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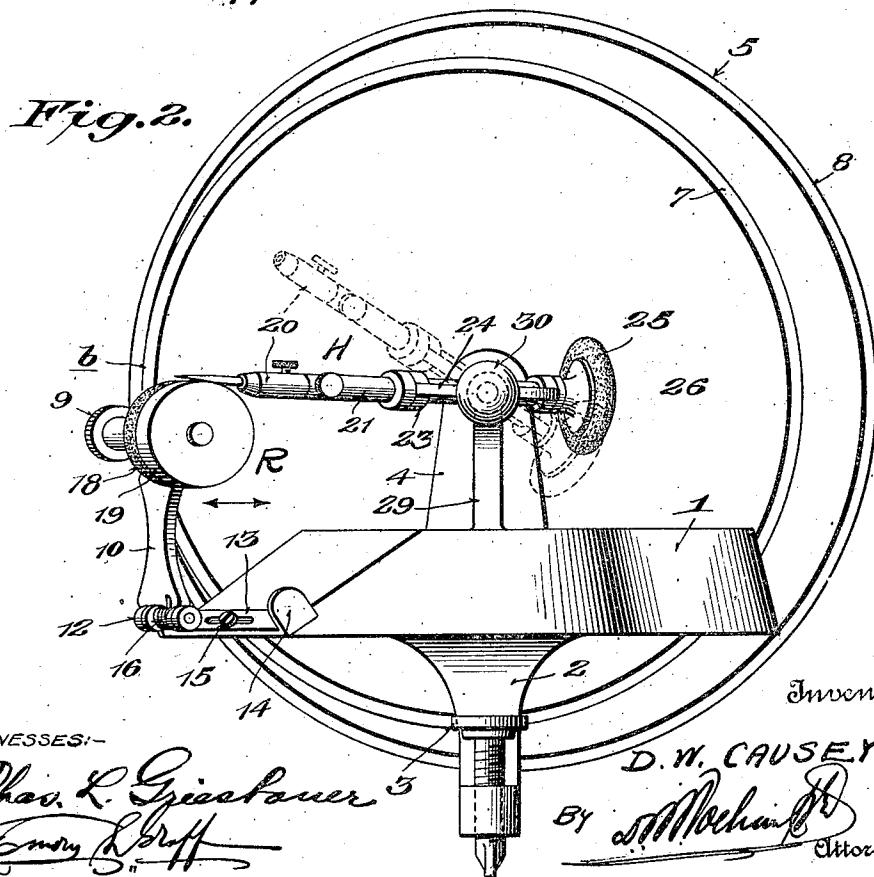
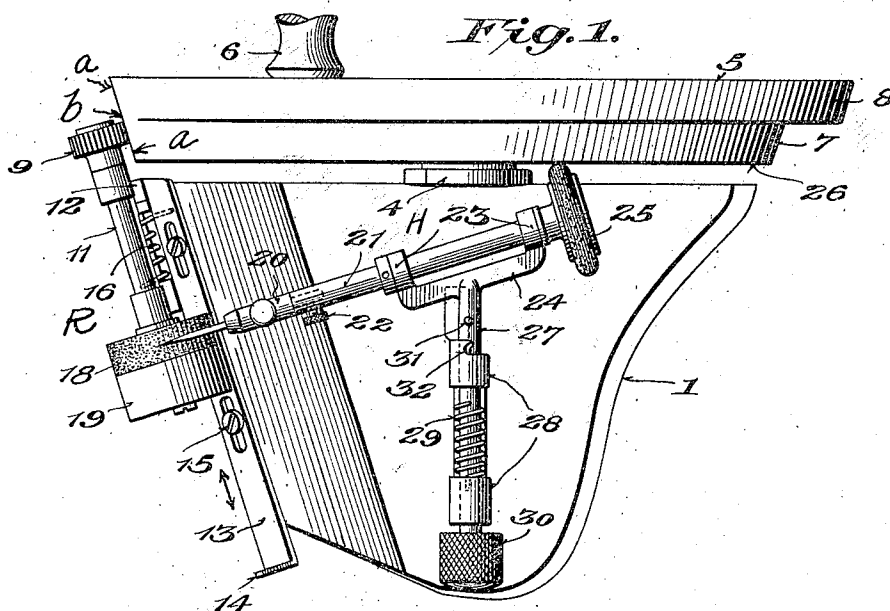
D. W. CAUSEY

