March 20, 1956 E. W. GENT 2,738,579

CUTTING DEVICE

Filed June 9, 1954 2 Sheets-Sheet 1

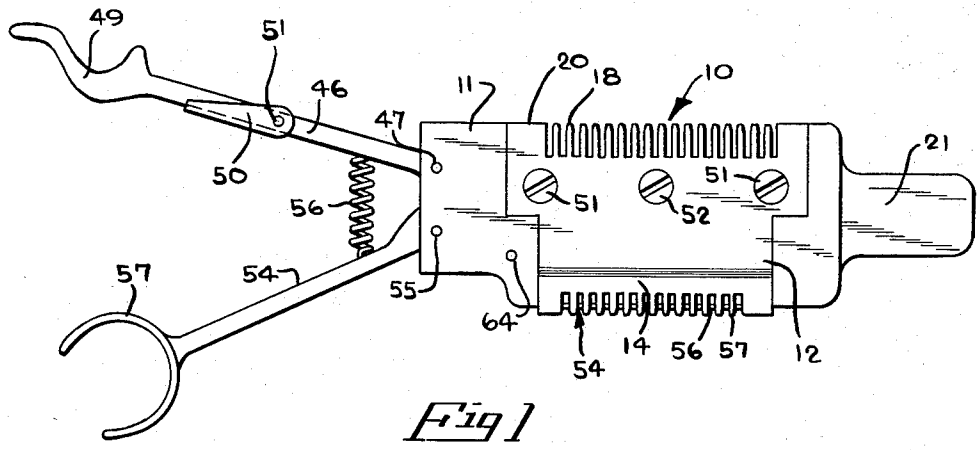


Fig 1

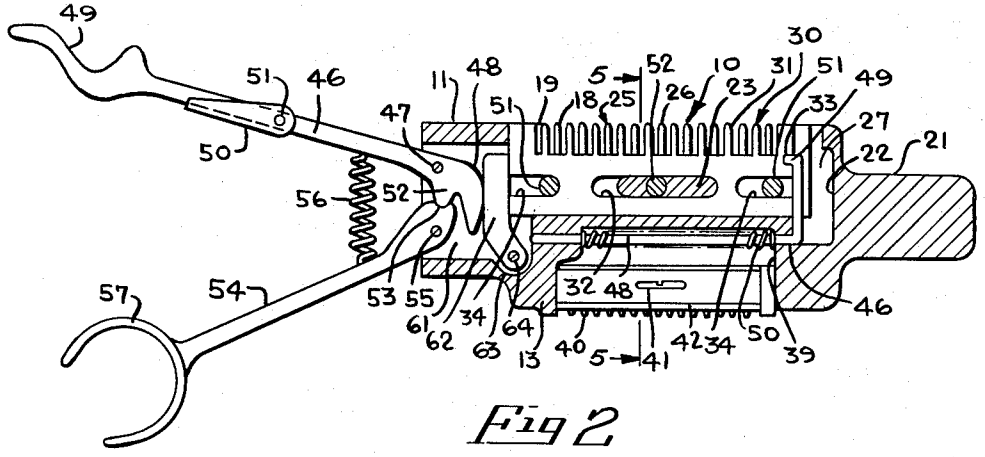


Fig 2

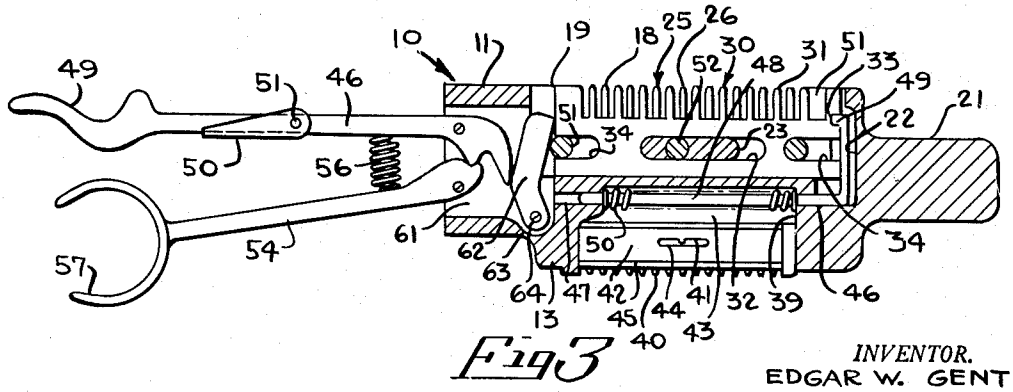


Fig 3

INVENTOR.
EDGAR W. GENT

BY Joseph F. Padlon

ATTORNEY

March 20, 1956 E. W. GENT 2,738,579

CUTTING DEVICE

Filed June 9, 1954 2 Sheets-Sheet 2

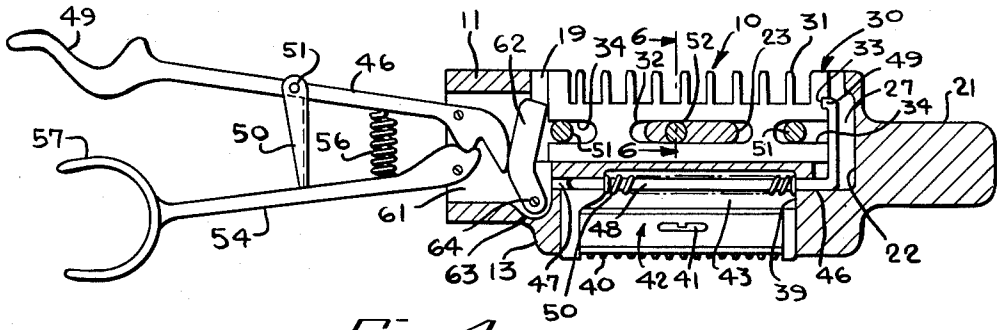


