

June 10, 1924.

1,497,067

W. P. CASEY

ELECTRIC HANDSAW

Filed Dec. 2, 1921

3 Sheets-Sheet 1

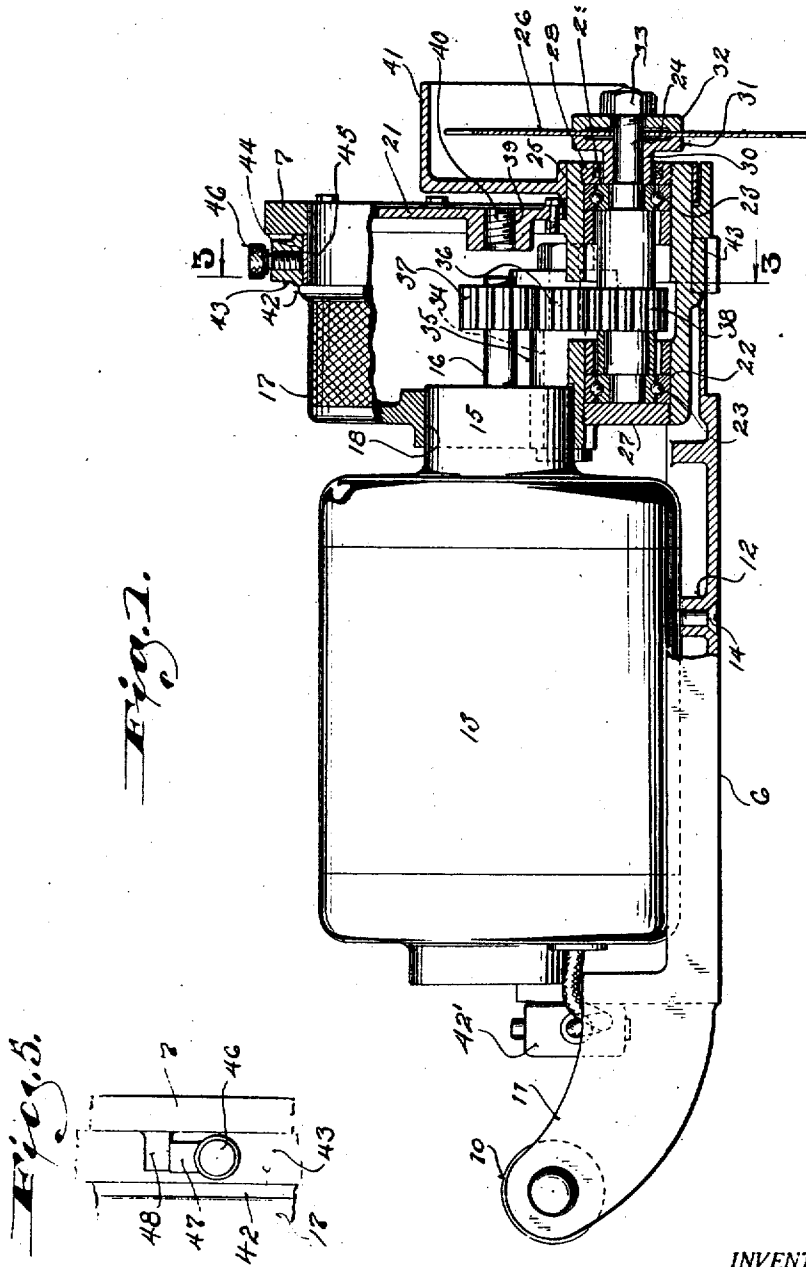


Fig. 1.

Fig. 5.

INVENTOR.
—William P. Casey—

BY

Ira M. Jones.
ATTORNEY.

