April 8, 1924. 1,489,436

H. K. HESS

REPEATING MECHANISM FOR PHOTOGRAPHS

Filed Feb. 28, 1921 2 Sheets-Sheet 1

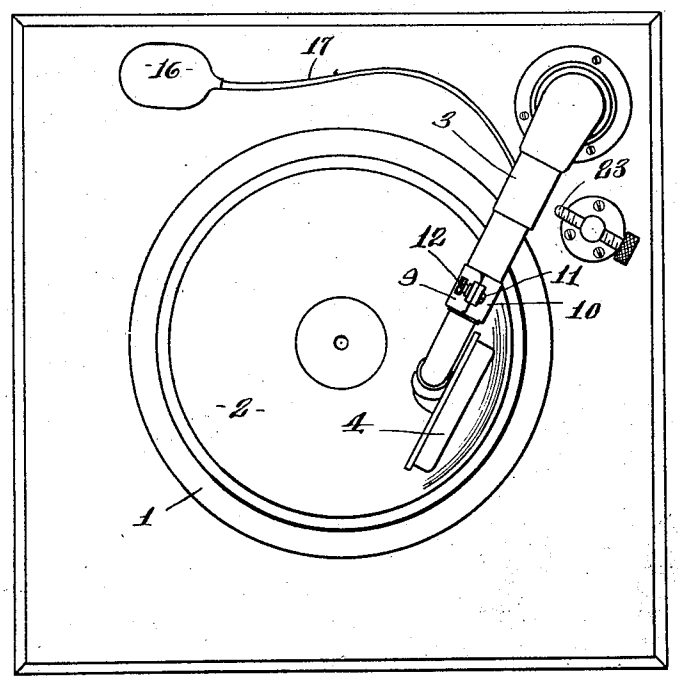


Fig. 1.

Henry K. Hess. INVENTOR.

BY

Parsons & Bodell. ATTORNEYS.

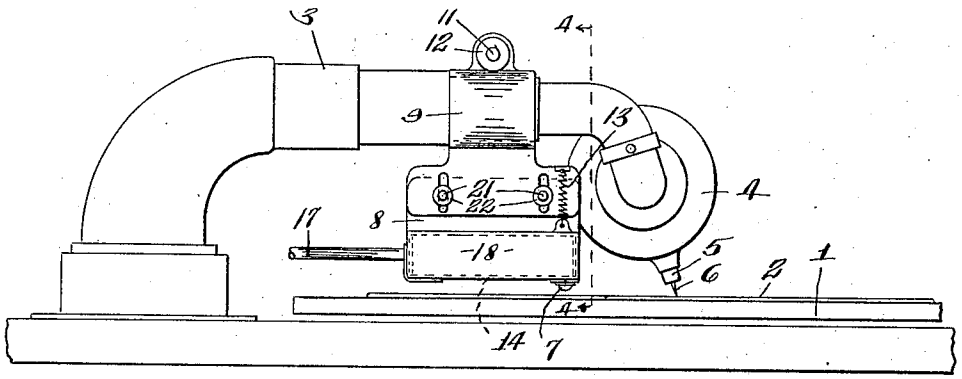
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Fig. 2.



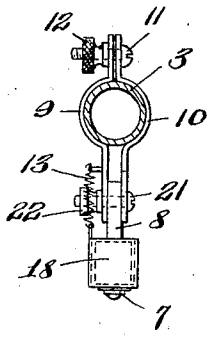
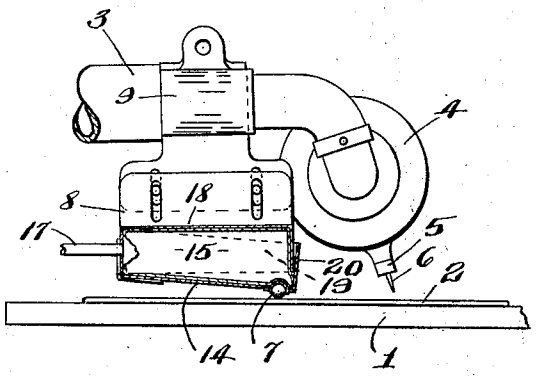


Fig. 4.

Fig. 3.



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Patented Apr. 8, 1924. 1,489,436

UNITED STATES PATENT OFFICE.

HENRY K. HESS, OF SYRACUSE, NEW YORK.

REPEATING MECHANISM FOR PHONOGRAPHS.

Application filed February 28, 1921. Serial No. 448,519.

To all whom it may concern:

Be it known that I, HENRY K. HESS, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Repeating Mechanism for Phonographs, of which the following is a specification.

This invention has for its object a particularly simple and efficient repeating mechanism for phonographs in which the rotation of a turntable or the record thereon is utilized to swing the tone arm to its starting position to place the needle at the beginning of the second groove; and the invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings, in which like characters designate corresponding parts in all the views.

