Jan. 22, 1952 G. A. FINDER 2,583,478

STRING HOLDING KEY FOR MUSICAL INSTRUMENTS

Filed April 10, 1950

FIG. 1

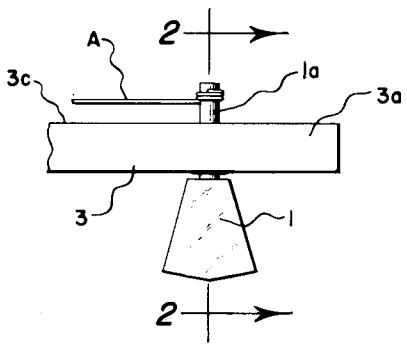


FIG. 2

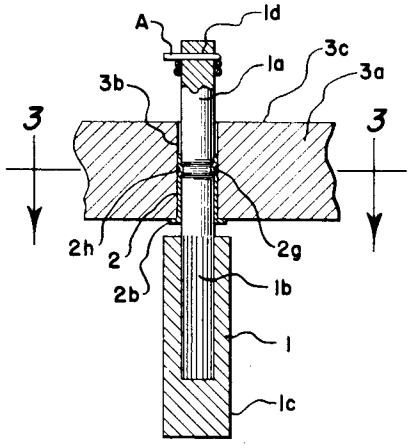


FIG. 3

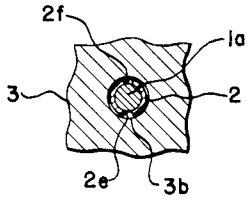


FIG. 4

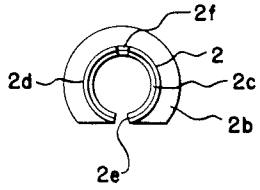
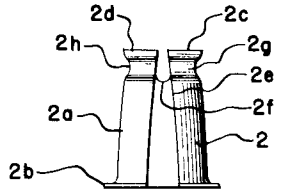


FIG. 5



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STRING HOLDING KEY FOR MUSICAL INSTRUMENTS

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8 Claims. (Cl. 84—305)

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My invention relates to a string holding key for musical instruments, and the objects of my invention are:

First, to provide a key of this class which continually maintains constant frictional bearing of the key of the shaft in connection with the head of the instrument without adjustment, whereby the strings of a musical instrument may be kept at the proper tension and corresponding tone pitch with a minimum amount of adjustment;

Second, to provide a key of this class which remains in certain fixed position in the head of a musical instrument after being installed, whereby the shaft of the key does not shift longitudinally of its axis;

Third, to provide a key of this class having a novel arrangement of a resilient bushing, which is pressed into the head of a stringed musical instrument for holding the key shaft and continually compensating for wear due to the resilient character of the bushing, whereby uniform frictional engagement of the key relative to the bushing and the head of the instrument is maintained during continual use, which may be for the life of a stringed musical instrument;

Fourth, to provide a key of this class which is very simple to install in the string holding heads of stringed musical instruments;

Fifth, to provide a key of this class which is particularly adapted for use in connection with ukeleles or the like, due to the fixed axial detention of the shaft of the key in connection with the head of the instrument, which prevents displacement of the keys from the head of the instrument when the strings become broken, or during the replacement thereof; and

Sixth, to provide a key of this class which is very simple and economical of construction, efficient in operation, and which will not readily deteriorate or get out of order.

With these and other objects in view, as will appear hereinafter, my invention consists of certain novel features of construction, combination and arrangement of parts and portions, as will be hereinafter described in detail and particularly set forth in the appended claims, reference being had to the accompanying drawings and to the characters of reference thereon, forming a part of this application, in which:

Fig. 1 is a fragmentary side elevational view of the string holding head of a stringed musical instrument, showing one of my string holding keys for musical instruments in connection therewith, and illustrating a string secured on the shaft of the key; Fig. 2 is an enlarged fragmentary sectional view, taken from the line 2—2 of Fig. 1, showing portions of the key shaft in elevation; Fig. 3 is a fragmentary plan sectional view, taken from the line 3—3 of Fig. 2; Fig. 4 is a top or plan view of the bushing used in connection with the key for musical instruments; and Fig. 5 is a side elevational view of the bushing as shown in Fig. 4.

