Sept. 6, 1955 A. PIANA 2,716,916

REED BLOCK FOR ACCORDIONS

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Fig. 1.

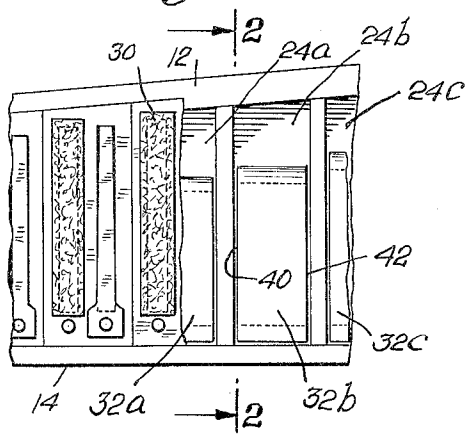
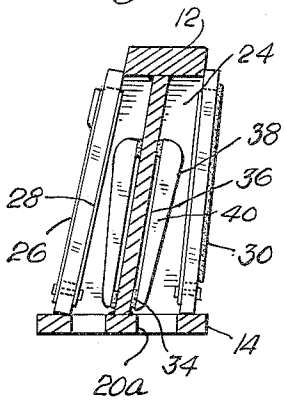


Fig. 2.



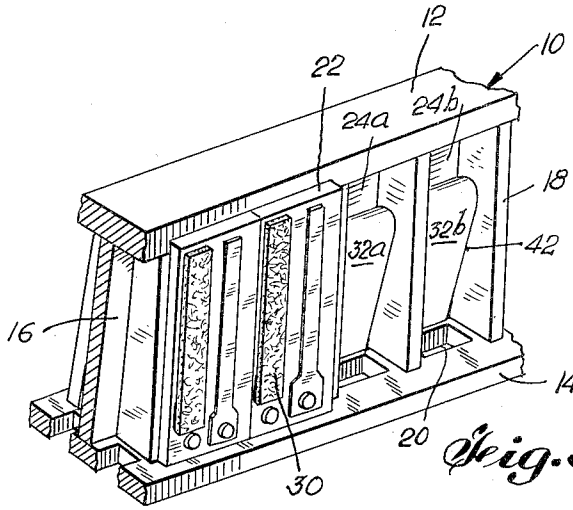
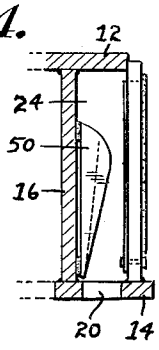


Fig. 3.

Fig. 4.



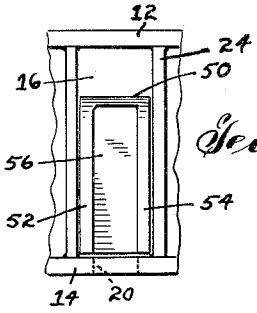


Fig. 5.

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REED BLOCK FOR ACCORDIONS

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4 Claims. (Cl. 84—360)

This invention relates to a reed block for accordions.

Accordion reed blocks are divided by longitudinal and transverse partitions to provide separate air chambers for the individual reeds or reed plates. Each reed plate carries two reeds or tongues, one of which is responsive to the suction action of the bellows and the other of which is responsive to the compression action of the bellows. One of the factors that determine the quantity or volume of the air required to actuate the reeds is the size of the air chambers. The larger the air chambers, the greater is the volume of air which will be required to actuate the reeds; the smaller the size of the air chambers, the smaller the volume of air required to actuate the reeds. However, it is neither practical nor desirable to substantially reduce the size of the air chambers of conventional accordion reed blocks by modifying the dimensions of the partitions which form said air chambers.

It is accordingly the principal object of this invention to provide a reed block whose air chambers are reduced in size by auxiliary means which is inserted into each air chamber. This auxiliary means will herein be designated as an insert and more particularly as an insert with sound-board or sounding-board properties. These inserts are mounted on the longitudinal partition which divides the air chambers on one side of the reed block from the air chambers on the opposite side thereof, and they reduce the size of said air chambers approximately 35% to 40%.

