

June 2, 1925.

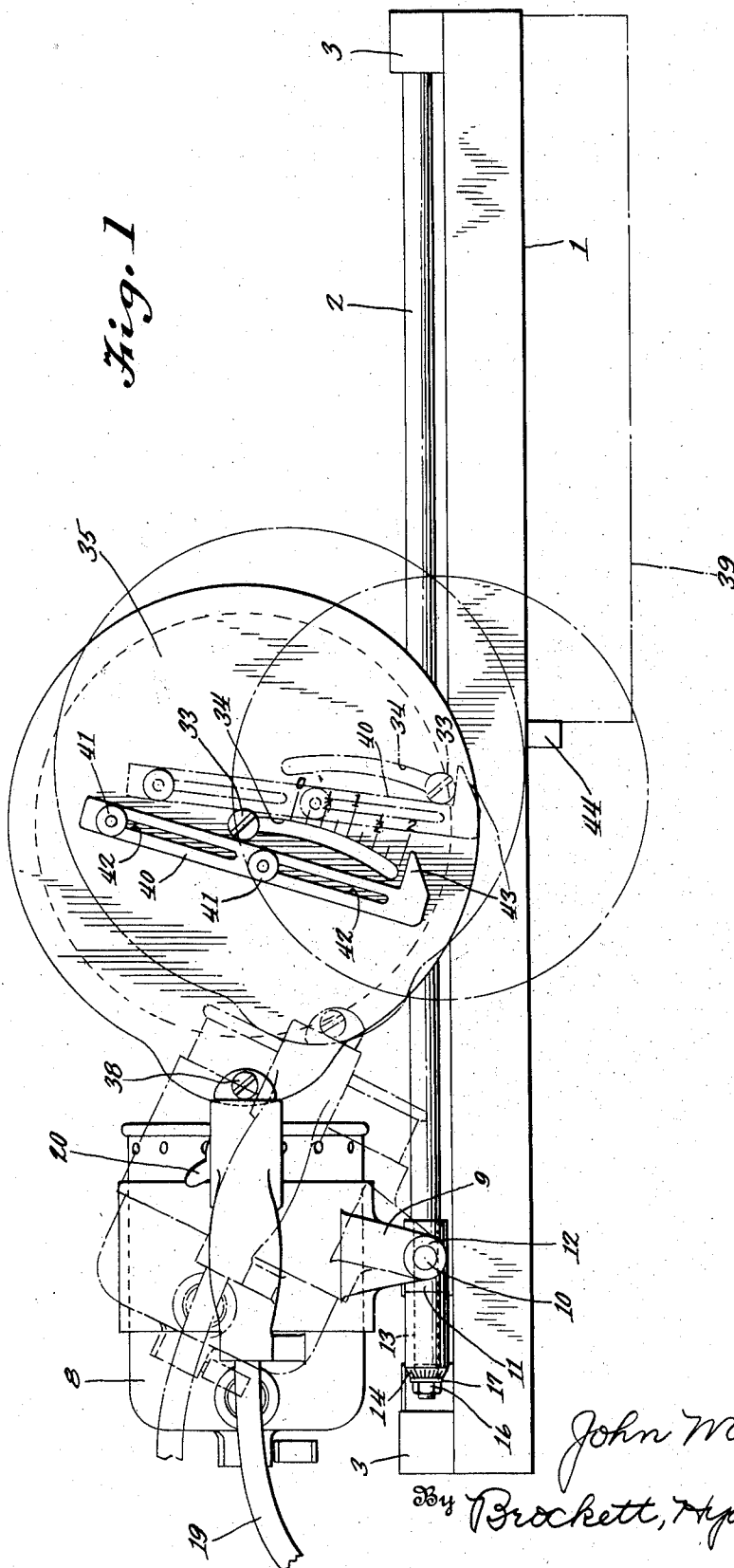
1,540,388

J. M. CROWE

PORTABLE SAW

Filed April 19. 1923

4 Sheets-Sheet 1