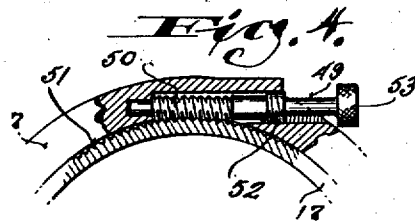
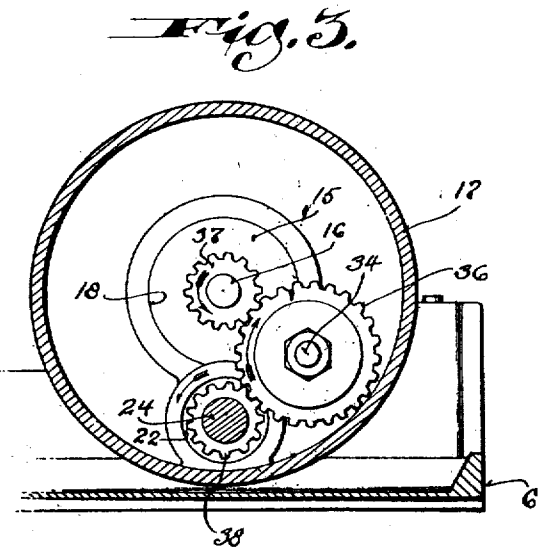
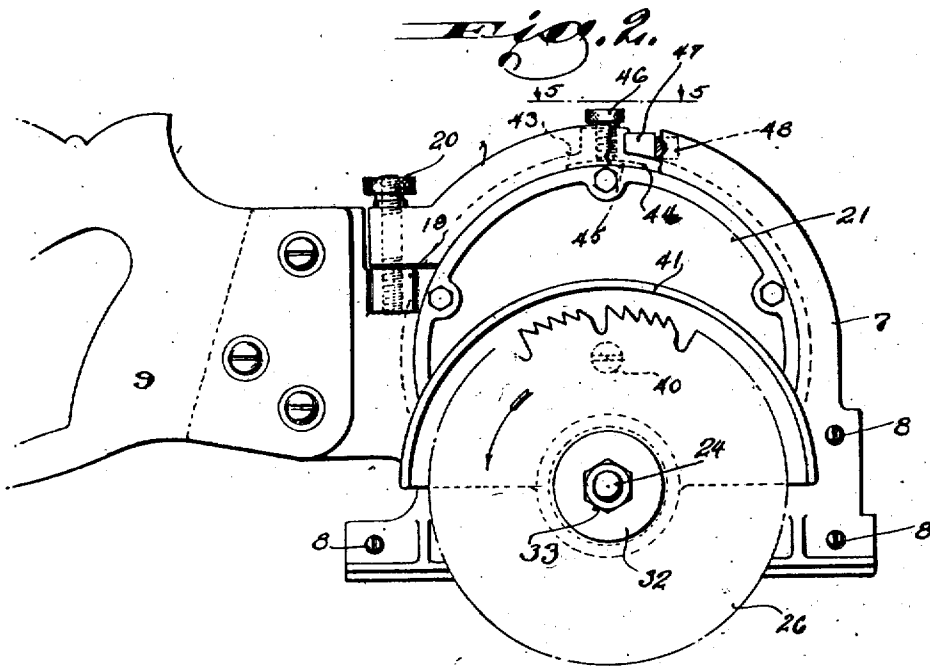
June 10, 1924

1,497,067

W. P. CASEY
ELECTRIC HANDSAW

Filed Dec. 2, 1921

3 Sheets-Sheet 2



INVENTOR.

William P. Casey

BY

Ina M. Jones.
ATTORNEY.

June 10, 1924.