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Similar characters of reference refer to similar parts and portions throughout the several views of the drawings.

The key 1, bushing 2, and the instrument neck 3, constitute the principal parts and portions of my string holding key for musical instruments.

The musical instrument neck 3 may be the neck of any one of a large variety of stringed musical instruments, such as ukeleles, banjos, guitars, mandolins, or other instruments. The head portion 3*a* of the neck 3, as shown in Fig. 1 of the drawings, is provided with a bore portion 3*b* extending therethrough, in which the bushing 2 is pressed concurrently with the insertion of the shaft 1*a* of the key 1. Said shaft 1*a* is provided with a narrow portion 1*b*, on which the head 1*c* of the key 1 is positioned for maintaining frictional engagement therewith. The shaft 1*a* is provided with a lateral opening 1*d* therethrough, adapted to receive the conventional string A, which may be wound around the shaft 1*a* adjacent to the upper surface 3*c* of the neck head portion 3*a*.

The bushing 2, as shown in Figs. 4 and 5 of the drawings, is a split bushing having a longitudinally tapered body portion 2*a*, provided with a flange 2*b* at one end, and bifurcated portions 2*c* and 2*d* at the opposite end, which are bifurcated by the slots 2*e* and 2*f*. The bifurcated portions 2*c* and 2*d* are provided with indented annular recess portions 2*g* and 2*h*, which are disposed above lowermost extent of the slots 2*f*, it being noted that the slot 2*e* extends the entire length of one side of the bushing 2, permitting diametric compression of the bushing 2 throughout its entire length when pressed into a hole of smaller diameter than the external dimension of the bushing 2.

It will be here noted that the diameter of the bushing 2, adjacent the flange 2*b*, is considerably larger than the bore 3*b* of the neck head 3*a* before being pressed therein, and that the radius of the arcuate bifurcated portions 2*c* and 2*d* is substantially less than the radius of the opening 3*b*, so that compression of said bifurcated portions 2*c* and 2*d* into engagement with the shaft 1*a* of the key 1 is caused by transfer of compres-

sion throughout the tapered side wall portions of the bushing 2 to the bifurcated ends 2c and 2d. The arcuate recess portions 2g and 2h, at their ends which terminate in the slots 2e and 2f, initially score the shaft 1a when it is turned in the bushing 2 after installation, whereby a slight annular groove in the shaft 1a is provided which is engaged by the arcuate recess portions 2g and 2h of the bushing 2, which fixes said shaft 1a in the bushing 2 longitudinally of its axis, and prevents displacement thereof.

The operation of my string holding key for musical instruments is substantially as follows:

The arcuate recess portions 2g and 2h, in engagement with the shaft 1a, provide sufficient frictional engagement therewith so that the string A, wound on the shaft 1a, is held at a certain tension corresponding to a certain pitch desired. The resilient character of the bushing 2 pressed in the opening 3b in the head 3a of the musical instrument neck 3 provides resilient tension, which is continually urged against the shaft 1a at said arcuate recess portions 2g and 2h, which compensates for wear of the shaft 1a, and provides for the uniform frictional relationship of the shaft 1a relative to the bushing 2 throughout considerable turning of the shaft 1a in the bushing 2, which may be for the life of a musical instrument, or longer.

The shaft 1a is fixed longitudinally of its axis in the bushing 2, as hereinbefore described, by the recess portions 2g and 2h, and therefore cannot be removed inadvertently, and remains in fixed position when strings are changed, and it is to be noted that the key 1 does not require any adjustment whatsoever at any time.

Though I have shown and described a particular combination and arrangement of parts and portions, I do not wish to be limited to this particular construction, combination and arrangement, but desire to include in the scope of my invention the construction, combination and arrangement substantially as set forth in the appended claims.

