W. H. RAWLES.

TALKING MACHINE.

APPLICATION FILED MAY 15, 1913.

1,080,231.

Patented Dec. 2, 1913.

2 SHEETS—SHEET 1.

Fig. 1

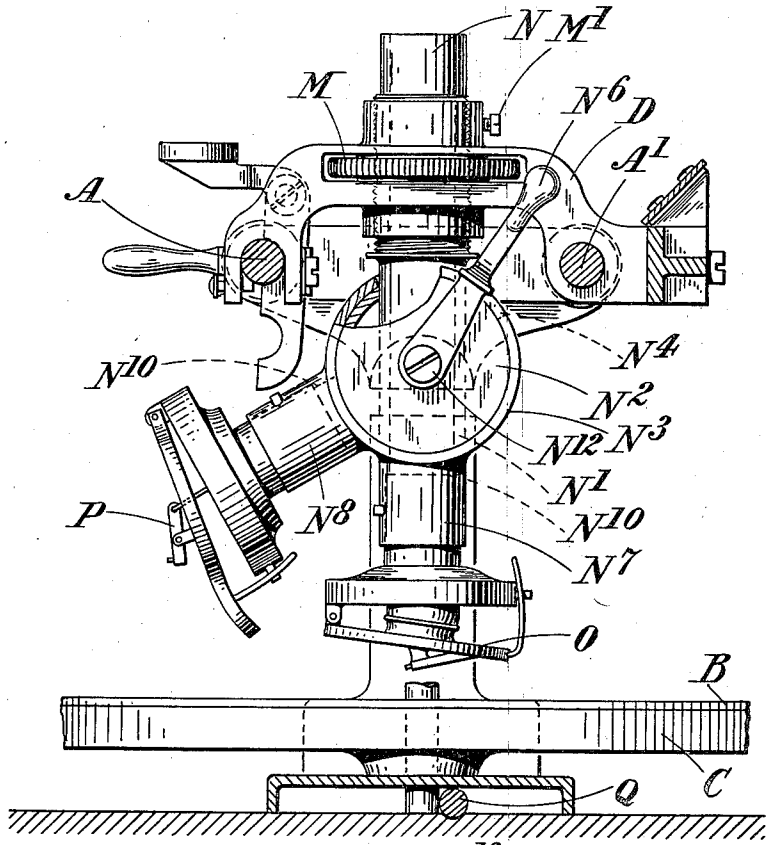
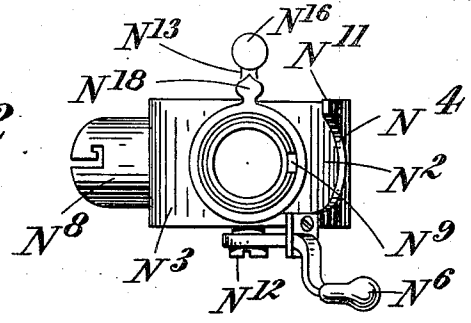


Fig. 2



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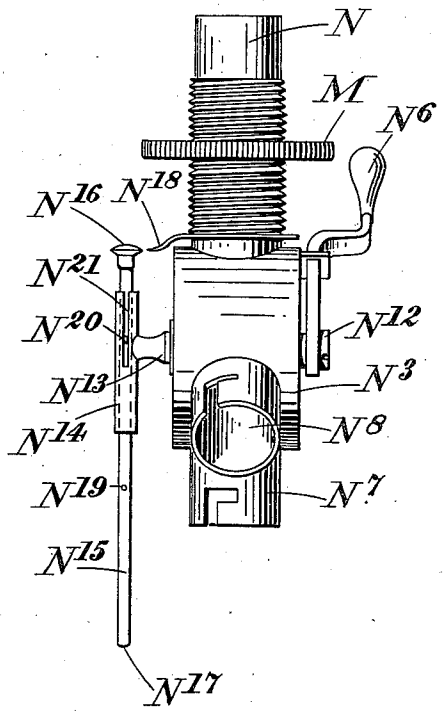
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Fig. 3



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UNITED STATES PATENT OFFICE.

