J. RUNK.

PHONOGRAPH RECORD CLEANING ATTACHMENT.

APPLICATION FILED DEC. 26, 1918.

1,404,147.

Patented Jan. 17, 1922.

3 SHEETS—SHEET 1.

Fig. 1.

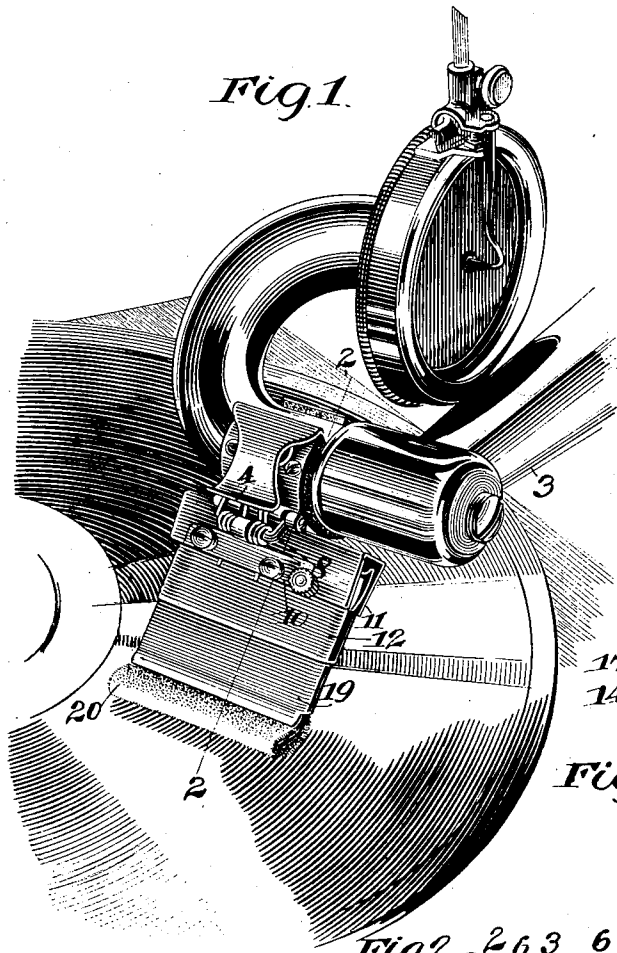


Fig. 3.

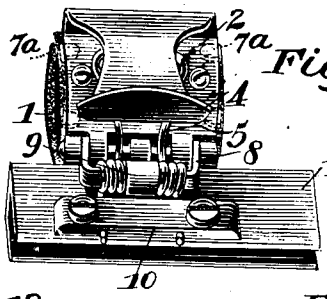
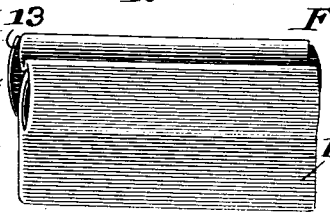


Fig. 4



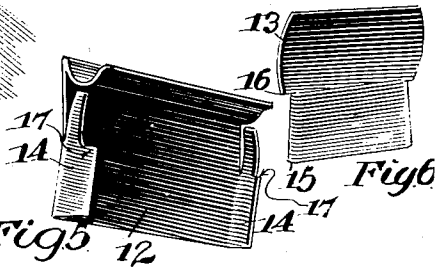


Fig. 5

Fig. 6

Fig. 7.

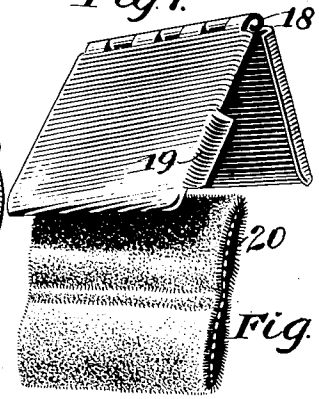


Fig. 8.

