No. 703,021. Patented June 24, 1902.

T. TONNESEN & I. CARLSON.

MOUNTING OF PIANO KEYS.

(Application filed Dec. 30, 1901.)

(No Model.)

Fig. 1.

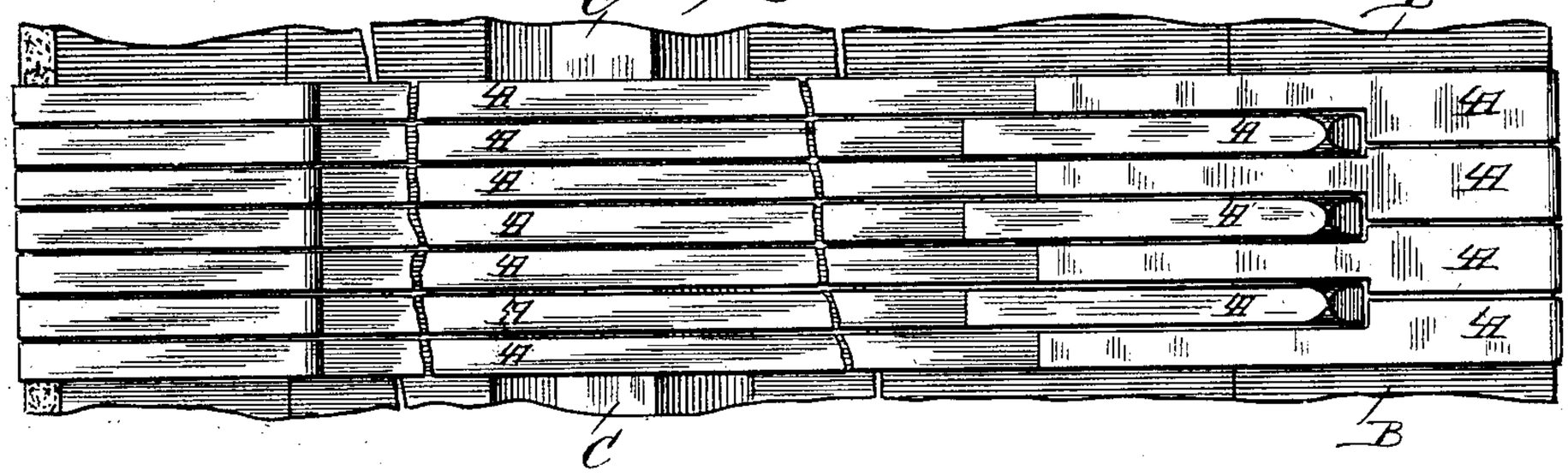


Fig. 2.

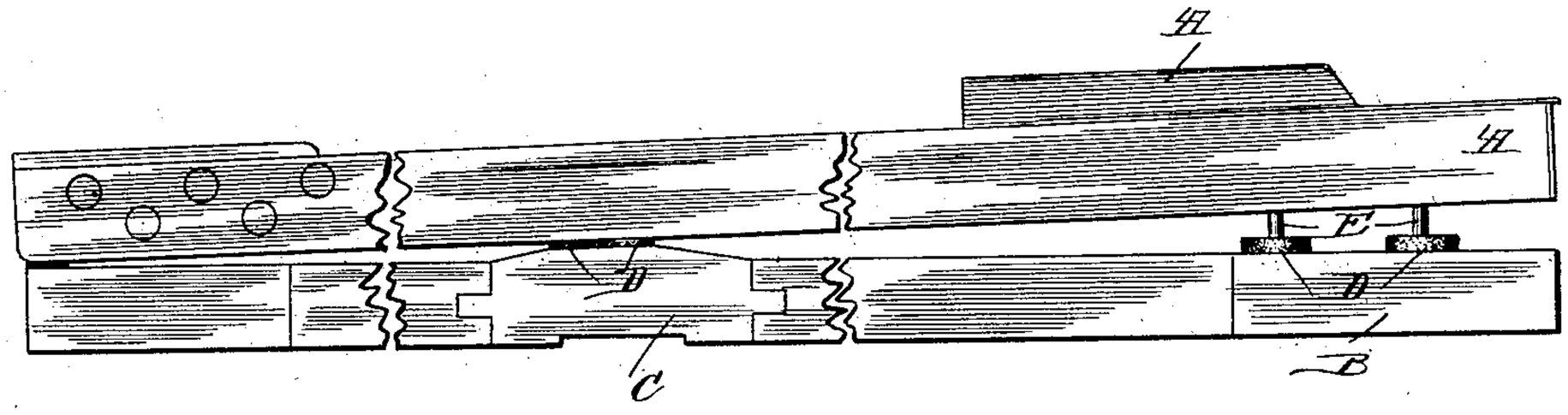


Fig. 3.

