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DEVICE FOR USE WITH MUSICAL INSTRUMENTS

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Fig.1.

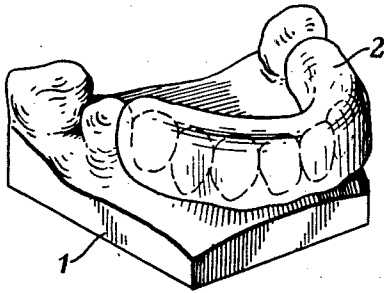


Fig.2.

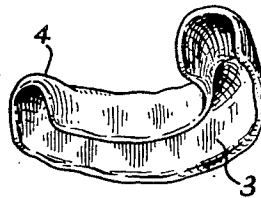


Fig.3.

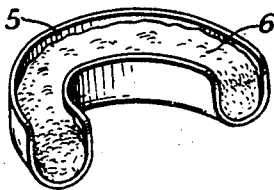


Fig.4.

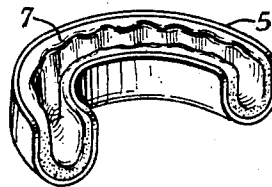
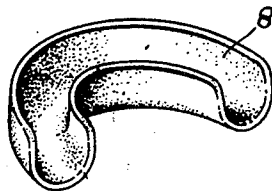


Fig.5.



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DEVICE FOR USE WITH MUSICAL INSTRUMENTS

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4 Claims. (Cl. 128—136)

This invention relates to a device which is designed to be used by the players of musical wind instruments.

When playing a wind instrument of the reed type, such as the clarinet, saxophone or the like, the player has to exert pressure against the underside of the reed by means of his lower lip. When doing this the lip is drawn inwardly over the teeth and is thus gripped between the reed of the instrument and the lower teeth of the player.

In the case, at least, of the clarinet it is found that pressure has to be exerted on the reed, if a good tone is to be obtained, and that the resultant pressure between the player's lip and his teeth is uncomfortable and often painful, while it may even result in injury to the lip. It is for this reason that players are generally unable to produce the best musical tone until after they have been playing for a considerable number of years and until their lower lips have become sufficiently hardened to withstand the pressure of the teeth without undue discomfort. Players whose lower teeth are particularly sharp or uneven are especially handicapped in this way, and they may even be compelled to curtail or stop practising because of the pain suffered.

It has now been found that the above difficulties can be largely overcome by providing a device which is fitted on the teeth of the player, where the teeth would normally be engaged on the lip. It is, accordingly, an object of the present invention to provide such a device.

A further object of the invention is the provision of advantageous methods of producing the said device.

The device of the invention is capable of being used in conjunction with other types of wind instruments besides the clarinet, including double-reeded instruments and brass instruments, in which case a device could be provided for the fitting to the upper teeth as well as or instead of to the lower teeth.

It will be appreciated that the teeth of different people are differently formed and spaced, while for best results the device of the invention should fit the teeth fairly accurately. It is, accordingly, a further object of this invention to provide improved methods of producing the said device by means of which the device can be constructed so as accurately to fit the teeth of the intended user.

Still another object of the invention is the provision of apparatus and materials with which the user, or some other unskilled person, may be able to produce the device of the invention in a form which will accurately fit the teeth.

The invention in its various aspects will now be described in greater detail, with reference to the accompanying drawing. In the drawing:

Figure 1 is a perspective view showing a stage in the construction of one form of device exemplifying the invention.

Figure 2 is a perspective view from below showing the finished device;

Figure 3 is a perspective view from above showing a stage in the construction, by another method, of a device exemplifying the invention;

Figure 4 is a view similar to Figure 3 but showing a further stage in the construction of the device;

Figure 5 is a perspective view from above showing a modified form of device which is intended to be finally shaped on the teeth of the user.

