power tool for sliding movement longitudinally of the frame.

2. A guide for a portable power operated tool comprising a clamp formed to engage a table, a cylindrical post on the clamp to project vertically above the table, a collar fitting slidably

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and rotatably on the post, an elongated guide frame, means pivoting the guide frame at one end on the collar on a horizontal axis, lying above the plane of the guide frame, a cross member at said one end of the guide frame engage-
able with the collar to limit downward swinging of the frame, and guide means on the frame to guide a power operated tool for sliding movement longitudinally of the frame.

3. A guide for a portable power operated tool comprising a clamp formed to engage a table, a cylindrical post on the clamp to project vertically above the table, a collar fitting slidably and rotatably on the post, an elongated rectangular guide frame, flanges at one end of the guide frame projecting above the guide frame and lying on opposite sides of the collar, pivots connecting the upper ends of the flanges to opposite sides of the collar on a horizontal axis, and a cross member on said one end of the frame to engage the collar below said axis and limit downward movement of the frame.

4. A guide for a portable power operated tool comprising a clamp formed to engage a table and to project above the top thereof, an elongated frame connected to the upper part of the clamp to project horizontally therefrom above the top of the table, a supporting plate fitting slidably in the frame for adjustment therealong and extending across the frame and laterally of and beyond one side of the frame at one end, clamp means on the plate to secure it to the frame, means at said one end of the plate beyond the adjacent side of the frame for pivotal connection on a horizontal axis parallel to the frame to one end of a power tool projecting laterally beyond the frame, and an adjustable connection between the plate and the power tool to limit relative pivoting thereof.

5. A guide for a portable power operated tool comprising a clamp formed to engage a table and to project above the top thereof, an elongated frame connected to the upper part of the clamp to project horizontally therefrom above the top of the table, a supporting plate fitting

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slidably in the frame for adjustment therealong and extending across the frame and laterally of and beyond one side of the frame at one end, clamp means on the plate to secure it to the frame, a bracket pivoted to said one end of the plate beyond the frame on a horizontal axis parallel to the frame, the bracket being secured to a power tool so that the axis lies transversely at one end of the power tool, and an adjustable connection between the plate and bracket to limit pivotal movement therebetween in one direction.

6. A guide for a portable power operated tool comprising a clamp formed to engage a table and to project above the top thereof, an elongated frame connected to the upper part of the clamp to project horizontally therefrom above the top of the table, a supporting plate fitting slidably in the frame for adjustment therealong and formed for connection to the frame to extend across the frame and laterally of and beyond one side of the frame at one end and means at said one end of the plate beyond the adjacent side of the frame for pivotal connection on a horizontal axis parallel to the frame to one end of a power tool projecting laterally beyond the frame, the power tool thereby being supported for vertical pivotal movement to work on a work piece moved under and transversely to the frame.

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