June 18, 1940. C. MICHALEK 2,204,766

PAD FOR WIND INSTRUMENT KEYS

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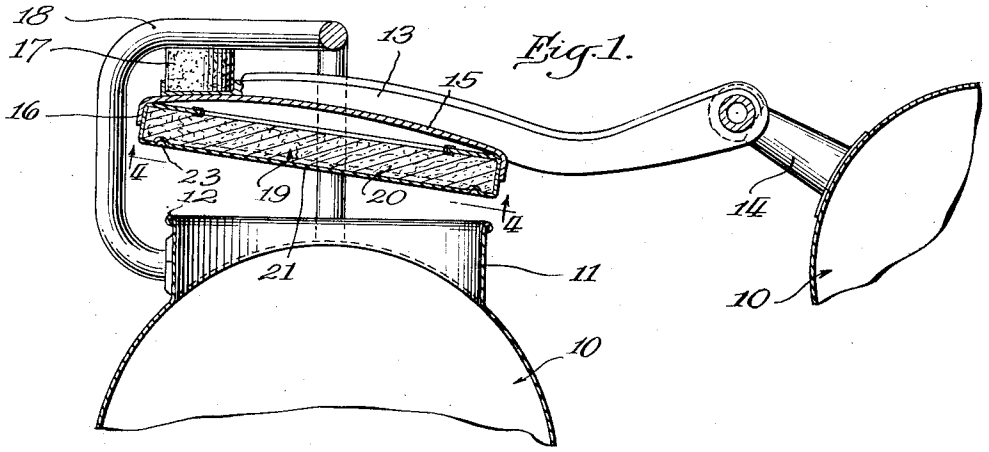


Fig. 1.

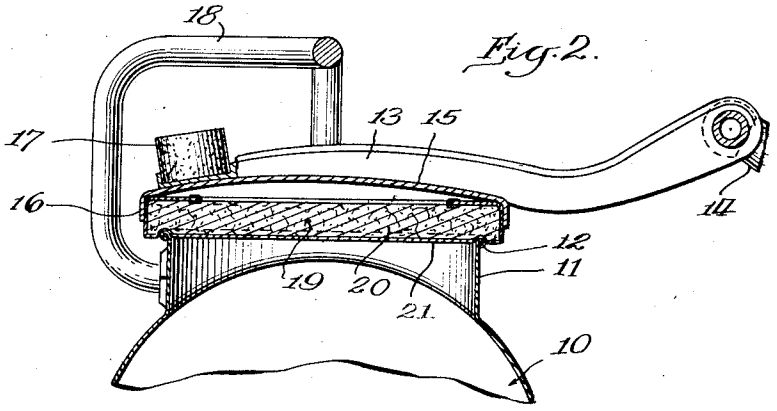


Fig. 2.

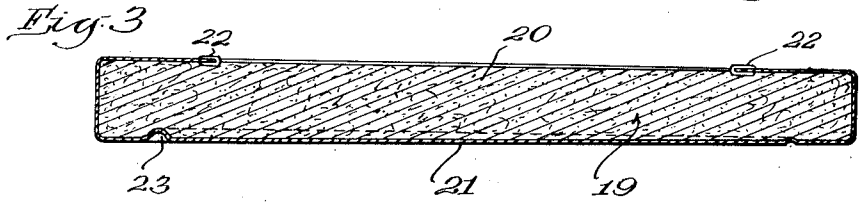


Fig. 3

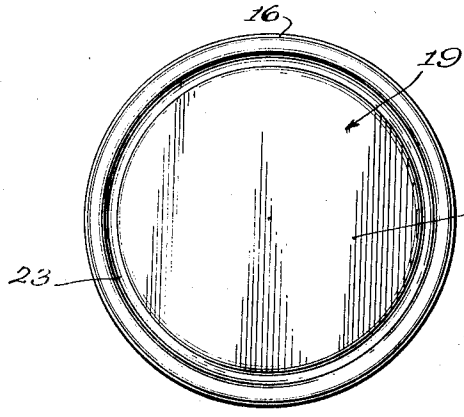


Fig. 4.

Inventor:
Carl Michalek
By Williams, Bradbury,
McCabe & Hinkle.
Attys.

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PAD FOR WIND INSTRUMENT KEYS

Carl Michalek, Riverside, Ill.

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4 Claims. (Cl. 84—385)

This invention relates to pads for wind instrument keys and to a method of installing said pads in the keys.

One of the objects of the invention is to provide a pad which, when installed in an instrument key, will cooperate much more accurately than heretofore with the socket which it normally closes.

A further object of the invention is to provide an improved pad which, when installed, requires no compressive force and no key movement after it contacts the socket, in order to complete the closure of the socket.

Other objects, advantages, and capabilities of the invention will appear from the following description of a preferred embodiment thereof, taken in conjunction with the accompanying drawing, in which:

Figure 1 is a fragmentary section through a saxophone socket and associated key, the key being in open position;

Fig. 2 is a similar view showing the key closed.

Fig. 3 is an enlarged view of a pad embodying my invention, and

Fig. 4 is a plan view thereof.

Referring to the drawing, the reference numeral 10 designates portions of a horn of a saxophone, one of which is provided with a socket 11. The socket 11 is normally of cylindrical form and is provided with an outer rolled or beaded edge 12. A key 13 is pivotally mounted on a bracket 14 carried by the horn 10. The key is provided with a flanged disc 15 which is adapted to overlap the socket 11. The disc 15 is somewhat concave in form as viewed from the socket, and it is provided with a marginal rim 16 of circular or cylindrical formation.

