May 28, 1929. O. FAHRNI 1,714,663

MOUTH ORGAN

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Fig. 1

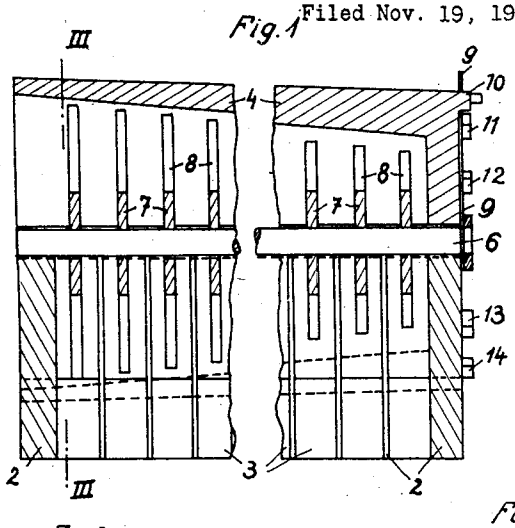


Fig. 2

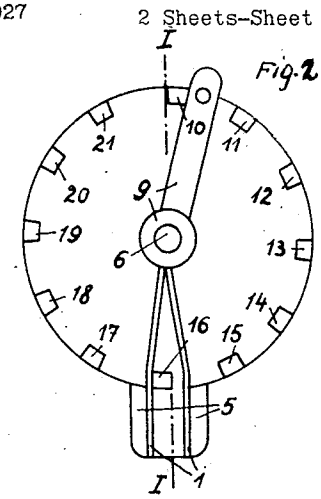


Fig. 3

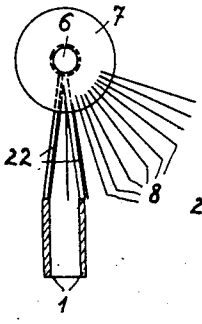


Fig. 4

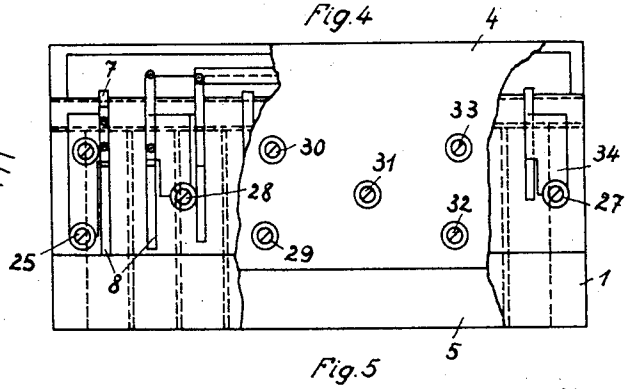


Fig. 5

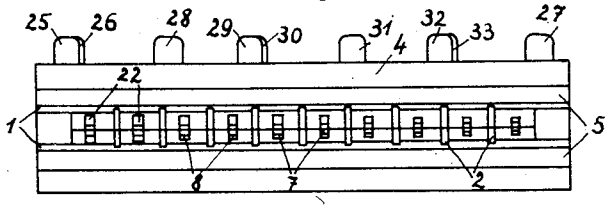


Fig. 6

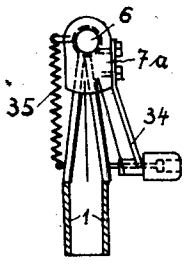


Fig. 7

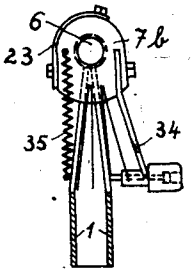
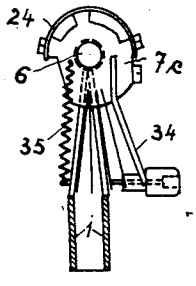


Fig. 8



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Fig. 9

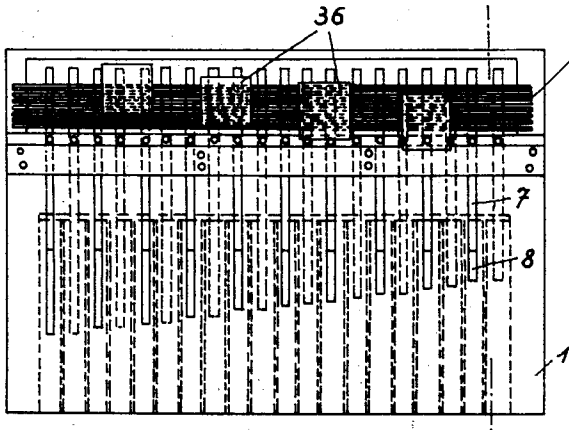


Fig. 11

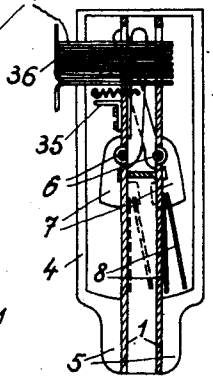


Fig. 10

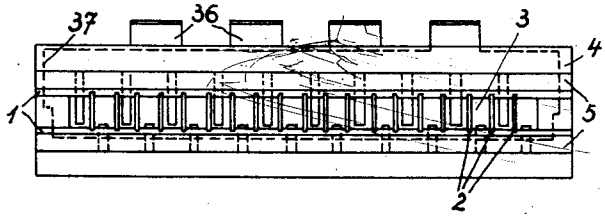


Fig. 12

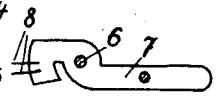
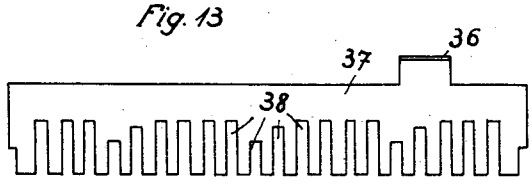


Fig. 13



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Patented May 28, 1929. 1,714,663

UNITED STATES PATENT OFFICE.

