March 5, 1957 T. B. KEESLING 2,783,792

FREE ENDED SAW BLADE FOR A POWER OPERATED SAW

Filed Dec. 1, 1952

FIG. 3.

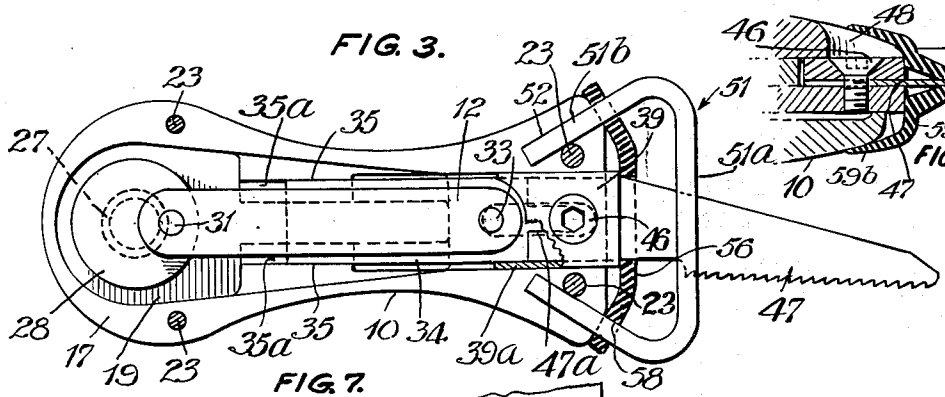


FIG. 11

FIG. 7.

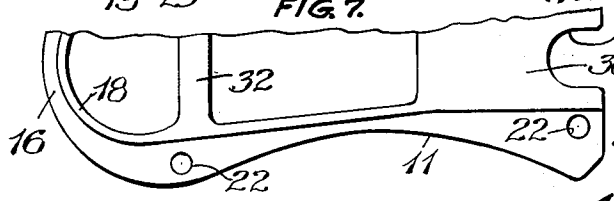


FIG. 4.

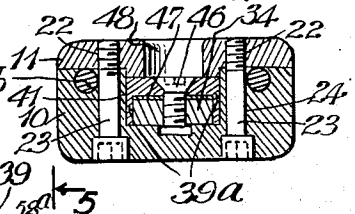


FIG. 2.

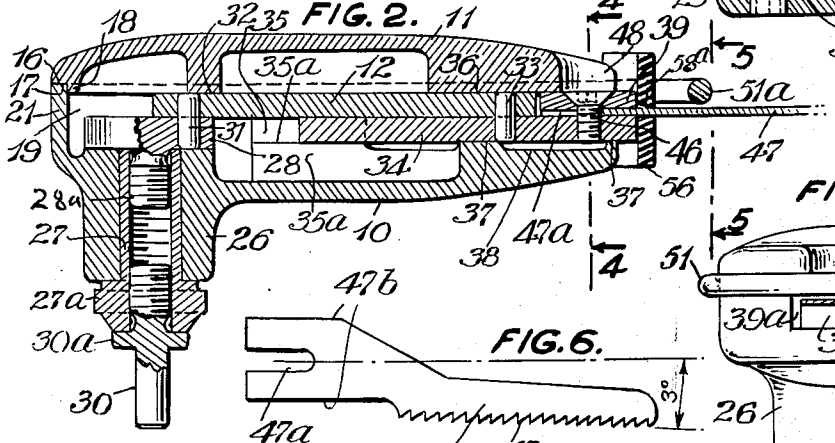


FIG. 5.

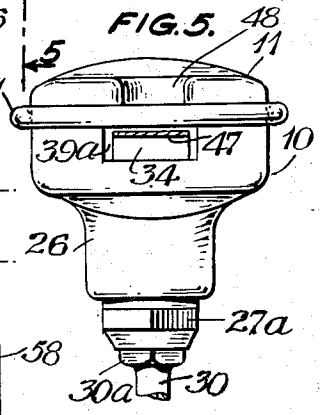


FIG. 6.

FIG. 10.

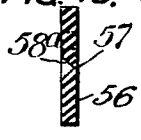


FIG. 9.

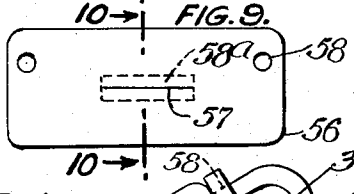


FIG. 8.

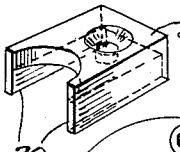
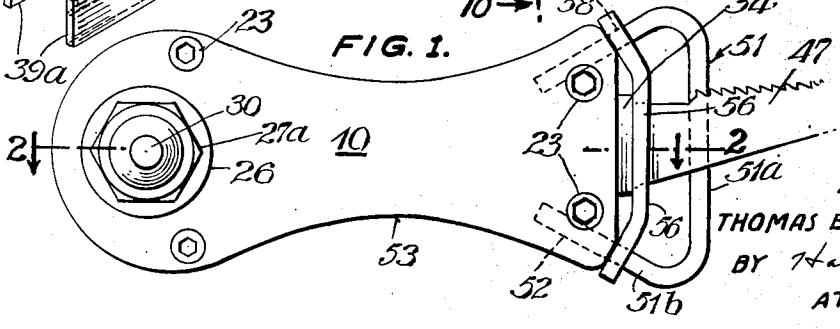


FIG. 1.



