

C. E. JOHNSON.
NEEDLE CUTTER.
APPLICATION FILED SEPT. 18, 1919.

1,357,637.

Patented Nov. 2, 1920.

Fig. 1.

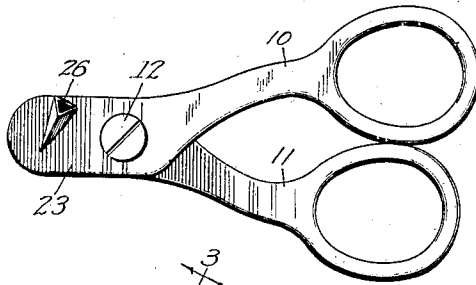


Fig. 3.

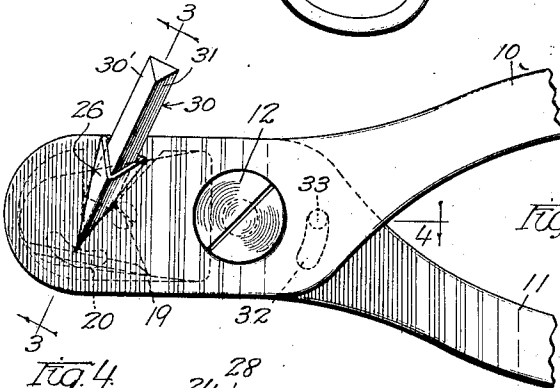
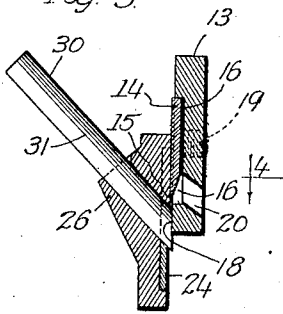


Fig. 2.

Fig. 4.

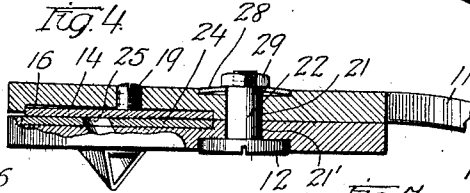


Fig. 5.

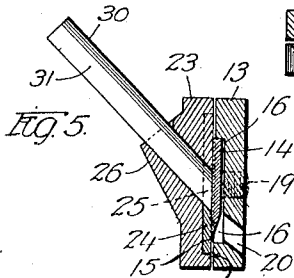


Fig. 7.

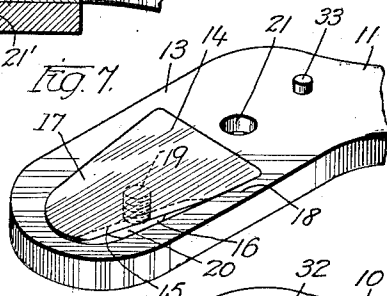


Fig. 6.

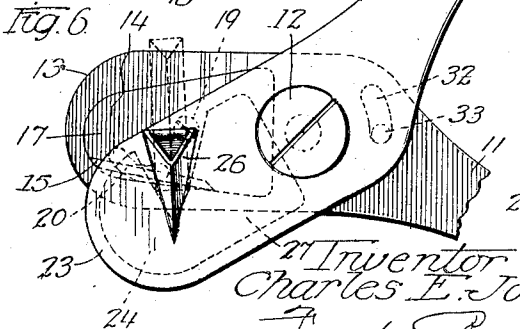
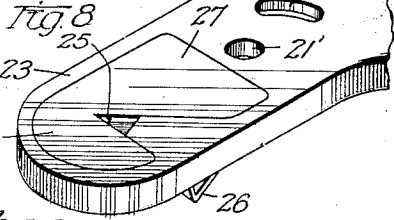


Fig. 8.



Inventor
Charles E. Johnson
Jonie Rain Atty.

UNITED STATES PATENT OFFICE.

CHARLES E. JOHNSON, OF CHICAGO, ILLINOIS.

NEEDLE-CUTTER.

1,357,637.

Specification of Letters Patent.

