Sept. 6, 1932. C. A. JOHNSON 1,875,736

SAW SET

Filed Nov. 30, 1927

Fig. 1.

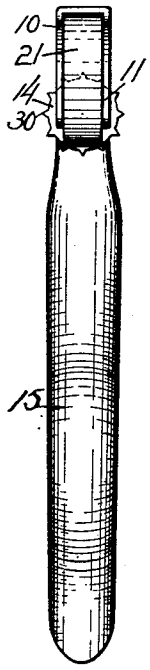


Fig. 3.

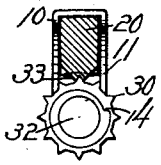


Fig. 2.

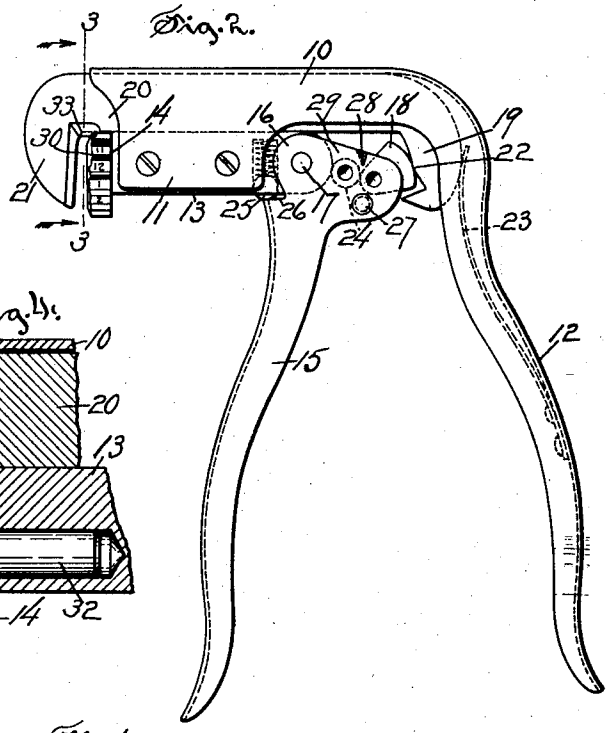


Fig. 4.

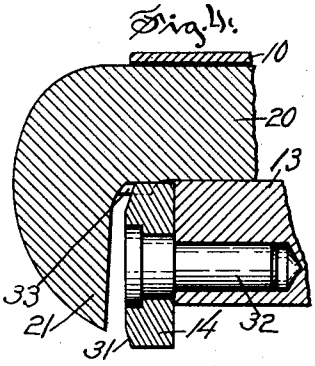


Fig. 6.

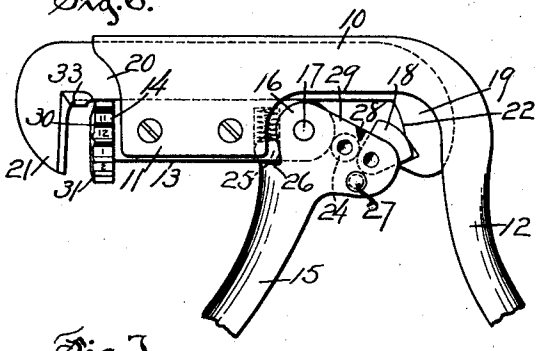


Fig. 5.

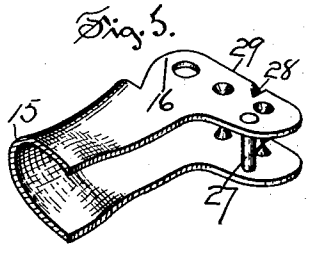
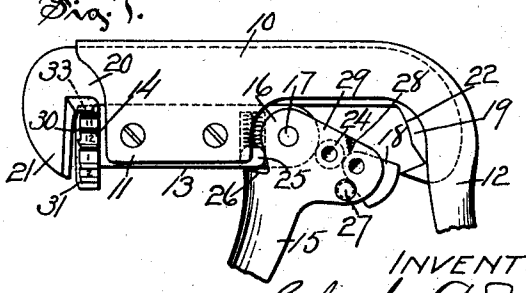


Fig. 7.



