

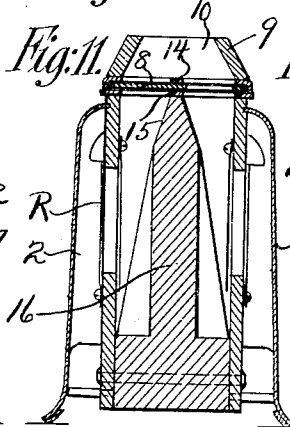
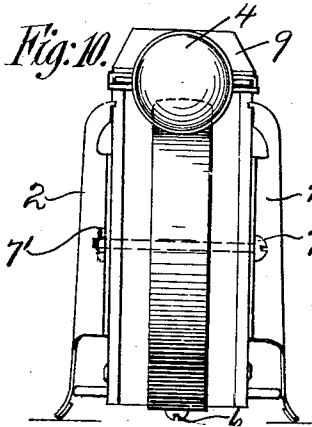
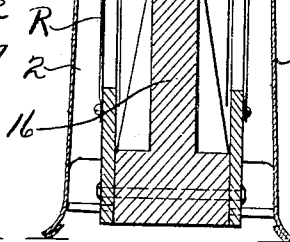
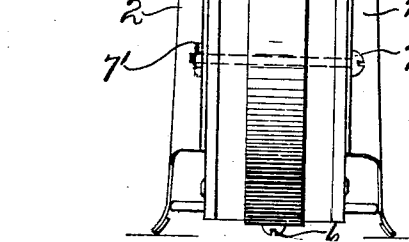
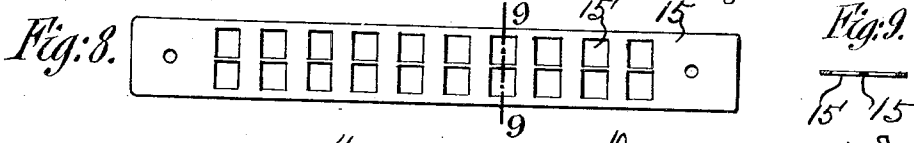
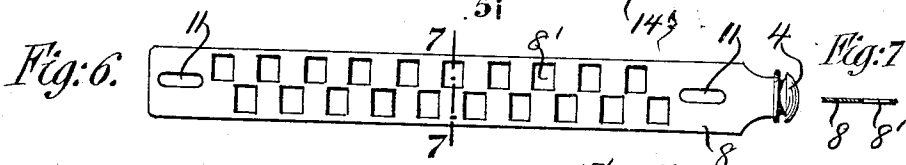
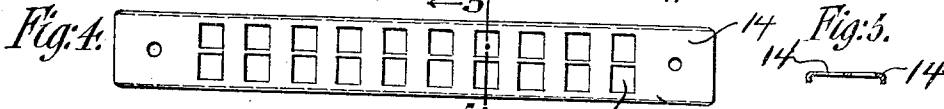
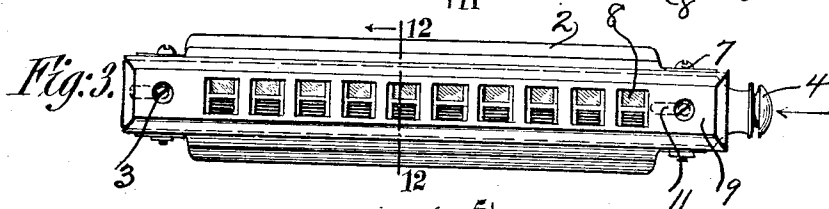
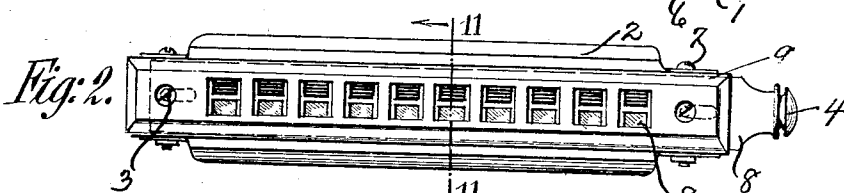
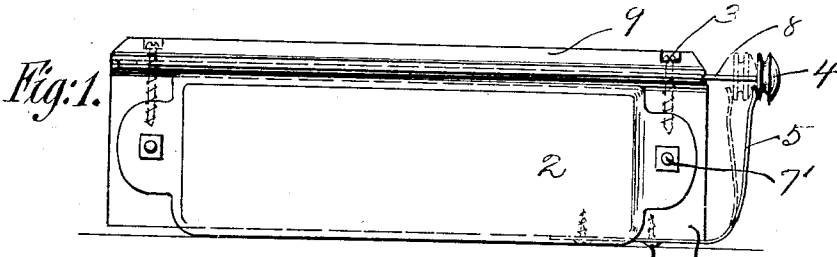
May 29, 1928.

1,671,309

D. NEWMAN

HARMONICA

Filed May 20, 1926



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UNITED STATES PATENT OFFICE.

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HARMONICA.

Application filed May 20, 1926. Serial No. 110,386.

My invention relates to a new and improved chromatic harmonica, that is, a harmonica adapted to enable the performer to readily play the chromatic scale, as distinguished from the diatonic scale.

One of the objects of my invention is to provide an improved slide arrangement whereby the movement of the slide will cause the variation of a half-note in the note which is being played without any change in the manipulation or use of the instrument.