1,497,067

W. P. CASEY

ELECTRIC HANDSAW

Filed Dec. 2, 1921

3 Sheets-Sheet

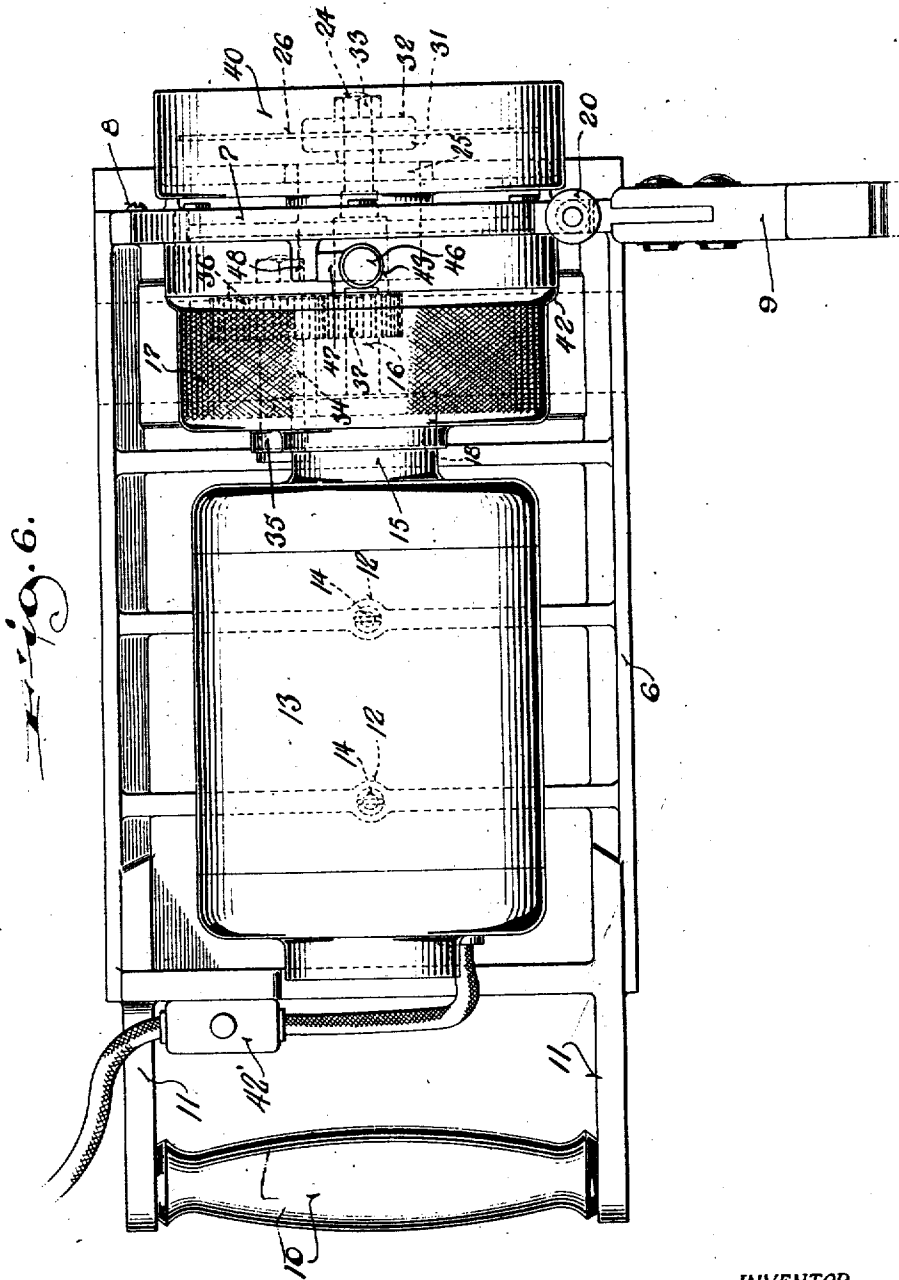


Fig. 6.

INVENTOR.

— William P. Casey —

BY

Ara M. Jones.
ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM P. CASEY, OF OSHKOSH, WISCONSIN, ASSIGNOR TO THE ROUTER MANUFACTURING COMPANY, OF OSHKOSH, WISCONSIN, A CORPORATION OF WISCONSIN.

ELECTRIC HANDSAW.

Application filed December 2, 1921. Serial No. 519,414.

To all whom it may concern:

Let it be known that I, WILLIAM P. CASEY, a citizen of the United States, and resident of Oshkosh, in the county of Winnebago and State of Wisconsin, have invented new and useful Improvements in Electric Handsaws, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to certain new and useful improvements in tools and refers more particularly to a portable general utility tool especially adapted for use in the wood-working art.

One of the objects of this invention resides in the provision of a compact unitary tool for general woodwork adapted to be used as a portable electric saw with various types of cutters or convertible for use in the metal-working art by replacing the cutter with a tool of the proper character.

It is another object of this invention to provide a device of the character described in which the tool arbor is journaled in a rotatable member or drum to permit ready adjustment of the arbor, a drive motor having a positive drive connection with the tool arbor so that adjustment of the drum will not, in any manner, interfere with the arbor drive.

