Feb. 19, 1929. 1,702,962

F. A. BUESCHER

KEY PAD FOR WIND MUSICAL INSTRUMENTS

Filed Dec. 9, 1924

FIG. 1

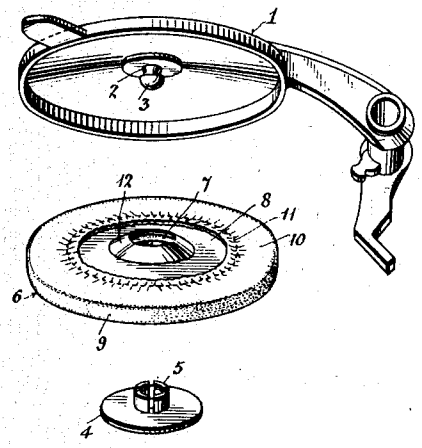


FIG. 2

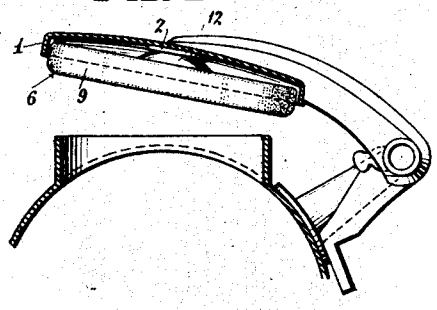


FIG. 4

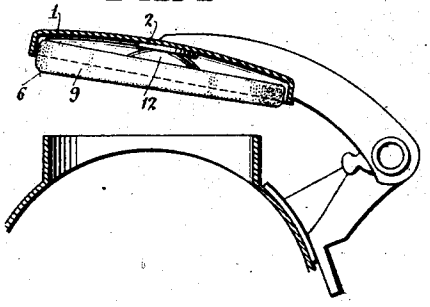


FIG. 3

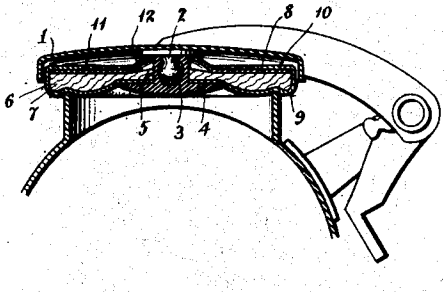
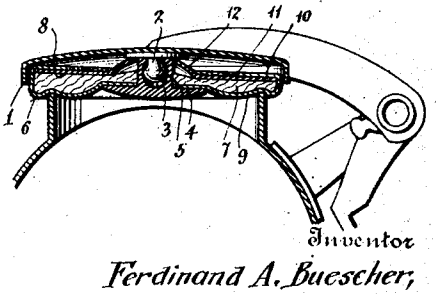


FIG. 5



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UNITED STATES PATENT OFFICE.

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KEY PAD FOR WIND MUSICAL INSTRUMENTS.

Application filed December 9, 1924. Serial No. 754,809.

This invention relates to key pads for wind musical instruments and is an improvement upon the invention disclosed in my Patent No. 1,401,872 granted Dec. 7, 1921.

Said patent describes a replaceable pad which may be snapped on to a suitable co-operating element with which the key may be provided, so that when worn or defective, it may be replaced with a new pad by the user of the instrument, without it being necessary for him to send the instrument away for repairs.

The present invention has for its object the preservation of the feature of quick attachability which characterizes the device of my patent aforesaid, and, in addition, provides structure whereby a slight universal rocking movement of the pad relative to the pad cup is permitted, facilitating, notwithstanding slight misalignment of the pad cup or non-uniformity in the thickness of the pad, the correct seating of the pad upon the peripheral edge of the valve opening.

Other objects of the invention will unfold themselves as the description of a preferred embodiment thereof proceeds.

In the drawings:—

Figure 1 is a perspective view of the parts of an illustrative embodiment of my invention in separated relation.

