W. C. RUNGE.

MANDREL SLEEVE FOR PHONOGRAPH RECORDS.

APPLICATION FILED APR. 22, 1909.

966,771. **Patented Aug. 9, 1910.**

Fig. 1.

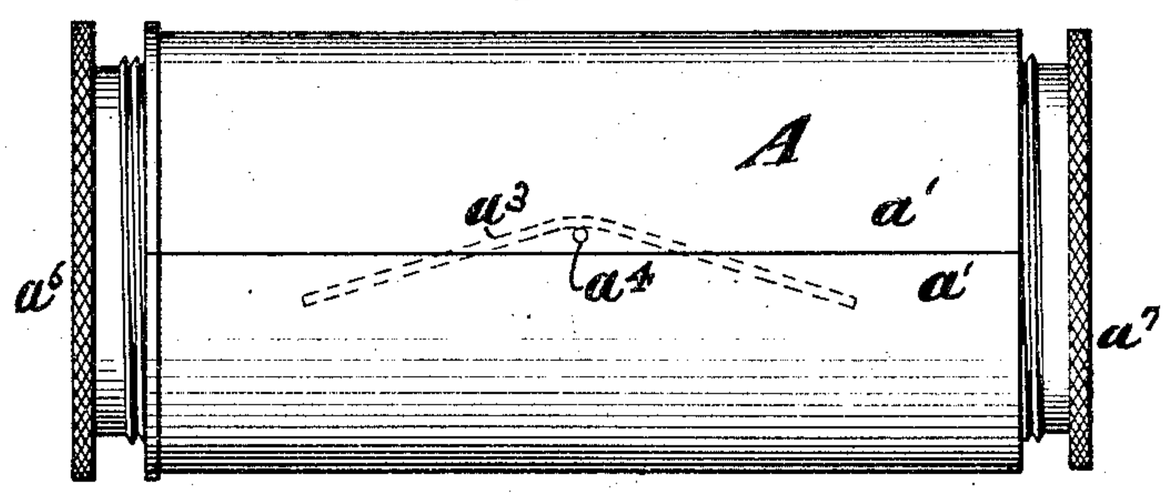


Fig. 2.

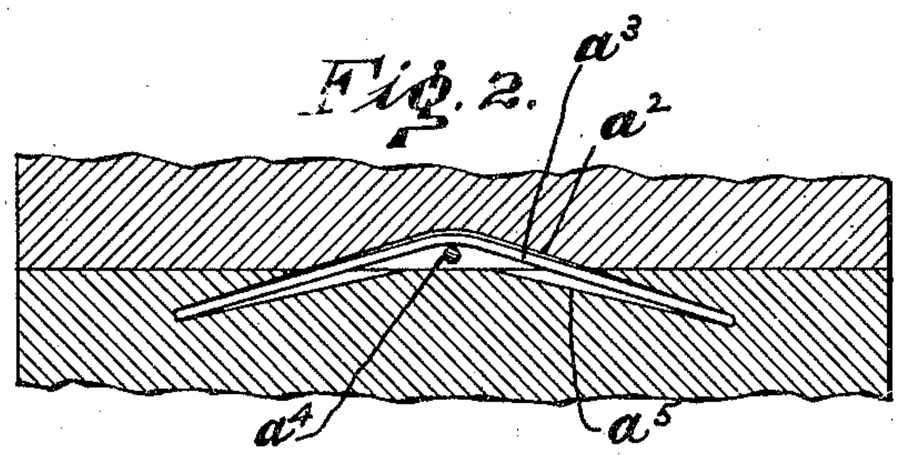


Fig. 3.

