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MACHINE FOR SHAVING SOUND RECORD TABLETS

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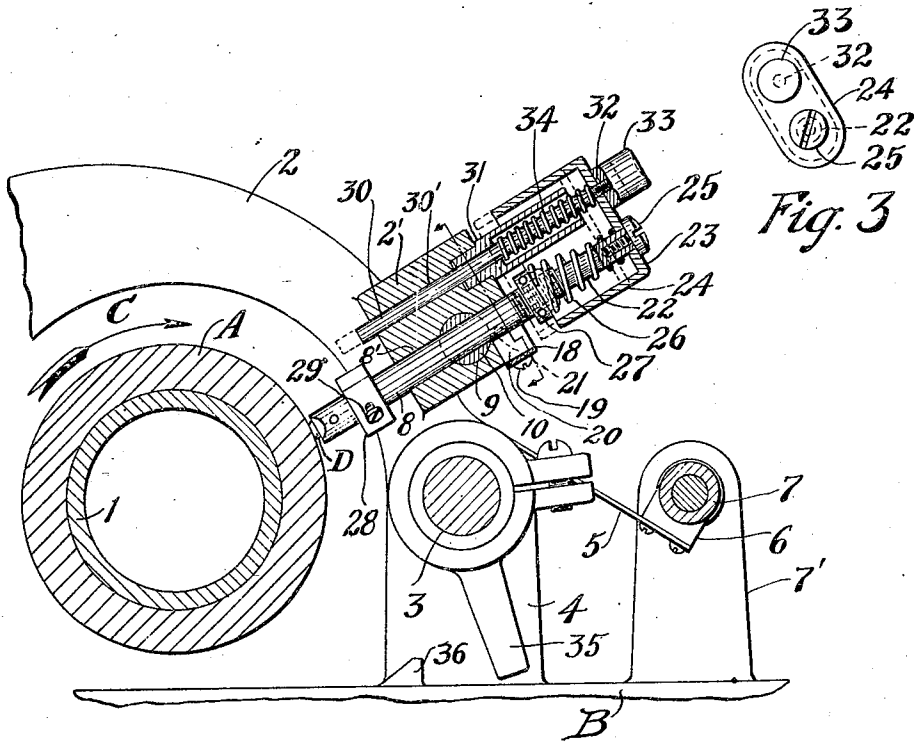


Fig. 1

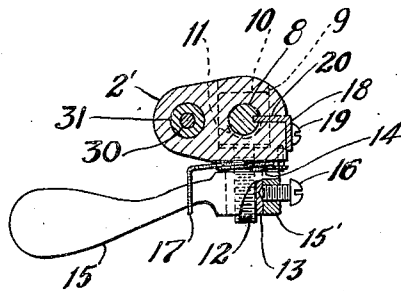


Fig. 2

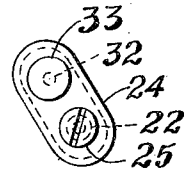


Fig. 3

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UNITED STATES PATENT OFFICE.

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MACHINE FOR SHAVING SOUND-RECORD TABLETS.

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My invention relates to machines for shaving off the surface portions of sound-record tablets in order to present smooth and properly prepared surfaces for receiving the records, and in some aspects is an improvement on the invention described and claimed in Patent No. 1,174,292, granted March 7, 1916, on an application of Charles Schiff.

Sound-record tablets employed in phonographs for recording sound are made from wax-like material and it is necessary, in order properly to cut and engrave the records therein, that the surfaces of the tablets be smooth and regular. Where sound-record tablets are used in connection with business phonographs, it is customary, after dictated matter has been recorded on a record tablet and the record transcribed, to shave off the outer surface portion of the tablet so as to prepare the tablet for receiving a new record thereon. The present invention is designed to be used whenever it is desired to shave a sound-record tablet to provide the same with a smooth properly prepared surface to be recorded upon, but more particularly it is designed for use in shaving off the outer surface portions of tablets provided with records which have been transcribed in order to prepare the tablets for re-use, as described above.