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UNITED STATES PATENT OFFICE

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SAW SET

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My invention relates to the class of devices known particularly by the name herein given, and an object of my invention, among others, is the production of a tool of this class that shall be simple in construction, one in which a maximum amount of power may be obtained with comparatively little effort thereby producing a particularly efficient tool, and one in the operation of which the angle of set of the teeth of a saw may be readily determined.

One form of tool embodying my invention and in the construction and use of which the objects herein set out, as well as others, may be attained, is illustrated in the accompanying drawing, in which—

Figure 1 is an edge view of my improved setting tool.

Figure 2 is a side view of the same, showing the jaws closed to approximately tooth setting position.

Figure 3 is a view in section on a plane denoted by the dotted line 3—3 of Figure 2.

Figure 4 is a detail view, scale enlarged, in lengthwise central section through the setting jaws.

Figure 5 is an isometric view of the inner end of the pivoted handle member.

Figure 6 is a view similar to Figure 2, but showing the parts in their normal positions, the outer ends of the handles being broken off.

Figure 7 is a view similar to Figure 6, but showing the construction for preventing movement of the pivoted lever to an inoperative position.

In the accompanying drawing the numeral 10 indicates the body of my improved tool that is preferably constructed of comparatively thin metal bent into trough shape with extensions 11 at the edges near the end thereof and with a stationary handle 12 projecting at an angle from said body part, and as clearly shown in Figure 2 of the drawing.

A supporting block 13 is secured between the extensions 11, and an anvil 14 is pivotally supported at the end of said block, said anvil comprising one of the jaws of the tool to be more particularly hereinafter described.

A pivoted handle 15 of substantially U-shape in cross section and formed from thin metal similarly to the handle 12, has ears 16 located on opposite sides of the end of the block 13 and through which ears and block a pivot 17 for said handle extends. A substantially triangularly shaped rocker 18 having an outwardly curved cam surface is pivotally mounted between the side parts of the handle 15, this rocker being curved as to its outer end for action against an operating jaw 19 at one end of a movable jaw supporting member 20 having a setting jaw 21 at its extreme outer end located opposite and to act in cooperation with the anvil 14. The jaw 19 preferably has an outwardly curved cam 22 against which the rocker 18 acts, and a spring 23 secured within the handle 12 presses against the jaw 19 to force the setting jaw 21 on the member 20 away from the anvil 14. It will be noted that the pivot 17 passes through the axis of the anvil 14 and is at right angles thereto.

The end of the block 13 is formed on the arc of a circle struck from the axis of the pivot 17, and a roller 24 is supported between the sides of the handle 15 with its periphery in contact with the curved end of said block, the periphery of said roller also being in contact with the curved end of the rocker or tilting fulcrum 18, and as shown in dotted lines in Figures 2 and 6 of the drawing. A ball 25 seated upon a spring in a socket in the block 13 is forced by said spring against a shoulder 26 on the handle 15 to force the latter toward the handle 12. The mouth of the hole in which the ball is located is peened over to make it smaller than the diameter of the ball to retain the latter in place. A stop 27 in the form of a support secured to and extending between the sides of the head 29 limits the pivotal movement of the fulcrum 18 in one direction and another stop 28, formed by indenting the metal of a head 29 comprising the end of the handle 15 and in which the end of the block 13, the roller 24 and the cam block 18 are located, limits the pivotal movement of said fulcrum in the opposite direction.

It will be noted that this construction provides means whereby great force may be ex-

erted against the jaw 19 to move the jaw 21 toward the anvil 14, and the arrangement of the pivoted members enables this force to be comparatively easily applied. The rocker or fulcrum 18 is in effect a roller having two areas of different radii, the larger rolling along the bearing for the rocker and the smaller rolling on the roller 24 that in turn rolls on the rounded end of the block 13. It will be noted by comparing Fig. 6, showing the jaws separated, with Fig. 2, showing the jaws closed to approximately the tooth setting position, that the pivot for the rocker 18 moves from a position laterally of toward a position with its pivot between the pivot pin 17 and the cam surface 22 of the jaw 19 during movement of the handle 15 for causing the jaw 21 to approach the anvil 14. In Fig. 2 the jaw 21 has not been moved sufficiently to entirely close the gap between the same and the anvil 14. The pivot for the rocker 18 furthermore has not been moved entirely into alignment with the handle pivot 17. Continued movement of the handle 15 will cause force to be applied against the cam surface 22 by the rocker 18 until the maximum amount of pressure is reached, said maximum pressure occurring when the pivot for the rocker 18 is truly aligned with the pivot 17.