Fig. 2

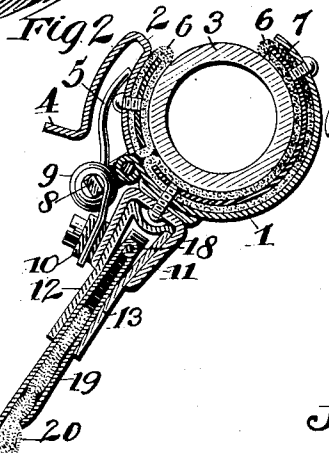
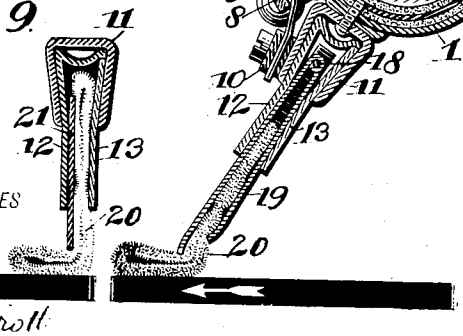


Fig. 9



WITNESSES

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3 SHEETS—SHEET 2.

Fig. 10.

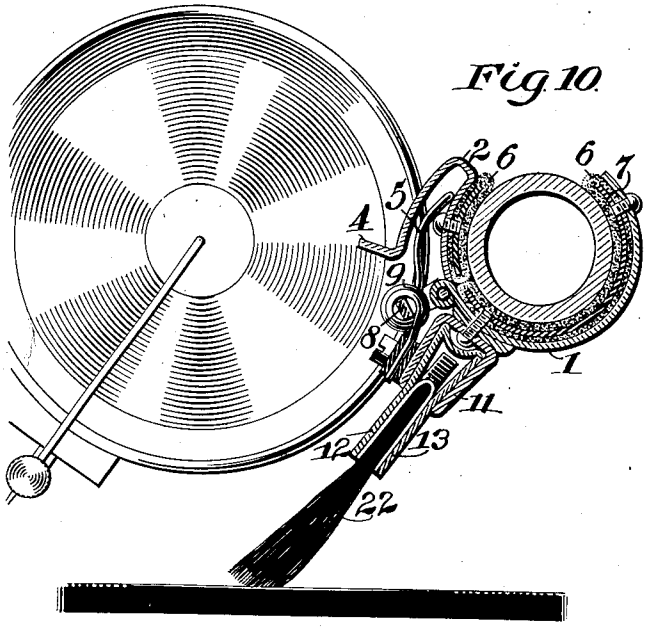


Fig. 11.

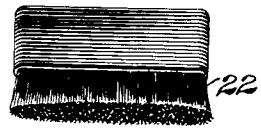


Fig. 17.

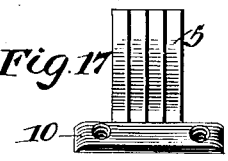


Fig. 18.

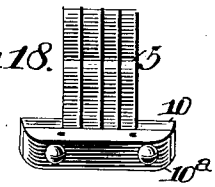


Fig. 19.

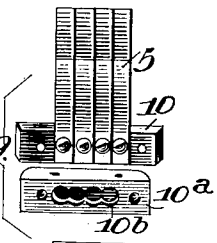


Fig. 20.



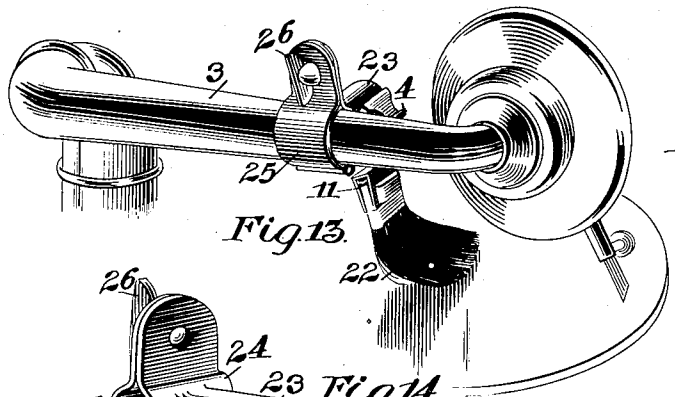


Fig. 13.

Fig. 14.

Fig. 15.

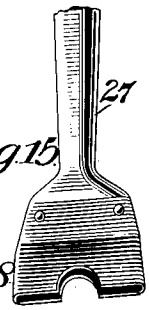


Fig. 16.