One of the objects of my invention is to provide in a machine of the character described, an improved construction for controlling and effecting the movements of the shaving knife to operative and inoperative positions, and preferably comprising an arrangement whereby the adjustment of the shaving knife to operative position with respect to a record tablet to be shaved may be quickly effected to obtain a proper depth of cut by a simple manipulation.

Another object of my invention is to provide in a machine of this character an improved construction, which regardless of the size or thickness of the record tablet to be shaved, effectually limits the depth of cut which can be obtained upon any adjustment of the knife to operative position.

Other objects and features of my invention will be hereinafter more fully described and claimed.

In order that my invention may be more clearly understood; attention is directed to the drawing accompanying and forming a part of this specification, and in which;

Figure 1 is a sectional view, partly in elevation and partly broken away, of a shaving machine in accordance with my invention, showing the shaving knife in operative position;

Fig. 2 is a sectional view, taken on line 2—2 of Figure 1; and

Fig. 3 is an end view of the means for adjusting the shaving knife, as shown in Figure 1.

Referring to the drawing, reference character 1, designates the mandrel of the shaving machine carrying a record tablet A to be shaved; said mandrel being journaled in the usual manner on the frame B and being capable of being rotated at high speed in the direction of the arrow C by means of suitable gearing driven by an electric motor (not shown). Reference character 2 designates an arm or carriage, said arm being slidably mounted on the usual back-rod 3 and tiltable thereon, and the forward end of the arm normally resting on the usual straight edge (not shown). The back-rod 3 is supported in bearings carried by spaced standards of the frame B, one of these standards being shown at 4. An arm 5 is secured at one end to the carriage 2 and carries at its other end a feed-nut 6, which when the carriage 2 is in its normal lowered position, as shown, engages a feed-screw 7 journaled in spaced standards of the frame B, one of which standards is shown at 7'. The feed-screw 7 is designed to be rotated by the motor of the shaving machine through suitable reducing gearing (not shown) to thereby effect transverse feeding movement of the carriage 2 with respect to the mandrel 1 and the record tablet A carried thereby.

The carriage 2 is provided with a suitable mounting for the knife bar 8, said mounting preferably comprising an integral extension 2' of the carriage and having an opening 8' through which the knife bar extends. Suitably mounted on the bar 8 at its inner end is a cutter or shaving knife D preferably formed of sapphire. The knife bar 8 is mounted in the extension 2' of the carriage for slidable movement towards and away from the mandrel 1 in a direction substantially radial to the mandrel, so that the knife D when adjusted to operative position, will engage the tablet A to take a proper and effective cut.

In order to lock the knife bar 8 in adjusted

position, I provide the following construction: The knife bar mounting 2' is provided with a cylindrical opening 9, extending there-through at right angles to the opening 8' and intercepting the latter; and disposed in said opening 9 is a member 10 provided with a cylindrical opening 11 which is substantially in alignment with the opening 8' but slightly greater in diameter than the latter, and with a reduced threaded end portion 12 extending outwardly from the mounting 2' through a reduced portion of the opening 9. A nut 13 is threaded on the extending end portion 12 of the member 10, and a handle 15 is secured to the nut 13 in a predetermined angular position by means of a set-screw 16 threaded through the hub 15' of the handle with its inner conical end engaging a conical recess in the nut. On turning the handle 15 and thereby by the nut 13 in a right-handed direction, it will be apparent that said nut will coact with the shoulder 14 of the mounting 2' to effect movement of the member 10, in a direction transverse to the axis of the opening 8', and thereby move the cutter bar 8 into binding engagement with the wall of opening 8' to rigidly lock the knife bar in position. Movement of the handle 15 in the opposite direction effects the release of the knife bar from binding engagement with the wall of opening 8'. A coiled spring 17 disposed between the hub of the handle 15 and the mounting 2', and having one end thereof bearing against a pin projecting from the mounting 2' and the other end engaged about the shank of the handle 15, assists in moving the handle to its inoperative or unlocking position where it engages a stop consisting of a lug (not shown) extending from the mounting 2', and once the handle is loosened from its locking position, said spring insures the movement of the handle to such inoperative position. A small flat angular member 18 is secured to the mounting 2', as by means of a screw 19, and has one arm thereof extending through a slot 20 in the mounting 2' and into sliding engagement with a longitudinally extending recess 21 formed in the bar 8, and acts to prevent turning movement of the bar 8 and maintain the cutter or shaving knife D in proper angular position with respect to the tablet A.