The anvil 14 is of generally round contour and has at its periphery setting points 30, which points are beveled to slope downwardly toward the edge of the anvil, the length of this slope 31 being different for each setting point so that different lengths may be given to the set or bent portion of different sized teeth occurring in finer or coarser saws, the set of which is effected by operation of the device. These angles may be indicated by numerals or other characters placed around the edge of the anvil, as shown in Figures 2 and 7 of the drawing, the angles preferably increasing gradually in succession from one side of the anvil around it to the point adjacent the point of beginning.

In order to prevent the anvil from rotating on its pivot 32 a holder in the form of a rib 33 is made at the base of the jaw 21, and as shown particularly in Figure 4 of the drawing, this rib being grooved to receive the points 30, as shown in Figures 3 and 4 of the drawing.

By swinging the handle 15 away from the handle 12 to a certain extent, the points 30 may be disengaged from the groove in the holder and the anvil may then be turned to locate the slope 31 desired next to the base of the jaw 21, the parts in this position being as shown in Figure 6 and the shoulder 26 resting against the block 13.

Should the jaw 19 be inadvertently pushed into the handle member 12 to its fullest extent the fulcrum 18 would swing outwardly, as shown in Figure 7, but the stop 27 would prevent its swinging so far that it will not readily pass back into position when the handle member 15 is moved toward the member 12.

It is believed the operation of the device will be readily understood by those skilled in the art, it being briefly remarked that the proper slope 31 being located at the base of the jaw 21 every other tooth in a saw is placed upon this slope, said teeth following each other in succession, and the handles 12—15 are closed together and the set desired is thus imparted to said teeth. The saw set is then turned and the teeth between those which have been set are then operated upon.

It will be noted that the groove in the rib 33 acts to receive the point of each saw tooth, thereby properly positioning such tooth for the setting operation.

In accordance with the provisions of the patent statutes I have described the principles of operation of my invention, together with the device which I now consider to represent the best embodiment thereof; but I desire to have it understood that the device shown is only illustrative and that the invention may be carried out by other means and applied to uses other than those above set out.

I claim—

1. A saw set comprising a movable and a stationary jaw, the latter comprising an anvil, two handle members, one of which is pivotally mounted on a pivot passing through the axis of said anvil, and connections between said pivoted handle member and the movable jaw for forcing said jaws one toward the other, said connections including a fulcrum pivoted on the pivoted handle between stops carried by said handle.

2. A saw set comprisng a movable and a stationary jaw member, two handle members, one of which is pivotally mounted, a fulcrum pivotally mounted on the pivoted handle member and having oppositely disposed curved edges, a roller in contact with one of said curved edges, and an operating member on the movable jaw in contact with the outer curved edge.

3. A saw set comprising a body, a jaw member slidably mounted in the body and having a setting and an operating jaw, a stationary jaw member, a support having a rounded end, a handle pivoted to said support, a roller on said handle in contact with said support, a fulcrum pivotally mounted on said handle and having a rounded edge engaged with said roller and a rounded edge opposite said roller engaged with said operating jaw, and a handle rigidly secured to said body.

4. A saw set comprising a stationary and a movable handle member, an anvil pivotally mounted on one of said handle members, said anvil having setting faces arranged at different angles so that any one of said angles may be employed, a movable jaw member carried

by one of said handle members, and means associated with said movable jay member and the setting faces of the anvil for retaining the anvil in position to present a selected setting face to the movable jaw member.

5. A saw set comprising a stationary handle and a movable handle, a movable jaw member carried by the stationary handle, means for operating the movable jaw through the medium of the movable handle, an anvil pivotally mounted on the stationary handle and having setting faces arranged at different angles, each setting face having a setting point associated therewith, and means carried by the movable jaw member for engaging any one of said setting points to retain the anvil with a selected setting face operatively presented to the movable jaw member.