This invention has for a further object to provide a tool of the character described in which the number of parts comprising the same is reduced to a minimum to thus produce a tool having all the desired efficiency with a minimum number of parts, whereby its production at a comparatively low cost is possible.

It is a further object of this invention to provide a tool of the character described having means whereby the device may be set for operation at a predetermined depth with the least possible trouble and absolute accuracy to thus increase in general the efficiency of the machine.

A still further object of this invention is to provide a device of the class described including a frame constructed to be moved over the surface to be worked upon and provided with guiding grips or handles formed on opposite ends thereof, the handle at that end of the machine mounting the

tool proper being preferably in the form of a saw grip.

A still further object of this invention is to provide a tool of the character described so designed and constructed that the moving parts thereof are assured ample lubrication for the efficient operation of the tool with a minimum of friction.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the herein disclosed invention may be made as come within the scope of the claims.

In the accompanying drawings, I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a side view of a tool embodying my invention, parts being broken away and in section to more clearly illustrate details of construction;

Figure 2 is a view looking at the tool carrying end of the device, a portion of the frame being broken away and in section to more clearly illustrate the means employed for obtaining the ready adjustment of the depth at which the cutter proper operates;

Figure 3 is a fragmentary view in transverse section taken through Figure 1 on the line 3-3;

Figure 4 is a fragmentary detail view part in section and part in elevation illustrating a screw means for rotating the drum member to obtain the ready adjustment of the tool arbor, and

Figure 5 is a fragmentary detail view taken on the plane of line 5-5 of Figure 2.

Figure 6 is a plan view.

Referring now more particularly to the accompanying drawings, in which like numerals designate like parts throughout the several views:

The numeral 6 designates a supporting frame, which may be of any desired shape, but is illustrated in the drawings as of sub-

stantially rectangular form; 7, an end plate member, preferably in the form of a split ring and made fast to one end of the frame by suitable fastenings 8; 9, a handle member, preferably of the saw grip type, attached to a web or projection formed on end plate 7; and 10, a handle or grip mounted at the end of the frame opposite plate 7 and secured between two spaced parallel extensions 11 extended from the frame. The major portion of the base of frame 6 has supporting ribs or lugs 12 formed thereon, but one being shown in Figure 1, upon which rests a drive motor 13, the motor being made fast by suitable fastenings 14, ribs 12 being preferably shaped to conform with the motor casing.

One of the bosses 15, forming the bearings for the motor armature shaft 16, projects into a drum member 17 through an opening 18 in the inner wall thereof, said member being rotatably mounted in the split ring 7, as illustrated in Figures 1 and 2. Member 17 is rotatable about the motor boss 15 and is readily releasably secured in any desired position of adjustment by drawing the split ends 19 of ring 7 together by a binding nut 20.

Member 17 has its outer end closed by a removable cover or end plate 21, and extending therethrough, offset with respect to the center thereof, is a bore 22 in which are mounted suitable bearings 23, preferably of the ball bearing type, for journally mounting a tool arbor 24. The outer end of arbor 24 projects through a bored cylindrical projection 25 extended beyond cover 21 and receives a suitable tool 26, illustrated in the present instance in the form of a cutting saw. The innermost bearing 23 is held in place by a cap or plug 27 closing the rear end of bore 22 and the outer-most bearing 23 is secured in place by an annular member 28. The inner periphery of member 28 is annularly channeled to receive a suitable packing 29 for engagement with a hub 30 of a flange member 31 which, with a disc 32 and a lock nut 33, secure tool 26 to its shaft 24.

A countershaft 34 is secured in a bored projection 35 formed on the inner wall of member 17, and journaled thereon is an idler or intermediate gear 36 which meshes with a pinion gear 37 fixed to armature shaft 16 and a pinion gear 38 mounted on arbor 24. With this arrangement of power transmission, it will be readily obvious that member 17 may be readily rotated to any position of adjustment to vary the depth of the cut of tool 26 without in any manner disturbing the drive connection between the armature shaft and tool arbor by reason of the drive gears, in the adjustment of member 17, describing an arc about the axis of the armature shaft. Ample and suitable

lubrication is supplied the journal of gear 36 and bearings 23 through an opening 39 in cover 21, said opening being closed by a readily removable plug 40. By reason of packing 29 preventing escape of lubricant past arbor 24, the drive gears may be run in lubricant.

