Dec. 27, 1932. A. R. MOHNS 1,892,246

WOODWORKING TOOL

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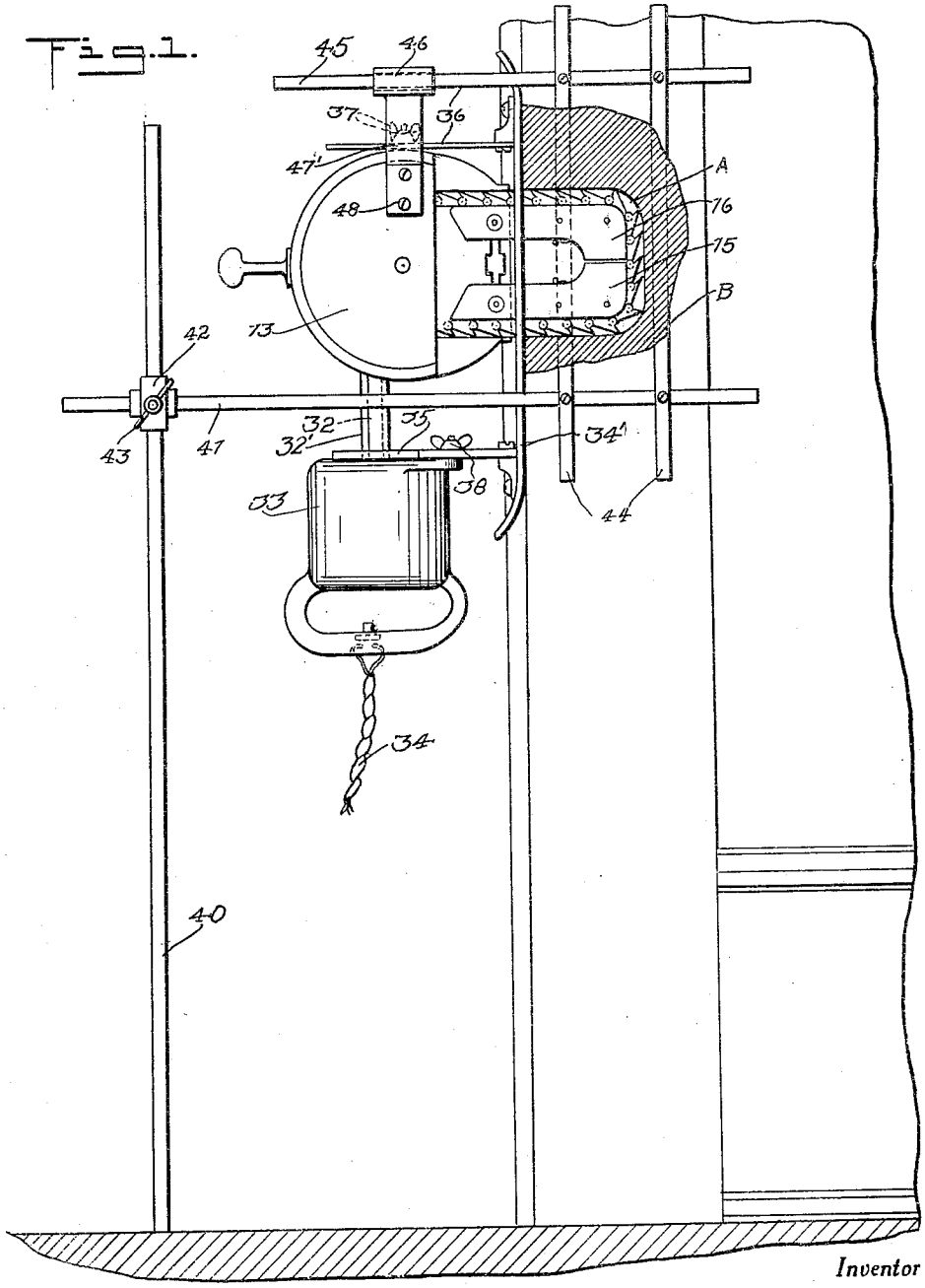
Fig. 1.