Figure 1 is a plan view of a phonograph embodying my invention.

Figure 2 is a fragmentary side elevation of parts seen in Figure 1.

Figure 3 is an enlarged fragmentary elevation of parts seen in Figure 2.

Figure 4 is a sectional view on line 4—4, Figure 2.

This repeating mechanism comprises generally means carried by the swinging sound conduit and operable to engage either the turntable element or the record element in order to lift the sound conduit to carry the needle out of engagement with the record and to support the sound conduit, whereby it is swung by the rotation of the turntable to its starting position.

In the illustrated embodiment of my invention the repeating mechanism coacts with the record of the turntable and receives its movement therefrom.

1 designates the turntable, which is supported in any well-known manner; 2 is the disk record thereon. 3 designates the sound conduit or tone arm which swings over the record when being guided by the needle in the groove of the disk and also which is capable of up and down movement about a horizontal axis at the rear end of the tone arm. It will be understood, however, that my invention may be applied to any sound conduit.

4 designates the reproducer having a suitable support or holder 5 for the needle 6.

The means for establishing connection between the swinging sound conduit and the rotary element, as a turntable, or the record mounted thereon, operates to lift the sound conduit, or the portion thereof carrying the reproducer and needle and to support the same on such rotating element, whereby the sound conduit is swung to its starting position by the rotation of the turntable.

As here shown, this means comprises a foot 7 carried by a bracket 8 which is attached to the sound conduit in any suitable manner and operable into and out of engagement with the face of the record. The bracket 8 is here illustrated as attached to the sound conduit or tone arm by clamping pieces 9, 10, which are held on the sound conduit by a clamping screw and nut 11, 12.

The foot is normally spaced apart from the record and is held elevated by a suitable spring 13, the foot being here shown as carried by a leaf 14 hinged to the bracket or being flexible enough to have a hinging movement at one end to the support 8. The foot or the leaf is moved to carry the foot downwardly into engagement with the record, in this embodiment of my invention, by a pressure operated member, here shown as an expansible bulb 15 acting on the upper side of the leaf 14 and connected to means for supplying pressure thereto, as another bulb 16 by a tube 17. The bulb 15 is located in the box-like portion 18 on the bracket 8, which box-like portion is also enclosed by side and end walls or flaps 19, 20, on the leaf 14. The bracket 8 which is struck from sheet metal has upwardly extending flanges which are connected to the clamping pieces 9, 10, screws 21 extending through the slots in the clamping pieces and perforations in the upwardly extending flanges of the bracket. Suitable nuts 22 thread on the screws 21.

By reason of the slots and screws the bracket can be adjusted vertically in order to properly position the foot 7 relatively to the record.

In operation, when the bulb 16 is compressed the bulb 15 is expanded, causing the leaf 14 to move from the position shown in Figure 2 to that shown in Figure 3, in which the foot is pressed against the record, causing the tone arm to be lifted to carry the needle 6 out of engagement with the record and also causing the tone arm to be now supported on the record and as the

record is rotating with the turntable the sound conduit is swung to the left to its starting position. A suitable stop 23 is arranged to limit the movement of the sound conduit in its starting position so that the needle will drop into the beginning of the groove of the record. It is necessary but to give a momentary impulse to the bulb 15 in order to turn the tone arm to its starting position and permit it to move vertically to carry the needle into engagement with the record.

What I claim is:

1. In a repeating mechanism for phonographs, the combination with a turntable element, a record element on the turntable element, a swinging sound conduit including a vertically movable portion, a reproducer and a needle support carried by said portion and shiftable toward and from the record element, of means carried by the conduit and normally out of engagement with one of said elements and shiftable into engagement therewith to lift the vertically movable portion of the sound conduit and carry the needle off the record to hold the needle off the record and to lower the movable portion of the sound conduit to place the needle on the record, and manual means comprising a compressible and extensible operating member for yieldingly controlling the operation of the former means, substantially as and for the purpose described.

2. In a phonograph, the combination of a turntable element, a record element mounted thereon, a swinging sound conduit and a needle support carried thereby and movable toward and from the record element, of means operable to support the sound conduit on one of said elements and lift the needle support to carry the needle out of engagement with the record element, said means comprising a foot carried by the sound conduit and normally overlying and being spaced apart from the element with which it coacts, an expansible member arranged to press against said foot and means for supplying pressure to the expansible member to press the foot against the element with which it coacts to lift the conduit and support the same on such element, substantially as and for the purpose set forth.

In testimony whereof, I have hereunto signed my name, at Syracuse, in the county of Onondaga, and State of New York, this 4th day of November, 1920.

HENRY K. HESS.