The key 13 is normally biased by means (not shown) away from the socket 11. It may suitably be provided with an abutment 17 of felt or other suitable deadening material which is adapted to engage a stop member 18, as shown in Fig. 1. The instrument, of course, comprises manual means (not shown) whereby the key may be moved from the position shown in Fig. 1 to the position shown in Fig. 2, in which the socket 11 is closed by the key. This closure is normally effected by means of a pad 19 which is mounted within the flanged disc 15, as shown in Figs. 1 and 2.

These pads are normally made of a piece of felt 20 to which is secured a cover 21 of kidskin or other soft sealing material. The cover 21 is suitably in the form of a disc of such leather or material, the edges of which are bent around the periphery of the disc of felt 20, the marginal portion of the disc of leather 21 being located on the back of the disc 20 and around the edge thereof. The elements 20 and 21 are suitably secured together by stitching 22 or by other suitable means.

In the pads heretofore used both the elements 20 and 21 were of soft material and, consequently, they were to some extent irregular in shape. When the player closed the key, part of the pad would strike the socket 11 first and then the player's finger would have to move the key still further to complete the closure of the socket 11. According to the present invention I permanently form the pad 19 so that it conforms precisely with the rim of the socket 11. Consequently, the socket 11 is closed completely around its whole periphery immediately any contact is made between the pad 19 and the socket 11. To obtain this instantaneous closing I form the pad 19 into the exact shape of the socket 11 by direct contact with the socket at a time when the pad 19 is formable. I maintain this contact until the pad 19 solidifies and becomes set.

It will be understood that I may make the pad 19 of any suitable formable material which is capable of drying or cooling into a relatively rigid state. I prefer, however, to proceed in the following manner. I take a pad 19 comprising a piece of felt 20 and a disc 21 of kidskin, for example. I impregnate the felt 20 with shellac. I have found three-pound cut shellac to be suitable; that is, shellac formed from one gallon of alcohol and three pounds of flaked shellac. The felt base 20 is preferably impregnated before the kidskin disc 21 is applied to it, although the impregnation of the base may be done after the pad has been assembled. It is preferred to allow the impregnant to dry out.

To install the pad I heat the dried shellacked pad to a temperature of 200 degrees F., to force it into the flange of the disc 15 which is also heated, and while it is still hot I firmly close the key 13 into the position shown in Fig. 2. The contacting portions of the pad and disc 15 are smeared with shellac solution or other suitable adhesive. I maintain the key closed until the pad 19 or, rather, the shellac with which the felt 20 is impregnated, has become firm.

It will be understood that the impregnation of the base may be done at the time the pad is installed, the key being held closed until the impregnant has dried out and the pad has solidified in contact with its socket.

The pad shown in Fig. 3 is somewhat exagger-

ated in order to illustrate the advantages of the invention. Thus, this pad is somewhat thinner on the right-hand side. Consequently, the left-hand side, according to the prior art, would first make contact with the socket 11. Therefore, the player would have to apply pressure in order to deform the left-hand side of the pad in order that the right-hand side of the pad could seat on the socket. According to the present invention, when the disc 20 of felt impregnated with shellac and in a formable condition, is maintained in normal contact with the socket 11, the felt is distorted by the socket in the manner shown in Fig. 3. That is, the socket 11 enters more deeply into the high spots of the pad and the final result is that a ring formation 23 is made all around the pad 19, which formation corresponds exactly to the shape of the socket 11. Since the key 13 is held closed until the shellac in the felt 20 becomes solid, it will be obvious that this relation between the pad and the socket will be preserved indefinitely. Owing to the perfect closure which I am able to obtain with my improved pad, the player can obtain quicker fingering and more instantaneous response to his actuation of the keys.

While I have described the invention in connection with a saxophone, it will be understood that the invention may be applied to any form of wind instrument employing keys of this general type. For example, it may be used also on wind instruments such as the oboe, clarinet, flute, bassoon, and piccolo, and other instruments.

Having thus described my invention I declare that what I claim is:

1. A pad for a musical instrument key comprising a base of fibrous material, a soft thin sealing membrane on the outer side thereof, and an impregnant extending throughout the whole mass of said base normally maintaining said base as an integral unit, said impregnant being capable of being softened temporarily by moderate heating.

2. A pad for a musical instrument key comprising a base of felt, a piece of kidskin on one side thereof, and shellac impregnating said felt throughout the whole mass of the felt and normally maintaining said base as a rigid integral unit.

3. In combination, a musical instrument having a socket, a key adapted to cooperate therewith, a pad on said key comprising a base of fibrous material, a soft thin sealing membrane on the outside thereof, said base being deformed so that the pad cooperates precisely with said socket, and an impregnant extending through the whole mass of said base constituting the base as a rigid unit and maintaining said base rigidly in such deformed condition.

4. In combination, a musical instrument having a socket, a key adapted to cooperate therewith, a pad on said key comprising a base of felt, a piece of kidskin on the outside thereof, said base being deformed so that the pad cooperates precisely with said socket, and shellac impregnating said base throughout the whole mass of the base and maintaining the base as a rigid integral unit in such deformed condition.

CARL MICHALEK.