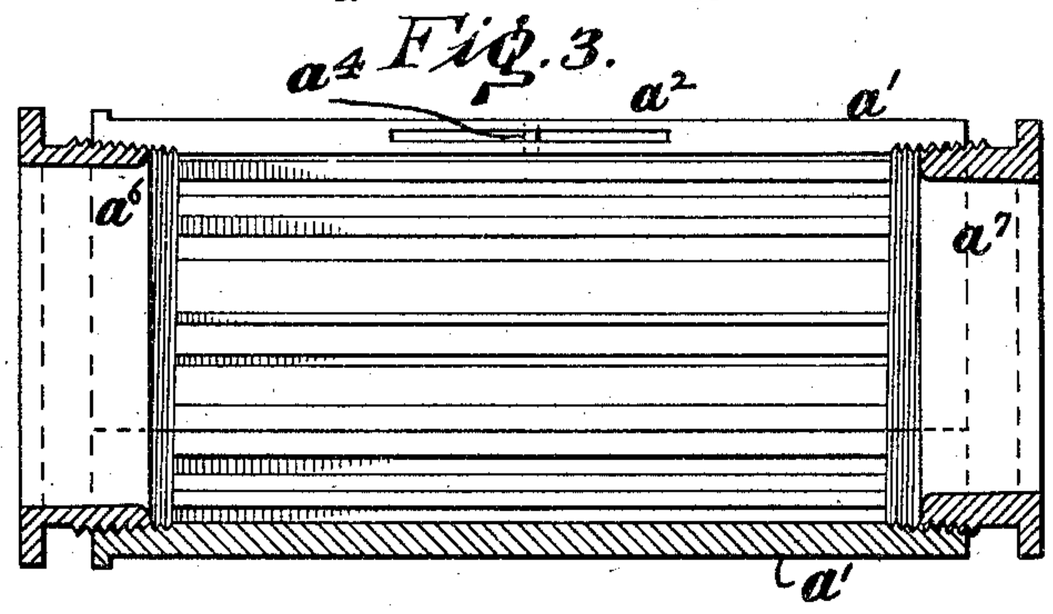
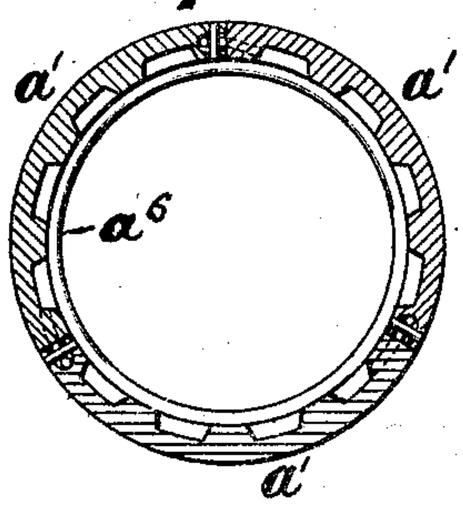


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

WALTER C. RUNGE, OF CAMDEN, NEW JERSEY, ASSIGNOR TO ROYAL PHONE AND PHONOGRAM COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

MANDREL-SLEEVE FOR PHONOGRAPH-RECORDS.

966,771. Specification of Letters Patent. Patented Aug. 9, 1910.

Application filed April 22, 1909. Serial No. 491,484.

To all whom it may concern:

Be it known that I, WALTER C. RUNGE, a citizen of the United States, and a resident of the city of Camden, county of Camden, and State of New Jersey, have invented certain new and useful Improvements in Mandrel-Sleeves for Phonograph-Records, of which the following is a specification.

Some phonographs are provided with tubular mandrel sleeves which may be slipped on and off the arbor of a phonograph and have phonograph records tubularly engaged with them.

My invention relates to such a mandrel sleeve made capable of expanding and contracting for the purpose of respectively securing and releasing a phonograph record.

In the accompanying drawings: Figure 1 is a side view of a mandrel sleeve embodying my improvement. Fig. 2 is a section through a portion of the circumference to illustrate the means of connecting segments which are comprised in the mandrel sleeve. Fig. 3 is a central longitudinal section of the mandrel sleeve. Fig. 4 is a transverse section of the mandrel sleeve.

Similar letters of reference designate corresponding parts in all the figures.

A designates the body of the mandrel sleeve. It is of tubular form and made of a number of longitudinal segment shaped sections a^1. While these sections may be of any desired number, I have only shown three in this example of my invention, each of the three forming a third of the body.

The sections of the body are connected together at their longitudinal edges and in such a manner that they may yield independently so that the body as a whole may expand and contract. As here shown, a groove a^2 is formed in one of the longitudinal edges of each section a^1 and in this groove a spring a^3 is introduced. This spring consists of a strip of resilient metal and is bent longitudinally into bow shape. Its middle portion fits in the groove a^2 and is retained there by a pin a^4 which extends transversely through the groove. The ends of the spring a^3 protrude into cavities a^5 formed in the opposite edge of an adjacent section a^1 and extending obliquely therein.

Inside the several sections are made flaring at the ends and are screw threaded to receive rings a^6 and a^7 which are tapered and screw threaded to engage with the flaring screw threaded end portions of the sections a^1 of the mandrel sleeve. As here shown, the rings a^6 and a^7 have flanges and the latter are milled at the edges to facilitate the manipulation of the rings. Preferably the screw threads at both ends of the mandrel sleeve will be of the same character, or in other words, will both be right hand screws and of the same pitch. Obviously when the rings are rotated in reverse directions to enter farther into the mandrel sleeve the latter will be expanded. A contrary manipulation of the rings will permit the mandrel sleeve to contract. Preferably the mandrel sleeve will have at one end a circumferential lip of which segments will be formed upon the several sections a^1. This lip will form a stop to insure the proper positioning of a record upon the mandrel sleeve.