Inventor

ALFRED R. MOHNS.

By Clarence A. O'Brien

Attorney

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Fig. 2.

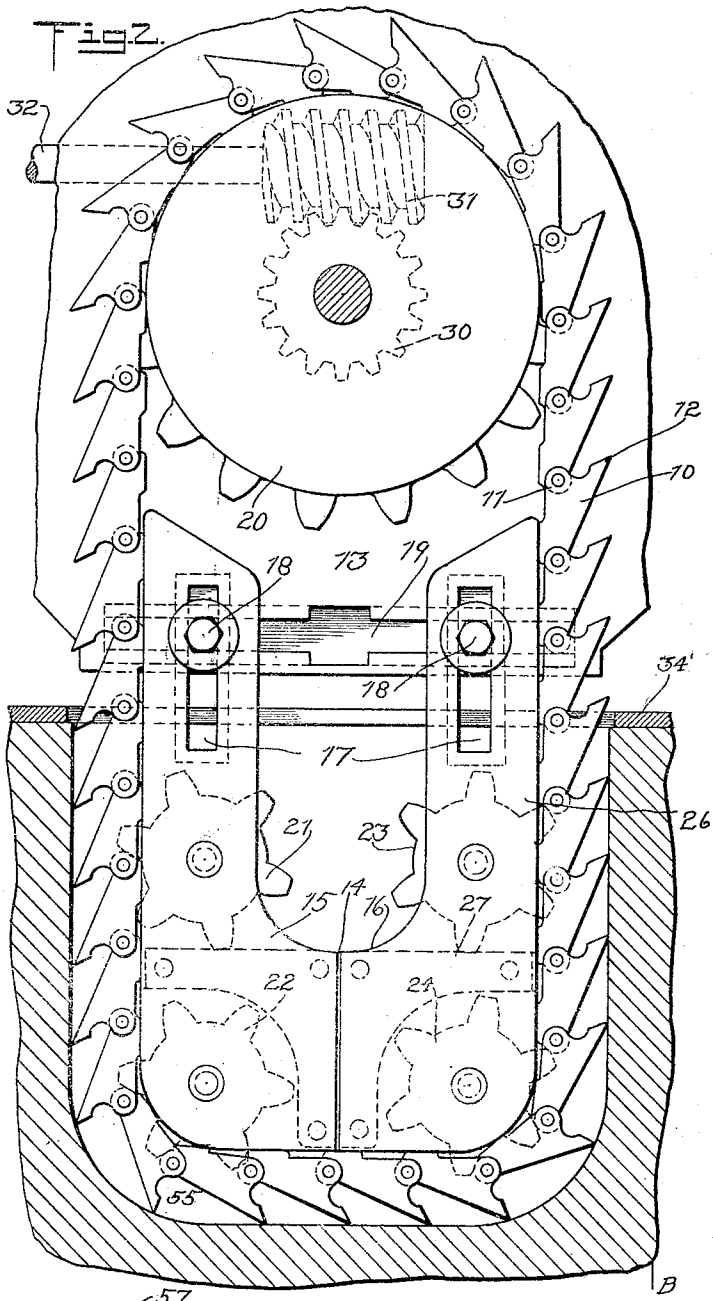


Fig. 3.