The outer end portion 22 of the cutter bar 8 is reduced in diameter and extends loosely through the top 23 of a hollow cap 24, outward movement of the cap 24 with respect to the knife bar 8 being limited by the head of a screw 25 which is threaded into the outer end of the knife bar. A strong coiled spring 26 is disposed about the knife bar 8 between a collar 27 adjustably mounted on the knife bar by being threaded thereon, and the end wall 23 of the cap 24. Outward movement of the knife bar 8 is limited by the engagement of a collar 28 secured to the knife bar by

means of a set-screw 29, with the lower or inner end of the mounting 2'.

A guide rod 30 is slidably mounted in an opening 30' in the extension 2' of the arm 2, said opening 30' being parallel to the opening 8' in which the knife bar is disposed, and also at its upper portion in a sleeve 31 which is secured at its lower end within an enlargement of the opening 30'. The rod 30 has a reduced threaded upper end portion 32, which extends through the top 23 of the cap 24, and the rod is secured to the cap by means of a cylindrical member 33, threaded onto the said end portion of the rod. A coiled spring 34 is disposed about the guide rod 30 between the end wall 23 of the cap 24 and a shoulder formed on the inside of the sleeve 31, this spring being somewhat weaker than the spring 26. The member 33 in addition to securing the guide rod 30 to the cap 24, also constitutes a finger piece or actuating member whereby the knife bar 8 may be moved to bring knife D to operative position.

The function of spring 26 is to provide a resilient connection between the knife bar 8 and cap 24, so that when the knife bar is moved to operative position, as shown in Fig. 1, by depressing cap 24, the knife D will not engage the tablet A to be shaved with a hammer blow and make a deep gouge therein, but will be gradually and yieldingly pressed a small distance into the material of the tablet A. While the spring 34 assists in accomplishing the result just described, the principal function of this spring is to return the cap 24 and thereby the knife bar 8 to inoperative position with the record tablet A, when the knife bar locking member 10 is loosened. In order that the shaving device described will have a neat and attractive appearance, the skirt of the cap 24 is preferably of such length as to cover the spring 26 in all positions of the knife bar 8 and the parts associated therewith.

When the knife bar clamp or locking member 10 has been released or loosened by moving the handle 15 to the proper position, the knife bar 8, cap 24 and guide rod 30 will be held by spring 34 in their uppermost positions with the collar 28 on the knife bar in engagement with the mounting 2' and with the knife D raised out of engagement with the record tablet A to be shaved. If it is now desired to set the knife to shave the tablet A, the cap 24 is pushed inwardly towards the tablet by applying pressure to the actuating member or finger piece 33. The movement of the cap 24 is transmitted to the knife bar 8 through the resilient connection consisting of spring 26 and the knife is thus caused to engage the tablet. When the knife has been pushed into the material of the tablet sufficiently to make a cut of the proper depth, which the operator can readily determine by

the resistance offered to further inward movement of the cap 24, the knife bar is locked in adjusted position by turning the handle 15. Inward movement of the cap 24 is limited by engagement of the end wall 23 thereof with the upper end of sleeve 31, as indicated in dotted lines in Fig. 1, and the springs 26 and 34 are made of such strength that even if the cap is depressed to the limit described, the knife will be pressed into the material of the record tablet but a slight distance so as to take a shallow cut. After the knife bar has been locked in operative position by proper movement of the handle 15, pressure is removed from the finger piece 33, whereupon the cap 24 is moved upwardly by spring 34 to the position shown in Fig. 1, in which the top or end wall 23 thereof engages the head 25 of the screw threaded into the outer end of the knife bar.