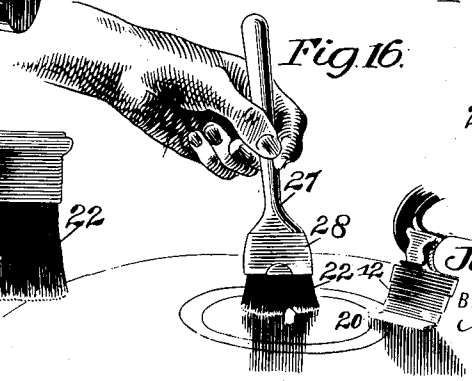


Fig. 12.



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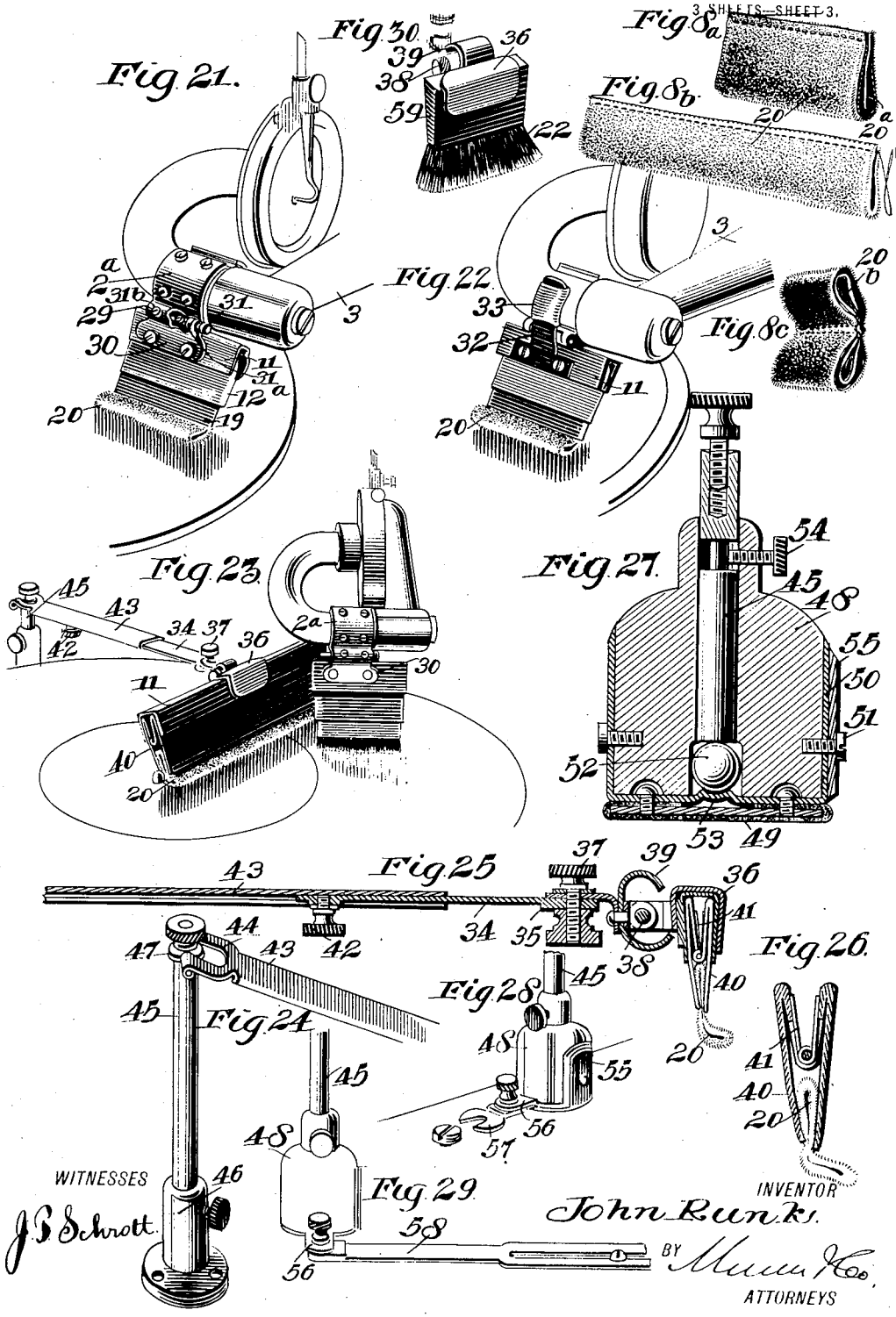
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3 SHEETS—SHEET 3.