Fig 4

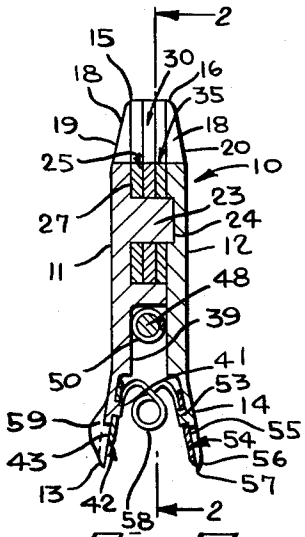


Fig 5

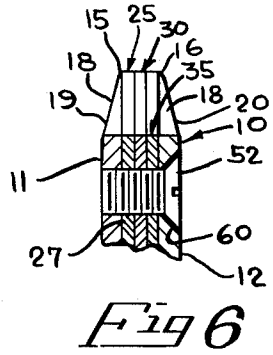


Fig 6

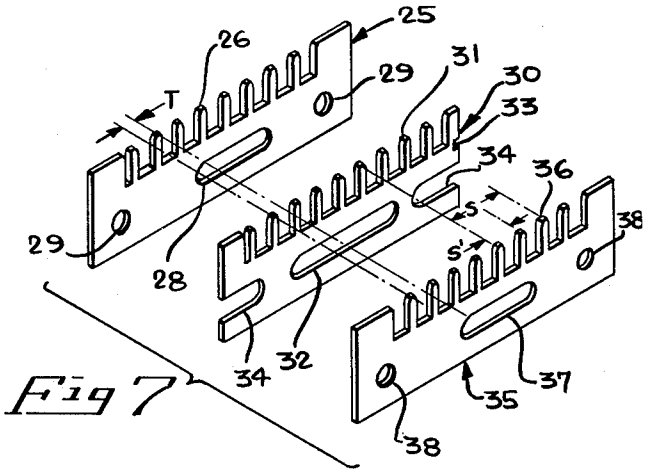


Fig 7

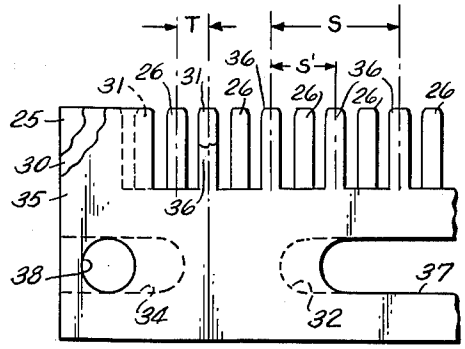


Fig 8

INVENTOR.
EDGAR W. GENT

BY

Joseph F. Fallon

ATTORNEY

United States Patent Office

2,738,579

Patented Mar. 20, 1956

2,738,579

CUTTING DEVICE

Edgar W. Gent, Morristown, N. J.