Figure 2 is a cross section through a key showing my invention in assembled relation, the valve being open.

Figure 3 is a cross section showing the valve closed.

Figure 4 is a view similar to that shown in Figure 2 but illustrating a pad thicker on one side than upon the other.

Figure 5 is a sectional view of the pad shown in Figure 4 illustrating a tilted position assumed by the pad to compensate for its unequal thickness.

Referring now in detail to the several figures, the numeral 1 represents a pad cup which, in the present embodiment of the invention is an element of the tampion of a saxophone. The pad cup 1, is formed with a concave side and centrally thereof, it has fixed thereto one element of a suitable fastening device consisting, in the present instance, of a stud 2 having a head 3, the latter being adapted to snap into the other element of the fastening device which consists of the socketed member 4 having a flat head and a hollow shank forming a socket. The wall of which is split to give the same resiliency. The head 3 is preferably convex and it is preferred that the wall of the socket be slightly undercut so as to form a positive means of attachment for the head 3 when the latter is sprung within the socket.

The pad which in general is designated by the reference character 6 consists of a washer 7, preferably of felt resting against a back plate 8 which may be of metal, and being covered on its face with a piece of kid skin 9, the latter being brought around to the upper side of the back plate 8 as shown at 10 in Figure 1, and gathered by means of a thread 11 stitched and drawn around the upper edge of the kid skin. The shank of the member 4 extends through an axial opening formed in the pad 6.

In the device of my prior patent hereinbefore-mentioned the pad, and the means for mounting it within the pad cup 1 are substantially similar to the elements here employed, except that in said prior patent the pad with its back plate fits against the peripheral portion of the inner face of the tampion in a manner to defect the possibility of its partaking of any rocking movement. It frequently happens that the pad fails to perform its valve function efficiently, due either as shown, to non-uniformity in the thickness of the pad, or to misalignment of the pad cup. Heretofore this has called for repairing by an expert, but in the present instance I have provided means for spacing the peripheral portion of the pad, including the back plate away from the inner surface of the tampion, the snap joint between the pad and tampion permitting yielding of the pad so that when it strikes the peripheral edge of the valve opening a tilting movement is produced, as shown in Figure 5, causing the pad to find a true seat upon the edge of said peripheral opening. Various means may be employed for spacing the pad away from the peripheral portion of the inner face of the pad cup, the means here shown being constituted by the elements of the snap joint which are of such length that the snap joint itself projects beyond the pad sufficiently to space the peripheral portion of said pad from the inner face of the pad cup. Means are also provided for preventing the pad riding up on the shank of the elongated snap joint, said means consisting of a flange 12 which is preferably stamped outwardly from said back

plate and which is made convex to better serve as a fulcrum for the portion of the pad adjacent the center, facilitating its rocking movement. It is to be understood that the provision of the flange 12 or its equivalent is not always essential, for the pad may, if desired, be left loosely mounted upon the elongated snap joint. It seems preferable, however, to provide some spacing member for forcing the pad down against the lower head of the snap joint so as to restrain the central portion of the pad from bulging into the valve aperture spoiling the tone of the instrument, a fault with which many forms of key pads become affected when moist.

It is to be understood that while I have found the above described embodiment of my invention highly efficient and practical for the purpose set forth, numerous alterations in the details of construction or the substitution or equivalents for the elements shown may be made without departing from the spirit or scope of the invention as claimed.

Having described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. In a key pad for wind musical instruments a pad cup, a pad mounted therein, means for detachably securing said pad to said cup comprising a part fixed to the pad cup and a member having a portion engaging the outer face of and extending through said paid and interlocking with the inner end of said fixed part, said means constructed to provide for the rocking of the pad relative to the cup, and means carried by the pad and engaging the inner face of the cup for permanently spacing the pad from such face and further providing a fulcrum for the pad.

