Oct. 9, 1956 T. LINK 2,765,693

ASSEMBLY FOR VIBRATORY REEDS

Filed May 23, 1952

Fig. 1

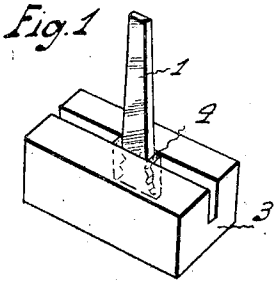



Fig. 2

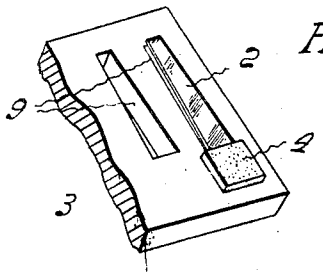



Fig. 3

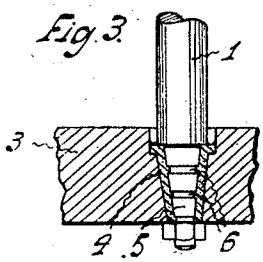



Fig. 5.

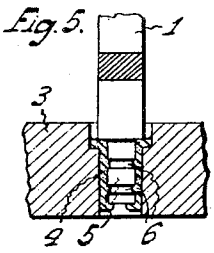



Fig. 4.

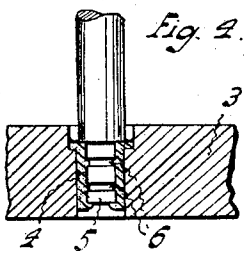



Fig. 6.

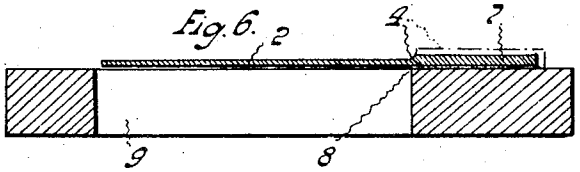



Fig. 7

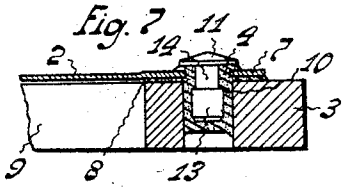



Fig. 8.

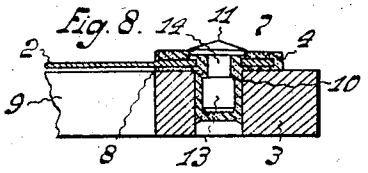



Fig. 10.

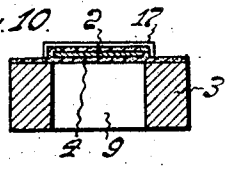



Fig. 9.

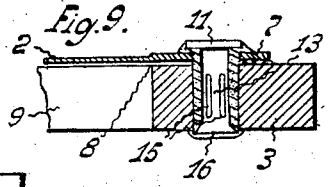
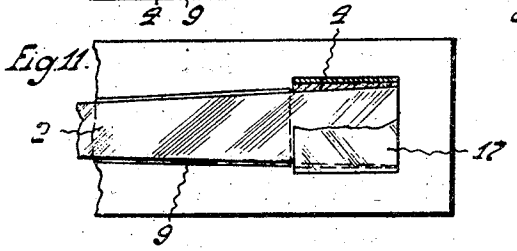



Fig. 11.




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# ASSEMBLY FOR VIBRATORY REEDS

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Claims priority, application Switzerland May 24, 1951

12 Claims. (Cl. 84—360)

This invention relates to the attachment of vibrating rods and reeds, for producing normal musical notes, which reeds are secured at one end to carriers.

The problem on which the invention is based is that of fastening rods and reeds at their attached end simply and in such a manner that they are in full contact with their seat at all points.

For carrying known methods of attachment into effect, fitting operations which must be performed very accurately, are necessary in order to ensure that the seat on the carrier will be firm and will surround and be in full contact with the support point or anchoring point of the vibrating rod at its attached end, and in the case of musical reeds, to connect the foot of the reed to the sound plate in such a manner that the bearing surface of the foot bears evenly and firmly against the plate. A firm and full support of this kind is an absolutely essential requirement, on which the quality of the oscillation producing means primarily depends. Furthermore, such methods of attaching these oscillation producing means to their carriers as are normally used more especially in mass production, i. e. attachment by means of rivets, screws, caulking, soldering and welding, cause disadvantageous changes of shape at the attachment points and bring about disadvantageous uneven stress distributions at the connection points.