A suitable guard 41 is provided for tool 26 which is mounted on the projection or extension 25, as illustrated in Figure 1, this guard being adjustable about the axis of arbor 24 in order to best protect the operator from danger of flying chips thrown by the cutter irrespective of the depth at which the tool is being operated. The guard is preferably in the form of a segmental plate having its medial portion flanged and apertured to engage over projection 25 and its outer edge portion flanged or struck laterally to extend over the tool.

For convenience to the operator in stopping and starting the tool, a controlling switch 42 is set within the circuit of motor 13 and positioned at a suitable convenient point in reach of one hand of the operator whereby the tool may be instantly stopped without necessitating its removal from the work or the withdrawing of his hand from the tool.

As will be readily obvious from the above description, the depth at which tool 26 operates is readily adjusted by means of member 17, as the nearer the axis of arbor 24 approaches an imaginary vertical line running through the axis of member 17 the deeper the cut, and in order to facilitate the exact setting of the tool to operate at any given depth the hereinafter described means is provided.

The periphery of member 17 has a rib or flange 42 formed thereon a slight distance inwardly of member 7 to provide a space for receiving a ring 43 rotatably mounted about member 17. A portion of the inner periphery of ring 43 is provided with an elongated recess 44 in which a flat spring or other suitable binding member 45 is positioned, a binding screw 46 being operable to force spring 45 against member 17 to make the ring fast thereto in any desired position of adjustment.

Either member 17 or ring 43 has a master line or center point delineated thereon, and the other a series of graduations and when it is the desire of the operator to make a three sixteenths of an inch cut in the work, ring 43 is rotated to aline the three sixteenths of an inch graduation with the master line. when the ring is made fast to member 17 by the binding screw 46. Member 17 is then rotated to engage a lug or projection 47 carried by ring 43, with a lug or projection 48 carried by member 7, when member 17 is locked against rotation by drawing split ends 19 together by manipula-

tion of nut 20. Thus it will be seen that accurate adjustment of the depth at which the tool 26 operates is readily obtained with the least amount of effort on the part of the operator.

If desired, ring 43 may be dispensed with and member 7 made into the form of a one piece ring in which member 17 is rotatably mounted, said member being moved to any position of adjustment and held against rotation by the construction illustrated in Figure 4. This modification of my invention consists in journaling a worm shaft 49 in member 7 upon which is mounted a worm gear 50 which communicates with the inner periphery of said member and meshes with a worm wheel 51 formed on the periphery of member 17. Shaft 49 is secured in place by a screw collar 52 and has a knurled nut or head 53 on its outer end for readily rotating the same. In this form of my invention either member 7 or drum 17 has a master line or center point thereon and the other a series of graduation whereby exact adjustment of the depth at which the cutter is to operate may be readily made.

From the foregoing description taken in connection with the accompanying drawings, it will be at once apparent to those versed in the art to which an invention of this character appertains that I have provided a portable tool unit capable of use not only in connection with wood-working, but metal working and any other art where the tool will perform its function in an efficient manner, and that, by reason of its construction, the same may be tipped on end and operated where the work so requires.

What I claim as my invention is:

1. A tool of the character described having a frame including a base plate provided at one end with a vertically disposed standard, a driving element mounted upon said frame, a tool carrying element eccentric to and operably connected with said driving member, an adjusting member, housing said operating connection, and carrying said tool carrying element, positioned between and journaled concentric with and at one end by said driving element and at the other end by said standard, and means for holding said adjusting member in a predetermined position.

2. In a tool of the character described, the combination with a frame member and a drive motor fixed thereto and having one end provided with a protruding boss from which projects a drive shaft, of a drum member journaled in said frame member and having its rear wall centrally bored to receive said motor boss, said motor drive shaft terminating within said drum member, a tool shaft journaled in said drum member to one side of the center thereof and having its outer end extended beyond said drum member to receive a tool, a projection formed on the outer end wall of said drum member surrounding the projected end of said tool shaft, a guard member carried by said projection for the tool on the outer end of said tool shaft, and a drive connection located within said drum member for drivingly connecting said tool shaft with the drive shaft.

In testimony whereof, I affix my signature.
WILLIAM P. CASEY.