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PHONOGRAPH-RECORD-CLEANING ATTACHMENT.

1,404,147. Specification of Letters Patent. Patented Jan. 17, 1922.

Application filed December 26, 1918. Serial No. 268,346.

To all whom it may concern:

Be it known that I, JOHN RUNK, a citizen of the United States, and a resident of Stillwater, in the county of Washington and State of Minnesota, have invented certain new and useful Improvements in Phonograph-Record-Cleaning Attachments, of which the following is a specification.

My invention relates to improvements in record cleaning attachments for phonographs, and it consists in the constructions, combinations and arrangements herein described and claimed.

An object of my invention is to provide a device arranged to be attached to the tone-arm in advance of the reproducer needle, so as to move over the sound grooves ahead of the needle and wipe out accumulations of dust from the grooves and insure a clearer and more faithful reproduction of the recorded sound waves.

Another and very important object of the invention is, to provide a fabric wiper made of either velvet, cotton, wool, linen, silk or other suitable material and fumed with either a disinfectant or perfume, this wiper being used in connection with the aforesaid cleaning attachment, and being usable a number of times before being finally discarded.

A further object of the invention is to provide a combination of cleaning attachments of substantially the same nature, said attachments being mounted on the tone-arm and a separate support respectively, said attachments having wipers as described, for cleaning the record and polishing the surface to remove finger marks.

A further object of the invention is to provide an assortment of brushes, arranged to be used in place of the fabric wipers under certain circumstances.

A further object of the invention resides in the various modifications in the construction of the cleaning attachment, the fundamental principle of the invention being retained in each instance.

Other objects and advantages will appear in the following specification, reference being had to the accompanying drawings in which—

Figure 1 is a perspective view illustrating the application of the cleaning attachment to the tone-arm of the phonograph,

Figure 2 is a section on the line 2—2 of Figure 1,

Figure 3 is a perspective view of the clamp and slide,

Figure 4 is a perspective view of the primary holder,

Figures 5 and 6 are perspective views showing the primary holder and closure plate separated,

Figure 7 is a perspective view showing the extension holder open,

Figures 8, 8^a, 8^b, and 8^c are perspective views showing various forms of fabric wipers used in connection with the cleaning attachment,

Figure 9 is a detail sectional view illustrating the use of an extension plate in place of the extension holder,

Figure 10 is a cross section similar to Figure 2 showing a brush in place of the velvet wiper,

Figure 11 is a perspective view of a modified form of brush wherein short and relatively stiff bristles are employed.

Figure 12 is a perspective view of another form of the brush,

Figure 13 is a perspective view illustrating the use of an extension support by means of which the cleaning attachment can be applied to tone-arms of other constructions than that shown in Figure 1,

Figure 14 is a detail perspective view of the extension support shown in Figure 13,

Figure 15 is a perspective view of an auxiliary handle wherein certain of the brushes may be employed,

Figure 16 is a perspective view illustrating the use of the handle and brush in reaching the center of the record where the cleaning attachment ordinarily does not reach,

Figures 17, 18, 19, and 20 are detail views of modifications of the spring members, hereinafter referred to,

Figure 21 is a perspective view illustrating a fixedly clamped cleaning attachment,

Figure 22 is a perspective view showing a one-piece spring used in connection with the cleaning attachment,

Figure 23 is a perspective view illustrating the use of a separately supported relatively broad cleaning member, in combination with the tone-arm attached cleaning member,

Figure 24 is a detail perspective view of the adjustable standard comprising a part of the separate support in Figure 23,

Figure 25 is a longitudinal section of the extensible arm of the separate support,

Figure 26 is a detail sectional view of the clamp member in Figure 25,

Figure 27 is a section of the balance weight constituting a further modification in the separate support,

Figure 28 is a perspective view of the balance weight showing one method of attaching it,

Figure 29 is a perspective view of the balance weight illustrating the use of the balance weight fastener arm, and

Figure 30 is a perspective view of a modified brush holder.