WALTER HANSEN RAWLES, OF LONDON, ENGLAND.

TALKING-MACHINE.

1,080,231. Specification of Letters Patent. Patented Dec. 2, 1913.

Application filed May 15, 1913. Serial No. 767,830.

To all whom it may concern:

Be it known that I, WALTER HANSEN RAWLES, a subject of the King of England, residing at London, England, have invented certain new and useful Improvements in Talking-Machines, of which the following is a specification.

This invention relates to diaphragm carriers for talking machines and the like and is especially intended for use in that class of machine adapted to the immediate reproduction of matter recorded. In particular it is well adapted for use in the machine described in United States Patent No. 1027350.

The invention has for its objects to improve the working of such machine and to facilitate the general process of recording and reproduction.

It is known to provide a diaphragm carrier upon which reproducing and recording diaphragms are mounted upon a pivot at right angles to the plane of the diaphragms in order that either may be swung around into position directly in front of the end of the speaking tube.

The present invention provides in a talking machine a diaphragm carrier comprising a holder for reproducing and recording diaphragms so supported as not only to be capable of being turned about an axis parallel with the planes of the said diaphragms to bring either into operative position upon the record tablet but also to provide a straight unbroken closed-in passage from the speaking tube to whichever diaphragm is in operative position.

The invention also provides for the employment of a fine adjustment for the diaphragm carrier whereby the recording and the reproducing stylus may be adjusted in relation to the recording tablet, and for the amount of adjustment necessary to be automatically indicated.

In the accompanying drawings—Figure 1 is a side elevation of a disk machine upon which a diaphragm carrier according to the present invention is mounted. Fig. 2 is a plan of the diaphragm carrier dismounted from the machine, and Fig. 3 is a corresponding end elevation.

Like letters of reference refer to like parts throughout the drawings.

Referring particularly to Fig. 1 it will be seen that the diaphragm carrier is mounted upon two members A A′ of the machine in order that the recording diaphragm O and the reproducing diaphragm P may be brought into operative position in relation to a record disk B borne upon the table C of the machine. The trumpet or the like of the machine is connected to a speaking tube N which passes down through the member D in a direction perpendicular to the record disk. The member D is slotted to receive a nut M which screws upon the speaking tube N and acts as an adjustment for the position of the diaphragms O and P respectively for recording and reproducing. The speaking tube N is guided by a grub screw M′ passing from the member D and into a slot N^9 running along the length of N. This tube N passes downwardly through and ceases at the periphery of a closed drum N^2 so as to give a smooth unbroken passage. Concentric with the drum N^2 is a sleeve or holder N^3 fitting over it and so slotted at N^4 as to be capable of definitely limited partial rotation in relation to N^2. The slot N^4 is open at N^{11} to permit of wholesale endwise detachment of the sleeve and diaphragms from the drum. A handle N^6 secured to the sleeve, is also screwed through to the drum at N^{12} in such a way as to hold sleeve and drum in proper relation. Diaphragm sockets N^7 N^8 open out of the sleeve N^3 and, suitably formed as with bayonet joints to take the diaphragms, contain short rings N^{10} of such diameter as to maintain the smoothness of the passage through which the sounds pass from or to the diaphragm. It may be here remarked that the word "diaphragm" is intended to apply to the actual mounting for the diaphragm itself together with the stylus and the connecting parts between the stylus and the diaphragm. The diaphragms shown are of well-known construction and need not be further described.