The effective tension of spring 26 may be regulated by adjusting the collar 27 on the knife bar. The main function of collar 27, however, is to provide an adjustable stop which coacts with the upper end of the knife bar mounting 2' to limit the inward movement of the knife bar and prevent the knife from shaving a record tablet after it has been turned down to a certain thickness below which it would be impracticable to use the tablet.

When it is desired to disengage the feed-nut 6 from the feed-screw 7 so as to permit the carriage 2 to be moved along the back-rod 3 to another position, or when it is desired to obtain access to the knife or cutter D for the purpose of inspecting the same or for any other purpose, it is merely necessary to tilt or turn the carriage about the back-rod 3 away from the mandrel 1. Such tilting movement of the carriage is limited by the engagement of an arm 35 on the carriage with a suitable stop 36 on the frame B.

Having now described my invention, what I claim as new and desire to protect by Letters Patent is as follows:

1. In a machine for shaving sound record tablets, the combination with a rotatable support for record tablets, of a knife bar mounted for movement towards and away from said support, and means for moving said knife bar to operative position comprising a member having a resilient connection with the knife bar and adapted for direct manual operation, said knife bar having its outer end extending loosely through said member and having means fixedly applied to its outer end adapted to coact directly with such member to limit movement of the latter with respect to the knife bar in a direction away from said rotatable support, said member being free, except as limited by said knife bar, to move in said direction, substantially as described.

2. In a machine for shaving sound record tablets, the combination with a rotatable sup-

port for record tablets, of a knife bar mounted for movement towards and away from said support, means for moving said knife bar to operative position comprising a hollow cap having a resilient connection with the knife bar and adapted for direct manual operation, said knife bar extending loosely through the top of said cap and having means fixedly applied to its outer end adapted to coact directly with said cap top to limit movement of the cap with respect to the knife bar in a direction away from said rotatable support, and resilient means in addition to the connection between said cap and knife bar constantly tending to move said cap in a direction away from said support, said cap being free, except as limited by said knife bar, to move in said direction, substantially as described.

3. In a machine for shaving sound record tablets, the combination with a rotatable support for record tablets, of a knife bar mounted for movement towards and away from said support, means for moving said knife bar to operative position comprising a member having a resilient connection with the knife bar, said knife bar extending loosely through said member and having means adapted to coact with such member to limit movement of the latter independently of the knife bar in a direction away from said rotatable support, and means for locking the knife bar in operative position, said knife bar moving means being operable independently of the operation of said locking means, substantially as described.

4. In a machine for shaving sound record tablets, the combination with a rotatable support for record tablets, of a knife bar mounted for movement towards and away from said support, and means for moving said knife bar to operative position comprising a member having an adjustable resilient connection with the knife bar, said knife bar having its outer end portion extending loosely through said member and having means applied to its outer end adapted to coact directly with such member to limit movement of the latter independently of the knife bar in a direction away from said rotatable support, said member being free, except as limited by said knife bar, to move in said direction, substantially as described.

5. In a machine for shaving sound record tablets, the combination with a rotatable support for record tablets, of a carriage, a knife bar mounted on said carriage for movement towards and away from said support, and means for moving said knife bar to operative position, comprising a member having an adjustable resilient connection with the knife bar, said connection including an element adjustable on the knife bar, and a spring disposed between said member and said element, the adjustable element being adapted to coact with said carriage to limit the movement of the knife bar towards said support, said knife

bar having its outer end portion extending loosely through said member and having means adapted to coact with such member to limit movement of the latter independently of the knife bar in a direction away from said support, substantially as described.

6. In a machine for shaving sound record tablets, the combination with a rotatable support for record tablets and a carriage adapted for relative feeding movement, of a knife bar mounted on said carriage for movement towards and away from said record support, said knife bar being provided with means adapted to coacting with said carriage to limit the extent of the inward movement of said knife bar and thereby the ultimate amount of material which may be shaved from tablets to be mounted on said support, and means for moving said knife bar to operative position comprising a member having a resilient connection with said knife bar, said knife bar extending loosely through said member and being provided with means adapted to coact with such member to limit the movement of the latter away from said support independently of the knife bar, substantially as described.

