May 16, 1944. F. H. MAGNUS 2,348,830

HARMONICA

Filed Jan. 15, 1942

Fig. 1

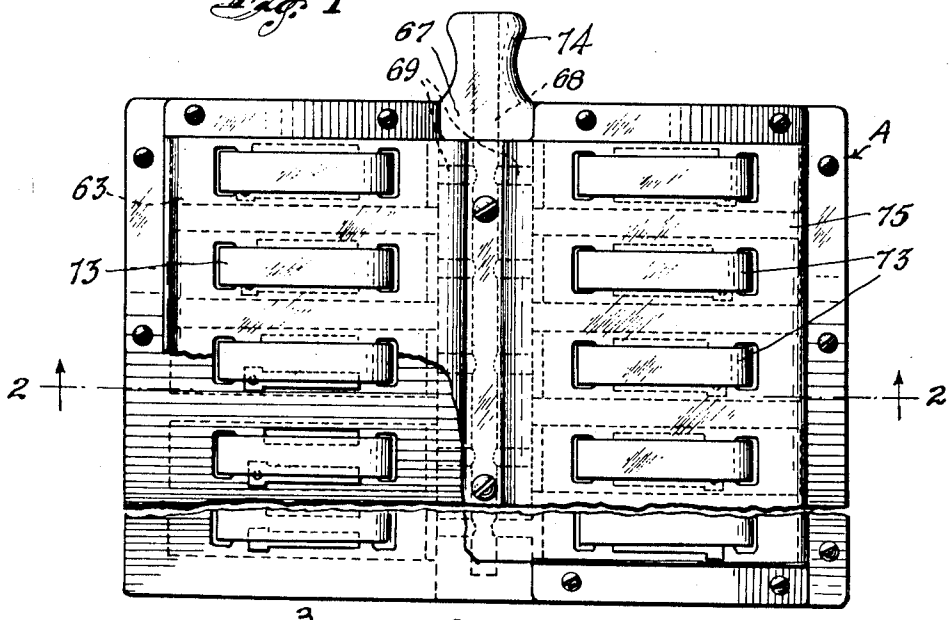


Fig. 2

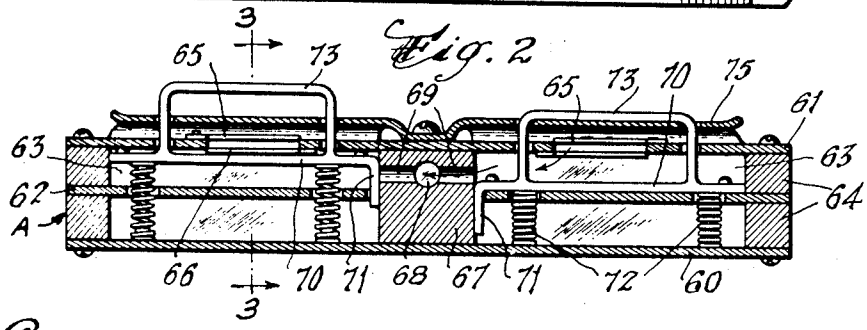
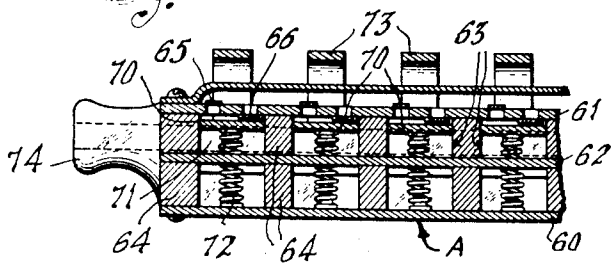


Fig. 3



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HARMONICA

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4 Claims. (Cl. 84—377)

This invention relates in general to wind instruments of the reed type and more particularly to a harmonica.

Harmonicas have been devised by which a chromatic scale may be played, comprising two or more sets, banks or rows of wind cells and reeds and one or more slide valves or dampers so arranged that the full or natural tone cells or reeds are normally open or undamped and the full tone and half tone or sharp or flat cells or reeds can be closed or damped, alternately. However, such harmonicas are complicated and are seriously limited to the range and variety of musical tones, harmony and special effects.

One object is to provide a harmonica that shall embody novel and improved features of construction whereby full tones can be played singly and alone or half tones can be played single and alone, or either a full tone or a half tone can be played with a harmonizing tone to produce a chord, so that a wide range and variety of musical chords and special effects can be obtained with a minimum of difficulty and skill and without special "tonguing."