One of the foremost objects of the invention is to provide a fabric wiper for cleaning and polishing the surface of a record. The wiper can be made in a number of different ways as illustrated in Figures 8, 8^a, 8^b, and 8^c. It can be made of many different materials, some of which have already been mentioned.

It is also proposed to fumigate the wipers with both perfume and disinfectant. The wipers are simply subjected to the fumes of either the one or the other, and the liquid is not applied directly thereto. The use of a perfumed wiper creates a pleasant odor which is agreeable to those listening to the music.

The advantages of using a disinfected wiper need not be enlarged upon here. It is sufficient to say that phonographic records are as susceptible to the lodgment of disease germs, as is anything else. This is especially true where a record is taken into different homes and handled by different persons. The disinfected wiper is intended to be used once or twice on the new record, so as to kill the germs.

Having thus generally stated the purpose of the wipers, attention is now directed to the construction of the wiper holder or cleaning attachment per se. It will be observed more particularly in Figures 2 and 10, that the invention is capable of being used both as a holder for the fabric wiper and for a brush. As has been stated, the fabric wiper is used for polishing the surface. The brush is used for cleaning out accumulations of dust from the grooves.

The attachment comprises a clamp which has a fixed jaw 1 and a hinged jaw 2. By means of the clamp, the device is attached to the swinging portion of the tone-arm 3 of the phonograph. The jaw 2 is made of a suitable length before it is bent over upon itself to form the finger-piece 4, upon which the thumb is arranged to press in order to release the jaw 2 from the tone-arm and enable the removal of the device. It is to be observed that the bent over portion of the jaw 2 forms a shield as it were, for the upper extremity of a spring 5, by means of which the jaw 2 is pressed against the tone-arm. The spring 5 is subject to various modifications as illustrated in Figures 17, 18 and 22. The cleaning attachment may also be reversed from the position shown in Figure 1 in applying it to the tone-arm, if it be so desired.

Pads 6 are applied to the inner surfaces of the jaws 1 and 2, by means of pad plates 7 into which suitable securing screws are threaded. The cloth, leather, or other suitable material of which the pads are made, is wrapped around the plates 7 and secured in place substantially as shown in Figure 2. The pad plates, together with the padding thereon, are readily removable should the occasion arise to remove them.

Other means instead of the screws, may be used to fasten the pad plates in place. One of such means consists of the use of ears 7^a as indicated in dotted lines in Figure 3. These ears are simply bent over the jaw 2. Still other means beside the two mentioned, may be employed in this connection. Such other means will be used when the various parts of the device are fastened together by rivets in place of the screws illustrated in various places in Figures 1 and 3.

A bridge 8 extending forwardly from the hinge pin which holds the two jaws together, serves as a mounting for the coils of the spring 5. A collar 9 fitted on the bridge 8 holds the coils apart. The ends of the spring 5 are held in apertures in a block 10. The block is fastened in any suitable manner on a slide head 11. The slide head is secured to the jaw 1 and is practically an integral part thereof. The slide head 11 is intended to hold the primary holder 12 which is slid in place from either end. It will be observed from Figure 2 that the slide head 11 is contracted at the open edge, giving the slide head a wedge-shaped appearance. This wedge-shape of the slide head serves to hold the primary holder in place, since the head of the primary holder is similarly shaped to closely fit the opening in the slide head.

The primary holder 12 has an open side as is shown in Figure 5. A closure plate 13 is fitted in this open side to close the primary holder. The lower portions of the ends 14 of the primary holder 12, are bent around to form arms which embrace the ends of an extension holder. The vertical edges of the arms engage the inwardly curled lower portions 15 of the closure plate 13, when the closure plate is set in place inside of the arms as illustrated in Figure 4.