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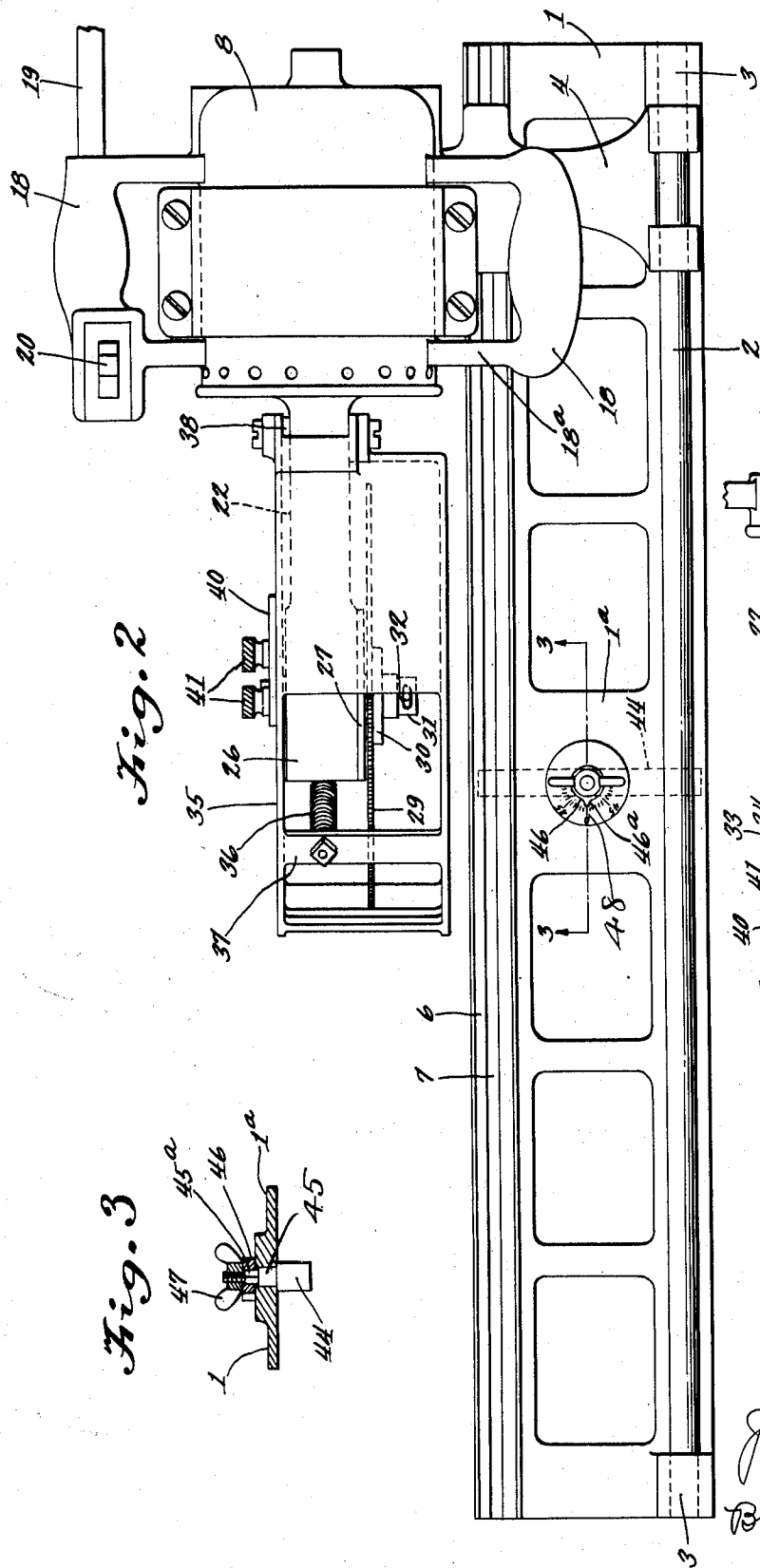
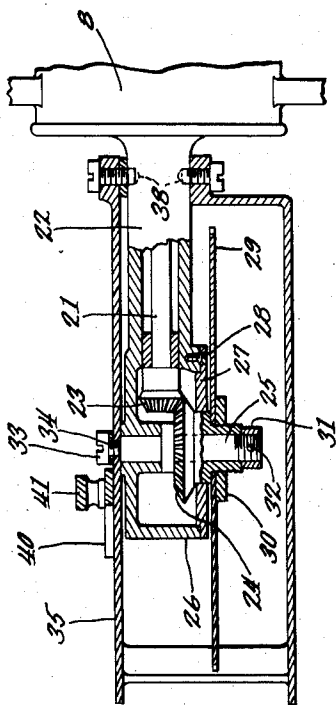


