(No Model.)

W. H. LAUGHLIN.

KEY BOARD FOR PIANOS AND ORGANS.

No. 267,231. Patented Nov. 7, 1882.

Fig. 1.

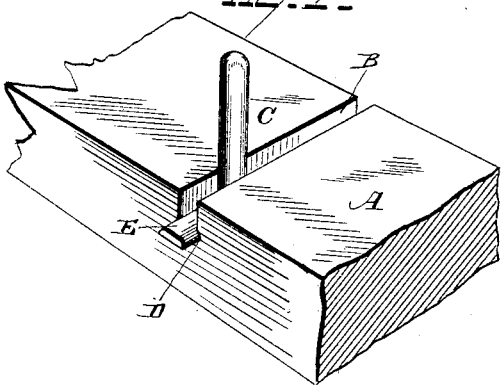


Fig. 2.

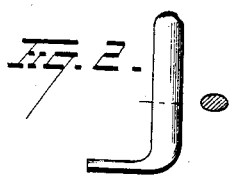


Fig. 3.

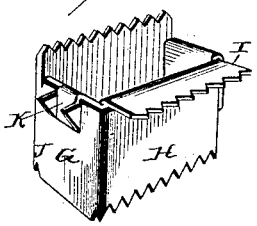


Fig. 4.

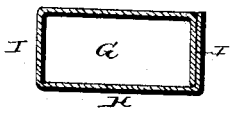


Fig. 5.

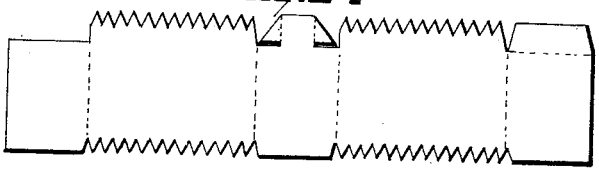


Fig. 6.

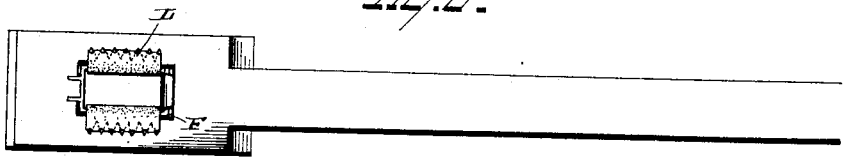


Fig. 7.

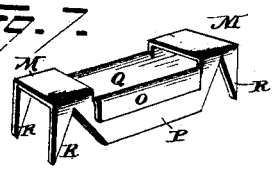


Fig. 8.

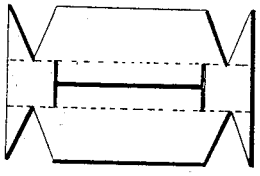


Fig. 9.

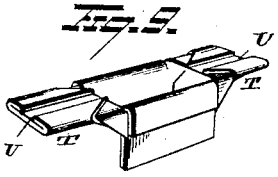
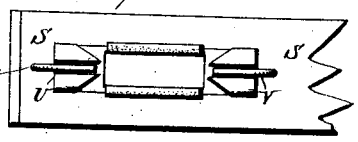


Fig. 10.



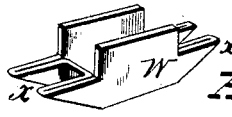


Fig. 11.

WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM H. LAUGHLIN, OF OBERLIN, OHIO.

KEY-BOARD FOR PIANOS AND ORGANS.

SPECIFICATION forming part of Letters Patent No. 267,231, dated November 7, 1882.

Application filed February 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. LAUGHLIN, of Oberlin, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Pianos and Organs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to an improvement in pianos and organs; and it consists more particularly in improved guide-pins and mortise-casings for piano and organ keys.

The chief objects of my invention are, first, to prevent the keys from sticking to the guide-pins when they are new or when they are swollen by dampness, and, second, to prevent the keys from rattling when they are worn.

With these objects in view, my invention consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of a section of the guide-pin rail of a key-board provided with a guide-pin constructed in accordance with my invention. Fig. 2 is a view in side elevation of my improved guide-pin. Fig. 3 is a view in perspective of one of my improved metallic mortise-casings. Fig. 4 is a view thereof in horizontal cross-section. Fig. 5 is a plan view of one of the blanks from which the said casings are formed. Fig. 6 is a view representing the bottom of a piano-key provided with one of my improved mortise-casings. Fig. 7 is a view in perspective of a modified form of casing. Fig. 8 is a view of the blank from which the same is formed. Fig. 9 is another modified form of mortise-casing, the same being adapted to be adjusted. Fig. 10 shows the adjustable casing in the mortise of a piano-key, and Fig. 11 represents another modified form of casing which my invention may assume.

A represents the guide-pin rail of a piano or organ, the same being provided with transverse slots B, having parallel walls. The guide-pins C are oval in cross-section, their inner axes being equal in length to the width of the slots B in the guide-rails. The said pins are provided with feet E, which form right angles with them, and which are located in line with their major axes. The said feet have flattened bottoms and rounded tops, adapting them to be forced into the lower portions of the slots B, in the walls of which they form indentations D. When the guide-pins are in position in the slots B, they are held erect by the parallel walls thereof and by the anchorage obtained by the feet E in the lower portions of the slots, as described; and inasmuch as the slots are uniform in their characteristics throughout their length the guide-pins may be moved to any point in them and still be rigidly supported. The object of this provision for adjusting the guide-pins will be hereinafter explained. The under faces of the piano keys are provided with mortises F to receive the guide-pins C, above described, and in order that the reciprocation of the said pins within the mortises, as the keys are manipulated, may be soft and noiseless, it is desirable to line the mortises with felt. I accomplish this and several other desirable results by inserting within the mortises felt-lined metallic casings, which may be constructed in many different ways.