Patented Nov. 2, 1920.

Application filed September 18, 1919. Serial No. 324,459.

To all whom it may concern:

Be it known that I, CHARLES E. JOHNSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Needle-Cutters, of which the following is a specification.

The invention relates to improvements in needle cutters adapted for pointing fiber needles for phonographs.

One of the objects of the invention is to provide an implement, or needle cutter, for repointing fiber needles, such for example, as needles made of bamboo, in which there is a relatively soft portion and a skin of relatively hard, more refractory material, the latter portion being the effective part to make actual contact with the undulatory groove in the record.

It is a desideratum, in devices of this character, that they should be so constructed as to make a clear, clean cut without leaving a feather edge and to do this, it is essential that the cut should be made from the softer portion of the needle body toward the harder portion and in a generally axial direction, more or less in line with the grain of the wood, but in such manner that the hard portion of the needle is the last to be cut during the progress of the knife across the surface from which the cleft or shaving is sheared.

The disclosed apparatus produces a shearing cut in which the knife is continuously drawn in a diagonal direction across the linear axis of the needle from the heel, or wider end of the cleft surface toward the toe, or point and toward the harder skin or more refractory part of the needle body, which latter portion of the needle is supported by a plate, the salient edge of which is in cooperation with the knife, completes the cut through the harder part of the needle to produce a clear, sharp, salient point.

In the operation of the described apparatus, the hard part of the needle is the last portion to be progressively separated from the body and it is removed by the knife in such manner that the softer portion of the needle body, in substantially the same transverse plane near the point, is first segregated, leaving the harder part as a support

against which the softer part is pressed by the knife in making the cut.

The diagonally directed shearing operation of the knife prevents abrupt separation of the cleft, or shaving from the body, as when the cut is made otherwise, which produces a rough, uneven fracture, not so serviceable and, furthermore, the manner of shearing the shaving from the diagonal end of the needle by the aforesaid cutter, is such that the shearing operation may be performed in finer gradations than otherwise, and therefore a greater number of cuts may be made from the end of a given needle before it becomes too short for use.

Another object of the invention is to provide a means for adjusting the cutter so that the thickness of the part or shaving, removed from the end of the needle may be varied.

Other, further and more particular objects of the invention will become readily apparent, to persons skilled in the art, from a consideration of the following description when taken in conjunction with the drawings, wherein:—

Figure 1 is an elevation of the device or implement.

Fig. 2 is an enlarged portion of the device showing the needle applied in position to be operated upon.

Fig. 3 is a transverse section taken on line 3—3 of Fig. 2.

Fig. 4 is a section taken on line 4—4 of Fig. 2.

Fig. 5 is a section, similar to the section shown in Fig. 3, showing the position of the parts after the cut has been completed.

Fig. 6 shows the device open with the parts in the position they occupy when the cut is about to be made.

Fig. 7 shows the inner surface of one of the jaws; and

Fig. 8 shows the inner surface of the opposite and cooperating jaw.

In all the views the same reference characters are employed to indicate similar parts.

In the drawings, two members 10 and 11 are pivoted together, as at 12, and each carries on its extended end, beyond the pivot, a jaw. The jaw 13, which is an extended portion of the member 11, carries a knife

14, which has a cutting edge 15 and which lies within a depression 16 made within the jaw. The confronting surface 17 of the knife is in a plane substantially parallel with the surface 18 of the jaw, and may be flush therewith, but it may be moved out of the depression 16, within which it is contained, to an extent, by means of an adjusting screw 19, which passes through the jaw and bears against the back of the knife. An aperture 20 is made through the body portion of the jaw 13 and communicates with a depression 16 within which the knife is located and serves as a means for discharging the shavings cut away from the needle by operation of the knife. The jaw 13 is provided with a perforation 21, through which the shank 22 of the pivot screw 12 passes. The screw also passes through the bore 21' of jaw 23.