Still further objects are to provide a harmonica or mouth organ which shall include a novel and improved construction and combination of a plurality of wind cells and corresponding reeds, a single mouth piece or wind inlet for all of said cells, and key stops for controlling communication between said mouth piece and said wind cells; and to provide such an instrument that shall comprise two banks of reeds, with the reeds of one bank tuned for full tones and the reeds of the other bank tuned for half tones, whereby the full tones and half tones can be played individually or a plurality of tones can be played simultaneously, and the necessity for "tonguing" will be obviated.

Other objects, advantages and results of the invention will be brought out by the following description in conjunction with the accompanying drawing in which

Figure 1 is a top plan view of a harmonica embodying the invention, with portions broken away for clearness in illustration.

Figure 2 is a transverse vertical sectional view on the line 2—2 of Figure 1, and

Figure 3 is a fragmentary vertical sectional view on the line 3—3 of Figure 2.

For illustrating the principles of my invention I have shown a harmonica wherein communication of the reeds with the sound cells is controlled by manually operated valves or key stops, and all of the wind cells are connected to a common wind channel which has a simple mouth piece. More particularly, the harmonica includes a body A comprising a base plate 60, a reed plate 61, an intermediate plate 62 and spacers or partitions 64, which form between the plate 62 and the reed plate a plurality of wind cells 63. The reed plate has two banks or sets of reeds, one set at each side of the longitudinal median plane of the reed plate, and the sets of reeds may be tuned to different scales. Each set of reeds includes a "blow" reed 65 and a "draw" reed 66 for each wind cell.

A member 67 which serves as a wind tube extends longitudinally of the instrument between the banks of reeds and corresponding wind cells, said member having a longitudinal wind channel 68 common to all of the wind cells and provided with lateral channel branches 69 one leading to each of the wind cells. Within each wind cell is arranged a slide valve 70 which has a valve head 71 slidable along the corresponding side of the wind tube 67 and transversely of one of the branches 69 of the wind channel so that when the valve is in one position, communication between the wind channel branch 69 and the corresponding wind cell is cut off as shown at the left of Figure 2, while when the valve is in the other position communication is permitted between the wind cell and the wind channel as shown at the right of Figure 2. The valve normally is influenced by springs 72 into the position to cut off communication between the wind channel and the wind cell. The valve has a fingerpiece 73 projecting upwardly above the reed plate for manipulation of the valve.

The wind tube 67 has a simple mouth piece 74, and it will be observed that the operator by blowing or drawing on the mouth piece 74 and manipulating the valves 70 through the finger pieces 73, may play any selected notes at will.

Preferably a cover 75 will be secured to the body over the reed plate to protect the reeds and form a sound chamber, as usual. As shown, both the cover 75 and the reed plate have openings through which project the finger pieces 73 of the valve, and for convenience in assembly the finger pieces of the valves may be separably connected to the valve bodies.

While I have shown and described the now preferred embodiment of my invention it should be understood that the details of structure of the harmonica may be modified and changed by those skilled in the art within the spirit and scope of the invention.

Having thus described my invention, what I claim is:

1. A harmonica comprising a body having a

wind tube with a channel therethrough and a mouth-piece, two sets of wind cells one at each side of said wind tube with each cell arranged to communicate with said channel, a manually operable valve for each wind cell to control communication between said cell and said channel, a reed plate for each set of wind cells, and reeds on said reed plates each communicating with one of said channels.

2. A harmonica comprising a body having a set of wind cells and a wind tube at one side of said set of wind cells having a channel therethrough and a lateral channel branch for each wind cell, a manually operable valve for each wind cell having a head slidable along the corresponding side of said wind tube and transversely of the corresponding channel branch to control communication between said wind channel and said wind cell, a reed plate for said set of wind cells and reeds on said reed plate for said wind cells.

3. The harmonica set forth in claim 2 with the addition of springs for normally holding said valves in position to prevent communication between said wind cells and said channel branches, and a finger piece for each valve projecting through said plate for actuating said valve to permit communication between said wind channel and the corresponding wind cell.

4. A harmonica comprising a body having two parallel sets of wind cells disposed approximately in a common plane, a rigid member between said sets of wind cells and having a longitudinal wind channel therein, a mouthpiece at one end and a lateral channel branch communicating with each wind cell, a manually operable valve for each wind cell to control communication between each of said wind cells and the corresponding channel branch, a reed plate for each set of wind cells and reeds on said reed plate.

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