6. A saw set comprising a stationary handle and a movable handle, a movable jaw member carried by the stationary handle, means for operating the movable jaw through the medium of the movable handle, an anvil pivotally mounted on the stationary handle and having setting faces arranged at different angles, each setting face having a setting point associated therewith, and a notch formed in the movable jaw to receive any one of said setting points for retaining the anvil in a position to present a selected setting face to the movable jaw.

7. A saw set comprising a stationary handle and a movable handle, a movable jaw member carried by the stationary handle, means for operating the movable jaw through the medium of the movable handle, an anvil pivotally mounted on the stationary handle and having setting faces arranged at different angles, each setting face having a setting point associated therewith, and a notch formed in the movable jaw to receive any one of said setting points for retaining the anvil in a position to present a selected setting face to the movable jaw, the notch in said movable jaw also functioning to receive the point of the saw teeth being set.

8. A saw set comprising movable and stationary jaws, two handle members, one of which is pivotally mounted on a block projecting from and fixed to the other handle member, said block also supporting the stationary jaw, and a connection between said pivoted handle member and the movable jaw forcing said jaws one toward the other, said connection including two oppositely curved cam surfaces engaging each other.

9. A saw set comprising a stationary handle member, a movable handle member pivoted thereto, movable and stationary jaw members carried by the stationary handle member, the movable jaw member having a force receiving portion in line with the pivotal axis for the movable handle member, and means pivoted to the movable handle member and engaging said force receiving portion to be moved from a position with its pivot laterally of toward a position with its pivot between the movable handle pivot and said force receiving portion.

10. A saw set comprising a stationary handle member, a movable handle member pivoted thereto, movable and stationary jaw members carried by the stationary handle member, the movable jaw member having a force receiving portion in line with the pivotal axis for the movable handle member, and an element pivoted to the movable handle member and rockably engaging said force receiving portion to be moved from a position with its pivot laterally of toward a position with its pivot between the movable handle pivot and said force receiving portion.

11. A saw set comprising a pair of handle members, one of said handle members having a substantially right angularly arranged body extending therefrom, movable and fixed setting jaw members supported by the body beyond its free end, the fixed jaw taking the form of an anvil, the movable jaw member having an operating jaw projecting laterally from approximately the inner end of the body, the second handle member being pivotally supported laterally of the body between the setting and operating jaws of the movable jaw member, and a connection between the pivoted handle member and the said operating jaw, said connection including a rocker movable between stops on the handle member.

12. A saw set comprising a pair of handle members, one of said handle members having a substantially right angularly arranged body extending therefrom, slidable and fixed jaw members, the fixed jaw member being supported beyond the free end of the body, the slidable jaw member including a shank slidable in the body and having a setting jaw located outside of the fixed jaw and an operating jaw projecting laterally approximately at the inner end of the body, the second handle member being pivotally supported laterally of the body between the setting and operating jaws of the movable jaw member, and a connection between the pivoted handle member and the said operating jaw.

13. A saw set comprising a pair of handle members, one of said handle members having a substantially right angularly arranged body extending therefrom, movable and fixed setting jaw members supported by the body beyond its free end, the movable jaw member having an operating jaw projecting laterally from approximately the inner end of the body, the operating jaw having an outwardly curved cam facing its setting jaw, the second handle member being pivotally supported laterally of the body between the setting and operating jaws of the movable jaw member, and a connection between the pivoted handle member and the said operating jaw, said connection including a substantially triangu-

larly shaped rocker having an outwardly curved cam surface rockably engaging the cam operating jaw.

14. A saw set comprising a pair of handle members, one of said handle members having a substantially right angularly arranged body extending therefrom, movable and fixed setting jaw members supported by the body beyond its free end, the movable jaw member having an operating jaw projecting laterally from approximately the inner end of the body, the operating jaw having an outwardly curved cam facing its setting jaw, the second handle member being pivotally supported laterally of the body between the setting and operating jaws of the movable jaw member, a connection between the pivoted handle member and the said operating jaw, said connection including a substantially tirangularly shaped rocker having an outwardly curved cam surface rockably engaging the cam operating jaw, and means for forcing the operating jaw toward the rocker.

CHARLES A. JOHNSON.