Application June 9, 1954, Serial No. 435,554

7 Claims. (Cl. 30—212)

This invention relates to a cutting instrument and more particularly to a cutting implement for clipping, trimming and shaving hair and the like.

It is an object of my invention to provide a manually operable cutting device which is economically and simply constructed and in which there are combined a hair combing and hair cutting or shaving means.

It is another object of my invention to provide a cutting device which includes positive means for cutting hair employing a comb cutter and wherein by a simple adjustment, the cutter element can be easily and readily set to thin hair.

Still another object of my invention is to provide a hair cutting implement wherein three superimposed steel comb cutters are provided, the outer comb cutters being stationary, while the central cutter is actuated and wherein the hair is cut gradually.

It is still another object of my invention to provide a hair cutting implement wherein means are provided for preventing any movement of the movable comb cutter element due to any force reaction, preventing "pulling of hair" or accidental change in the position of the comb cutter during the stroke.

It is still another object of the present invention to provide a hand operable hair cutting device in which the cutting members are easily replaceable.

Other objects will become apparent from the following description taken in connection with the attached drawings, showing an illustrative embodiment of the invention and wherein:

Figure 1 is a top plan view of a preferred embodiment of a cutting instrument embodying the features of the present invention;

Fig. 2 is a longitudinal sectional view thereof taken along the line 2—2 of Fig. 5;

Fig. 3 is a view similar to Fig. 2 but showing the moving parts as they are disposed after the operating handles have been brought together;

Fig. 4 is a view similar to Fig. 2 but showing the moving parts as they are disposed after the operating handles are brought together and showing the cutting stroke limiting means in operative position;

Fig. 5 is a transverse sectional view taken along the line 5—5 of Fig. 2;

Fig. 6 is a fragmentary transverse sectional view taken along the line 6—6 of Fig. 4;

Fig. 7 is an exploded perspective view showing the three cutting blade members and the lateral relationship of their respective teeth; and

Fig. 8 is an enlarged view of a short length of the blades showing the relationship between them and at different stages as shown in Figs. 2, 3 and 4.

Referring now to the drawings in which like numbers refer to like parts throughout, there is provided a cutting implement 10 consisting of a pair of positioning or holding members 11 and 12, sugstantially as illustrated.

It will be noted from the drawings that said positioning members 11 and 12 taper away from each other at their lower or detent portions 13 and 14, respectively, while their upper ends 15 and 16, respectively, are tapered towards each other (Figs. 5 and 6). Said positioning members are further provided at their upper ends 15 and 16 with a plurality of serrations or teeth 18 so as to form combs 19 and 20, respectively.

It will be noted that the teeth 18 of the combs 19 and 20 are laterally aligned.

The positioning member 11 is provided with a lateral projection 21 to be used as a detent, extending from the end thereof as shown more clearly in Figs. 1 through 4, inclusive.

The positioning member 11 is provided at its interior with a recess 22 extending substantially the major length of the same and forming a pocket in the member. In the center of said recess 22 there is a boss or outward projection 23 which extends into a lateral groove 24 of similar outline in the interior of the jaw or holding member 12 (Fig. 5).

Said boss 23 extends a considerable length of the positioning member 11, and is disposed in the center of recess 22. Furthermore, said boss 23 is adapted to retain therein a stationary cutter or blade 25 (Fig. 7) provided with teeth or serrations 26 and adapted to lie flush against the interior wall 27 of said recess 22. Said cutter or blade 25 is provided with a longitudinal slot 28 so as to fit over the boss 23. The blade 25 is also provided at each end with the openings 29 for a purpose which will hereinafter become clear.

Adapted to fit in said recess 22 is a movable blade or cutter 30 containing a plurality of serrations or teeth 31 along its upper longitudinal edge. Said blade 30 is provided with a central longitudinal slot 32 which can be fitted onto said boss 23 whereby the blade lies in sliding abutment against the stationary or fixed blade 25. Said movable blade 30 at one end is provided with a groove 33 for a purpose which will hereinafter become clear, as well as inwardly extending slots 34 at each end.

Adapted to fit in said recess 22 is a second stationary cutter or blade 35 having a plurality of serrations or teeth 36 along one longitudinal edge and adapted to lie flush against the movable blade 30. Said cutter or blade 35 is provided with a longitudinal slot 37 so as to fit over the boss 23 as well as openings 38 at each end aligned with the openings 29 of the first stationary blade 25. It will be noted from the number, form and arrangement of teeth 26 and 36 of each of the blades 25 and 35 respectively is identical but that the sets of teeth have been shifted relatively by the width of a tooth so that the teeth 36 of the stationary blade 35 are offset a distance T (Fig. 7) relative to the teeth 26 of the stationary blade 25.

