

No. 780,506.

PATENTED JAN. 24, 1905.

A. KELLER.
SOUND BOX.

APPLICATION FILED JUNE 25, 1904.

Fig. 1.

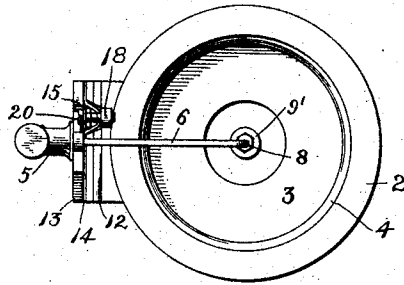


Fig. 2.

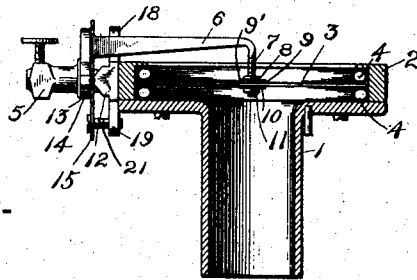


Fig. 4.

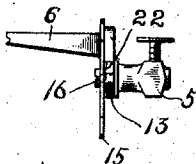


Fig. 5.

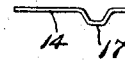
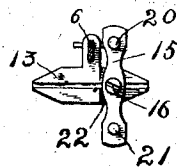


Fig. 3.



Witnesses
Charles R. Reed
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Inventor
Alfred Keller
By his Attorney
[Signature]

UNITED STATES PATENT OFFICE.

ALFRED KELLER, OF ST. CROIX, SWITZERLAND, ASSIGNOR TO LOUIS PHILIPPE MERMOD, GUSTAVE ALFRED MERMOD, AND LEON MARCEL MERMOD, COPARTNERS TRADING UNDER THE NAME OF MERMOD FRÈRES, OF ST. CROIX, SWITZERLAND.

SOUND-BOX.

SPECIFICATION forming part of Letters Patent No. 780,506, dated January 24, 1905.

Application filed June 25, 1904. Serial No. 214,095.

To all whom it may concern:

Be it known that I, ALFRED KELLER, a citizen of Germany, residing at St. Croix, Canton of Vaud, Switzerland, have invented certain new and useful Improvements in Sound-Boxes, of which the following is a full, clear, and exact description.

My invention relates to improvements in sound recording and reproducing devices, and particularly to what is generally termed a "sound-box."

The object of the invention is to provide a new and improved means for mounting the transmitting-arm.

The invention consists in an instrument embodying the principles illustrated in the accompanying single sheet of drawings.

Figure 1 is a plan view of those portions of an instrument which are necessary to illustrate the improvements of my invention. Fig. 2 is a side elevation of the same, but showing the casing in section. Fig. 3 is a detail view showing the construction of the support for the transmitting member. Fig. 4 is a detail side elevation of a portion of the transmitting member. Fig. 5 is a detail view showing the pivot for transmitting member.

1 is the main body of the casing. 2 is an annular ring secured thereto.

3 is a diaphragm formed of suitable material—for instance, mica.

4 4 are small rubber tubes constituting yielding means for supporting the diaphragm around its circumference.

5 is the main body of the transmitting member, which is adapted to carry a stylus of suitable construction.

6 is the arm of the transmitting member.

7 is a post integral with the arm, which extends in the direction of the axis of the casing. This is provided with screw-threads.

8 is a nut on the post 7.

9 and 10 are washers, one on each side of the diaphragm, and 11 is a locking-nut on the inside of the casing. By this means the transmitting member may be securely fastened to the diaphragm and may be adjusted by means

of the nuts 8 and 11 to obtain any degree of tension on the diaphragm or any position of the arm which may be desired. These washers are formed of thin but very tough paper, which afford a sufficiently yielding seat for the nuts, but which efficiently support the diaphragm and close the opening through which the post 7 extends. The upper washer 9 is preferably reinforced on its upper side by a very thin metal washer 9', which protects the paper washer. The lower washer, however, being situated inside the casing, does not require this reinforcement.

12 is a block formed as a part of the casing and having its edge grooved at right angles to the transmitting-arm 6.

13 is a block corresponding to 12, but formed as a part of the transmitting device. The face adjacent the block 12 is grooved.

14 is a wire forming a roller-bearing, which rests in the grooves in the adjacent faces of the blocks 12 and 13. This supports a pivotal support for the transmitting device which is practically frictionless and which confines the movement of the transmitting-arm to a direction at right angles to the diaphragm.

15 is a double-arm spring, which is secured to the transmitting device by means of a screw 16. The wire bearing 14 affords a bearing at both sides of the spring 15, and for this purpose I have formed the wire particularly as shown in Fig. 5.

17 indicates an offset bend to allow for the position of the spring 15 and screw 16.

18 and 19 are two lugs carried by the casing and integral with the block 12.

20 and 21 are screws which pass through the spring 15 and take into tapped holes in the lugs 18 and 19. By means of these screws the transmitting device is secured to the casing. The tension on the diaphragm 3 up or down may be varied by adjusting the screws 20 and 21. The spring 15 affords a yielding support, which distributes the strain on the transmitting device evenly, so as to permit the diaphragm to vibrate up and down. To increase the sensitiveness, I have cut away or

beveled off the edges of the bearing-block 13 of the transmitting member immediately each side of the support for the spring 15. This is shown particularly in Figs. 3 and 4. 22 indicates the cut-away portion. Vibrations are transmitted to and from the diaphragm without alteration.

While these improvements in the method of mounting the transmitting member are in the direction of simplicity, their advantages will be well understood by those skilled in the art. The diaphragm may be removed and replaced by any one, while the arm may be adjusted as desired.

15 What I claim is—

1. In a sound-box, the combination of a casing having a long grooved bearing-block, a transmitting member having a corresponding long grooved bearing-block and a continuous 20 wire bearing for pivotally supporting said transmitting member along said bearings.

2. In a sound-box, the combination of a casing, a bearing carried thereby, a transmitting member having a corresponding bearing, a 25 spring carried by said transmitting member and extending above and below said bearings, lugs carried by said casing and adjusting-screws coacting between the ends of said

spring and said lugs one on each side of the bearings. 30

3. In a sound-box, the combination of a casing, a transmitting member, a spring attached thereto, adjusting-screws coacting with the ends of said spring, and a wire forming a long bearing for said member on each side of said 35 spring.

4. In a sound-box, the combination of a casing, a transmitting member, a spring, a screw for attaching said spring to said member, a wire forming bearings for said member said 40 wire being bent to offset the head of said screw, and means for attaching said spring to said casing.

5. In a sound-box, the combination of a casing, a diaphragm, a transmitting member, and 45 a long roller-bearing for supporting said member on said casing, and means for holding said transmitting member in position independently of said bearing.

Signed at Geneva, Switzerland, this 9th day 50 of June, 1904.

ALFRED KELLER.

Witnesses:

HORACE LEE WASHINGTON,
L. H. MUNIER.