Feb. 16, 1943. R. SINCLAIR 2,311,481

THREAD RECEIVER AND REMOVER

Filed Aug. 9, 1941

FIG 1

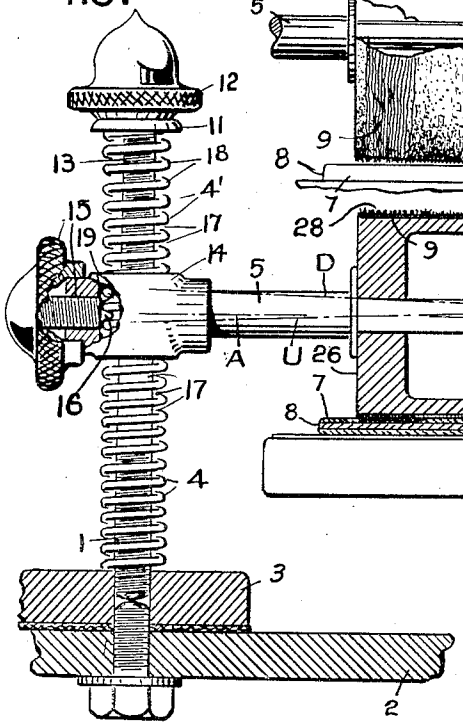


FIG 2

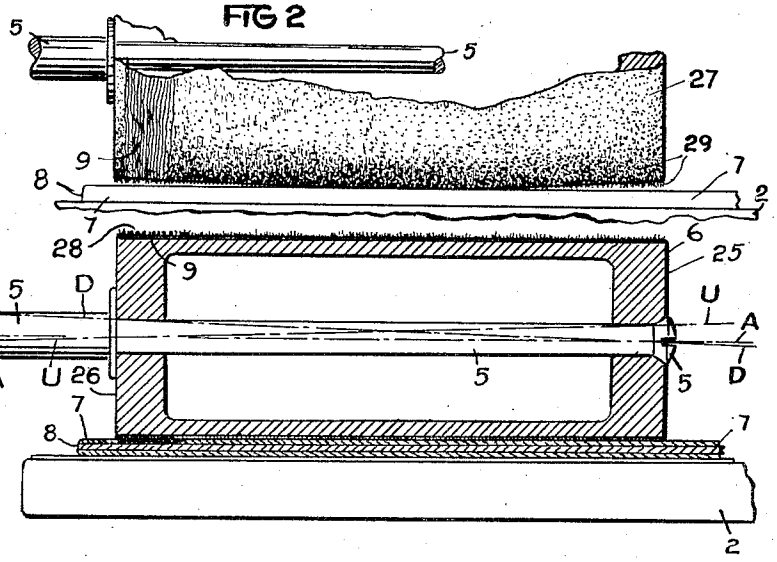


FIG 3

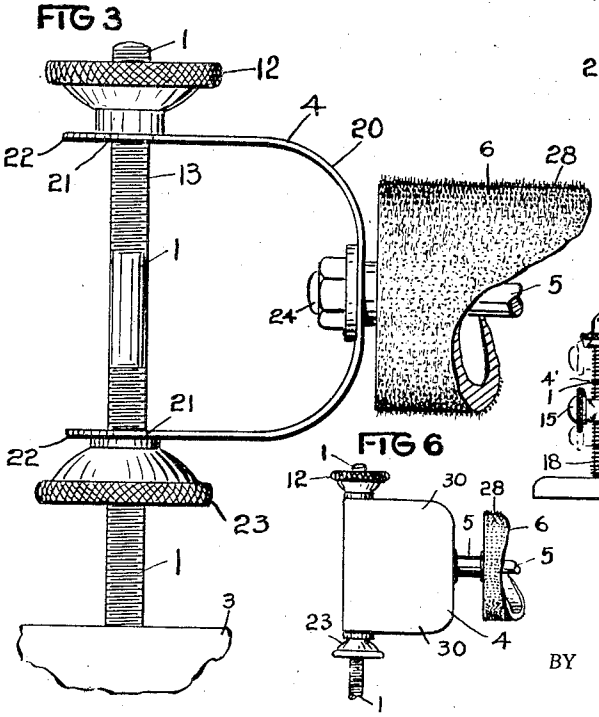


FIG 4

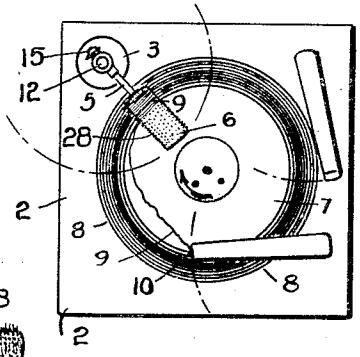


FIG 5

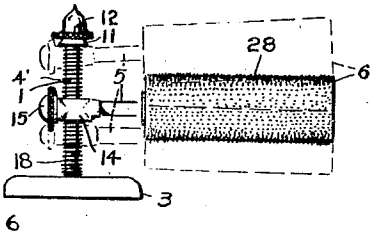


FIG 6

INVENTOR.
ROY SINCLAIR.
BY Paul A. Talbot.
ATTORNEY.