One of the most approved forms of casing is shown in Fig. 3 of the drawings. This casing G is oblong in shape, and is formed from a blank like that shown in Fig. 5 of the drawings, the said blank being appropriately bent, and having its ends lapped and closed as illustrated by the view in cross-section shown in Fig. 4. The upper edges of the sides H of the casing G are provided with outwardly-extending flanges I, while the upper edges of the ends J of the casings are furnished with fastening-points K, adapted to be driven into the wood contiguous to the mortises in which the casings are inserted to hold the latter in position. The outer edges of the flanges I and the lower edges of the sides H of the said casings are notched or serrated, the object of such serrations being to secure the felt linings L of the casings in place without the use of glue. In such cases the ends of the strips of felt which are drawn through the casings are pressed down upon the said serrations. The casings should be of such length that their ends will impinge against the end walls of the mortises in which they are inserted. Sufficient space should, however, be left between the

sides of the casings and the side walls of the mortises to prevent the same, if by reason of moisture they should swell, from impinging against and pinching the side walls of the casing, and thereby interfering with the action of the guide-pins and causing the keys to stick. If, after long use or from other causes, the felt adjacent to the guide-pins becomes worn and hard, and the guide-pins rattle in the casings when the keys are manipulated, the said guide-pins may, by virtue of their adjustable nature, be moved in the slots in which they are supported and assume relations with new and unworn portions of the felt linings of the casings. In this simple way the rattling noise which so often mars an otherwise good piano or organ performance may be entirely obviated.

Instead of forming the casings with parallel sides, as shown in the drawings, the said sides may be made to converge toward one end of the casing, so that when from any cause the guide-pin is too loose or too tight in the casing it may be moved toward the smaller or larger end thereof until that point is reached where the desired conditions of relationship between it and the felt lining exist.

A modified form of casing, M, (shown in Fig. 7 of the drawings,) is formed from a blank like that shown in Fig. 8 of the drawings. The leaves O of the said casing are bent over parallel with the sides P thereof in such manner as to receive and retain one end of the felt lining of each of the inner side walls of the casing, the said lining being first laid over the outer faces of the sides of the casing and then passed up through the central aperture, Q, from the under side thereof. The free ends of the felt may now be glued to the wood adjoining the mortises in which the casings are inserted. The casings M are held in place in the mortises by downwardly-projecting points R, which are forced into the wood.

Figs. 9 and 10 illustrate another modified form of casing, the same being adjustable. Like the casing M, this casing S is struck up from a blank. The points R are, however, dispensed with, and instead of gluing the ends of the felt strips with which the casings are lined to the wood adjoining the mortises, they are glued to the felt covering the outer faces of the casings. The flanges T, which project from each end of the casing, are provided with grooves U to receive the guides V. The arrangement of these guides is such that when for any reason it is desired to present a different surface of felt to the guide-pin it may be accomplished by simply moving the casing itself. When this form of casing is employed the mortises should not only be broader than the casings, for the reasons before alluded to, but they should also be longer than the casings to permit the casings to be reciprocated in them. Again, when this form of casing is employed it is not necessary to use an adjustable guide-pin; but if the adjustable guide-pin is retained the scope of adjustment will be widened.

The casing W (shown in Fig. 11 of the drawings) has the merit of being very readily struck up from blanks, and also its projecting arms X adapt it to be secured very firmly in position.

The use of my casings is not limited to piano-keys and organ-keys; but they may be used to line the balance-pin mortises in such instruments, or in any other situations where they are available. Yet, again, felt as a lining to the casings may be substituted by any equivalent material.

It is apparent that the oscillation of the ordinary practical conditions in the application of my improvements to different instruments will necessitate some changes in construction. I would therefore have it understood that I do not limit myself to the exact construction shown and described, but hold myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a piano or organ key having a mortise in its lower face, of a metallic mortise-casing adapted to be inserted in the mortise in the key, and having an oblong felt-lined chamber, substantially as set forth.

2. The combination, with the guide-pin rail of a piano or organ, of a guide-pin adapted to be adjusted in position in said rail.

3. A guide-pin for the keys of pianos and organs, provided with a foot, said pin and foot being adapted to be movably inserted in the guide-pin rail of a piano or organ.

4. The combination, with the guide-pin rail of a piano or organ, said rail being provided with transverse slots, of guide-pins provided with feet, and adapted to be adjustably mounted in said slots, substantially as set forth.

5. The combination, with the guide-pin rail of a piano or organ, said rail being provided with transverse slots having parallel walls, of guide-pins provided with feet, and adapted to be adjustably inserted in the said slots, substantially as set forth.

6. The combination, with the guide-pin rail of a piano or organ, said rail being provided with transverse slots, of guide-pins, oval in cross-section, provided with feet located in a line with their major axes, and adapted to be adjustably inserted in said slots, substantially as set forth.

7. The combination, with a metallic mortise-casing having an oblong chamber, of a felt lining applied to the longer side walls of said chamber.

8. A metallic mortise-casing having a felt-lined chamber, the upper and lower edges of said casing being provided with means to engage with and hold the felt lining in place, substantially as set forth.

9. A metallic felt-lined casing for the mortises of piano and organ keys, provided with serrated edges to retain the felt in place.

10. A metallic felt-lined casing for the mor-

tises of piano and organ keys, said casing being provided with devices to hold it in position in the mortises.

11. The combination, with a piano or organ key having a mortise in its lower face, of a felt-lined casing adapted to be inserted in said mortise, said casing being equal in length but narrower than the mortise.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WM. H. LAUGHLIN.

Witnesses:
J. D. FINCH,
N. B. MASON.