The positioning member 11 at its interior, and below the recess 22 is provided with a second recess 39, Figs. 2 and 3 forming a pocket in the lower portion of the member extending to the lower longitudinal edge thereof. The positioning member 11 along its outwardly flared lower edge is provided with teeth or serrations 40 (Figs. 3 and 4) and in the center of said recess 39 there is a boss or outward projection 41 for a purpose which will hereinafter become clear. Said boss 41 in member 11 extends a major portion of the width of recess 39 and is adapted to retain therein a stationary cutter or blade 42 adapted to lie flush against the interior wall 43 of said recess 39. Said cutter or blade 43 is provided with a longitudinal slot 44 so as to fit over the boss 41. Said blade is also provided with a longitudinal cutting edge 45 disposed against the teeth 40.

The positioning member 11 (Figs. 2 through 4) is provided with a bore 46 connecting recess 39 with recess 22 and is also provided with a second bore 47 aligned longi-

tudinally with bore 46. An L-shaped rod 48 is slidably disposed within the bores 46, 47 and includes an inwardly bent end 49 received within the groove 33 of the movable blade 30. A spring 50 sleeves the rod 48 intermediate the bores 46 and 47, the end of spring 50 adjacent bore 47 being fixed to the positioning member 11 while the other end thereof is fixed to the rod 48 whereby to normally retain the rod and movable blade 30 in the position of Fig. 2.

The positioning member 12 fits within the recesses 22, 39 (Fig. 1); it is secured to the positioning member 11 by the through screws 51 and 52, the through screws 51 passing through the openings 38, 34 and 29 of the cutter blades 35, 30 and 25, respectively, while the through screw 52 passes through the slots 37, 32 and 28.

The positioning member 12 is provided with a boss or outward projection 53 (Fig. 5), the boss 53 being aligned laterally and extending towards the boss 41. Said boss 53 is adapted to retain therein a stationary cutter or blade 54 adapted to lie flush against the interior wall 55 of positioning member 12, said cutter or blade 54 being provided with a longitudinal slot so as to fit over the boss 53. The blade 54 along its lower longitudinal edge is provided with a cutting edge 56 disposed against the inner faces of teeth or serrations 57 provided along the lower edge of the positioning member 12. A spring 58 has opposite ends in engagement with the faces of the blades 42 and 54 and serves to retain the latter in stationary positions upon their respective bosses. It will be noted that the cutting edge 57 of the blade 54 is closer to the outer ends of the teeth 57 than is the cutting edge 45 of the cutting blade 42 to the outer ends of the teeth 40, for a purpose which will hereinafter become clear. The outer face of the detent portion 13 of the positioning member 11 is also provided with a ridge 59, also for a purpose which will hereinafter become clear.

It will also be noted that the heads of the through screws 51, 52 are countersunk in the positioning member 12 and rubber washers 60 are provided intermediate said heads and the countersunk openings in the positioning member 12. These washers 60 provide proper seating and contact of the various cutting teeth, it being readily apparent that any other suitable means than washers 60 may be employed (Fig. 6).

In order to effect the desired longitudinal movement of the movable blade 30 within the device and against the action of the spring urged retainer rod 48, the end of the positioning member 11 remote from the detent 21 is provided with a flat bore 61, which communicates with recess 22. A V-shaped arm 62 is pivotally mounted at its lower end within an extension 63 of bore 61 by means of a pin 64, the inner vertical edge of the arm 62 lying flush with the adjacent end of the movable blade 30, as shown in Fig. 2. A manually operable leverage member 46*a* is pivotally mounted at its inner end within the upper portion of the bore 61 by means of a pin 47, the inner end of the member 46*a* being integrally formed with a camming surface 48*a* in abutment with the outer vertical edge of the arm 62 when the arm 62 and member 46*a* are in the positions of Fig. 2. The outer end of the member 46*a* is integrally formed with a finger receiving portion 49*a*. A channel-shaped member 50*a* straddles the inner longitudinal edge of the member 46*a* intermediate pin 47 and finger receiving portion 49*a* and is pivotally connected thereto by means of a pin 51*a* for a purpose which will hereinafter become clear. The member 46*a* adjacent the camming surface 48*a* and directly below the pin 47 is also integrally formed with a tooth 52*a* which is in mesh with a groove 53 provided at the inner end of a second manually operable leverage member 54*a*, the member 54*a* being pivotally mounted within the lower portion of bore 61 by means of pin 55. A spring 56 is positioned intermediate the leverage members 46*a* and 54*a* and serves to retain the same in the spaced relation of Figs. 1 and 2. The leverage member 54*a* at its end remote from groove 53 is integrally formed with an open,