The problem is solved according to the invention by the fact that the attachment end of the rods and reeds is connected to their carrier by means of an intermediate layer of hardenable synthetic substance having adhesive characteristics.

Normal mechanical means of attachment may also be used in addition, but these mechanical means will primarily be used merely for trueing the position of the oscillating rods and reeds. A further advantage is achieved in that the ends of the rods and reeds are pressed into the intermediate layer of synthetic substance which is yielding before it hardens, and full contact and connection at the attachment point is readily obtained.

The fitting operations are thus dispensed with by reason of the fact that at the connection point the intermediate layer of synthetic substance fills up any hollow spaces which may exist between the surfaces resting one upon the other and effecting attachment. Moreover when the amplitude of vibration of the rod or reed changes, the vibrating length thereof, and therefore the frequency, remain constant in the case of an attachment according to the invention.

The hardenable layer of synthetic substance may also extend over the upper side of the reed foot used for attachment, and thus reinforce this foot. In that case the edge of the layer of synthetic substance adjacent to the slot in the reed plate, and the corresponding edge of the intermediate layer, must lie exactly above the edge of the end of the slot in the reed plate adjacent to the foot of the reed.

If mechanical attachment means are used, they no longer need to be adapted to fit in exactly, since the space



between them and the wall of the bore is filled with hardening synthetic substance, the attachment means being anchored by depressions, of any suitable form and in any suitable position, which are provided in the peripheral surface of the attachment means and into which the synthetic substance penetrates.

A further advantage consists in the fact that the part of rods which engages in the carrier may be of cylindrical shape, which from the point of view of manufacture is more advantageous than a conical form.

Several embodiments of the invention, chosen by way of example, are illustrated in the accompanying drawings, in which:

Figures 1 and 2 are perspective drawings of a rod and a tongue attached according to the invention,

Figures 3 and 4 respectively are perspective drawings of a rod with a conical and with a cylindrical attachment end, the carrier being shown in section along the axis of the rod,

Figure 5 is a similar drawing showing a rod of rectangular cross section,

Figure 6 is a vertical longitudinal section through a reed plate and a reed without additional mechanical attachment means,

Figures 7 and 8 are similar sections, with additional attachment of the reed by mechanical attachment means, in two forms of construction,

Figure 9 is another form of construction of an additional mechanical attachment means, and

Figures 10 and 11 respectively show in vertical cross section and in plan the attachment of a reed by means of a yoke used as reinforcement means, and reinforcement of the foot of the reed.

According to the invention, an intermediate layer of hardenable synthetic substance 4 having adhesive characteristics is used for connecting rods 1 and reeds 2 to their carriers 3.

Foot portions or ends 5 of the rods 1 which are to be secured in the carrier 3 are made of considerably smaller width than that of the main part of the rod, which end 5 is let into the carrier for a short distance (Figures 3 to 5). The end 5 of the rod is of considerably smaller diameter than the bore or opening in the carrier 3, in which the end 5 of the rod is secured. The hardening synthetic substance 4 used as means for connecting the rod 1 to the carrier 3 is introduced into the space existing between the end 5 of the rod and the wall defining said bore.

A particularly good connection is produced if in the peripheral surface of the rod end 5 depressions 6 are provided into which the synthetic substance penetrates, thereby anchoring the rod 1. In Figures 3 to 5 the depressions consist of grooves running all round.

Figure 3 shows a rod 1 having a conical end 5; the end 5 of the rod 1 in Figure 4 is of rectangular cross section, and that of the rod 1 in Figure 5 is cylindrical.

Furthermore, the rods 1 in Figures 3 and 4 are cylindrical, whereas the rods 1 of Figures 1 and 5 are of rectangular cross section.

The hardenable synthetic substance 4 having adhesive characteristics is also used for connecting the reeds 2 to their reed plates 3 serving as carriers.

The connection may consist in the fact that a layer of the synthetic substance 4 is applied to the reed plate 3 over such an area that the whole foot 7 of the reed rests on this substance (Figure 6). The substance thus extends up to the boundary edge 8 of the slot 9 in the reed plate 3.

The synthetic substance 4 may also completely cover the foot 7 of the reed (as shown in Figures 2 and 8, and in dot-dash lines in Figure 6).

In addition, a mechanical connection means 10 may then also be used. In the embodiment shown in Figures

7 and 8 the connection means 10 consists of a bolt having a head 11. The shank 13 of this bolt engages in the reed plate 3 and is of smaller diameter than the bore in the reed plate 3 which accommodates it. The intermediate space between the shank 13 of the bolt 10 and the wall of the bore is filled, as in the rod connection shown in Figures 3 and 5, with hardenable synthetic substance 4 which is integral with the intermediate layer of synthetic substance between the reed foot 7 and the reed plate 3.