Another object of my invention is to provide a U-shaped guide for said slide which will minimize the loss of the air current used to play the instrument.

Other objects of my invention will be set forth in the following description and drawings, which illustrate a preferred embodiment thereof, it being understood that the above general statement of the objects of my invention is intended to generally explain the same and not to limit in any manner.

Fig. 1 is a top elevation.

Fig. 2 is a front elevation, taken at the top of Fig. 1, with the regulating slide in the outer position.

Fig. 3 is the same as Fig. 2, the regulating slide being shown in the inner position.

Fig. 4 is a front elevation of the U-shaped guide member.

Fig. 5 is a section on the line 5—5 of Fig. 4.

Fig. 6 is a front elevation of the slide.

Fig. 7 is a section on the line 7—7 of Fig. 6.

Fig. 8 is a front elevation of the metal rim member of the body of the harmonica.

Fig. 9 is a section on the line 9—9 of Fig. 8.

Fig. 10 is an end elevation of the harmonica.

Fig. 11 is a transverse vertical section showing one position of the slide.

Fig. 12 is a view similar to Fig. 11 showing another position of the slide.

The wooden body 1 of the harmonica has a central tapered partition 16 and the respective halves of the harmonica are divided into cells by transverse wooden partitions. Each said cell has two reeds R mounted on the outer face thereof in the usual manner. Metal cover plates 2 are secured to the body 1 by bolts 7 and nuts 7'. The front of the harmonica has a metal rim plate 15, having

openings 15' registering with and corresponding to the mouths of the cells.

A U-shape guide member 14 is connected to the body 1 with its open side directly adjacent member 15. It has openings 15' registering with openings 14'.

The slide 8 is provided with elongated longitudinal slots 11 and a head 4, and staggered openings 8'. Each opening 8' corresponds to an opening 15', but said slide covers half of the openings 15', in its inner and outer positions.

A blade spring 5 is connected to the rear of the body 1 by screws 6, and it keeps the slide 8 in normal outer position. Screws 3 connect the members 15 and 14 rigidly to the body 1 and the shanks of said screws 3 also keep the slide 8 in proper position, while permitting the free sliding movement thereof, since said shanks pass through slots 11.

Said screws 3 also hold the metal mouth-piece 9 in position. The heads of screw 3 are countersunk in mouth-piece 9, which has openings 10, each opening 10 corresponding to two vertically aligned openings 15'. The mouth-piece 9 forms a unitary structure with the wooden body of the harmonica.

The pressure caused by screws 3 upon mouth-piece 9 is taken up by the laterally bent edges of guide 14, so that the slide 8 is not pressed against rim member 15, and hence slide 8 can be easily moved and without much friction. However, it fits tightly enough between rim member or plate 15 and guide 14 to prevent any substantial loss of air.

The chromatic scale has twenty tones or notes.

Ten of the cells are normally closed by slide 8, because the imperforate portions thereof, intermediate the openings 8', correspond to the openings 15'.

When one of the openings 15' is closed, the other openings 15' in the same horizontal row are also closed, and the other openings 15' in the other horizontal row are all open.

Hence, by shifting the slide 8 from its inner position to its outer position, the openings 15' of each vertical series are alternately exposed to the action of the air current which causes the reeds R' to vibrate. The reeds R of each vertical row produce adjacent tones or notes in the chromatic

scale, so that a change in pitch corresponding to a chromatic semitone can be produced by merely actuating the slide 8. My invention is not limited to a harmonica in which each and every vertical row of cells has reeds whose notes are separated by a chromatic semitone.

I have shown a preferred embodiment of my invention, but it is clear that numerous changes and omissions could be made without departing from its spirit.

Thus, one of the reeds R in each cell is operated when air is blown in, and another is operated when air is aspirated, in the usual manner. However, by operating the slide and without changing the direction of the air current, the next note in the chromatic scale is played. However, my invention is not necessarily limited to any particular tone relationship between the reeds.

I claim:—

1. A chromatic harmonica having a body provided with a plurality of vertical rows of cells, each said row having two cells, said cells being arranged in two horizontal series, each cell having a reed associated therewith, the interval between the notes of the reeds in a vertical row of said cells being a chromatic semitone, a slide having two horizontal series of openings corresponding in size and spacing to said cells, said openings in the slide being separated by imperforate portions having substantially the same dimensions as said openings, the said slide being adapted to alternately cover the openings of each horizontal series of cells, a guide member having lateral por-

tions, said slide being slidably mounted in said guide member, and an outer mouth-piece located external to said guide member, said mouth-piece and guide member being connected to the body of the harmonica by lateral fastening members, said slide having elongated slots through which said lateral fastening means pass.

2. A harmonica having a body portion provided with a plurality of vertical rows of cells, each said row having a plurality of cells therein, said cells having respective openings communicating with the front lateral edge of the harmonica, the said cells having reeds associated therewith, a mouth piece located in front of said lateral edge and extending over all of the said cells, a manually operated slide located at the said lateral front edge of the harmonica and having a series of perforations separated by intermediate imperforate portions, said slide being adapted to control the openings of the said cells, and a guide member having continuous lateral portions and located at said lateral front edge of the harmonica intermediate said mouth piece and the body portion of the harmonica, said slide being slidably mounted in said guide member intermediate said continuous lateral portions, the said mouth piece and guide member being connected to said front edge by fastening members adapted to press them against the front lateral edge of the harmonica.

In testimony whereof I affix my signature.

DAVID NEWMAN.