finger receiving loop 57*a*. The open finger receiving portions 49 and 57*a* permit the squeezing of the leverage members 54*a* and 46*a* to the position of Fig. 3 against the action of spring 56 and member 50*a*, while at the same time permitting the easy and ready removal of the fingers therefrom, which is not the case where closed loops are provided. Thus, as the leverage members 46*a* and 54*a* are drawn together, as shown in Fig. 3, the camming surface 48*a* will rotate the arm 62 against the movable blade 30 and moving the latter through a distance S (Fig. 7) relative to the stationary blades 25 and 35 the distance S being equal to the center to center distance between alternate teeth. This displacement is the required amount when cutting hair. In the case where it is desired to merely thin the hair, the member 50*a* is rotated to the operative position of Fig. 4, limiting the displacement of arm 62 and thereby the displacement of the movable blade 30 to a distance S′ relative to the stationary blades 25 and 35. It will be noted that the distance S′ is one-half the distance S. It will also be noted that in Fig. 4 the teeth 26 of the holding member 11 have been omitted for clarity in illustrating the position of the movable blade 30 during the hair thinning operation. It will be noted that the operating handles 46*a* and 54*a* are pivoted in different places but that they are in inter-engagement by means of the teeth 52*a* and groove 53 at all times. This provides an equilibrium couple during operation of the device, whereby any movement of the cutting blade is prevented due to any force reaction and preventing "pulling of hair" or accidental change in the position of the cutting blade 30 during the stroke. After the stroke, the spring 50 and restore rod 48 will return the movable blade 30 to the initial position of Fig. 2, the spring 56 serving to restore the operating handles 46*a* and 54*a* to their original positions. By moving alternate teeth of each of the cutting blades 25, 30 and 35, it is possible for the device to cut the hair gradually, rather than all at once. Thus, the actual cutting of the hair is done in two steps intermediate the combs 19 and 20. Also, the rotatable member 50 when in the operative position of Fig. 4 limits the stroke by one-half, so that only half the hair is cut. This provides hair thinning means, an entirely novel feature when associated with the alternate tooth arrangement mentioned above.

It will also be apparent that while the alternate number of teeth have been removed in the cutting blades 25, 30 and 35, all the teeth 18 are provided in the combs 19 and 20 associated with the aforesaid positive cutting means. It will further be noted that the boss 23 not only locates the stationary blades 25 and 35, but also serves as a guide for the movable blade 30, the elongated slot 32 in the movable blade 30 also providing stops at each end of the stroke.

By means of the stationary lower blades 42 and 54 associated with the teeth 40 and 57, respectively, the back of the neck may be shaved, and the neck either trimmed or feathered. The two positions of the blades 42 and 54 relative to the outer ends of the teeth 40 and 57, respectively, have been selected as the most serviceable and are believed preferable to providing complicated adjustable means for mounting these blades. The ridge 59 outside of the blade 42 touches the back of the head when the neck is trimmed and prevents accidental cutting of the skin. Thus, by merely combing the hair at the back of the neck with either of the serrated portions 40 or 57, the blades 42 or 54, respectively, will cut the hair the desired amount by a shaving operation.

From the foregoing description taken in conjunction with the accompanying drawings, it will be noted that my invention includes the combs forming part of the jaw positioning members and serving to position the hair before cutting it. Furthermore, one of said members has a recess for accommodating a fixed, serrated cutting blade, a movable cutting blade with teeth facing outwardly, a

second fixed, serrated cutting blade and means for oscillating the movable blade so as to provide a gradual cutting action between the fixed and movable teeth. It will also be noted that said jaw members are each provided with outwardly flaring second comb portions adapted to trim or feather the hair at the back of the neck in conjunction with stationary blades mounted therein. It will also be noted that the member **50***a* will, when in operative position, limit the stroke of the movable cutting blade to adapt the device for hair thinning operations and is associated with the alternate teeth arrangement of the cutting blades in a novel manner. Thus, a device has been provided which may be easily and readily used for hair cuting, hair thinning, trimming and feathering by a simple adjustment of the single part, namely the member **50***a*. Finally, it will be noted that the device is actuated by an equilibrium couple between the operating handles **46***a* and **54***a* thereby preventing any movement of the movable cutting blade **30** due to any force reaction and preventing the "pulling of hair" or accidental change in the position of the cutting portion during the stroke.