Before inserting my mandrel sleeve into a phonograph record, said sleeve is contracted by screwing outward the rings a^6 and a^7, if indeed the sleeve is not already small enough to slip easily into the record. The record having been placed upon the sleeve, the rings a^6 and a^7 are screwed inward so as to expand the sleeve or increase its diameter, thereby causing the said sleeve to fit tightly within the record. Such rotation of the rings a^6 and a^7 to expand the sleeve, may be effected most readily by grasping one of said rings in one hand and the other of said rings in the other hand, and rotating the two rings simultaneously but in opposite directions; the motion being a slight twisting motion such as is readily given by the hands. The rings a^6 and a^7 being entirely separate and capable of independent rotation in opposite directions, it is not necessary to hold the record itself, when so turning said rings; and indeed, the fact that the two rings a^6 and a^7 are independent obviates all necessity of fingering the record itself in doing this. The record preferably used is one that is flexible and capable of some distension; and by expanding the mandrel in this way, it may be expanded sufficiently far to put the record under tension, and under uniform tension. The fact that the two rings a^6 and a^7 are independent practically assures that, in turning said rings, the record will be put under uniform tension throughout, because if the mandrel starts to place one end of the sleeve under greater tension than the other end, the ring a^6 or a^7, at that

end where the greater tension is initially, will cease rotating in the mandrel sleeve, before the other ring will cease rotating, so that the final result is to produce substantially uniform tension of the record at both ends thereof. To remove a record from the mandrel sleeve the rings a^6 and a^7 are rotated backward, thus contracting the mandrel sleeve to such extent that it may be slipped out of the record easily.

What I claim is:

1. A phonograph record mandrel sleeve comprising in combination an expansible tubular body and a plurality of independent expanding means therefor, capable of independent operation to cause the expansion or contraction of said sleeve at will.

2. A phonograph record mandrel sleeve comprising in combination an expansible tubular body and two independent expanding means therefor, located at opposite ends of said sleeve, and capable of independent operation to cause the expansion or contraction of said sleeve at will.

3. A phonograph record mandrel sleeve comprising in combination an expansible tubular body composed of segments yieldingly connected together, and a plurality of independent expanding means therefor, capable of independent operation to cause the expansion or contraction of said sleeve at will.

4. A phonograph record mandrel sleeve comprising in combination an expansible tubular body and a plurality of independent expanding means therefor, operable by rotation, relative to said sleeve, to cause the expansion or contraction of the latter, and each capable of independent rotation.

5. A phonograph record mandrel sleeve comprising in combination an expansible tubular body, and expanding means therefor, comprising a plurality of rotary rings capable of being rotated independently with respect to one another, and each provided with inclined surfaces arranged to coact with portions of said tubular body for the purpose of causing expansion or contraction of said body, according to the direction in which such rings are rotated.

6. A phonograph record mandrel sleeve comprising in combination an expansible tubular body, and expanding means therefor, comprising a plurality of rings rotatable independently with respect to one another, and provided with surfaces tapering externally with respect to the axis of the rings, and arranged to coact with end portions of said tubular body to cause expansion or contraction thereof, according to the direction said rings are rotated.

7. A phonograph record mandrel sleeve comprising in combination an expansible tubular body, and expanding means therefor, comprising a plurality of expanders arranged to cause expansion or contraction of such sleeve by their rotation, such expanders independently rotatable with respect to one another and arranged to be rotated in opposite directions relatively, for the purpose of expanding said sleeve, and also for the purpose of contracting said sleeve.

8. A phonograph record mandrel sleeve comprising in combination an expansible tubular body, and expanding means therefor, comprising a plurality of expanders arranged to cause expansion or contraction of such sleeve by their rotation, such expanders independently rotatable with respect to one another and arranged to be rotated in opposite directions relatively, for the purpose of expanding said sleeve, and also for the purpose of contracting said sleeve, said expanders adapted for manual rotation.

9. A phonograph record mandrel sleeve comprising in combination an expansible tubular body, and screw threaded expanders screwing into the ends of the said sleeve, and capable of independent rotation with respect to one another, said expanders arranged to be rotated in opposite directions relatively, to expand said sleeve, and likewise to cause contraction of said sleeve, and adapted for manual operation.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WALTER C. RUNGE.

Witnesses:
FRANK E. RAFFMAN,
PAUL H. FRANK.