Fig. 2

Fig. 3

Fig. 4



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Fig. 5

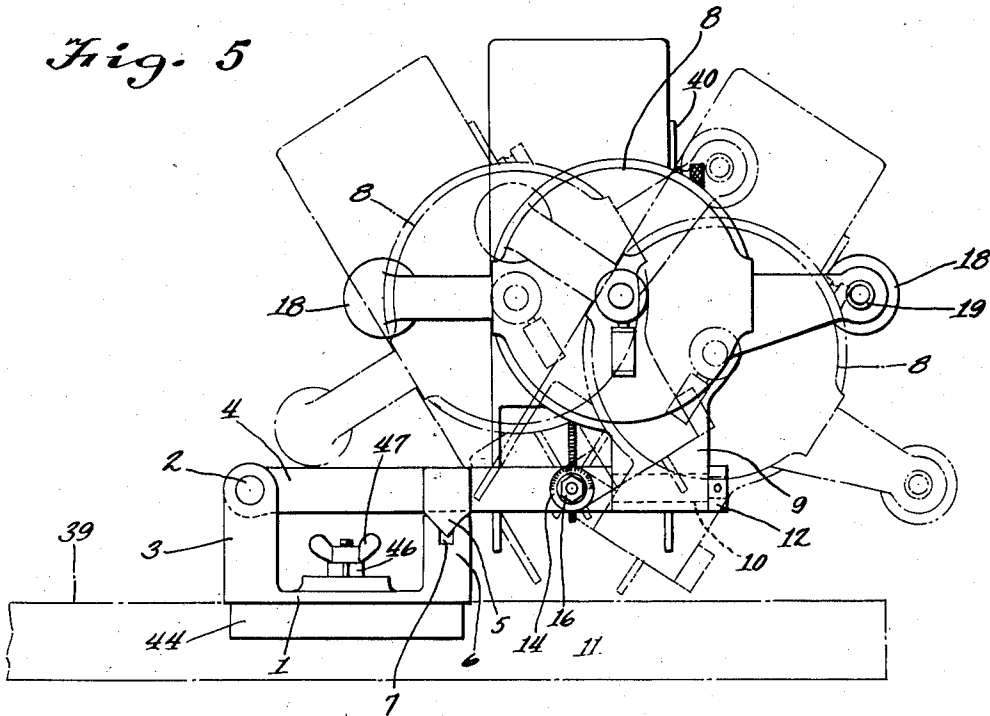


Fig. 7

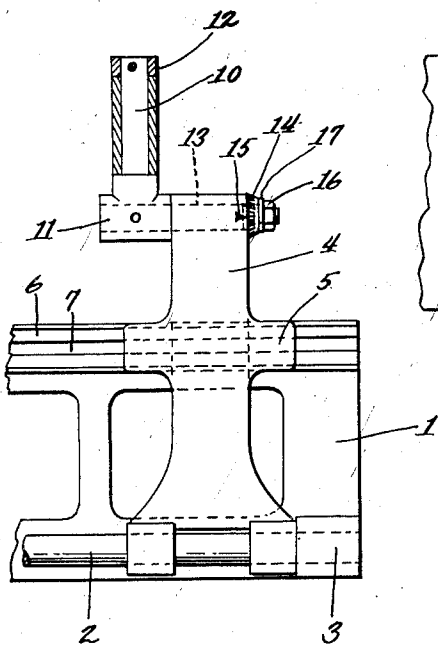