According to one method of carrying out the invention, which will be described with reference to Figures 1

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and 2, the device is constructed using a model 1 of the user's lower jaw (or at least the front part thereof), which model may be produced in a similar manner to the models which are used for the construction of dentures.

Thus an impression, preferably of the whole lower jaw, may be taken in a hydrocolloid material of the alginate type, which is then fixed in an alum solution and washed in cold water in known manner. Using this impression the required model is then cast in artificial stone or plaster of paris.

After the model 1 has hardened the area extending approximately from the first left pre-molar to the first right pre-molar is coated with a layer of cold mould seal (or a collodion solution) after which a sheet of modelling wax 2 is moulded over the coated teeth. The thickness of the wax should correspond approximately to the required thickness of the finished device. The wax is shaped and trimmed so as to embrace the whole of the incisal edges and to extend down the teeth both labially and lingually. The wax should preferably cover the teeth for not less than half the length of the latter.

The wax impression thus obtained is then reproduced to obtain the device of the invention, which is shown at 3 in Figure 2, using an acrylic resin (or other material) by a method analogous to that used for producing an ordinary acrylic or other equivalent denture. The surface of the device 3 is highly polished.

It is preferred to use a transparent methyl methacrylate resin for producing the device 3, since this will be inconspicuous in use, but if desired the resin may be coloured, preferably to the colour of the user's teeth, while suitable materials of other kinds may be used. In this connection it may be noted that acrylic resins are generally thermosetting, but in certain cases it might be desired to use a thermo-plastic material.

The device produced in the above manner will accurately fit over the lower teeth of the intended user and it is easily fitted in position before playing. Owing to the fact that the upper surface 4 of the device is smooth, in the sense that it is less sharp and more regular than the user's teeth (the device will normally be produced with a smooth and rounded upper surface as shown) the lower lip of the player of a clarinet or like instrument can be pressed firmly against the device without discomfort or risk of injury to the lip. It has been found that, as a result, players having relatively little experience can obtain a greatly improved tone, which they might not otherwise have been able to achieve without many years' additional experience, if at all.

The method of producing the device which has been described involves a number of steps and requires the employment of a dentist or other expert. It is, however, possible to simplify the procedure considerably by omitting the plaster model. According to one method, a sheet of modelling wax is moulded on the actual teeth of the user, in a manner analogous to that which has been described with reference to Figure 1 for moulding on the model, and this wax impression is then reproduced in the resin material to produce the device 3.

In carrying out this method it is preferred to take a sheet of modelling wax of a thickness corresponding to the desired thickness of the finished device and, after softening it by warming, to press it over the lower teeth of the user and to mould it to the shape of the teeth. The front and back edges of the wax may be trimmed approximately to the desired line while in the mouth. After the wax has been hardened by rinsing with cold water the wax impression is removed. The edges of the impression are then finally trimmed while its outer surface may, if necessary, be smoothed, by means, for example, of a warm knife.

It will be appreciated that a wax impression could be produced in the above manner by the user himself, although for best results the employment of a dentist or other expert would be preferable.

According to yet another method of producing the device of the invention, which will be described with reference to Figures 3 and 4 of the drawing, a casing 5 which may be made of a thin malleable metal or metal foil, or of other suitable material, is provided, which is shaped to fit over the lower teeth of an average mouth.

Such a casing may, if desired, be fitted by the user himself. If necessary the casing 5 may be bent to bring it into the best shape to fit over the teeth.

The casing is then removed from the teeth and filled with softened wax or like material 6, after which it is replaced and pressed on to the teeth so that the latter penetrates into the wax. The wax is then caused or allowed to harden, after which the casing 5 with its wax filling (shown at 7 in Figure 4) are removed from the teeth.

The casing 5 may be removed from the shaped wax filling 7, for example by first warming the casing, after which the outer surfaces of the filling may be smoothed and shaped if required. This filling is then used to produce the finished device by the method which has been described with reference to Figures 1 and 2.