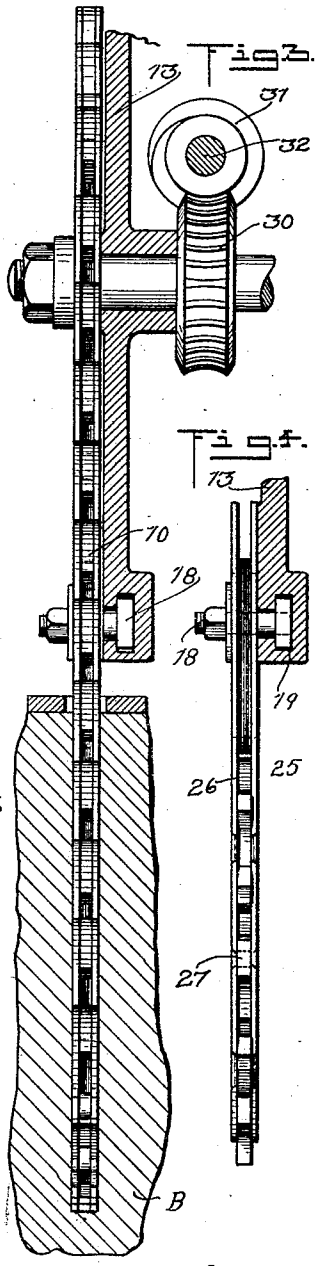


Fig. 4.

Fig. 7.

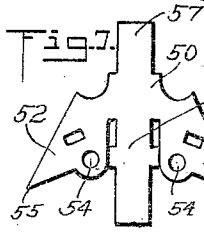


Fig. 5.

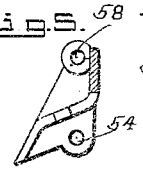
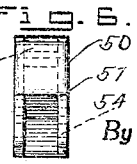


Fig. 6.



Inventor

ALFRED R. MOHNS

By Clarence A. O'Brien

Attorney

Patented Dec. 27, 1932 1,892,246

UNITED STATES PATENT OFFICE

ALFRED R. MOHNS, OF NEWARK, NEW JERSEY

WOODWORKING TOOL

Application filed August 11, 1931. Serial No. 556,441.

The present invention relates to new and useful improvements in woodworking tools, and more particularly it pertains to woodworking tools of the power driven type.

It is one of the objects of the present invention to provide a power driven woodworking tool which is of a portable nature.

It is another object of the invention so to construct a portable power driven woodworking tool that it may be adjusted to adapt itself to various types of work.

A further object of the invention resides in a novel form of cutter and support therefor whereby the cutter may be removed and cutters of various other types may be used upon the same tool.

Still a further object of the invention resides in a novel form of construction of power drive for the cutter.

With the above and other objects in view, reference will be had to the accompanying drawings wherein;

Figure 1 is a view in side elevation partly in section illustrating a tool constructed in accordance with the present invention and one of the uses thereof,

Figure 2 is a detail sectional view on an enlarged scale,

Figure 3 is a detail view taken at right angles to Figure 2, said view being partly in elevation and partly in section,

Figure 4 is a fragmentary sectional view illustrating a portion of the tool with the cutting element removed,

Figure 5 is a detail sectional view of one of the elements of the cutter,

Figure 6 is a view in elevation of one of the elements of the cutter, and;

Figure 7 is a plan view of a blank from which one of the cutting elements is formed.

Referring more specifically to the drawings, the tool comprises a cutter in the form of an endless chain which endless chain consists of a plurality of links 10 pivotally connected together as at 11. Each link is formed with a cutting tooth 12 and arranged in such a manner that when the links are pivotally connected to form the chain, the cutting teeth or edges 12 will follow one another in succession to perform the cutting operation.

Means is provided to support the endless cutter during operation, and this means consists of an auxiliary frame 13 and an adjustable frame 14. The auxiliary frame 13 forms the support for the adjustable frame 14 and said adjustable frame 14 consists of two members 15 and 16. The members 15 and 16 are slotted as at 17 and receive bolts 18 which in turn operate in a groove or the like 19 in the auxiliary frame 13. By this means the two members 15 and 16 of the adjustable frame may be adjusted in two directions towards and from the auxiliary frame 13, and towards and from each other in order that they may be properly adjusted to perform the desired cutting operation.

The auxiliary frame 13 carries a driving sprocket 20 and the adjustable frame carries guide sprockets 21 and 22 on one side thereof and 23 and 24 upon the other side thereof. The endless cutting element passes around the driving sprocket 20 and the guide sprockets 21 to 24 inclusive.