The member 10 is provided with a jaw 23 which is brought into substantially sliding contact with the jaw 13 in the operation of the device. The jaw 23 has a depression within which a backing plate 24 is placed and which is provided with an angular opening or groove 25, within which the needle is located during the cutting operation, as more clearly shown in Figs. 3 and 5. Communicating with the angular opening 25, in the plate 24, is a triangular shaped pocket 26 within which the needle is to be inserted, the opening in which registers with the opening 25 in the plate 24.

In the operation of the device the surface 17 of the knife is yieldingly held by a spring in contact with the surface 27 of the plate 24. This is accomplished by means of the spring washer 28, surrounding the shank 22 of the screw 12, which is held in place by the nut 29.

When the needle 30, which is triangular in shape, as more clearly shown in Fig. 2, is inserted in the pocket 26, and through the aperture 25 in the plate 24, its end is brought into abutting contact with the surface 18 that surrounds the knife 14, the part at the time being in the position shown in Figs. 3 and 6. The distance of separation of the abutment 18, on the jaw 13, from the plate 24, carried by the jaw 23, determines the thickness of the shaving to be cut from the end of the needle 30. By turning the screw 19 clockwise, the jaws may be separated to a greater or less extent against the yielding effect of the spring washer 28 surrounding the shank 22 of the screw 12. The yielding effect of the washer 28 also serves as a means for holding the knife in close proximity with the cooperating backing plate 24 carried by the opposite jaw.

Now it will be noticed, by observing the position of the needle in Fig. 6, wherein the parts are in their proper position to begin the operation of cutting off the oblique end

of the needle, that when the handle members 10 and 11 are drawn together, in the process of cutting the needle, the edge 15 of the blade 14 is drawn across the axis of the needle during the entire cutting operation, beginning at the wider portion of the cut or cleft surface of the needle, and terminating at the exact point. Near the end of the stroke the softer portion 30' of the needle is cut first and the shearing stroke of the knife tends to push the harder film or skin 31, and when the knife has reached near the extreme point of the needle it is moving almost in an axial plane, but somewhat oblique to the axial plane, toward and traversing the harder surface of the needle. In this operation the plate 24 serves as a backing for the harder surface 31 of the needle and in cooperation with the cutting edge 15 of the knife 14, a clear unfeathered edge is made at the extreme point of the cut.

When the screw 19 is turned inwardly, the abutment 18 is moved farther away from the opening 25, and the plate 27, and a larger amount of the needle is thus located beyond the knife and a thicker shaving or cleft is removed from the needle during the shearing operation. The blade 14 and plate 24 are located in respective depressions and substantially float therein, as other means for holding them in place is unnecessary, the jaw of one member being always juxtaposed to the jaw of the other member, or so closely in contact as to prevent the displacement of the said knife or plate from between the jaws. A crescent shaped slot 32 is made into one of the jaws, in which is included a projection 33 from the other jaw, to limit the extent to which the jaws may be opened, as clearly shown in Fig. 6.

While I have herein shown a single embodiment of my invention for the purpose of clear disclosure it will be manifest to persons skilled in the art that many changes may be made in the configuration and general disposition of the parts within the scope of the appended claims.

Having described my invention, what I claim is:—

1. A needle cutter having in combinative association two pivoted-together jaws, said jaws having confronting depressions in their inner surfaces to afford plate abutments; a plate in one depression having an opening through which to insert a needle; a floating manually adjustable knife blade in the other depression for cooperation with the plate; an abutment for the end of the needle, carried by the jaw containing the knife, to gage the thickness of the needle cleft and adjustable means to vary the distance between said abutment and plate.

2. A needle cutter having in combinative association two pivoted-together jaws, said

jaws having confronting depressions in their inner surfaces; a needle backing-plate in one depression having a V-shaped opening through which to insert a needle; a floating unattached knife-blade in the other depression in frictional contact with the plate; a resilient means to hold the plate and blade in contact with each other; a needle gage to determine the thickness of the cleft removed from the needle and a screw to adjust the knife with respect to the plate.