7. In a machine for shaving sound record tablets, the combination with a rotatable support for record tablets and a carriage mounted for relative feeding movement, of a knife bar slidably mounted on said carriage, means comprising a member having a resilient connection with said knife bar for moving the latter to operative position, the knife bar having its outer end portion extending loosely through said member and having means applied to its outer end adapted to coact with such member to limit the movement of the latter away from said support independently of the knife bar, said member being free, except as limited by said knife bar, to move away from said support, and a guide rod secured to said member, said rod being parallel to the knife bar and being slidably mounted in an opening provided in said carriage, substantially as described.

8. In a machine for shaving sound record tablets, the combination with a rotatable support for record tablets and a carriage mounted for relative feeding movement, of a knife bar slidably mounted on said carriage for movement towards and away from said support, means for moving said knife bar to operative position comprising a member movable towards and away from said carriage, said knife bar extending loosely through said member and being provided with means adapted to coact with such member to limit the movement of the latter away from said support independently of the knife bar, a collar adjustably mounted on said knife bar and a spring disposed between said collar and said member, said collar being adapted to coact with said carriage to limit the movement of

the knife bar towards said support and a second spring disposed between said carriage and said member and constantly tending to move the latter away from said support, substantially as described.

9. In a machine for shaving sound record tablets, the combination with a rotatable support for record tablets and a carriage mounted for relative feeding movement, of a knife bar slidably mounted on said carriage for movement towards and away from said support, means for moving said knife bar to operative position comprising a member movable towards and away from said carriage and having a resilient connection with the knife bar, said knife bar being provided with means adapted to coact with said member to limit the movement of the latter away from said support independently of the knife bar, a hollow member mounted on the carriage, and a spring disposed within said hollow member and constantly tending to move said movable member away from said support, the outer end of said hollow member coacting with said movable member to limit the movement of the latter towards said support upon actuation thereof to move the knife bar to operative position, substantially as described.

10. In a machine for shaving sound record tablets, the combination with a rotatable support for record tablets and a carriage mounted for relative feeding movement of a knife bar slidably mounted on said carriage for movement towards and away from said support, means for moving said knife bar to operative position comprising a member movable towards and away from said carriage and having a resilient connection with the knife bar, said knife bar being provided with means adapted to coact with said member to limit the movement of the latter away from said support independently of the knife bar, a hollow member mounted on the carriage, and a spring disposed within said hollow member and constantly tending to move said movable member away from said support, the outer end of said hollow member being adapted to coact with said movable member to limit the movement of the latter towards said support upon actuation thereof to move the knife bar to operative position, said movable member being provided with means slidably engaging said hollow member for guiding the movable member in its movements towards and away from said support, substantially as described.

11. In a machine for shaving sound record tablets, the combination with a rotatable support for record tablets and a carriage mounted for relative feeding movement, of a knife bar slidably mounted on said carriage for movement towards and away from said support and having its end portions extending from the carriage, a collar on the inner end portion of the knife bar coacting with the

carriage to limit the movement of the knife bar away from said support, a collar adjustably mounted on the outer end portion of the knife bar adapted to coact with said carriage to limit the movement of the latter towards said support, means for moving said knife bar to operative position comprising a hollow cap movable towards and away from said carriage, the outer end portion of the knife bar extending loosely through the top of said cap and being provided with means adapted to coact with the cap to limit the movement of the latter away from said support independently of the knife bar, a coiled spring disposed on the knife bar between the said adjustable collar and the top of said cap, a hollow member mounted on said carriage and extending outwardly therefrom and a second spring disposed within said hollow member and constantly tending to move said cap outwardly away from said support, the outer end of said hollow member coacting with said cap to limit the movement of the latter towards said support, substantially as described.

This specification signed this 27th day of August, 1925.

CHARLES W. LUHR.