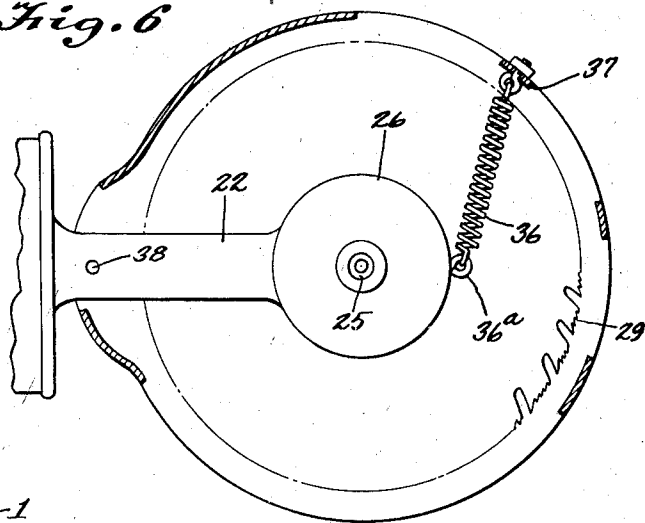


Fig. 6



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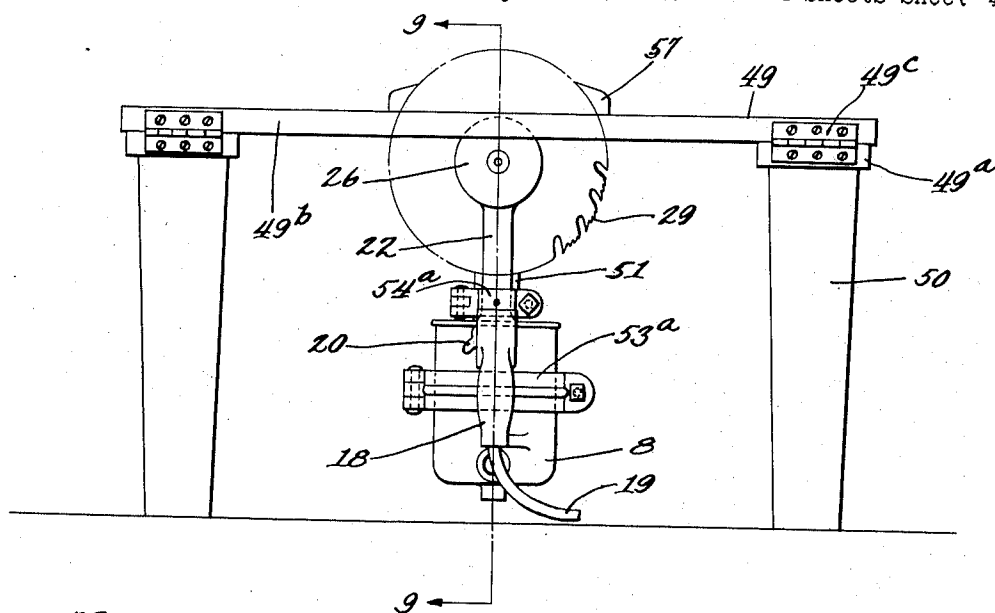


