

(19)



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(11)

EP 0 542 702 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

01.09.1999 Bulletin 1999/35

(51) Int Cl.⁶: **G10H 1/34**

(21) Application number: **92830622.4**

(22) Date of filing: **13.11.1992**

(54) **Electric and/or electronic keyboards and, in particular, church organ keyboards**

Elektrische und/oder elektronische Tastaturen, besonders Tastaturen von Kirchenorgeln

Claviers électriques et/ou électroniques et en particulier claviers d'orgues d'église

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR LI LU NL SE

(30) Priority: **14.11.1991 IT RM910862**

(43) Date of publication of application:
19.05.1993 Bulletin 1993/20

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Description

[0001] It is a well-known fact that by pressing the key of a church organ keyboard one opens a valve in the flue-pipe connected to that key causing air to escape, and this generates the sound.

[0002] An organ-player by repeatedly playing this instrument gets used to the so-called escapement effect, which is caused by the abrupt entry of air into the pipe and the closing of the valve.

[0003] By pressing the key, a control lever opens the valve, thus causing the so-called escapement effect.

[0004] In recent years, also thanks to the important developments in the field of electronics, organ keyboards have benefitted from important improvements, with regard to the position of the keys both, in respect of each other and of the entire structure: to guarantee that each key may undergoes the correct torsion compared to the structure; to limit the upward and downward thrust of the keys compared to the structure; to produce a buffer switch to reduce the keys resistance; all the above improvements have been described and claimed in patent 4.914.999.

[0005] Nevertheless, the known keyboards for electronic organs, amongst which the above mentioned patent is included, do not solve the problems related to the contact between the keys and the contact-board, which, at time, is not very accurate and expensive to make.

[0006] This invention relates to improvements in an electric keyboard, in particular, the keyboard of a church organ, aimed to remedy the above mentioned drawback.

[0007] The first object of this invention is the keyboard support structure, which consists of two parts, a detailed description of which is given later.

[0008] Another object of this invention is the device which creates the so-called escapement effect when a key is pressed.

[0009] According to this invention, the keyboard support consists of a board or plate on which a layer of plastic material is injected.

[0010] This plastic material is applied in such a manner as to cover the edges and the ends of the board or sheet, leaving portions of the middle uncovered, in other words, it is applied in such a manner as to form a grid, on both the upper and lower surfaces of the keyboard support.

[0011] The normal guiding and control elements are then mounted on this support, besides a rubber sheet, provided with truncated cone or round-shaped foam-expansions, each one of which is located beneath a key, both black and white. When the key is lowered the round-shaped rubber expansion springs out of shape, thus giving the player the so-called escapement effect.

[0012] This invention will be better understood and further details will be acquired by reading the following description, which makes reference to the attached drawings, in which:

figure 1 shows a cross-section of the keyboard support;

figure 2 shows a cross-section of the keyboard support with the keys and control elements.

[0013] With reference to said drawings and, in particular, to figure 1, the keyboard support (2) consists of a plastic material (11) injected onto a steel plate (12). The plastic material being placed in such a fashion as to leave the middle part and the edge of the plate (12) free, thus forming a grid.

[0014] Fig. 2 shows that a contact block (3) is fixed on the lower surface of the support (2) by means of screws (4). Furthermore, in order to achieve contact with the contact block (3) a dynamic contact made of conductive rubber (5) and carried by one of the white (6) or black (7) keys is also provided.

[0015] On the top of the keyboard support (2) are then placed a series of basically round-shaped rubber elements (8), one for each key, which, when the bottom of said key presses down on them, spring out of shape, thus providing the so-called escapement effect.

[0016] Lastly, the guiding and control system is completed by a rubber key-guide (9).

[0017] The drawing shows that on top of the rubber round-shaped element (8), which may be obtained by hot-pressing a rubber sheet, there is a sort of collar, the aim of which is to provide a certain resistance to the key, thus distributing the deformation caused by the pressed key over the entire surface of the round-shaped element. In other words, the top collar, under the effect of the pressed key, moves parallel to itself, thus causing the uniform deformation of the entire rubber element.

[0018] The foregoing description of the improvements to electric and/or electronic keyboards and, in particular, to church organ keyboards are given as an example, therefore, this invention may be modified and realized in a different manner, however, within the framework of the following claims.