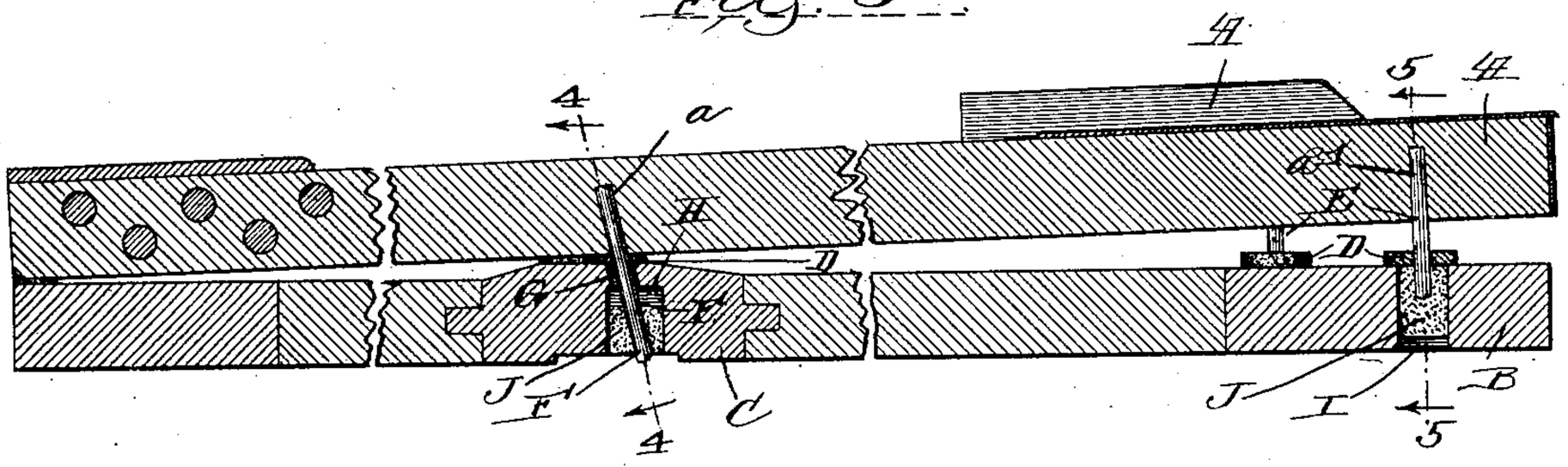


Fig. 5.

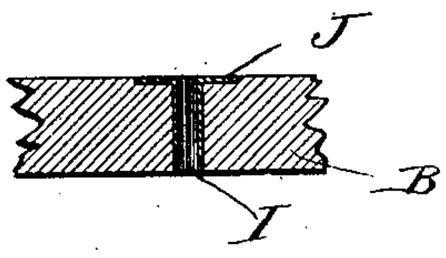
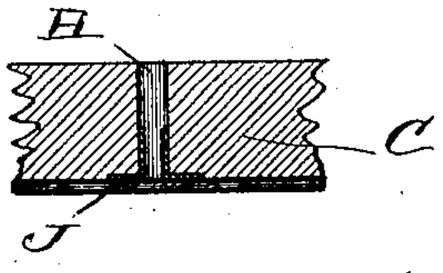


Fig. 4.



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UNITED STATES PATENT OFFICE.

TONNES TONNESEN AND IRGENS CARLSON, OF CHICAGO, ILLINOIS.

MOUNTING OF PIANO-KEYS.

SPECIFICATION forming part of Letters Patent No. 703,021, dated June 24, 1902.

Application filed December 30, 1901. Serial No. 87,789. (No model.)