Mounted on the opposite face of the drum N^2 to that on which the handle N^6 is situated, is a bracket N^{13} carrying a tube N^{14} running parallel to the axis of the tube N. A position-indicating rod N^{15} is mounted to slide in this tube N^{14} and is provided with a head N^{16} and with a rounded end N^{17}, which latter is intended to rest upon the record-disk B in order for the rod N^{15} to be positioned by the disk. The diaphragm carrier has a fixed pointer N^{18}, which may be carried by the tube N in any suitable manner, and the head N^{16} is intended to coöperate with this pointer to indicate the extent of adjustment re-

quired to be effected to the diaphragm carrier. The rod N^{15} is of such a length that, when the members A, A′ and D have been brought down into position for one or other of the diaphragms C and P to be in operative position relatively to the disk B, the head N^{16} should be opposite the pointer N^{18}. If, owing, for example to the disk B being a little thin the head N^{16} should be below the pointer N^{18} then in order to position the diaphragm carrier correctly the nut M must be rotated to lower the carrier until the pointer N^{18} and head N^{16} are directly opposite each other. The position of the head N^{16} of the rod N^{15} therefore relatively to the pointer N^{18} indicates the extent of adjustment required to be effected to the diaphragm carrier. The rod N^{15} has a lug N^{19} to prevent its becoming detached from the tube N^{14}, and another lug N^{20} which coöperates with a slot N^{21} in the tube N^{14}. By a slight rotation of the rod N^{15} when the lug N^{20} is above the slot N^{21}, the rod may when desired be held in inoperative position *i. e.* in such a position that its end N^{17} cannot engage the disk B. The slot N^{21} allows of necessary movement of the rod N^{15} in the tube N^{14}. This position-indicating device may of course be applied to diaphragm carriers other than those herein described and illustrated in the drawings.

In use,—if the operator wishes to change over from say, recording to reproducing, the handle N^6 is pushed over so that the diaphragm P now comes into position with the bore of the tube N^8 in register with the end N′ of the tube N where it comes through the drum N^2. It will be seen therefore, that a straight through passage is maintained for whichever diaphragm is in position.

In order to adjust the position of either stylus in relation to the record disk the nut M is merely rotated one way or the other as the case may be and so raises or lowers the speaking tube N, together with the diaphragm carrier. In this way the position of the parts may be very finely adjusted, the amount of adjustment being automatically indicated by the pointer N^{18} and the head N^{16} of the rod N^{15} as above described.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a machine of the character described, the combination of a support for a record tablet, a sound conduit, a recording diaphragm, a reproducing diaphragm, a holder for said diaphragms adjustable toward and from the record tablet support and adapted to turn about a horizontal axis to position either diaphragm across the sound conduit and in direct communication therewith, an arm extending below said holder and adapted by contact with the record tablet to indicate when either diaphragm is in operative position, and a relatively stationary pointer on the holder coöperating with said arm to indicate the amount of vertical adjustment necessary to bring the last mentioned diaphragm into operative relation to the tablet.

2. In a machine of the character described, the combination of a support for a record tablet, a sound conduit, a recording diaphragm, a reproducing diaphragm, a holder for said diaphragms adjustable toward and from the record tablet support and adapted to turn about a horizontal axis to position either diaphragm across the sound conduit and in direct communication therewith, a sleeve supported at the axis of the holder, an arm adjustable through said sleeve to contact with the record tablet, when either diaphragm is positioned across the sound conduit, and a relatively stationary pointer on the diaphragm holder coöperating with said arm to indicate the required amount of vertical adjustment necessary to bring the last mentioned diaphragm into operative relation to the tablet.

3. In a machine of the character described, the combination of a support for a record tablet, a sound conduit, a recording diaphragm, a reproducing diaphragm, a holder for said diaphragms adjustable toward and from the record tablet support and adapted to turn about a horizontal axis to position either diaphragm across the sound conduit and in direct communication therewith, an arm supported at the axis about which the diaphragm holder turns and adjustable to and from the record tablet, and a relatively stationary pointer on the holder coöperating with said arm to indicate the amount of vertical adjustment necessary to position either diaphragm in operative relation to a record tablet.

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

WALTER HANSEN RAWLES.

Witnesses:

CHAS. J. GIBLING,

LESLIE GEORGE EVES.