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THREAD RECEIVER AND REMOVER

Roy Sinclair, New York, N. Y.

Application August 9, 1941, Serial No. 406,117

2 Claims. (Cl. 274—47)

My invention relates to an improvement in a device to remove the cuttings or thread from a record disc used in the recording of sound and particularly to an improvement in the art as disclosed in my Patent No. 2,237,638, filed June 19, 1940, and issued April 8, 1941, for Thread removal attachment for recording mechanisms. Among the purposes and objects of my invention are to provide:

A resilient support for the collector.

A simple means of adjusting the speed of the collector.

A simple device that may be used by home and amateurs suited to remove the shavings or thread from any disc being processed for sound reproduction.

A receiver for shavings and/or threads from the transmitting stylus which may automatically adjust itself to untrue or wabbly turntables and record discs.

A shaving receiver and remover that can be set near the revolving turntable and record disc being cut.

A resilient mounting and portable stand for collectors of shavings or thread while record making and which is positioned outside the periphery of the revolving record disc.

I accomplish these and other objects by the construction herein described and shown in the accompanying drawing forming a part hereof, in which:

Fig. 1 is a partial section and elevation.

Fig. 2 is a fragmentary detail of a modified collector.

Fig. 3 is an elevation of a modification of the resilient stand.

Fig. 4 is a plan view showing the application of my device and the horizontal travel of the collector in broken lines.

Fig. 5 is an elevation showing the extremes of position of collector.

Fig. 6 is an elevation showing the vertical travel of the collector in broken lines.

Similar reference characters refer to similar parts throughout the several views of the drawing and in the specification to follow.

In making records for reproducing sound on a disc, such as the records made of radio entertainment and of voice reproduction at home, both for amateur and professional use, the stylus used in cutting grooves in the disc produces a shaving or thread which is relatively tough and of considerable length, depending on the length of the recording and size of the record being made. This shaving or thread, unless removed from the surface of the disc obstructs the movement of the stylus, and thus the sound groove may be intercepted and fidelity of the recording destroyed.

My thread collector is particularly suited to the numerous types of home recording instruments and may be placed on the stationary parts near the revolving turntable or may be attached if desired by providing an aperture to receive the stanchion. The turntables are usually operated at 78 revolutions or 33 revolutions. Each speed, as well as the size of the record, requires an adjustment of the speed of the collector.

My collector and its mounting may be an attached unit or an accessory which may be placed on the recording instruments when the record is to be made.

Numerous devices for removing the thread include vacuum cleaners, hand operated and stationary brushes and deflecting fingers which cause the thread to accumulate out of the path of the stylus and the sound groove in the record cut by it. Each of these methods and devices have disadvantages, such as wadding and clogging of the thread in the removing device, or the thread becomes entangled on the parts located near the revolving table and record disc carried on it.

In my Patent #2,237,638, I have shown the use of a cylinder, cone, or other collector which rolls on and by contact with the disc. The collector is provided with a fuzzy surface such as a coating of flock, felt, or the like, which picks up the thread from the revolving record as it is being made and while in motion. In general, the collector provided in this improvement is somewhat similar except that the means of supporting the collector and adjusting it is quite different.

My instant improvement is provided with a support entirely outside the periphery of the disc and the resilient mounting provides for considerable vertical movement and permits the collector to conform to the untrueness or wabble of the disc while in motion, as well as to provide a vertical adjustment and also an adjustment of the relative rotative speed of the collector in its relation to the speed of the turntable. The free end of the revolving collector may be so adjusted as to contact the disc near its center, for slow speed, or the end of the collector toward the support may be adjusted to contact the disc near its periphery for fast speed, or the collector may be made slightly barrel shaped so that points at varying distances between the ends of the collector may be adjusted to contact the record, thereby affording an indefinite num-

ber of speed changes, yet collecting the thread at any part between the ends.

The surface of the collector automatically picks up the thread in the flock of the covering, whether it be one single thread end or a number of ends caused by breaking.

The vertical adjustment of the collector and its movements permitted by its novel resilient mounting may be better understood by a study of the construction, reference being made to the drawing.

I have not attempted to disclose all possible modifications which may be suited to carry out the principles underlying my invention, but rather to illustrate by means of preferred detailed construction embodying these principles. I have described my device in detail, not to limit the scope of my invention, but to clearly disclose one of the constructions which give satisfactory results and to specify the parts more broadly set forth in the appended claims which set forth my invention.

I have provided a stanchion 1 secured to the recording machine 2 or base 3 and holding a spring or other resilient member 4 to which is secured the arbor 5 on which the collector 6 is free to revolve.

The arbor and the collector may be raised or lowered and also swung from the contact position over the record disc 7 to any position beyond the periphery 8 of the disc when not in position to collect the shaving or thread 9 made by the stylus 10 in forming the sound groove in the surface of the record 7.