**1,510,764**

NEEDLE REPOINTING DEVICE

Original Filed Oct. 20. 1921

2 Sheets-Sheet 1



**WITNESSES:-**

Chas. L. Griesbauer  
Emory L. Hoff

Emory L. Craft

Inventor

D. W. CAUSE.

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*W. M. M. M. M.* Attorney

Attorney

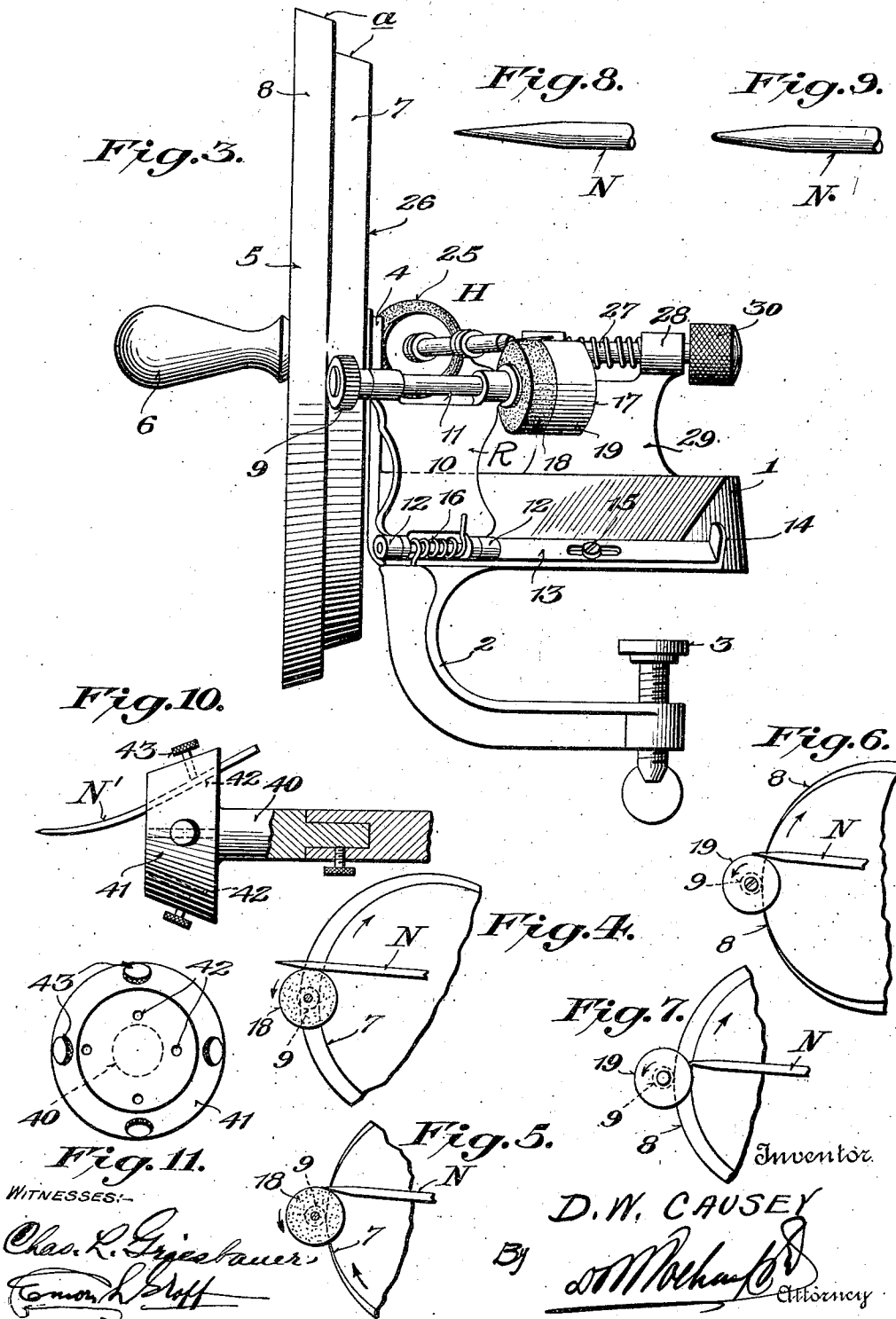
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## UNITED STATES PATENT OFFICE.