Shoulders 16 formed just above the inwardly curled portions 15 of the plate 13, engage rests 17 on top of the arms 14, when the closure plate is set in place. The upper por-

tions of the arms 14 are suitably shaped and bent inwardly as shown, to close the remaining open ends of the primary holder. The upper longitudinal closure portion of the primary holder 12, terminates in a flange which rests upon the upper edge of the plate 13 when the parts are assembled. As stated above, the primary holder is intended to hold the extension holder 18 which consists of two plates hinged together as shown in Figure 7. One of the plates is longer than the other as shown in Figure 2. The front plate is the longest and terminates in a slightly inwardly curved edge. The front plate has side arms 19 as shown in Figure 7. These embrace the inwardly curled edges of the rear plate, when the two plates of the extension holder are closed upon the velvet wiper 20. The shorter rear plate also has an inwardly curved edge which binds the wiper as shown in Figure 2.

The wiper 20 consists of a fabric piece which is folded over and sewn. In Figure 8 the wiper is sewn in the middle. This provides four surfaces, each of which can be used before the wiper is thrown away. The material of the wipers may be of different colors, such as red, orange, yellow, etc.

In Figures 8^a and 8^b, the fabric piece is folded over and sewn on the top edge. It can be doubled over in such a manner so as to bring the end 20^a on the inside to form a filler or padding. A lining or padding 20^b is sewn inside of the wiper in Figure 8^c. These wipers are cheap enough to be thrown away when dirty.

An extension plate 21 as shown in Figure 9, can be used in connection with the primary holder 12 instead of using the extension holder 18. In this arrangement, the wiper is disposed perpendicularly with respect to the record. The plate 21 is simply a rectangular plate of metal which is inserted in the primary holder 12 in front of the wiper 20. The use of either the extension plate 21 or the extension holder 18, is optional with the owner of the instrument.

A further modification of the cleaning attachment appears in Figure 23 et seq., and will be described later. Attention is now directed to the brush 22. The brush is made in various shapes to suit different purposes. Various forms are shown in Figures 10, 11, 12, 13, and 30. The brush in Figure 11, which has relatively short and stiff bristles, is used to initially clean a record when it is particularly dirty. The other brushes with relatively long bristles are used in other circumstances.

When the brush 22 shown in Figure 10 is used, the extension holder 18 is not necessary. The block of the brush is simply slipped into the open mouth of the primary holder 12. The brush in Figure 11 will have to be placed in a vertical position on the record, similarly as when using the extension plate 21 in Figure 9, since it is relatively short as already stated.

The block of the brush 22 in Figure 12, is shaped similarly to the upper portion of the primary holder 12 so that the block of the brush may be slid in place in the slide head 11 without using the primary holder.

The extension support 23 is used to enable the attachment of the device to the tone-arm of the phonograph which does not have the laterally extending portion from which it may be mounted as shown in Figure 1. The extension support 23 includes a fixed jaw 24 and a hinged jaw 25. After the jaws are made to embrace the tone-arm 3 as shown in Figure 13, the device is securely placed by means of the thumb screw 26 which occupies threaded openings in the ears of the jaws. Either the wiper 20 or brush 22 may be employed in this connection.

A separate handle 27 is intended to be sold with the attachment so that those of the brushes constructed as shown in Figure 11, may be inserted in the holder portion 28 of the handle and be used to clean the center of the record as shown in Figure 16. This brush handle is simply an accessory enabling the cleaning of the center of the record. Neither the brush 22 nor the wiper 20 when held in the attachment in Figures 1, 10, etc., can reach the center of the record. However, other provision is made for reaching the center, and attention is therefore directed to the modification in Figure 23. A slide head 11 somewhat on the order of the one illustrated in Figure 1, but modified in certain respects, is shown at the left. Here the improved slide head is shown as operating in conjunction with the cleaning attachment which is carried by the tone-arm. The arrangement is such that the entire record is polished from the center to the periphery.

A slide bar 34 has a thickened exposed end 35 upon which the keeper 36 of the slide head 11 is mounted for horizontal adjustment. This adjustment is made by means of a thumb screw 37 with a jam nut on the bottom. The keeper is jointed at 38 to permit vertical adjustment thereof. A shield 39 both above and below the joint, limits the amount of adjustment of the wipers or brushes in either of two positions.