2. In a key pad for wind musical instruments a pad cup, a pad mounted therein, means for securing said pad to said pad cup comprising a part fixed to the cup and a member engaging the outer face of the pad and extending through the latter and further interlocking with the inner end of said fixed part, said securing means being of greater length than the thickness of the pad and constructed to provide for rocking the pad relative to the cup.

3. In a key pad for wind musical instruments a cup shaped member, a compressible pad mounted therein and extended therefrom, and a connection between the member and the pad constructed to provide for rocking movement of one relative to the other.

4. In a key pad for wind musical instruments a pad cup, a pad mounted therein and extended therefrom, and a two-part coupling connection between the cup and the pad, one of said parts fixed to the inner face of the cup, the other of said parts extending through the pad, abutting against the outer face of the latter and further extended from the inner face of the pad, the said part of said coupling loosely connecting with each other whereby the cup and pad can rock relatively to each other.

5. In a key pad for wind musical instruments a pad cup, a pad mounted therein and extended therefrom, and a two-part coupling connection between the cup and the pad, one of said parts fixed to the inner face of the cup, the other of said parts extending through the pad, abutting against the outer face of the latter and further extended from the inner face of the pad, the said parts of said coupling loosely connecting with each other whereby the cup and pad can rock relatively to each other, and a combined spacer and fulcrum extended from the pad and bearing against the inner face of the cup.

6. In a key pad for band musical instruments a pad cup, a pad mounted therein and formed with a yielding outer face and a rigid back plate positioned against its inner face, said pad being apertured, a fastener element extending through said aperture, abutting against the yielding face of the pad and further projecting from the inner face of the pad, a fastener element fixed to the inner face of the cup and interengaging with the other of said elements for coupling the pad and cup together and further constructed to provide for a rocking movement of the pad relative to the cup, and a flange extended from said back plate, surrounding said aperture and coacting with the inner face of the cup to provide a fulcrum common to the cup and pad.

7. In a key pad for wind musical instruments, a pad cup, a pad mounted therein and extended therefrom, means for coupling said cup and pad together, said means formed of two sections, one of said sections fixed to the cup, the other of said sections extending through the pad and engaging the outer face thereof, said sections interengaging with each other and constructed to provide for the rocking of the pad relative to the cup, and means for maintaining the inner face of the pad spaced from the inner face of the cup.

8. In a key pad for wind musical instruments a shiftable pad cup, a compressible pad mounted therein and extended therefrom and formed with a central aperture, a headed fastener member extending through said aperture, projecting from the inner face of the pad and having its outer end formed with head seating against the outer face of the pad, means secured to the inner face of the cup and extending into said member for coupling the pad and cup together and further providing for the rocking of the pad relative to the cup, and means projecting from the inner face of the pad and engaging the cup for normally spacing the inner face of the pad from the inner face of the cup and further providing a fulcrum common to the pad and cup.

9. In a wind musical instrument of the character described, a key-arm, a pad-cup

mounted on said arm, a key pad arranged within said cup, a boss interposed between said pad and cup, and means for securing said pad to said cup to enable rocking movement of the pad on said boss.

10. In a wind musical instrument of the character described, the combination of a tiltable key arm, a pad cup mounted upon said arm, a key pad arranged within said cup, a rounded boss arranged centrally of and interposed between said pad and cup, and means for securing said pad to said cup to enable rocking movement of the pad upon said boss.

11. In a wind musical instrument of the character described, the combination of a tiltable key arm, a pad cup mounted upon said arm, a key pad arranged within said cup, a rounded boss carried by and arranged centrally of and within said pad cup, and means for securing said pad within said cup and upon said boss to enable rocking movement of the pad upon said boss.

12. In a wind musical instrument of the character described, the combination with the instrument, of a key arm pivotally supported by the instrument body, a pad cup mounted upon said arm, a key pad arranged within said pad cup and spaced therefrom, and a flexible connection between said cup and pad to enable universal movement of said pad.

In testimony whereof I have hereunto set my hand.

FERDINAND A. BUESCHER.