Referring particularly to Figs. 1 and 5, I have shown the member 4 in the form of a coil spring, the bottom end of which rests against the base 3 and the top end against the washer 11 clamped under the adjusting nut 12 which receives the threads 13 of the stanchion 1, thereby providing an adjustment vertically for the arbor by shortening or lengthening the spring. In addition to the vertical adjustment thus provided the arbor may be further adjusted by raising or lowering the arbor collar 14 on the spring 4'.

The arbor collar is secured to the spring by the pin pointed screw 15, the pin 16 of which enters the spaces 17 between the coils 18 of the spring while the shoulder 19 of the screw clamps the exterior of the coils. The arbor may thus be moved a distance equal to the pitch of the coils of the spring when the screw 15 is loosened or, by turning the spring within the arbor collar any part of the distance of the pitch may be moved, thereby providing a minute and accurate vertical adjustment for the arbor collar and the collector and arbor supported by it.

In Fig. 3, I have shown a U spring 20 which serves as the resilient member. This spring is provided with apertures 21 near its ends 22, suitable to engage the stanchion 1 which is provided with the nut 23 under the spring, in addition to the nut 12 above the spring.

The arbor is secured to the center of the spring 20 by the nut 24 or otherwise. By adjusting the nuts 12 and 23 up or down on the stanchion, the arbor may be raised or lowered to adjust the collector.

The arbor may be inclined downward at its free end 25 to cause the end of the collector to contact the surface of the record disc and by lowering the opposite end of the arbor by moving its adjustment on the stanchion. The opposite end 26 of the collector may be made to contact the surface of the record disc.

When the end 25 contacts the disc, the collector is revolved relatively slower than when the end 26 is brought into contact due to the increase of speed of the longer annular track on which the end of collector, near the periphery of the disc travels.

In Fig. 2 of the drawing, I have shown a fragment of the surface of a barrel shaped collector 27 which may be so adjusted on the surface of the record as to travel at any desired speed between the extreme speeds of either ends. This is made possible by adjusting the arbor to any degree of inclination from parallel to the surface of the record disc to an incline in which the free end may be upward or downward.

The amount of inclination of the axis A of the arbor 5 may be seen by referring to Fig. 1 of the drawing in which the broken line A—A indicates the axis in a horizontal position parallel to the face of the record disc 7. The broken line D—D represents the axis inclined downward. The broken line U—U represents the axis inclined upward. The amount of inclination is exaggerated so that it may be readily seen and in either extreme of position, the distance between any part of the collector and the record disc is not enough to prevent the flock 28 of the collector, at any part of the collector, from picking up the thread at its end automatically as the collector is revolved by the movement of the rotating record disc.

The surface barrel shaped collector 27 likewise is curved axially only enough so that it readily picks up the thread in its flock covering 29.

The flock may be secured by adhesive to the collector or may be provided on a piece of fabric or other material secured to the surface of the collector. In such case, the flock may be in the form of a pile such as velvet, for instance.

In Fig. 6, I have shown a modification having rubber or similar resilient supporting member 30 for the arbor 5 which may be adjusted vertically by the top nut 12 and the nut 23 under said member. The adjusting nuts 12 and 23 engage the threaded stanchion 1 and in other respects serve the same purpose as the springs shown in the other figures of the drawing and herein above described.

The stanchion, being positioned outside the periphery of the disc, permits the arbor and collector to be swung on the axis of the stanchion and clear of the disc for removing shavings and when the record is used for reproducing. When the disc is being cut or the sound groove is being formed, the collector is easily swung on said stanchion so that the axis of the arbor and collector is about radially disposed to the axis about which the disc revolves. Frictional resistance to the swinging of the collector on the stanchion by the adjusting nuts and resiliency of the member 4.

The springs or resilient member provide not only a means of changing the relative speed between the collector and disc but also affords a means of restricting the free movement of the arbor and collector in swinging on the stanchion. The adjusting nuts likewise may be so adjusted that the arbor is not only raised or lowered on the stanchion, but the amount of resilience may be increased by increasing the compression of the resilient member providing a greater or lesser contact pressure between the collector and disc in addition to the angular disposition of the col-

lector and the arbor on which it revolves in relation to the face of the record disc.

The adjustments afforded, as well as the resiliency of the mounting permit the desired freedom of movement of the collector in relation to the disc which may wabble and run out of true.

To those skilled in the art to which my invention pertains, numerous other modifications of the details herein disclosed may be made, and I do not wish to be limited to these details, as I may wish to depart therefrom within the scope of the appended claims which set forth my invention.

I claim:

1. In a shaving remover for disc records, a supporting stanchion, an arbor resiliently secured to said stanchion at one end and a collector freely rotatable on said arbor and means adjusting the relative speed of said collector in relation to the speed of said disc comprising vertical adjusting means between said stanchion and said arbor causing either end of said collector to contact said disc.

2. In a shaving remover for disc records, a supporting stanchion, an arbor resiliently secured to said stanchion at one end and a collector freely rotatable on said arbor and means adjusting the angular disposition of the axis of said collector to the face of said disc to adjust the relative speed of said collector by causing either of the ends of said collector to contact and to be revolved by said disc.

ROY SINCLAIR.