These shield portions act as safety guards and prevent the slide bar from dropping onto the record in the event that the screw 38 becomes loosened. In such an event, the natural tendency is for the wiper to drag forwardly by virtue of the friction of the record, and then it is that the upper shield principally come into play to avoid the objection noted.

A holder 40 forms the medium whereby

the wiper 20 is attached to the keeper. This holder is hinged together at the edges of the portions of the side plates which are bent upon themselves as shown in Figure 26. This arrangement provides finger pieces which can be pressed together against the tension of springs 41, to open the jaws of the holder and enable the insertion of the wiper.

The slide bar 34 is adjustable to various distances over the record, by means of a thumb screw 42 which is threaded in the thickened inner end of the slide bar and is arranged to bind on the keeper bar 43. It will be observed that the slide bar slides in the keeper bar 43, the sides of which are turned over to house the slide bar.

The bifurcated end 44 of the keeper bar is hinged to the adjustable post 45 of a standard or base 46. The wiper 20 remains in place on the record by the weight of the slide head by which it is carried, the hinge connection at the bifurcation 44 being provided for this purpose. The hinge connection includes a washer 47 with lateral pintles. The washer is fastened in place by means of a thumb screw.

The base 46 is secured to the bed of the machine, and the post 45 is adjustable with respect thereto. Should it be desired to avoid mutilating the machine bed by screwing the base in place as stated, the balance weight 48 illustrated in Figures 27, 28, and 29 may be used instead. A padding 49 of felt or other material, is attached to a yoke-like member 50 which partly embraces the balance weight from the bottom. A plate on the inside of the padding keeps it in shape and enables the threading of the securing screws thereinto. The yoke 50 is held in place by screws 51.

A ball bearing 52 occupies a seat 53 in the bottom portion of the yoke, and supports a post 45 similar to the one in Figure 24. With this post a swivel conection of the keeper bar 43 is obtained, since an annular groove is formed in the post in which the end of the screw 54 is introduced.

In certain cases, as for instance when the balance plate is employed but temporarily, it is simply set in position where it stays because of its weight. In some instances it is possible to hold the balance weight in place by simply removing the screw 51 at the right, and reversing the keeper plate 55 so that the end of the plate may be projected into an adjacent seam in the bed of the machine.

Under other circumstances, however, either of alternative balance weight fastenings may be employed. Reference is directed to Figures 28 and 29. Here the bottom portion of the yoke 50 has a lateral lug 56 to which an adjustable bifurcated connector 57 is secured. The connector 57 is simply fitted beneath the head of an adjacent screw as shown in Figure 28, and thus the balance weight is held in position.

Should there be no convenient screw head to permit the use of the connector 57, the lug 56 is used as a connector for the balance weight fastener 58. In this instance the fastener 58 consists of a flat bar with a bifurcated end. This end is concealed under the turn table, and admits a securing screw as shown in Figure 29. This screw is unloosened to obtain the positioning of the balance weight fastener.

Instead of using the improved slide head 11 with the fabric wiper 20, a brush 22 with a substantially triangular head 59 is employed, by inserting the head directly into the keeper 36. This is shown in Figure 30.

The modification in Figure 21 consists of a stationary front clasp 2^a which has an integral bridge 29 and plate 30. The plate 30 is secured to the slide head 11 by means of the screws shown in the drawing. A hinge pin 31 is fitted in place through the bridge 29 and similar portions 31^a of the back clasps 1, so as to rigidly hold the device in place on the tone-arm. The hinge connection is fixed by means of set screws 31^b.

The modification in Figure 22 comprises a one-piece spring 32 which is affixed to the slide head 11. This is done either directly as illustrated, or with an inserted block 10 similar to the one in Figure 1, and in Figures 17 and 18. A piece of rubber 33 is slipped over the tongue of the spring, so as to protect the finish of the tone-arm.

The modifications in Figures 17 to 20 simply illustrate another form of the spring 5 by means of which the pad 6 on the jaw 2 is pressed in contact, with the tone-arm. In Figure 18 the spring is in the nature of a plurality of narrow leaves which are set in the block or spring socket 10. The nature of the setting is shown in Figure 19. These leaf springs may be used either singly as shown in Figure 17 or in compound arrangement as in Figures 18 and 19.