Alternatively, if the outer surface of the casing 5 is smooth and of the required shape the complete assembly of the casing 5 and filling 7 may be used for forming the device without first removing the casing from the filling.

According to yet another method of carrying out the invention a number of the actual devices may be provided in a range of sizes and shapes designed, as far as possible, to fit a wide range of jaw and tooth formations. These devices may be made of an acrylic resin or other suitable material.

While it might, in certain cases, be possible to fit such a device directly onto the teeth of the user and for the latter to use it in this manner, particularly if the device is made of a resilient or slightly flexible material, it will be appreciated that a perfect fit is hardly likely to be obtained in this manner.

It is preferred, therefore, to provide for use with a device of the above kind a hardening paste or other suitable substance which is inserted into the device, after which the latter is pressed on to the teeth of the user. This causes the paste to surround the teeth closely, any excess being squeezed out between the teeth and the edges of the device and being subsequently removed. The paste is then allowed or caused to harden, after which the device containing the hardened paste is removed. The edges and outer surface generally may be shaped or polished if necessary. Such a device will clearly fit the teeth of the user accurately.

The above method of proceeding is analogous to that which has been described with reference to Figures 3 and 4, the preliminary-shaped device which is provided taking the place of the casing 5 and the paste replacing the wax 6. In the present instance, of course, the device containing the shaped paste (see Figure 4) is the finished article which is intended to be worn by the user and not to be used for the production of a further device, although it could of course be used in this way if required.

Any suitable hardening paste may be used, but it is convenient to make use of a self-hardening dental impression paste. A particularly suitable paste is formed by a composition containing zinc oxide, finely ground resin, Canada balsam, balsam of Peru and oil of cloves.

It will be appreciated that this method of production could be employed by the user himself without the aid of a dentist or other expert.

Instead of using the article produced by the method last described as the finished device the said article could

be used in the manner of a wax model or impression to produce a final device made wholly of a resin or other desired material.

According to another method or carrying out the invention, the device may be supplied in a partly formed state, as shown at 8 in Figure 5. This device is shaped so as to fit over the teeth of an average person and is made of a thermo-plastic or other mouldable substance. It is intended that the device should be softened, for example by warming, and that it should then be fitted over the teeth of the user and moulded by the latter to fit his teeth. The device is then allowed or caused to harden, for example by rinsing the mouth with cold water, and is removed. If necessary, the edges may be finally trimmed and the surfaces smoothed, using for example a heated knife.

Similar devices to those which have been described could also be provided for fitting to the upper teeth, for use by players of double-reeded instruments, such as the oboe, and by players of brass instruments, such as trumpets and the like. The use of such devices on both the upper and lower teeth might be of considerable assistance to the player of such instruments, it being noted that with many brass instruments considerable lip pressure is necessary to reach the high notes. Although with the latter kind of instruments the pressure is exerted more against the front of the teeth than against the incisal edges thereof, nevertheless, the use of the devices of the invention is often of advantage, particularly since many people have somewhat irregular teeth the side edges of some of which are exposed, while in any case, the devices provide smooth unbroken surfaces against which the lips are pressed.

I claim:

1. A device for use by the player of a wind instrument comprising a substantially stiff and non-pliable member adapted to be fitted over the cutting edges and labial and lingual surfaces of the front teeth and engaged by the lip of the player when said lip is pressed against the instrument by the pressure of the teeth, said member comprising inner and outer portions adapted to engage the lingual and labial surfaces of the teeth respectively so as to retain the device in position and an intermediate portion joining said inner and outer portions and adapted to cover the incisal edges of the teeth, said portions providing a smooth, outwardly rounded and unbroken surface for contact with the lip.
2. A device as claimed in claim 1, wherein the member is made of an acrylic resin.
3. A device as claimed in claim 1, wherein the member is made of a thermo-plastic material.
4. A device as claimed in claim 1, wherein the member is made of a softenable material which can be moulded to shape in the mouth of the user and subsequently hardened.

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