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

1. In a key for stringed musical instruments, a shaft, a bushing surrounding said shaft, a musical instrument neck head portion having an opening in which said bushing is tightly fitted, said bushing of resilient character engaging said opening in said neck head at one end and having an inwardly directed angular bead portion resiliently engaging said shaft.

2. In a key for stringed musical instruments, a shaft, a bushing surrounding said shaft, a musical instrument neck head portion having an opening in which said bushing is tightly fitted, said bushing of resilient character engaging said opening in said neck head at one end and resiliently engaging said shaft, said bushing near said other end provided with bifurcated arcuate recessed portions directed inwardly toward said shaft and intimately engaging the same.

3. In a key for stringed musical instruments, a shaft, a bushing surrounding said shaft, a musical instrument neck head portion having an opening in which said bushing is tightly fitted, said bushing of resilient character engaging said opening in said neck head at one end and resiliently engaging said shaft, said bushing near said other end provided with bifurcated arcuate recessed portions directed inwardly toward said shaft and intimately engaging the same, said bushing provided with a slit portion extending throughout its full length at one side and a secondary slit portion extending from said other end beyond said arcuate recess portions.

4. In a key for stringed musical instruments, a shaft, a bushing surrounding said shaft, a musical instrument neck head portion having an opening in which said bushing is tightly fitted, said bushing of resilient character engaging said opening in said neck head at one end and resiliently engaging said shaft, said bushing near said other end provided with bifurcated arcuate recessed portions directed inwardly toward said shaft and intimately engaging the same, said bushing provided with a slit portion extending throughout its full length at one side and a secondary slit portion extending from said other end beyond said arcuate recess portions, said bushing having a flange on its one end opposed to said other end, and tapered from said other end toward said flange in diverging relationship.

5. In a key for stringed musical instruments, a shaft, a bushing surrounding said shaft, a musical instrument neck head portion having an opening in which said bushing is tightly fitted, said bushing of resilient character engaging said opening in said neck head at one end and resiliently engaging said shaft near its other end, said bushing near said other end provided with bifurcated arcuate recessed portions directed inwardly toward said shaft and intimately engaging the same, said bushing provided with a slit portion extending throughout its full length at one side and a secondary slit portion extending from said other end beyond said arcuate recess portions, said bushing having a flange on its one end opposed to said other end, and tapered from said other end toward said flange in diverging relationship, said flange abutted to one side of said neck head.

6. In a key for stringed musical instruments, a shaft, a bushing surrounding said shaft, a musical instrument neck head portion having an opening in which said bushing is tightly fitted, said bushing of resilient character engaging said opening in said neck head at one end and resiliently engaging said shaft near its other end, said bushing near said other end provided with bifurcated arcuate recessed portions directed inwardly toward said shaft and intimately engaging the same, said bushing provided with a slit portion extending throughout its full length at one side and a secondary slit portion extending from said other end beyond said arcuate recess portions, said bushing having a flange on its one end opposed to said other end, and tapered from said other end toward said flange in diverging relationship, said flange abutted to one side of said neck head, said shaft having a string-receiving opening in one end and a key head on the opposite end, forming a thumb piece for rotating the same.

7. In a string holding key for musical instruments, a key shaft having a head on one end and an opening extending therethrough, near the opposite end thereof, a bushing surrounding said shaft and engaging the same and a musical instrument neck head, having an opening therein, in which said bushing is tightly fitted, said bushing of resilient character having one external end normally larger than said opening in said musical instrument neck head and having an inwardly extending substantially annular bead near its opposite end engaging said key shaft, said normally larger end intimately engaging

said opening in said neck head at one end, and intimately frictionally engaging said shaft near its opposie end at said annular bead.

8. In a string holding key for musical instruments, a key shaft having a head on one end and an opening extending therethrough, near the opposite end thereof, a bushing surrounding said shaft and engaging the same and a musical instrument neck head, having an opening therein, in which said bushing is tightly fitted, said bushing of resilient character and intimately engaging said opening in said neck head at one end, and intimately frictionally engaging said shaft near its opposite end, said bushing near said opposite end being bifurcated and having arcuate recess portions directed inwardly in engagement with said shaft.

GEORGE A. FINDER.

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