When a mechanical connection means 10 is employed also, the reed foot 7 can have its upper surface covered over, i. e. it may be surrounded on all sides (Figure 8), by the synthetic substance 4. In that case the synthetic substance 4 and the intermediate layer both end above the boundary edge 8 of the reed plate slot 9.

Satisfactory anchoring of the bolt 10 is achieved if the shank 13 thereof is provided on its peripheral surface with depressions 14 into which the synthetic substance enters. Figures 7 and 8 show a depression 14 in the form of a recess made by turning.

In Figure 9, also, as an additional connection means a bolt is provided, which at the end 16 remote from the head 11 widens and is in contact with the edge of the bore in the reed plate and presses the layer of synthetic substance 4, when this substance is in the soft state against the wall of the reed plaet bore and into longitudinal recesses or grooves 15 in the shank 13, which in this case act as anchoring means.

Figures 10 and 11 show embodiments in which the mechanical attachment means consist of a yoke 17 which engages over the attached end of the reed 2 and seals off the layer of synthetic substance. In this embodiment the attached end of the reed 2 is of the same width as the vibrating part of the reed. Alternatively, this yoke may cover only a part of the attached end of the reed.

Since certain modifications may be made in the device of the present invention without departing from the general scope thereof, it is intended that all matter contained in the foregoing description and shown in the accompanying drawing be interpreted merely as illustrative and not in a limiting sense.

Having thus described the invention what is claimed as new and desired to be obtained by Letters Patent, is:

1. An assembly for a vibratory reed comprising a carrier, a substantially flat elongated reed provided with a foot portion, and layer means of hardenable, adhesive, synthetic material interposed between said foot portion and said carrier and solely anchoring said foot portion to the latter, thereby completely spacing said reed from said carrier, whereby fixation of said reed on said carrier is brought about without the need of mechanical fastening means abutting against said reed.

2. An assembly according to claim 1, wherein said foot portion of said reed is completely imbedded in said layer means.

3. An assembly according to claim 1, including fastening means seated in said layer means and spaced from said foot portion to thereby enhance anchorage of the latter on said carrier.

4. An assembly according to claim 3, said fastening means comprising an element provided with a shank and at least one enlarged head end, said shank being surrounded by said synthetic material, said head end extending without said material.



5. An assembly according to claim 4, wherein said carrier is provided with a bore for the reception of said shank, said shank having a diameter considerably smaller than that of said bore, the space between said shank and said bore being completely filled with said layer means.

6. An assembly according to claim 4, said element including another enlarged head end extending outside said bore and disposed opposite said one enlarged head end and in contact with a respective portion of said carrier adjacent said bore.

7. An assembly according to claim 4, wherein said shank is provided with at least one recess for the reception of said layer of synthetic material to thereby securely anchor said element in said synthetic material upon hardening of the latter.

8. An assembly for a vibratory reed comprising a carrier, a substantially flat elongated reed provided with a foot portion, layer means of hardenable, adhesive, synthetic material interposed between said foot portion and said carrier and spacing the remainder of said reed from said carrier, whereby said reed is anchored on said carrier for vibratory movements, and fastening means supported by said layer means and retained by the latter on said carrier, said fastening means comprising a yoke above said layer means and traversing said foot portion with sufficient space for accommodating in the latter a portion of said layer means.

9. An assembly for a vibratory reed comprising a carrier plate provided with a sounding slot terminating in a boundary edge, a reed provided with a foot portion for attachment to said plate, and layer means of hardenable, adhesive, synthetic material completely surrounding and connecting said foot portion with said plate, said layer means extending to said boundary edge of said sounding slot.

10. An assembly according to claim 9, including fastening means seated in said layer means and spaced from said foot portion to align the latter with respect to said plate.

11. An assembly for a vibratory reed according to claim 10, said fastening means comprising an element provided with a shank and at least one enlarged head end, said plate being provided with a bore for the reception of said shank, said shank having a diameter considerably smaller than that of said bore, the space between said shank and said bore being completely filled with said layer means.

12. An assembly for a vibratory reed according to claim 11, said element including a second enlarged head end extending outside said bore and disposed opposite said one enlarged head end and in contact with a respective portion of said plate adjacent said bore and remote from said foot portion of said reed.

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