INVENTOR
THOMAS B. KEESLING
BY Harpur Allen
ATTORNEY

United States Patent Office 2,783,792 Patented Mar. 5, 1957

2,783,792

FREE ENDED SAW BLADE FOR A POWER OPERATED SAW

Thomas B. Keesling, Los Gatos, Calif., assignor to C. H. Keesling, San Jose, Calif.

Application December 1, 1952, Serial No. 323,370

1 Claim. (Cl. 143—133)

The present invention relates to power-operated reciprocating tools, such as saws, and is concerned more particularly with a power operated tool attachment for drive means such as an electric drill, which can be manually controlled in application to the work.

It is the general object of the invention to provide a power operated saw attachment of the above character of improved construction and economical design.

It is another object of the invention to provide an improved saw blade which when mounted with reference to its driver provides a desired angular relation of the saw teeth with respect to the path of movement of the saw blade.

It is a still further object of the invention to provide a power operated attachment of the above character having improved means for shielding the working parts from particles.

Other objects and advantages of the invention will be apparent from the following description of a preferred embodiment thereof, as illustrated in the accompanying drawings, in which:

Figure 1 is an elevational view of the saw.

Figure 2 is a sectional view taken on the line 2—2 in Figure 1.

Figure 3 is an elevational view of the saw with the cover portion of the body removed.

Figure 4 is a sectional view taken in a plane indicated by the line 4—4 in Figure 2.

Figure 5 is an end elevational view taken in a plane indicated by the line 5—5.

Figure 6 is an elevational view of the saw blade for use in the saw.

Figure 7 is a fragmentary elevational view of the cover.

Figure 8 is a perspective view of the saw clamping head.

Figure 9 is an elevational view of the dirt shield.

Figure 10 is a sectional view taken on the line 10—10 in Figure 9.

Figure 11 is a fragmentary sectional view illustrating a modified form of dirt shield.

The power-operated hand-controlled tool of the instant invention comprises a body including a body **10** and a cover **11** both of die cast construction whose parting line lies in a plane parallel to certain working parts of the tool including a reciprocating drive link **12**. The cover **11** (Figures 2 and 7) is provided about its periphery with a flat surface **16** which engages flush with a corresponding peripheral edge surface **17** of the body **10**. The cover **11** is also provided with an inwardly spaced outwardly projecting rib **18** which seats within a recessed portion **19** of the body in flush engagement with the side wall **21** adjacent the flat peripheral edge portion **17**. As seen in Figure 7, the front end portions of the rib **18** of the cover **11** merge with a bearing pad **36** for the reciprocating elements of the tool. The cover **11** is provided with four threaded apertures **22** to receive the threaded ends of a socket cap screws **23** seated in corresponding aligned apertures **24** of the base **10**.

The body **10** (Figure 2) is provided with a boss or extension **26** to journal internally threaded drive thimble **27** having a hexagonal flange portion **27***a* engaging one end face of boss **26**. The other end face of boss **26** is engaged by a drive disc **28** secured to and against the end of thimble **27** by a threaded extension **28***a*. A chucking shaft **30** is threaded into the thimble **27** and is provided with a hexagonal collar **30***a* for engaging the thimble **27**. The driver or disc **28** carries an eccentric drive pin **31** by which it is pivoted to the rearward end of the drive link **12**. The drive link **12** is guided by an integral pad or bearing portion or pad **36** at its front end, where it is connected by a pivot pin **33** carried in a slide **34**. The slide **34** is mounted for longitudinal movement in a track formed by side walls **35** of the body, is supported at its lower side by walls **35***a* adjacent side walls **35** and by a pad **37** of the body **10**. The slide **34** is engaged by the side guide flanges **39***a* of a channel-shaped, clamping head **39**, which flanges are also guided in the respective guide walls **41** of the body **10**. As seen in Figures 3 and 8, the top wall of the head **39** has a concave recess to provide clearance for the link **12**, and the side flanges **39***a* extend rearwardly in overlapping relation therewith. The head **39** has its upper surface engaged with the pad **36** which also guides the link **12** at its forward end. The front edges of the head **39** are made sharp and close-fitting for cleaning out of metal chips and other particles.