DANIEL W. CAUSEY, OF NORFOLK, VIRGINIA.

## NEEDLE-REPOINTING DEVICE.

Application filed October 20, 1921, Serial No. 508,983. Renewed February 28, 1924.

*To all whom it may concern:*

Be it known that I, DANIEL W. CAUSEY, citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Needle-Repointing Devices, of which the following is a specification.

This invention relates to an improved device for repointing needles.

The points of needles of various types frequently become dull or damaged to such an extent that their usefulness is seriously impaired. For instance talking machine needles become worn or deformed so that they are unfit for reproducing records, and sewing-machine needles also become similarly damaged. As it is not practical to subject these otherwise good needles to the original point forming operations, the present invention contemplates a device whereby the individual needles may be readily repointed and rendered as good as new thereby enabling needle users to effect considerable economy in that respect.

A primary object, therefore, is to provide a novel device for expeditiously repointing needles, that is, sharpening and then polishing the same without the exercise of special skill, thereby enabling the device to be readily used in the home, as well as in places of business to repoint worn or damaged needles.

A further object of the invention is to provide a machine that may be economically manufactured, and which is simple and reliable in operation, and whose parts are not likely to become disarranged or malfunction.

With the above and other objects in view which will more readily appear as the nature of the invention is better understood the same consists in the novel construction and arrangement of parts hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings in which:—

Figure 1 is a top plan view of my improved device.

Figure 2 is a front elevation.

Figure 3 is a side elevation.

Figures 4 and 5 are diagrammatic views showing the relative position of the needle during the sharpening operation.

Figures 6 and 7 are diagrammatic views similar to Figures 4 and 5 showing the relative position of the needle during the polishing operation.

Figure 8 is an enlarged detail view of a needle after repointing.

Figure 9 is a view similar to Figure 8 showing the same needle after the point has been polished or rounded.

Figure 10 is a detail view of a modified form of needle holder which may be substituted for the type of needle holder used in connection with talking machine needles to enable curved sewing needles to be repointed.

Figure 11 is an end view of the head shown in Figure 10.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

In carrying the invention into effect it is proposed to provide a base or body 1 having an attaching bracket 2 carrying the clamping screw 3 for enabling the device to be readily fitted to a table or other convenient support. Located at one side of the body is a journal bracket 4 adapted to rotatably support a main operating wheel 5 having a manipulating handle 6 projecting from one face thereof while the periphery is provided with the eccentrics or cams 7 and 8. The edges of these cams may be beveled as indicated at *a* and coincide at the point *b* to facilitate the shifting of the driving roller 9 of the repointing unit R from one cam to the other as will presently appear.

The said repointing unit R preferably consists of a carrier 10 for the shaft 11 on which the roller 9 is mounted, said shaft being journaled at the upper end of the carrier while the lower end is pivotally attached or hinged as indicated at 12 to a slide bar 13. By thus slidably mounting the carrier the same may be shifted to transfer the roller 9 from cam 7 to cam 8 or vice versa. For the purpose of facilitating the shifting

of the carrier the slide bar 13 may be provided with a finger grip 14 at one end and may be guided on the body 1 by means of the slot and pin arrangement 15. Also, for the purpose of yieldingly maintaining the roller 9 in engagement with either of the cams 7 or 8 the carrier 10 may be tensioned by the spring 16.