By reference to Figure 4 it will be noted that the members 15 and 16 of the adjustable frame each consists of two plates 25 and 26 which are secured together in spaced relation by means of inserts or the like 27 and the guide sprockets 21 to 24 inclusive are rotatably mounted between these plates, the inserts being shaped as illustrated in dotted lines as illustrated in Figure 2 to permit of free rotation of the guide sprockets.

From the foregoing it will be apparent that as the driving sprocket 20 is rotated, the endless cutter will traverse a path which includes the drive sprocket 20 and the guide sprockets 21 to 24, and when positioned in engagement with the work to be operated on will perform the cutting operation in the manner illustrated in Figure 2 of the drawings.

The driving sprocket 20 carries a gear 30 and said gear is of the worm type. Meshing with the worm gear 30 there is a worm gear 31 which is carried by a shaft 32 which in turn is connected to the armature not shown of an electric motor 33 to which current is supplied by a suitable conductor 34. The shaft 32 passes through the tubular part 32'

and connects the motor casing with the frame 13.

I also provide means for regulating the depth of cut made by the device in guiding the device and using the same to form grooves, or for cutting or ripping lumber. Such means comprises a shoe 34′ from which arms 35 and 36 extend. The auxiliary frame 13 is secured to the arm 36 by means of a wing nut or the like 37 as illustrated in Figure 1, and the motor is connected to the arm 35 by a similar wing nut 38. The wing nuts 37 and 38 engage suitable bolts which are slidably mounted in slots in their respective arms to provide for the adjustability of the shoe relative to the auxiliary frame 13 and the motor 33.

Means is provided to support the tool during operation. The horizontal bars 41 and 45 are connected together in spaced relation by the vertical bars 44 and the frame composed of these four bars is suitably fastened to the door or other member to be mortised by the device as shown in Fig. 1. The outer end of the bar 41 is adjustably supported on a post 40 by the member 42 and a set screw 43 and a bracket 48 is connected with the frame 13 and has its sleeve 46 at its upper end to which the bar 45 passes and as the shoe 34′ engages an edge of the door said shoe and the bracket 48 act to hold the device in position for cutting a mortise in the door, it being of course understood that the entire device is moved by hand toward and away from the work and that this movement of sleeve 46 slides on the rod 45.

In the present embodiment of the invention the tool is shown as cutting a lock mortise such as A in a door or the like B but it is to be understood that by adjustment of the members 15 and 16 of the adjustable frame, the device may be used in other connections and to cut mortises of various sizes within certain limitations. It is also obvious that the device may be used for ripping and sawing lumber merely by adjustment of the members 15 and 16 or by substitution of other members of the desired size to perform the desired operation.

As will be noted by reference to Figures 5 to 7 inclusive, the cutting element consists of links which are formed from a blank 50. The blank 50 comprises a main body portion 51 from which wings 52 extend, the wings 52 are adapted to be bent into a plane at substantially right angles to the main body portion 51 and these wings are provided with openings 54 for the reception of bolts or the like which are employed to secure a plurality of these links together to form the cutting element. The wings 52 are provided with sharp points such as 55 which points form the cutting edges of the individual link. An extension 57 is provided and this extension may be rolled upon itself to provide a bearing or the like 58 which also provides for pivotally connecting the members together.

From the foregoing it will be apparent that the present invention provides a new and novel portable wood-working tool of the power driven type, and that the same is highly efficient for the purposes intended.

While the invention has been herein disclosed in a preferred form, it is to be understood that the invention is not to be limited to the specific construction herein shown and that it may be practiced in other forms without departing from the spirit thereof.

Having thus described the invention, what is claimed as new and what it is desired to secure by Letters Patent of the United States, is:

A woodworking tool of the class described comprising a main frame, a driving sprocket carried by said frame, said frame having transversely extending grooves therein, a second frame composed of two members having each an extension formed with a slot, which extends at right angles to the groove, bolts slidably arranged in the groove passing through the slot for clamping the two parts of the second frame in adjusted position on the main frame, guiding sprockets carried by the second frame, and an endless cutting member engaging the last-mentioned sprocket and the driving sprocket on the main frame.

In testimony whereof I affix my signature.

ALFRED R. MOHNS.