To all whom it may concern:

Be it known that we, TONNES TONNESEN, of No. 893 North Washtenaw avenue, and IRGENS CARLSON, of No. 953 West Wrightwood avenue, in the city of Chicago, in the county of Cook and State of Illinois, citizens of the United States, have invented certain new and useful Improvements in the Mounting of Piano-Keys, of which the following is a full, clear, and exact description, whereby those skilled in the art to which it appertains may make and use the same, reference being had to the accompanying drawings.

The object of our invention is to simplify and cheapen the construction and mounting of piano-keys, to preserve the full strength of the keys by removing the necessity for making apertures through the keys, thus avoiding the need of capping said apertures on the top of the keys, to dispense with all rigid bushings in said keys or in the mountings thereof designed to prevent the sticking and the lateral movement of the keys due to the expansion and contraction of the keys by damp and by dry atmosphere.

The manner in which we accomplish our object is as follows, reference being had to the drawings forming a part of this specification, in which—

Figure 1 is a plan view of a series of piano-keys and the frame on which they are mounted. Fig. 2 is a side view of the piano-keys and frame on which they are mounted. Fig. 3 is a sectional view of Fig. 2, showing the method of mounting the keys, the manner of arranging the balance-pin and the front guide-pin in the keys, and the construction of the apertures and chambers in the balance-rail and front rail of the frame on which the keys are mounted and in which the pins are engaged and free to move. Fig. 4 is a sectional view of part of the balance-rail through the lines 4 4 in Fig. 3 looking in the direction of the arrows, showing the width of the chamber and the felt bushing affixed therein. Fig. 5 is a sectional view of part of the front rail through the lines 5 5 in Fig. 3 looking in the direction of the arrows, showing the width of the chamber and felt bushing affixed therein.

In the several drawings, A is a piano-key.

B is a front rail.

C is a balance-rail, these rails forming part of a frame in the piano on which the keys are mounted.

D represents ordinary felt cushions.

E is a front guide-pin affixed in the keys.

F is a balance-pin also affixed in the keys.

G is an aperture in the balance-rail C, in which the pin F is engaged.

H is a chamber in the balance-rail C, in which the pin F is free to swing.

I is an aperture in the front rail B, in which the pin E is engaged and free to swing.

J represents felt bushings affixed in the chamber H and in the aperture I to make the movement of the pins noiseless.

As shown in Fig. 3, the key A is bored from the under side at *a* and *a'*, the hole being of sufficient size and depth to allow the pins E and F to be firmly affixed therein. The hole *a* for the pin F is bored at a slight inclination, as shown in Fig. 3. In the balance-rail C the hole G is bored for the balance-pin F. This hole is circular and slightly inclined and sufficiently large to admit the pin F. Below this hole is an oblong chamber H in the rail C, the length of the chamber being across the grain of the wood, the length and width of said chamber being adapted to receive a felt bushing J, as shown in Fig. 4, and to allow the balance-pin F to swing freely in said chamber without friction or lateral movement. In the front rail B, as shown in Fig. 3, is an oblong aperture, the length of said aperture being cut across the grain of the wood, the length and width of said aperture being adapted to receive the felt bushing J, as shown in Fig. 5, and to allow the front pin E to swing freely therein without friction or lateral movement.

In this construction the top of the key is solid and its strength undiminished, while in the usual construction it is pierced with holes which are covered in various ways with patches and caps. In the rails on which the keys are mounted there is ample material for the apertures needed, and these being cut across the grain of the wood the width cannot be affected by any change of atmosphere. Hence all sticking and lateral movement of

the keys are avoided and the free vertical movement of the balance-pins is maintained under all atmospheric conditions.

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

The combination of a piano-key having a solid top, with a balance-pin firmly affixed in the under side of said key and projecting downward, and a balance-rail forming part of the key-frame, having an aperture adapted to receive said balance-pin and prevent any lateral or longitudinal movement of said key on said balance-rail, and an oblong chamber below said aperture in said rail, said oblong chamber being adapted in length to allow the free swing of the lower part of said balance-pin and adapted in width to receive a bushing of flexible material adhesively affixed to the walls of said chamber, and a flexible bushing adhesively affixed to the walls of said chamber, substantially as described.

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