Fig. 8

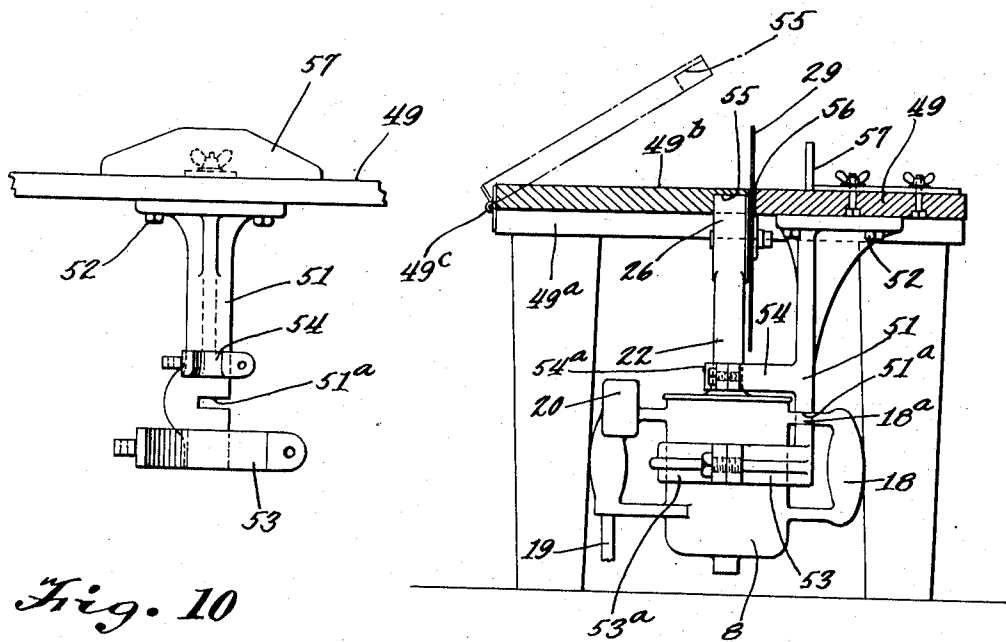


Fig. 10

Fig. 9

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UNITED STATES PATENT OFFICE.

JOHN M. CROWE, OF COVINGTON, KENTUCKY, ASSIGNOR TO THE CROWE MANUFACTURING COMPANY, OF COVINGTON, KENTUCKY, A CORPORATION OF KENTUCKY.

PORTABLE SAW.

Application filed April 19, 1923. Serial No. 633,178.

To all whom it may concern:

Be it known that JOHN M. CROWE, citizen of the United States, residing at Covington, in the county of Kenton and State of Kentucky, has invented certain new and useful Improvements in Portable Saws, of which the following is a specification.

This invention relates to improvements in portable rotary saws, grinders, buffers and the like.

The objects of this invention are to provide a guide for the tool, together with means for determining the angle of the path of the cutting operation with respect to the end or side of the work; to provide means whereby the tool can be set so as to cut grooves of various depths and widths; to provide an improved means for preventing heating of the driving members for the saw; to provide means for arranging and suspending a portable motor-operated saw so that the same can serve as a saw mill which can be readily carried by the workman from one piece of work to another; and finally to improve generally the construction and arrangement of a portable rotary saw of the type herein disclosed.

Fig. 1 shows my improved device in side elevation; Fig. 2 is a plan view of the same; Fig. 3 is a sectional view taken on line 3—3 of Fig. 2; Fig. 4 is a transverse sectional view of the drive connection for the saw; Fig. 5 is a rear end elevation of my improved device and illustrates the manner in which the tool can be set at various angles with respect to the surface of the work; Fig. 6 is a detail view showing the spring control for the shield; Fig. 7 is a detail plan view showing the bracket support for the motor casing; Fig. 8 is a side elevation of the saw when suspended from a table so as to serve as a portable saw-mill; Fig. 9 is a sectional view taken on line 9—9 of Fig. 8; and Fig. 10 is a partial side elevation of the table for the saw with the motor and saw removed.

The guideway upon which the supporting bracket of the motor saw is slidably mounted comprises the base portion 1 and the slide rod 2 extending throughout the length thereof and provided with the stops 3. The swinging arm 4 is mounted for swinging movement upon the rod 2 and supports at its other end the motor in a manner to be later described. The supporting bracket 4

is provided also with the depending tapered portion 5 which is adapted to engage for sliding movement in a correspondingly formed slideway provided in the upwardly extending portion 6 which constitutes part of the slideway 1. The well portion 7 is provided in the bottom of the slideway so as to catch any dirt.

