April 19, 1932. S. KATSCHER 1,855,058

SOUND BOX GUIDING MECHANISM

Filed May 29, 1930

Fig. 1

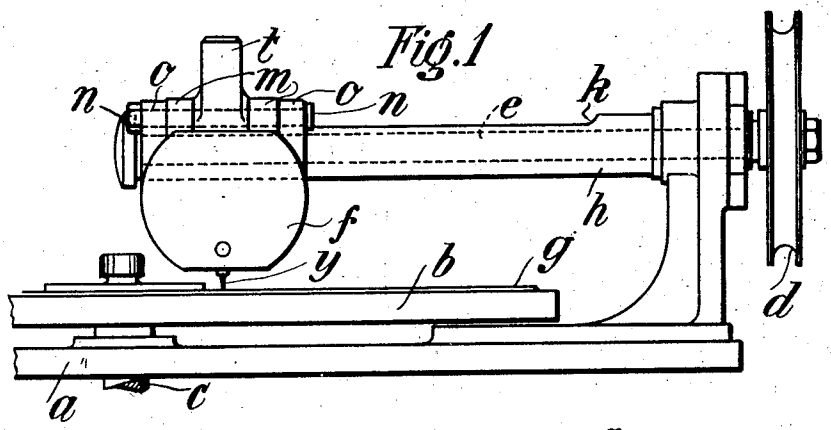


Fig. 2

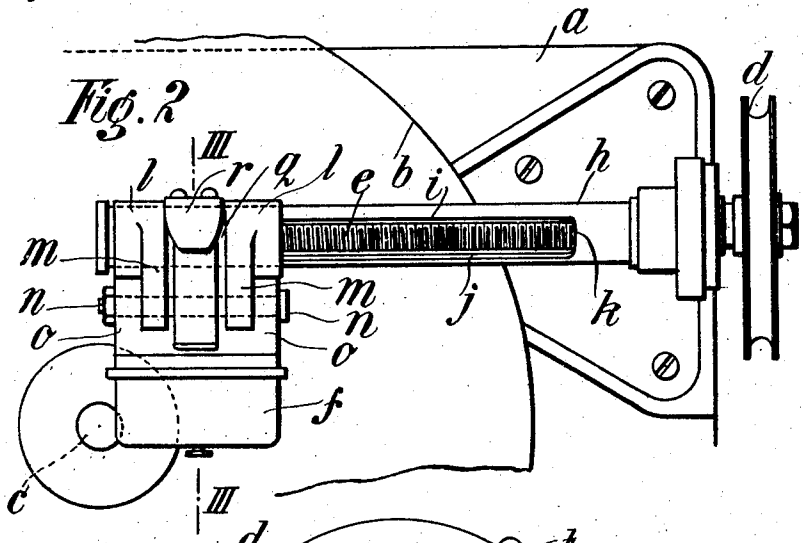
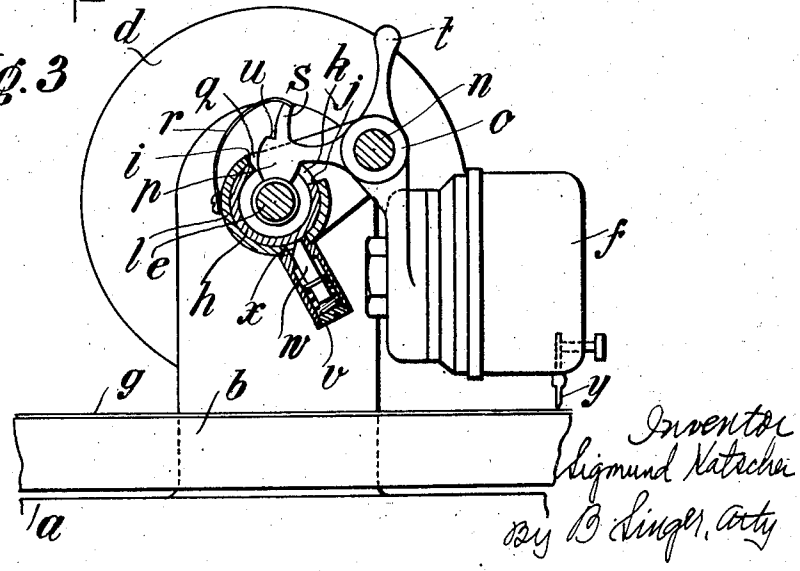


Fig. 3



Inventor
Sigmund Katscher
By B. Singer, Atty

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UNITED STATES PATENT OFFICE

SIGMUND KATSCHER, OF VIENNA, AUSTRIA

SOUND BOX GUIDING MECHANISM

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In the known devices for guiding the sound box when producing a reproduction on a record, the sound box is actuated by a screw spindle having a very fine thread and in order to guide the sound box there are also disposed rods or bars and the like along side of said spindle. All of these parts are supported at both of these ends so as to bring into the construction a large number of bearing points and the assembly operation is thereby considerably increased.