The end of the shaft 11 of the repointing unit, opposite the roller 9 has thereon a combined sharpening and polishing roll 17, the same consisting of the relatively coarse abrasive section 18 and the polishing section 19. The arrangement of said sharpening and polishing sections of the repointing roll is such that when the roller 9 engages the periphery of the cam 7 the abrasive section 18 will be in position to work on the needle N as will be observed from Figures 4 and 5 and will traverse the needle from heel to toe as shown in said figures. On the other hand when the carrier is to be set to effect the polishing operation the roller 9 is shifted into engagement with the cam 8 and the polishing section 19 brought into play. The cam 8 has a greater radius than the cam 7, and thereby causes the repointing roll 17 to be reciprocated to a greater degree than by the cam 7 thus having the effect of causing the polishing section 19 to engage with the needle N initially at a point between the heel and the toe thereof as shown in Figure 6 and subsequently causing the needle to move to a position at substantially right angles to the axis of the roll (Fig. 7) thereby to round off the sharp point formed by the section 18 and produce the smooth rounded point shown on an enlarged scale in Figure 9.

Any suitable and convenient type of needle holder H may be employed to hold the needle and at the same time give the same a rotating movement during the repointing operation. However, a practical and convenient form of holder is shown in the drawings, from which it will be observed that the same includes a needle holding chuck 20 which may be removably fitted to a shaft 21 by the set screw 22 or the like thereby to permit different chucks to be used and hence increase the range of use of the device.

The said shaft 21 may be journaled in the arms 23 of the bracket 24, and at the end opposite the chuck 20 is fitted with a drive wheel 25 adapted to engage with the face 26 of the main operating wheel 5 as clearly shown in Figure 1. The bracket 24 may be provided with a stem portion 27 adapted to be mounted in the bearing portions 28 of a support 29 carried by the base 1 of the device. To insure that the needle held by the chuck 20 will properly engage with the repointing roll 17 the stem 27 may be tensioned

by the spring 29 arranged between the bearings 28 and to facilitate the manipulation of the needle holder, that is, raising the same to the dotted line position shown in Figure 2 for example, the said stem 27 may be provided with a finger-grip knob 30. Also for the purpose of holding the needle holder in the dotted line position shown in Figure 2 to facilitate the insertion and removal of the needles the said stem 27 may be provided with a lug 31 adapted to engage behind a shoulder 32 formed on one of the bearings 28 (see Figure 1).

The operation of the device is substantially as follows:—

After the insertion of a worn needle in the chuck 20, the same may be dropped onto the abrasive section 18 of the repointing roll 17. When the repointing roll is in position to have the section 18 thereof engage with the needle, the roller 9 engages with the cam 7 and thus the rotation of the wheel 5, of which the cam 7 is a part, in the direction of the arrows in Figures 4 and 5 will result in the needle being sharpened from heel to toe because the roll 17 is given a reciprocating motion, the amplitude of such movement being sufficient to cause the needle to be sharpened (while rotating) from heel to toe.

After the burr or fin has been removed from the point of the needle the carrier 10 may be shifted toward the wheel 5 to bring the roller 9 onto the cam 8. This will also cause the repointing section 19 of the roll 17 to operate on the needle in the manner indicated in Figures 6 and 7 of the drawings. Due to the longer radius of the cam 8 the roll 17 will have a greater amplitude of movement and thus permit the needle holder to drop the needle to a substantially horizontal plane (Fig. 7) which will have the effect of rounding off the sharp point produced by the sharpening operation.

It will of course be understood that all during the sharpening and polishing operations carried into effect by the rotating roll 17, the needle N is also rotating due to the engagement of the wheel 25 of the needle holder with the face 26 of the wheel 5 which constitutes the main operating unit.

A modified form of needle holding chuck is shown in Figure 10 of the drawings. This chuck is designated as 40 and may be substituted for the chuck 20 of Figure 1 enabling the present device to repoint curved sewing-machine needles. As shown in Figure 10 the chuck 40 is provided with an enlarged head 41 having a plurality of needle receiving openings 42 formed therein at an angle oblique to the axis of the chuck. The curved needles N' may have their shank portions fitted into one of the openings 42 and held therein by a set screw 43, and when thus held in place the point of the needle N'

will be coincident with the axis of the chuck. In that way the rotation of the chuck will enable the needle to be repointed in the same manner as needles of the straight type shown in the other figures of the drawings.

Without further description it is thought that the features and advantages of the present invention will be readily apparent, and it will of course be understood that changes in the form, proportion, and minor details of construction can be resorted to without departing from the spirit of the invention or scope of the appended claims.