The motor casing 8 is provided with the depending foot portion 9, which is freely rotatable upon the stub shaft 10 secured in the angular collar portion 11, the collar 12 being provided on the other end of the stub shaft 10. Another stub shaft 13 extends through and is fixed in the collar 11 and is rotatably mounted in the end portion of the bracket arm 4 for adjustment therein. The free end portion of the stub shaft 13 is provided with the squared portion upon which the graduated washer 14 is adapted to seat for co-operation with the mark 15 provided on the bracket 4. The nut 16 and the washer 17 are provided to maintain the parts in set position. With this arrangement, it is possible upon loosening the nut 16, to turn the shaft 13 in the bracket 4 to the desired position in which the same may be set by then tightening the nut 16. This adjustment is useful for setting the saw at various angles with respect to the surface of the work. The handles 18 are provided as extensions on the two sides of the motor casing, into one of which are led the wire connections 19 for the motor with the control switch 20 adapted for convenient operation by the workman's thumb.

The drive shaft 21 of the motor extends out through the housing portion 22 which is an extension of the main motor casing, and on the free end of shaft 21 there is mounted the bevel pinion 23 which meshes with the bevel gear 24 carried by the stub shaft 25. The housing extension 22 is formed so as to provide a housing portion 26 enclosing the bevel pinion and gear 23 and 24 for the purpose of holding graphite or the like to prevent heating of the gear connection and also to serve as a lubricant. The housing 26 is closed by means of the cover 27 which is secured in position by means of the screws 28, the housing being otherwise closed. The hub of the bevel gear 24 extends through the cover 27 and is adapted to receive the saw disc 29 which is secured in such position by means of the nut 30. The bevel gear

24 is maintained in assembly by means of the collar 31 and a suitable cotter pin 32, while the other end of the stub shaft 25 receives the screw 33 which extends through the arcuate slot 34 formed in the side wall 35 of the shield which protects the saw. The shield is pivotally mounted at the points 38 on the two sides of the housing extension 22 and is normally held in protecting position by means of the coil spring 36, one end of which is secured to the housing portion 26 while its other end is anchored to a cross member 37 which forms part of the shield.

It will be understood that upon applying the saw to the work which is indicated in the form of a board 39, the guard will be automatically raised against the tension of the spring 36 and will ride along the top surface of the work while the saw is exposed. It will be understood, too, that since the saw disc is of smaller diameter than that of the shield, as clearly illustrated in the drawings, there will be a certain amount of movement of the screw 33 in the slot 34 before the saw disc emerges from the shield. The relative movement between the saw disc and the shield will, however, be limited by the length of the slot 34 and consequently the depth to which the saw will be permitted to cut will also be determined by the length of the slot 34. As a means of further limiting the extent to which the saw can be exposed, or, in other words, limiting the depth of groove which is to be cut, I have provided a bar 40 which is slidably mounted upon the outer face of the wall 35 of the shield by means of the headed screws 41 and slots 42. This strip is provided with stop portion 43 which is adapted to be set at different positions along the slot 34 so as to limit the movement of the screw 33 in the slot 34, that is to a degree less than the full extent of the slot 34. A scale is also provided upon the wall 35 of the shield by means of which the stop member 40 can be set according to the depth of groove desired, that is, whether a half inch, one inch, one and a half inches or two inches.

The width of the groove can also be varied by mounting one or more saw discs upon the hub of the bevel gear 24, these saw discs being clamped in the same manner as the single disc illustrated in the present drawing. The scale indicated on the wall 35 of the shield, as shown in Fig. 1, corresponds to the middle or upright position of the saw illustrated in Fig. 5, and in setting the saw for various depths of grooves in the manner just referred to it will be necessary to take into account the angular relation of the shield and the saw with respect to the surface of the work.

I have provided also a means of setting the tool so as to cut at various angles with respect to the end or side of the work. This

means comprises a stud or strip 44 which extends across the bottom of the guide or slideway 1 and is adapted to abut the end or side of the work, as illustrated in Fig. 1 of the drawings. A pin 45 is secured in the stud 44 and extends up through an opening in the web portion 1^a of the slide or guideway. The squared portion 45^a of the pin is adapted to receive the washer 46 which is provided with an indicating finger portion 46^a and has its extreme upper end screw threaded for receiving the wing nut 47 for securing the parts in position.