The head **39** (Figures 2, 4 and 6) forms a part of the saw securing means or clamp and for this purpose has a countersunk recess receiving a clamping screw **46** threaded into the slide **34**. Clearance for the end of screw **46** is provided by a recess **38** in pad or surface **37**. The saw **47** is clamped between the head **39** and the slide **34** having a longitudinal slot **47***a* which enables endwise positioning of the saw over the screw **46**. A molded recess **48** of the cover provides for access to the screw **46** in the extended position of the saw as seen in Figure 2. The straight side edges **47***b* engage the inner surfaces of the side flanges **39***a* of the head **39**. A shoe **51** forms a work guide or work-engaging piece and is formed with a front edge **51***a* which is perpendicular to the path of movement of the slide **34** and the head **39** and end portions **51***b* bent to form an included angle of less than 90 degrees with the straight edge **51***a* and seated in recesses **52** in the body **10**, the depth of such recesses being such that the cover **11** when secured in place securely holds the shoe **51**.

The saw blade **47** is thus mounted for a straight line movement with the slide **34** having its edges confined by the side flanges **39***a* of the head as seen in Figure 4 so that the saw is definitely located in place and is securely held in performing the work. It is preferred to form the teeth **47***c* of the saw along a line at an angle to the fastening station **47***a* or to the axis of straight line movement of the slide **34** and this angle is preferably about 3 degrees. For effective cutting it is preferred that this angular relation between the row of teeth of the saw and the path of movement of the saw be not less than 1 degree and be not greater than 5 degrees, this range providing for satisfactory operation in both metal and wood.

Referring to Figures 1, 2, 3, 9 and 10, a dust or dirt shield **56** is shown which is interposed between the teeth of the saw blade **47** and the head **39** and the slide **34**. The shield **56** is preferably formed of a resilient flexible material such as synthetic rubber and is provided with a central slit **57** to engage closely over the saw, this slit **57** merging with inclined recessed walls **58***a* opening toward the operating parts for the saw including the slide **34** and the head **39**. The shield **56** is also provided with apertures **58** which engage over the two ends of the shoe **51** to secure the shield in place stretched across

the end of the saw attachment. As seen in Figure 3, for example with the slide **34** projected, the shield **56** is stretched slightly, so that as the slide **34** and the head **39** reciprocate, they vibrate the shield to dislodge particles resulting from the sawing operation from the face thereof. The slit **57** engages closely over blade **47** and tends to open as the blade moves outwardly and to close as it moves inwardly. The tendency of the lips to flex and grasp the blade as it moves inwardly is enhanced by the recessed construction provided by the beveled walls **58***a*, which extend through a major portion of the thickness so as to provide thin lips.

In Figure 11 there is shown a modified form of shield **59** having outwardly projecting tapered lips **59***a* defining the slit engaging the saw blade. The shield **59** also has tapering molded side walls **59***b* around its entire periphery for engaging the walls of the body **10** and the cover **11**. The recess **48** is only partially covered by the wall **59***b* so that access can be had to the screw **46**. The shield **59** is secured on the saw attachment in the same manner as the shield **56** and functions in the same manner with respect to the saw blade.

Referring to Figures 1 and 3 it is seen that the body and cover form together concave hand grip portions **53** whereby the tool may be gripped in one hand and the other hand can carry the handle of a power drill with which it is used. If it is used with a flexible shaft drive, both hands may be employed in holding the tool with respect to the work. The saw blade shown in Figure 6 is made narrow to enable cutting of small diameter circles and with the size shown in Figure 6 pieces of as little as 1" in diameter can be cut from the work piece.

While I have shown and described a preferred embodiment of the invention, it will be understood that the invention is capable of variations and modifications from the particular form shown, so that its scope should be limited only by the scope of the claim appended hereto.

I claim:

A free-ended saw blade structure having at one end a pair of parallel outside blade positioning edges, means forming a slot extending into said one end of said blade and midway between said parallel outside edges, said slot having side walls extending parallel to said edges, said one end of said blade providing mounting means for attachment in fixed position to a reciprocatory drive member, with said blade positioning edges parallel to the path of reciprocation and coacting with the walls of a securing member, a linear row of teeth on the opposite end of said saw blade structure extending at an angle with respect to said parallel outside edges with the apex of the angle at said one end, the teeth of said saw blade having their cutting edges on the sides thereof facing said one end, whereby said saw blade structure is adapted to perform a draw cut, and said parallel outside edges and said slot providing means whereby said saw blade structure can be reversely positioned as to the reciprocatory drive member by interchanging the location of said parallel outside edges while maintaining angularity of the row of teeth.

References Cited in the file of this patent

UNITED STATES PATENTS

1,542,127	Hastings	June 16, 1925
1,574,001	Rogach	Feb. 23, 1926
1,882,328	Kinkel	Oct. 11, 1932
2,214,827	Boe et al.	Sept. 17, 1940
2,282,728	Kern	May 12, 1942
2,535,491	Felton	Dec. 26, 1950
2,537,501	Woodward	Jan. 9, 1951
2,621,685	Butz	Dec. 16, 1952
2,735,458	Buchmann	Feb. 21, 1956

FOREIGN PATENTS

100,320	Germany	Dec. 15, 1898
208,301	Switzerland	Apr. 16, 1940
898,639	France	July 10, 1944