I claim:—

1. A needle sharpening device including a repointing roll, a needle holding device arranged at one side of the roll, a carrier for pivotally supporting said roll, and means for rocking the carrier through arcs of different amplitude.

2. A needle sharpening device including an operating wheel consisting of cams of different radii, a repointing roll adapted to be rotatably driven by either of said cams and also given a reciprocating motion thereby, and means for supporting a needle to be operated upon by said roll.

3. A needle sharpening device including a repointing roll having abrasive and polishing sections, a rotatable needle holder arranged at one side of the roll, and means for rotating said roll and reciprocating it through arcs of different amplitude.

4. A needle sharpening device including a repointing roll having abrasive and polishing sections, a rotatable needle holder arranged at one side of the roll, and means for rotating and reciprocating said roll consisting of a wheel having cams of different radii adapted to be alternately brought into play to rotate said roll and also reciprocate the same through arcs of different amplitude.

5. A needle sharpening device including a repointing roll, a rotatable needle holding device arranged at one side of the roll, a carrier for pivotally supporting said roll, and means for simultaneously rotating said roll and rocking the carrier through arcs of different amplitude simultaneously thereby to impart a combined rotating and reciprocating movement to the roll.

6. A needle sharpening device including a repointing roll, a rotatable needle holding device arranged at one side of the roll, a carrier for pivotally supporting said roll, and means consisting of a wheel having its periphery formed by cams of different radii and operatively engaging with said roll to thereby impart a rotary movement thereto and simultaneously rocking the roll carrier on its pivot.

7. A needle sharpening device, including a repointing roll, a main operating wheel

having means for reciprocating the repointing roll through arcs of different amplitude, means whereby said wheel also rotates the repointing roll, and a needle holding device arranged at one side of the roll and having a driving engagement with the wheel.

8. A needle sharpening device, including a shiftable repointing roll having sharpening and polishing surfaces thereon, means for pivotally supporting said roll, a main operating wheel having separate cam portions at the edge thereof, a wheel carried by the repointing roll and adapted to engage with either one or the other of the cam portions of the main operating wheel according to the set position of the repointing roll, a needle holder, and a wheel for driving the needle holder operatively engaging with a flat face of the main operating wheel.

9. A needle sharpening device including a repointing roll having sharpening and polishing surfaces, a needle holding device arranged at right angles to the axis of the roll, means for pivotally supporting said roll, means for shifting the roll in the direction of its axis, an operating wheel having a plurality of cams thereon adapted to be alternately brought into operative relation with the roll upon the shifting thereof.

10. A needle sharpening device including a base, a repointing roll having sharpening and polishing surfaces, a carrier therefor pivotally and slidably mounted on the base, a needle holding device arranged at right angles to the axis roll, and an operating wheel also journaled upon the base and including a plurality of cams adapted to be alternately brought into operative relation with the roll upon the shifting thereof.

11. A needle sharpening device including a base, a repointing roll having sharpening and polishing sections, a carrier for the roll pivotally and slidably mounted on the base, an operating wheel including cams of different radii journaled upon the base, means whereby the roll may be operatively connected with either one of said cams upon the shifting thereof in the direction of its axis, a needle holder pivotally supported at one side of the roll and at right angles thereto, a wheel also carried by the holder for engaging with the said main operating wheel, and a needle holding chuck carried by the other end of the device for holding a needle in operative relation to said sharpening surfaces of the roll.

12. A needle sharpening device including a repointing roll having sharpening and pointing surfaces, means for rotating and reciprocating said roll, a needle holding device arranged at right angles to the axis of the roll and including a needle holding chuck detachably associated with said device, and

including a needle holding head having a needle engaging and clamping means disposed oblique to the axis of the chuck thereby to position a curved needle with its point arranged co-incident with the axis of the chuck. 5 and having needle holding means adapted to clamp a needle obliquely to the axis of the chuck. 10

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

DANIEL W. CAUSEY.

13. In a needle sharpening machine, a rotatable repointing roll, a rotatable needle holder, and a chuck carried by said holder

Witnesses:

L. E. DODGE,

W. M. MILLER.