A similar advantage is gotten by making the leaf spring of a single broad member as in Figure 22. A cap 10^a is arranged to cover the spring socket 10. In order that the cap may seat snugly on the socket 10, it is provided with recesses 10^b which receive the heads of the screws which hold the leaf springs in place. In such an event that the spring socket 10 is employed for the purpose of holding a spring of the nature shown in Figure 3, the recess in the socket 10 is filled by a piece 10^c. The cap 10^a is then fitted in place so that the block presents the same appearance as it does in Figure 3.

One of the advantages of using the record wiper or brush, when attached to the sound tube, is that the needle is prevented from sliding across the record when through

playing. This saves many records from becoming scratched.

When through playing, the needle travels around in the last groove of the record, until the machine runs down, but not completely. This is desirable, since the squeezing out of the graphite of the spring barrel is avoided. This is also a good thing for the spring.

While the construction and arrangement of the cleaning attachment is that of a generally preferred form, obviously modifications and changes may be made without departing from the spirit of the invention or the scope of the claims.

I claim:—

1. A record cleaning attachment comprising record engaging means, gripping means therefor, holding means in which said gripping means is inserted to cause the gripping action, and supporting means in which the holding means is removably slid.

2. Means for mounting a cleaning attachment to a tone arm, comprising a clamp jaw, with a hinged jaw; and pads to prevent injuring the tone arm surface, including plates with a covering secured inside of said jaws.

3. Means for mounting a cleaning attachment to a tone arm, comprising a clamp jaw, with a hinged jaw having a fingerpiece by which it is opened; a coil spring having one end fixed on a part of the clamp jaw, and the other part bearing on the hinged jaw beneath the fingerpiece; and means extending from the pin of the jaw hinge, for supporting the coil of the spring.

4. A record cleaning attachment, comprising a fabric wiper, gripping means directly receiving the wiper, holding means including a slide head, means insertable in the slide head providing the connection between said slide head and the gripping means of the wiper, and clamping means for securing the attachment to a tone-arm.

5. Cleaning attachment mounting means, comprising a clamp jaw with a companion jaw hinged thereto, a wire spring, having a loop end bearing on the hinged jaw, including coils with wire ends extending therefrom; means carried by a part of the clamp jaw for holding said wire ends, and means for supporting the spring coils, including a U bridge extending from the pin of the jaw hinge, and a coil separating collar on the bridge.

6. In cleaning attachment mounting means, a clamp jaw, with a companion jaw hinged thereto; a block carried by a part of the clamp jaw, and a spring, with one end fixed in the block and the other end bearing on the hinged jaw.

7. A record cleaning attachment, a primary holder comprising a body portion having arms curved toward an open side and providing rests, extensions of said arms providing closures for the ends of said body, said body being bent outwardly above the region of said rests and terminating in a flanged longitudinal edge forming a top, and a closure plate insertable in the holder to close the open side, said plate having shoulders engaging the rests and inwardly curved portions engaging said arms, the upper edge of said closure plate resting beneath said flange.

8. In a record cleaning attachment, an extension holder consisting of a pair of plates hinged together and having the longitudinal edges curved inwardly, one of the plates being wider than the other and both plates having the transverse edges curved inwardly, and arms formed on the wider plate to cooperate with the inwardly curved edges of the narrow plate.

9. The combination in a cleaning attachment, of a holder, and a tone arm-carried slide head into which the holder is slid, and which is wedge-shaped to retain it.

10. A record cleaning attachment, comprising means for supporting a record cleaning and polishing element, a slide head into which said means is slid; a padded member fixed on the slide head, arranged to partly encircle a tone-arm and having ears forming part of a hinge connection, a cooperating padded member arranged to be secured to the slide head and having ears cooperating with said hinge ears, and a pin fitted through all of said ears.

11. The combination in a cleaning attachment, of a hinged-plate extension wiper holder, a primary holder, including plates divergently bent to form a head, into which the extension holder is slid; and a convergingly sided clamp jaw-carried slide head into which the head of the primary holder is slid to cause a gripping action on a wiper in the extension holder.

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Witnesses:
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