It will be noted that the construction shown and described will serve effectively to accomplish the objects stated above. It is to be understood, however, that the construction disclosed above is intended merely as illustrative of the invention and not as limiting, as various modifications therein may be made without departing from the invention as defined by a proper interpretation of the claims which follow.

I claim:

1. A cutting implement comprising positioning means, laterally spaced comb means along one edge of said positioning means, laterally spaced stationary cutting blades within said positioning means adjacent the inner faces of said comb means, said stationary cutting blades along the edges thereof adjacent said comb means being serrated, a movable cutting blade within said positioning means intermediate said stationary cutting blades, means in slidable contact with one edge of the movable blade for effecting displacement of said movable cutting blade relative to said stationary blades, means for actuating the means in contact with the movable blade, means for restoring said movable cutting blade and the contact means to their original position, said laterally spaced comb means comprising laterally aligned comb teeth, the serrations of one of said stationary blades being offset relative to the other of said stationary blades, the serrations of said movable cutting blade being adapted to be aligned with the serrations of said first and second stationary blades at alternate positions of said movable blade.

2. A device according to claim 1, said positioning means at one end having a bore communicating with said movable cutting blade, an actuating arm pivoted within said bore with a portion thereof bearing against the end of said movable cutting blade, said actuating means comprising a first lever pivoted at one end within said bore and extending outwardly therefrom, a cam surface on the inner end of said lever adapted to bear on said actuating arm at all times, a unitary tooth on said operating lever adjacent said cam surface and a second lever pivoted at one end within said bore near said first lever and extending outwardly therefrom, said second lever at the inner end thereof having a recess receiving said tooth therewithin.

3. A device according to claim 1, said restoring means comprising a spring intermediate said first and second levers, an L-shaped rod slidable within said positioning means and bearing against the other end of said movable cutting blade, and a spring sleeving said L-shaped rod and adapted to urge said movable cutting blade against said actuating member.

4. A device according to claim 3, having means for limiting said actuating means comprising a channel-shaped member straddling and pivotally mounted at one end on the inner longitudinal edge of one of said levers intermediate the ends thereof and adapted to be rotated to a position at substantially right angles to said lever whereby to limit the displacement of said levers towards each other.

5. A device according to claim 1, said positioning means comprising a first positioning member having a recess on the inner face thereof, one of said laterally spaced comb means forming the outer side of said recess, an elongated, inwardly extending boss on the inner face of said member within said recess, said first stationary cutting blade having an elongated slot receiving said boss therethrough, said movable cutting blade having an elongated slot of greater length than and receiving said boss therethrough, said second stationary cutting blade having an elongated slot receiving said boss therethrough and a second positioning member adapted to cover said recess with said stationary and movable cutting blades therebetween, the inner face of said second positioning member having an elongated slot receiving said boss therein, and fastening means for securing said positioning members together.

6. A device according to claim 1, including a channel shaped member straddling the inner longitudinal edge of one of said levers and pivotally connected thereto, said channel shaped member being pivotable to a position at substantially right angles to said lever whereby to limit the displacement of said levers towards each other by the abutment of the free end thereof with the other of said levers.

7. A device according to claim 6, having fastening means comprising through screws longitudinally spaced, the heads of said through screws being countersunk within one of said positioning members, and resilient washer means surrounding said heads within said countersunk openings, one of said through screws passing through said elongated slots, said stationary blades having openings receiving the other of said through screws therethrough, said movable cutting blade having elongated slots receiving the other of said through screws therethrough.

References Cited in the file of this patent

UNITED STATES PATENTS

301,305	Theis	July 1, 1884
475,767	Hill	May 31, 1892
1,326,166	Backus	Dec. 30, 1919
1,428,836	Campbell	Sept. 12, 1922
1,633,138	Sparks	June 21, 1927
2,001,206	Matthes	May 14, 1935
2,645,849	Gent	July 21, 1953

FOREIGN PATENTS

621,172	Great Britain	Apr. 5, 1949