The device of the present application is distinguished substantially from the known devices by the fact that the spindle for actuating the sound box is located within a casing. This casing is constructed as an element projecting freely over the record carrier and it serves as a guide way for the sound box. Other features of the invention deal with the cooperation of the body of the sound box with the actuating device.

The drawings show by way of example one embodiment of the invention.

Figure 1 is a front elevation.

Figure 2 is a top plan view.

Figure 3 is a partial section on line 3—3 of Figure 2.

The box plate *a* on which the entire device is mounted is provided with aperture for the passage of the shaft *c* on which the record carrier *b* is secured, the shaft *c* being actuated by a motor and said motor also driving as for instance by means of a cord the pulley *d* and the threaded spindle *e* for the sound box *f*. The record carrier *b* supports that record blank *g* on which the sound reproducing grooves are to be impressed. The sound box actuating spindle *e* is disposed within a cylindrical casing *h* supported at one end only. The other free end projects over the record carrier and it is provided at its top with a cut out portion or slot *k* having the edges *i* and *j*. Those parts through which the sound box *f* is to be operatively connected with the spindle *e* are intended to project through said slot into the interior of the casing for coupling the spindle with the sound box. A sleeve or bushing *l* is slidably located surrounding the casing *h*. This bushing *l* is longitudinally slidable on the casing *h* having arms *m* for a pivot pin *n* on which the sound box *f* is pivotally secured by means of bearing lugs *o*. The sleeve or bushing *l* and the sound box *f* carried thereby are in releasable connection with the spindle *e* through a coupling element. This coupling element comprises a double armed lever pivoted on the pin *n*. One arm *p* of said lever has a screw thread for engaging the thread of the spindle *e*, said spindle being accessible for the purpose of this engagement owing to the provision of the cut out portion *k*, in the casing *h* and the cut out portion *q* in the bushing *l*. In order to maintain the threaded arm *p* in engagement with the threaded spindle a spring *r* is provided which rests on a projection *s* of the arm *p*. The other arm *t* of the coupling member serves as a handle by means of which the arm *p* may be disengaged from the spindle *e* and may then be automatically retained in disengaged position since the free end of the spring *r* will then enter a notch *u* on the arm *p*.

The bushing *l* is provided with a tubular extension *v* containing a spring controlled slidable pin *w*, the inner end of which has a slanting surface *x*. Upon moving the bushing in a direction to lift the sound box from the record this pin enters the slot *k* of the casing *h* and then engages the edge *i* of said slot.

The operation is as follows: At the beginning of the production of the record the sound box *f* is located above the edge of the record *g* and when the spindle *e* is rotated the sound box travels toward the center, whereby two needles *y* produce a sound groove. In order to return the sound box to starting position or to any intermediate position it is only necessary to press against the handle *t* and thereby lift the arm *p* from the spindle *e*. Owing to the spring *r* entering the notch *u* the arm is held in disengaged position and then the sound box *f* being raised from the record may be shifted along the casing *h* together with the bushing *l*. In order to be able to move the sound box *f* to a position in which the needle *y* may readily be exchanged, the sound box may be rocked forward about the pin *n* and it may then

be turned together with the bushing *l* about the casing *h* until the inner end of the pin *w* enters the slot *k* and then prevent a continuation of this rocking movement of the sound box owing to its engagement with the edge *i*. In the return movement the slanting surface *x* of the pin *w* engages the edge *j* and thereby causes the pin to be moved inward to eliminate any obstacle to the lowering of the sound box against the record.

I claim—

1. In apparatus for guiding the sound box in the production of records, a threaded revoluble spindle, a tubular casing in which said spindle is arranged, a sound box having a bushing which is mounted concentrically on the casing and for pivotal movement thereon to permit raising and lowering of the sound box, a coupling member carried by the sound box and engageable with the threaded spindle, said casing and bushing having openings through which the threaded spindle is exposed and through which said coupling is movable to and out of engagement with the spindle.

2. Apparatus as claimed in claim 1, in which the bushing is provided with a stop element to limit its rotary movement about the spindle casing, said stop element engaging in one terminal position an edge *i* of the casing and said stop element being provided with a slanting surface *x* which upon return movement of the bushing slides over the other edge of the casing.

3. Apparatus as claimed in claim 1, in which the bushing is provided with a stop element to limit its rotary movement about the spindle casing, said stop element engaging in one terminal position an edge of the casing and said stop element being provided with a slanting surface which upon return movement of the bushing slides over the other edge of the casing and also including a spring active to normally engage the stop element with the casing.

In testimony whereof I affix my signature.

SIGMUND KATSCHER.