Claims

1. An electric and/or electronic keyboard and, in particular a church keyboard, in which beneath each key (6, 7) and carried by the upper surface of the keyboard support (2) there is a basically round-shaped elastic or elasticized element (8), the base of which lies on the keyboard support, said round-shaped rubber element, which may be obtained through hot-pressing a rubber sheet, having a collar on top, the aim of which is to provide a certain resistance to the key, thus distributing the deformation caused by the pressed key over the entire surface of the round-shaped element, said top collar, under the effect of the pressed key, moving parallel to itself, thus causing the uniform deformation of the entire rubber element,

characterized by
a contact block (3) fixed on the lower surface of the
keyboard support and a dynamic contact made of
conductive rubber (5) and carried by one of the
white or black keys being provided for achieving
contact with the contact block, the guiding and con-
trol system being completed by a rubber key-guide
(9).

2. Improvements to the electric and/or electronic key-
boards and, in particular, to church organ key-
boards, according to the foregoing claim 1, charac-
terized by the fact that the keyboard support con-
sists of a board or plate on which a layer of plastic
material is injected in such a manner as to cover the
edges and the ends of the board or sheet, while
leaving the middle partes uncovered, thus forming
a sort of grid.

Patentansprüche

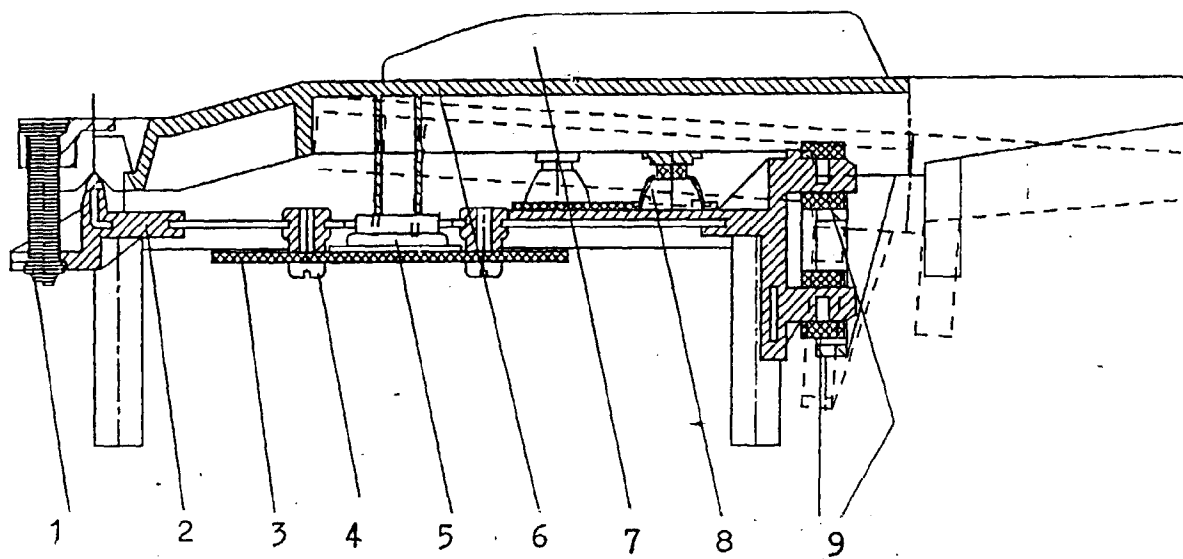
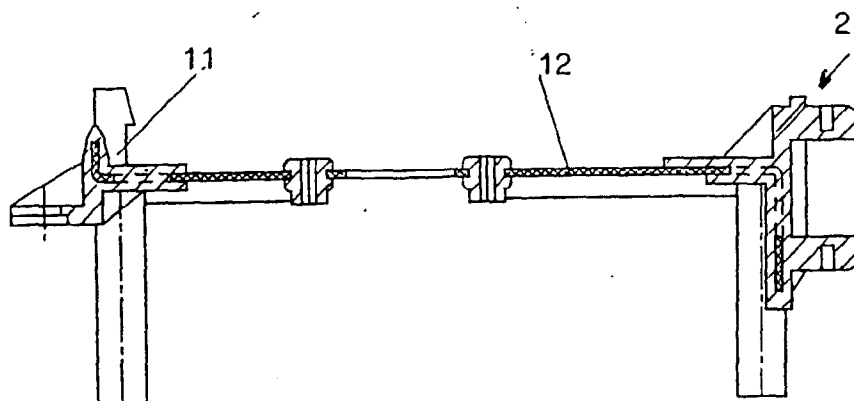
1. Eine elektrische und/oder elektronische Tastatur
und insbesondere eine Kirchentastatur, bei der un-
ter jeder Taste (6, 7) und durch die obere Fläche der
Tastenauflagerung (2) getragen, sich ein grund-
sätzlich rundes elastisches oder elastisiertes Ele-
ment (8) befindet, dessen Basis auf der Tastenauf-
lagerung aufliegt, wobei besagtes rundes Gummi-
element, das durch Wärmepressen einer Gummi-
platte hergestellt werden kann und an dessen obern
Ende sich ein Kragen befindet, dessen Ziel es ist,
der Taste Widerstandsfähigkeit zu verleihen und
somit die durch die gedrückte Taste verursachte
Verformung auf die gesamte Fläche des runden
Elements verteilt, wobei besagter oberer Kragen
sich unter Einwirkung der gedrückten Taste parallel
zu sich selbst bewegt und dadurch eine gleichmäs-
sige Verformung des gesamten Gummielements
auslöst,
gekennzeichnet durch
einen an der unteren Fläche der Tastaturauflage-
rung befestigter Kontaktblock (3) und einen aus leit-
fähigem Gummi (5) hergestellten dynamischen
Kontakt, der von einem der weissen oder schwar-
zen Tasten getragen wird, die zur Herstellung der
Berührung mit dem Kontaktblock vorgesehen sind
und die Leit- und Kontrollsysteme durch eine Ta-
stenführung aus Gummi (9) vervollständigt werden.
2. Verbesserungen der elektrischen und/oder elektro-
nischen Tastaturen und insbesondere an Tastatu-
ren von Kirchenorgeln gemäss dem vorstehenden
Anspruch 1, dadurch gekennzeichnet, dass die Ta-
staturauflagerung aus einem Brett oder einer Platte
besteht, auf denen eine Kunststoffsicht so einge-
spritzt wird, dass die Ecken und die Enden des Bret-
tes oder der Platte bedeckt werden während die

