April 18, 1933. A. M. B. CHARLIN 1,904,408

NEEDLE SECURING DEVICE FOR TALKING MACHINES

Filed May 29, 1930

Fig. 1

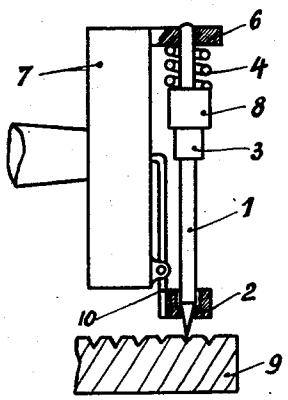
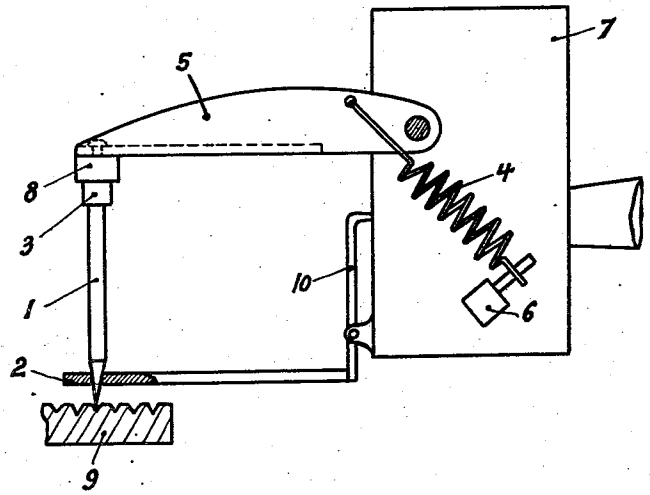



Fig. 2




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Patented Apr. 18, 1933 1,904,408

# UNITED STATES PATENT OFFICE

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## NEEDLE SECURING DEVICE FOR TALKING MACHINES

Application filed May 29, 1930, Serial No. 457,008, and in France August 14, 1929.

The machines used heretofore for playing acoustic records and comprising a needle or the like part the free end of which engages the record groove and the basis of which is connected with the vibrating reproducing parts shows the following serious drawback: the needle enters usually through its basis inside a sleeve inside which it is fastened by a set-screw; the part of the needle between this screw and the free end of the said needle shows a certain yieldingness and consequently the displacement of this pointed end has for its effect to bend the needle while moving the vibratory parts, therefore the displacement of said vibratory part shall be smaller than that of the pointed end and the reproduction shall not be quite an exact one; moreover, the sleeve and the screw have a comparatively great inertia which imperils the accuracy of the reproduction and causes distortion through the greater damping of the higher vibrations than of the lower.

The object of my invention is a device for securing the needle which removes these drawbacks. It consists in that, in order to reduce the inertia, the part securing the needle does not vibrate therewith and that in order to do away with the action of the flexion of the needle, its vibratory displacements are transmitted to the vibrating parts of the sound reproducer through a part connected with it very near its pointed end.

I have described hereinbelow and shown on appended drawing two forms of execution given by way of example of my invention.

Fig. 1 shows diagrammatically and partly in section a device according to my invention;

Fig. 2 shows a modification thereof.

The pointed end of the needle 1 engages an aperture provided in the movable part 2; its basis bears against a yielding stop 3 of rubber for instance. This latter is borne by the non-vibrating part 6 of the sound box or sound reproducer 7; a spring 4 acts by means of a rigid piece 8 on the stop 3 so as to urge the needle through the hole in part 2. This spring may act either directly as shown in Fig. 1 or else as shown in Fig. 2 through the agency of a lever 5. It is thus apparent that the small displacements to which the basis of the needle may be submitted are damped by the stop 3 and are not transmitted to the rigid support 8 provided for this stop; the mass of the said support does therefore not interfere with the vibratory movements and causes consequently no damping.

The aperture provided in the plate 2 may be cylindrical as shown in Fig. 1 or conical as shown in Fig. 2; in all cases its size is such that the needle cannot pass right through it and is stopped therein at a point near the pointed end, said end projecting however by a sufficient length for it to be capable to engage the bottom of the record 9 without the part 2 coming into contact with the record surface. It is apparent that the needle urged forwards by the spring 4, is slightly wedged against the aperture walls whereby its movements become integral with those of part 2 to which it transmits with the greatest accuracy the vibratory movements caused by its passage through the record groove. Part 2 acts through a connection 10 on the vibrating part of the sound reproducer 7.

It should also be well understood that the stylus holder device according to my invention can be used with any type of sound reproducing apparatus, for instance, with a pick-up.

What I claim is:

1. In a stylus holding device of a sound reproducing apparatus including a part to be vibrated, the combination of a member secured to said part and provided with a hole, a rigid stylus having a sharp tapering end and a maximum diameter greater than the inner diameter of said hole, means for applying the tapering end of said stylus against the edge of said hole so that it is wedged therein with its point projecting from said member, and damping means interposed between the last mentioned means and said stylus.

2. In a stylus holding device of a sound reproducing apparatus including a part to be vibrated, the combination of a block secured to said part and provided with a cylindrical hole having a part of restricted section, a rigid cylindrical stylus having a sharp

tapering end adapted to freely engage said hole, means for applying the tapering portion of said stylus against the part of said hole that has a restricted section so that it is wedged therein with its sharp point projecting from said block, and damping means interposed between the last mentioned means and said stylus.

3. In a stylus holding device of a sound reproducing apparatus including a part to be vibrated, the combination of a thin plate secured to said part and provided with a hole, a rigid stylus having a sharp tapering end and a maximum diameter greater than the inner diameter of said hole, means for applying the tapering portion of said stylus against the edge of said hole so that it is wedged therein with its sharp point projecting from said thin plate, and damping means interposed between the last mentioned means and said stylus.

4. In a stylus holding device of a sound reproducing apparatus including a stationary part and a part to be vibrated, the combination of a member secured to said part to be vibrated and provided with a hole, a rigid stylus having a sharp tapering end and a maximum diameter greater than the inner diameter of said hole, a rigid piece operatively connected with said stationary part so as to move in substantially coaxial relation with said stylus, an elastic pad inserted between said piece and said stylus, and a spring having one end operatively connected to said stationary part and the other end operatively connected to said rigid piece for applying the tapering portion of said stylus against said hole so that it is wedged therein with its sharp point projecting from said member.

In testimony whereof have affixed my signature.

ANDRÉ MARIE BERNARD CHARLIN.