Thus, it will be seen that upon loosening the nut 47 and holding the stud or strip 44 against the end or side of the work as illustrated in Fig. 1, the guide or track member 1 can be turned to the proper angle which is read from the scale 48 corresponding to the angle of cut desired. The nut 47 is then tightened. The tool can also be set at the proper angle desired with respect to the surface of the work by loosening the nut 16 and adjusting according to the scale 14. As before explained, the slide member 40 can be set so as to limit the depth of the cut or, with the slide member 40 in the position indicated in Fig. 1, the saw will be permitted to cut to its full depth; in other words, until the screw pin 33 travels throughout the full length of the slot 34. As the saw is applied to the work, the motor with the saw will be swung about the axis 10 into the position indicated in dotted lines in Fig. 1, and will be maintained in such position during the cutting operation. Then, upon completion of the same and removal of the saw, the shield will automatically return so as to cover the saw.

It is to be understood that this device can also be used for grinding, buffing and other such operations by simply substituting the proper form of disc in the place of the saw.

Figs. 8 and 10 show how the same portable motor-operated saw as above described can be suspended from a table top 49 which in turn can be carried by the workman from place to place and set upon any suitable supports 50. In this case the screw eye 36^a is removed and a screw plug is inserted in its opening as the guard is omitted. Depending from the underside of the table top 49 is a hanger 51 which is secured thereto by means of bolts 52. This hanger is adapted to support the saw and motor by having the handle portion 18^a rest in the groove 51^a in which position these parts are held together by means of the bracket arms 53 and 54 and the hinged portions 53^a and 54^a so as to permit ready assembly and disassembly of the parts. Part of the table top is fixed to the cross-strips 49^a but the other part 49^b is hinged at 49^c to the cross-strips so that it can be swung open to permit the motor and saw to be mounted in the hanger. The part 49^b

is provided with a cut-out portion 55 to accommodate the gear housing 26 and the saw projects up through the slot 56 which is provided between the two parts of the table top. The angle strip 57 which is secured to the table top in any suitable manner, serves as a guide for the work as it is advanced along the table top during the sawing operation.

10 The parts are so arranged that the saw itself will project above the table top sufficiently far for cutting and the weight of motor is sufficient to maintain the device in steady position upon its support, the pressure of the work upon the table top co-
15 operating also in this regard.

Thus, with this arrangement, I have made it possible for the workman himself to carry the saw and table top to the place of the
20 work instead of having to carry the work to the saw as in the old form of device. Furthermore, this device can be readily supported wherever it is necessary to use the same. A great deal of labor and time is
25 thereby saved and the cost of operation correspondingly reduced.

Another factor contributing to the saving in expense resides in the ability to use the same motor-operated tool in either of two
30 styles of operation; that is, the work can be fixed and the tool movable, or the work can be advanced to the tool while it occupies relatively fixed position.

Having described my invention, I
35 claim:—

1. A portable motor saw device, comprising a readily portable slideway adapted to

be applied to the work and governing the plane of operation of the saw and having means to freely abut the work to maintain
40 the slideway at the desired angle across a face of the work, a carriage slidable on said slideway, a motor on the carriage, and a saw rotated by said motor and mounted to be freely rockable below and back from
45 the plane of the slideway, and handle means on the same rockable mounting by which either the saw may be rocked or the carriage moved on the slideway.

2. In a device of the class described, the
50 combination of a portable motor, a cutting tool carried by and operated by said motor, a support upon which said motor is rockably mounted about a horizontal axis, and means for rotatably mounting said support
55 upon a horizontal axis substantially normal to said first named axis, whereby said motor and tool are capable of adjustment for a bevel cut and also towards and from the
60 face of the work.

3. In a device of the class described, the
65 combination of a portable motor, a cutting tool carried by and operated by said motor, a support upon which said motor is rockably mounted about a horizontal axis so as to permit the tool to be moved towards and from the work at all times, and means for rotatably mounting said support so as to set the tool at various angles about a horizontal axis substantially normal to said
70 first-named axis.

In testimony whereof I hereby affix my signature.

JOHN M. CROWE.