Mittelteile frei bleiben und somit eine Art Gitter bil-
den.

5 Revendications

1. Un clavier électrique et/ou électronique et, en par-
ticulier, un clavier d'orgue d'église dans lequel, sous
chaque touche (6,7) et soutenu par la surface su-
périeure du support du clavier (2), se trouve un élé-
ment (8) élastique ou élastifié de forme essentielle-
ment circulaire, dont la base repose sur le support
du clavier; cet élément en caoutchouc de forme cir-
culaire, que l'on peut tirer d'une feuille de caout-
chouc pressée à chaud, muni d'une rondelle au
sommet, dont le but est d'offrir une certaine résis-
tance à la touche, distribuant ainsi la déformation
causée par la touche pressée sur toute la surface
de élément de forme circulaire; cette rondelle à la
partie supérieure, sous l'effet de la touche pressée,
se déplaçant parallèlement à elle-même, cause ain-
si la déformation uniforme de tout l'élément en
caoutchouc, caractérisé par un bloc de contact (3)
fixé sur la surface inférieure du support du clavier
et un contact dynamique en caoutchouc conducteur
(5) et supporté par l'une des touches blanches ou
noires, servant à réaliser le contact avec le bloc de
contact, le système de guidage et de contrôle étant
complété par un guide de touche en caoutchouc (9).
2. Perfectionnements des claviers électriques et/ou
électroniques et, en particulier, des claviers des or-
gues d'église, selon la revendication n° 1 précéden-
te, caractérisés par le fait que le support du clavier
est une feuille ou une plaque sur laquelle une cou-
che de matière plastique est injectée de manière à
couvrir les bords et les extrémités de la plaque ou
de la feuille, laissant les parties internes à décou-
vert, et formant ainsi une sorte de grille.

F I G. 1



F I G. 2