It is a corollary object of this invention to provide a reed block of the character described, wherein the inserts in the air chambers are so mounted as to serve and function as sounding-boards. These inserts are made of sounding-board material, such as the various woods which are used in making sounding-boards for musical instruments. The inserts are mounted in such manner that they are capable of vibrating under the influence of the vibrating reeds whose vibrations are transmitted to said inserts through the air. Consequently, not only do they reduce the effective size of the air chambers, but they also contribute to the resonance of the instrument.

A further object of this invention is the provision of a reed block of the character described, wherein the inserts in the air chambers are so shaped and so situated and so dimensioned as to direct the air currents to a strategic portion of the reeds or tongues approximately two-thirds of the distance from the anchored ends thereof. This configuration of the inserts traps some of the air on the compression stroke and bounces it back at the beginning of suction stroke to increase the speed of reaction of the compression reed and to equalize it with the speed of reaction of the suction reed. This minimizes and even prevents the break which occurs in that split second interval between the compression and suction strokes of the bellows.

Preferred forms of this invention are shown in the accompanying drawing in which:

Fig. 1 is a side fragmentary view of a conventional accordion reed block showing several inserts made in accordance with one form of this invention mounted therein.

Fig. 2 is a vertical section through said reed block on the line 2—2 of Fig. 1.

Fig. 3 is a perspective fragmentary view, partly in section, also showing a conventional accordion reed block with inserts made in accordance with the present invention mounted therein.

Fig. 4 is a sectional view showing the use of an insert of slightly different shape from the inserts shown in the first three figures of the drawing.

Fig. 5 is a fragmentary view of the reed block showing a face view of said insert.

Reed block **10** is conventional. It is provided with a top wall **12**, a bottom wall **14**, a longitudinally extending partition **16** which is connected to the top and bottom walls, and a plurality of transverse partitions **18** which are connected at their top and bottom ends to the top and bottom walls and along one side edge to the longitudinal partition **16**. Openings **20** are formed in the bottom wall **14** and it will be understood that the air currents pass through said openings on the compression and suction strokes of the bellows. Secured to the opposite side edges of the transverse partitions and also to the top and bottom walls are reeds or reed plates **22**. Air chambers **24** are thereby formed between each pair of adjacent transverse partitions and between the reed plate which is secured to each such pair of transverse partitions and that portion of the longitudinal partition which is disposed between said pair of transverse partitions. It will be understood that reed plates **22** are conventional and they are provided with a pair of vibrating tongues or reeds proper **26** and **28**, one of said tongues being responsive to the suction stroke of the bellows and the other to the compression stroke. There are of course leather flaps **30** which are paired with said vibrating tongues to serve as gaskets or seals to prevent a flow of air in the wrong direction.

It will be seen in Fig. 1 that three air chambers **24***a*, **24***b* and **24***c* are exposed to view. In these three air chambers are three inserts **32***a*, **32***b* and **32***c* respectively. It will be noted that these inserts are staggered in height and it will be understood that the height differential has been exaggerated in the drawing for purposes of clarity. A conventional reed block is relatively small on its high end and relatively large on its low end and it has a uniform taper from end to end. The height differential among the several inserts is intended solely to conform the inserts to said taper. In one reed block to which the present invention has been applied, the space between the top of the insert at the low end of the block and the top wall of said block is approximately half an inch. At the high end of the block the corresponding space is only a quarter of an inch.

Soft fiber pads or cushions **34** are provided between the inserts and the longitudinal partition **16** on which they are mounted. These fiber pads serve the purpose of spacing the inserts from the longitudinal partition to enable them to serve as sound-boards. Glue or cement may be used to secure the inserts to the fiber pads and the fiber pads to the longitudinal partition. It will be noted that there are two fiber pads for each insert, one at the top and one at the bottom. The fiber pad at the top of the insert will always be situated in the same place. However, the lower pad may be shifted from one location on the insert to another in order to vary the resonant qualities of the insert and thereby to produce variations in tone. It should be understood that one, two, three or even more fiber pads may be employed depending on the size of the reed. It should further be understood other material than fiber may be used for pad purposes. Furthermore

thick blobs of glue may be used not only to secure the insert to the longitudinal partition but also to space the insert therefrom.