3. A needle cutter having in combinative association two pivoted-together jaws, said jaws having confronting depressions in their inner surfaces; a plate in one depression, having an angular opening through which to insert a needle; a floating unattached knife in the other depression in contact with the plate, a screw, tending to push the knife out of its depression and a spring to yieldingly hold the knife and plate together.

4. A needle cutter having in combinative association two pivoted-together jaws, said jaws each having a depression in its inner surface, confronting the depression in the opposite jaw; a plate in one depression having an angular opening through which to insert a needle; a knife in the other depression in contact with the plate; a spring, to yieldingly hold the knife and plate together and an adjusting screw, applied to the knife to vary the lateral separation of the jaws without separating the knife and plate.

5. A needle cutter having in combinative association two pivoted-together jaws, said jaws each having a depression in its inner surface confronting the depression in the opposite jaw; a plate in one depression having an angular opening through which to insert a needle; a pocket carried by the latter jaw in register with said opening; a floating unattached knife in the other depression in contact with the plate; an abutment carried by the knife containing jaw, constituting a part of the jaw; a spring to yieldingly hold the knife and plate together and an adjusting screw applied to the knife to vary the lateral separation of the jaws without separating the knife and plate whereby to vary the distance of said abutment from the plate.

6. A needle cutter having in combinative association, a pair of pivoted members, bearing on one end of each a jaw, the inner surfaces of the jaws having confronting depressions; a floating unattached knife blade in one depression, the other jaw having an opening through which to pass a needle to be cut so that the end of the needle abuts the inner flush surface of the jaw carrying the knife, the latter jaw having an opening communicating with the depression therein through which the chips may be discharged and a screw to press the knife against the plate.

7. A needle cutter having in combinative association two jaws, each having a depression; a knife in one depression and a plate, having a needle receiving opening in the other depression; a screw by which the jaws are held together; a spring about said screw, to hold the jaws together and an adjusting screw bearing on the back of the knife to separate the jaws and to press the knife and plate together.

8. A needle cutter having in combinative association two pivoted-together jaws, one of said jaws perforated to receive the end of a needle, the other jaw having a depression within which to insert a knife; a floating unattached knife in said depression and a screw, in the jaw containing the knife, to bodily move said knife with reference to the other jaw.

9. A needle cutter having in combinative association two pivoted-together jaws, each having a depression in its inner surface, and one jaw perforated to receive a needle; two cooperating needle cutting instrumentalities, one in each depression and a screw passing through one jaw and bearing against the back of one of the cutting instrumentalities to press them together.

10. A needle cutter having in combinative association two pivoted together jaws, each having a depression in its inner surface; a plate in one depression cooperating with the knife to cut the needle; a floating unattached knife blade in the other depression and a screw passing through a jaw and contacting the back of the blade to press it toward the plate.

11. A needle cutter having two relatively sliding jaws with a depression in each jaw; a plate in one depression having an edge surface for contact with a needle insertible through the jaw supporting the plate; a floating unattached knife in the other depression in a plane substantially parallel with the plate and a screw for bodily moving the knife toward the plate.

12. A needle cutter having a pair of pivotally connected members, each having a depression in the face thereof adjacent the other member, and a pair of floating cooperating shearing plates one located in each depression, one of said plates having an opening for the passage of the point of a needle to be cut, and manual means to adjust the proximity of the plates.

13. A needle cutter having a pair of pivotally connected members, each of said members being provided with a depression in the face thereof adjacent the other member, a pair of floating unattached cooperating shearing plates, one located in each depression and one having a recess therein for the passage of the point of a needle to be cut, and manually adjustable means passing through one of said members and engaging

one of said plates to insure the desired shearing cooperation between said plates.

14. A fiber needle cutter having a pair of pivotally, interconnected members, each member having a recess in the face adjacent the other member; a pair of plates, one located in each recess and manually adjustable means passing through one of said

members against the back of the plate resting in the recess therein to adjustably press said plates together, to insure shearing action therebetween and to separate said members to gage the cut of said plates.

In testimony whereof I hereunto subscribe my name.

CHARLES E. JOHNSON.