Careful examination of Fig. 1 will disclose the fact that the side edges of the inserts are spaced a small distance from the transverse partitions and the bottom edge of said inserts is spaced a corresponding distance from the bottom wall of the reed block. A sixty-fourth of an inch constitutes ample clearance both at the side edges and at the bottom edge. This clearance is necessary in order to prevent contact between the edges of the inserts and the transverse partitions and bottom wall of the reed block since that would dampen the vibratory capacity and action of said inserts.

Each insert is shown in the drawing to have a flat back wall **36** and a tapered front wall **38**, said front wall being backwardly curved at its upper and lower ends to meet the back wall. The side walls **40** and **42** are also flat and they are perpendicular to the flat back wall. It will be noted in Fig. 2 that the upper end of the insert is somewhat heavier and thicker than the lower end and it will be seen that the lower end tapers backwardly to meet the back wall **20***a* of opening **20**. Similarly, the outward taper of the upper portion of the insert carries it close to the reed or tongue on the inside of the reed plate. It is this outwardly tapered or bulging upper portion which directs the air current to the strategic point on said tongue or reed above described and which bounces the air between the compression and suction strokes of the bellows. The air space between the bulge on the insert and the reed plate should be substantially equal to the size (but not shape) of opening **20**.

Referring now to Figs. 4 and 5, it will be seen that an insert **50** is provided which is basically similar to the insert shown in Figs. 1, 2 and 3 with the sole exception that it is provided with a pair of side wings **52** and **54** respectively which define a channel **56** between them. These wings occupy space and they therefore help reduce the air capacity of the air chambers. The channel between the wings provides clearance for the tongue and leather flap of the several reeds. Consequently, even less air is required to actuate the tongues of the reeds than is the case with the inserts shown in Figs. 1, 2 and 3.

It is to be clearly understood that the air space or passage between the thickest portion of insert **50** and the reed which it faces, corresponds, substantially, to the cross sectional area of opening **20** so that the air will freely pass in either direction both through said opening **20** and past insert **50**. This principle, of course, also applies with equal force to the inserts which are shown in the first three figures of the drawing. In other words, enough space is provided between the thickest portion of these inserts and the reeds which they face, to provide free and unobstructed passage to all of the air which passes through openings **20**. Consequently, the inserts herein claimed do not and cannot function as bottlenecks to any extent whatsoever to the passage of air through the instrument.

The foregoing is illustrative of preferred forms of this

invention and it will clearly be understood that these preferred forms may be modified and other forms may be provided within the broad scope of the invention and claims.

I claim:

1. A reed block for accordions, comprising a longitudinal partition, a top wall on said longitudinal partition, a bottom wall on said longitudinal partition, a plurality of spaced transverse partitions on said longitudinal partition, on both sides thereof, said transverse partitions being connected to said top and bottom walls to form air chambers between said transverse partitions and between said top and bottom walls, a plurality of reeds extending across said air chambers on the outside edges of said transverse partitions and between said top and bottom walls, a plurality of openings formed in said bottom wall, one for each air chamber and communicating therewith, and a plurality of inserts mounted on said longitudinal partition, one for each said air chamber, each said insert being made of vibratory material and being provided with pads between the insert and the longitudinal partition to enable said insert to vibrate under the influence of the reed vibrations which would be generated by the passage of air in either direction through the openings in the bottom wall, the air chambers and the reeds.

2. A reed block in accordance with claim 1, wherein the inserts have a flat back wall and flat side walls and a tapered front wall which meets the back wall at its bottom end and is curved backwardly at its top end to meet the top of the back wall.

3. A reed block in accordance with claim 1, wherein the inserts have a flat back wall and flat side walls and a tapered front wall which meets the back wall at its bottom end, the upper portion of said inserts being relatively thick and the lower portion being relatively thin, said upper and lower portions merging in each other, the upper portion curving backwardly to meet the top of the back wall.

4. A reed block in accordance with claim 1, wherein the upper portion of each said insert of vibratory material is thicker than the lower portion, said upper portion tapering downwardly and backwardly to merge with the lower portion, a pair of side wings being provided on said insert which coincide with the flat side walls of said insert, a channel being formed between said wings which extends substantially the full length of said insert from its upper to its lower end.

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