OTTO FAHRNI, OF LAUFENBURG, SWITZERLAND.

MOUTH ORGAN.

Application filed November 19, 1927, Serial No. 234,470, and in Switzerland November 25, 1926.

In mouth-organs of known type the sound-tongues are fixed by rivets on plates and tuned in continuous succession to range over a diatonic scale. One can therefore play only in one key on a mouth-organ.

In the mouth-organ, according to the invention, the sound-tongues for playing the tones of the chromatic scale are arranged in radial position on disks which are mounted on at least one shaft and are rotatable. By rotating the disks any sound-tongues can be adjusted on the sound-slots so that at the blowing and drawing one may play in any desired key.

Several embodiments of the invention are illustrated, by way of example, in the accompanying drawing, in which:—

Fig. 1 is a section on line I—I of Fig. 2, showing a mouth-organ comprising a lever for rotating the shaft which carries the disks.

Fig. 2 is a side-elevation of Fig. 1 viewed from the right.

Fig. 3 is a section on line III—III of Fig. 1, the casing being omitted.

Fig. 4 shows in top-plan-view, the casing being partly broken away, a mouth-organ comprising keys for rotating the disks.

Fig. 5 is a top-plan-view of Fig. 4.

Figs. 6, 7 and 8 show each one of the disks used in the form of construction shown in Figs. 4 and 5.

Fig. 9 shows in side-elevation another form of construction without the casing and comprising sheet-metal-plates serving as keys for rotating the holders for the sound-tongues.

Fig. 10 is a top-plan-view of Fig. 9.

Fig. 11 is a section on line XI—XI of Fig. 9.

Fig. 12 shows in side-elevation a holder for the sound-tongues as shown in Figs. 9 to 11.

Fig. 13 shows in side-elevation a sheet-metal-plate with key.

The mouth-organ according to Figs. 1 to 3 consists of brass-plates 1 which, together with wedges 2, form the air-channels 3, and of a casing 4 with mouth-bars 5, disks 7 keyed on a shaft 6 and carrying the sound-tongues 8, and of a lever 9 connected to said shaft 6. On the outer side of the end-wall of casing 4 stops 10 to 21 are arranged which serve for adjusting the desired key. The sound-tongues 8 move through the sound-slots 22, when the disks 7 are being rotated. The sound-tongues 8 on each disk 7 are tuned in semi-tone- and full-tone steps. Every first and third, second and fourth, fifth and seventh, sixth and eighth sound-tongues 8 of all disks 7, form together each a set one diatonic-scale. When, for instance in the position of the lever 9 shown in Fig. 2, the sound-tongues 1 and 3 are being played, the sound-tongues 2 and 4 which are turned to half a sound-step higher will come behind the sound-slots 22, when the lever 9 is being turned towards the stop 11, said sound-tongues being sounded at the blowing and drawing by the air-current which moves along the same. According to the adjusting of the disk any other sound-row can be played, it being merely necessary to shift the lever 9 into one of the gaps between the stops 10 to 21.

In the mouth-organ, shown in Figs. 4 and 5, the disks are rotated by depression of keys. The disks 7 of the mouth-organ are arranged in three groups, the first, fourth, seventh and tenth disks 7 form the Group I. These disks have the shape and size of the disk 7^a in Fig. 6, and they are fixed by screws on the shaft 6. The Group II consists of the disks 2, 5 and 8, having the shape and size of the disk 7^b, shown in Fig. 7 and connected with one another by a curved piece of sheet-metal 23. The Group III is composed of the disks 3, 6 and 9 of the shape and size of the disk 7^c shown in Fig. 8 and connected the one with the others by a sheet-metal-plate 24. The disks of the Groups II and III are loosely mounted on shaft 6. Three keys are provided for operating one group, the keys 25, 26 and 27 for Group I, the keys 28, 29 and 30 for Group II and the keys 31, 32 and 33 for Group III. The movements of these keys are transmitted by levers 34 upon the corresponding disks 7^a, 7^b and 7^c. Each disk has four sound-tongues, tuned in semi-tone-steps.

By depressing one of the keys 25, 29 or 32 the disks of the corresponding group are rotated such an angle that the sound-tongues 1 and 3, which were in the position shown in Figs. 6 to 8 i. e. in the initial position on the upper sides of the brass-plates 1, are now lying on the lower sides of these brass-plates so that these sound-tongues 1 do no longer serve for blowing but for drawing, and the sound-tongues 3 do no longer serve for drawing but for blowing.

When the depressed key is released again, the corresponding group of sound-tongues is returned into the initial position by the action of the springs 35.

When one of the keys 28, 31 or 27 is being depressed, the disks of the corresponding group are rotated such an angle that the sound tongues 2 and 4 come to lying on the upper sides of the brass plates 1, the sound tongues 2 for blowing and the sound tongues 4 for drawing.

When one of the keys 26, 30 or 33 is being depressed, the sound tongus 2 and 4 of the corresponding groups are moved to the lower sides of the brass-plates 1, so that the sound-tongues 4 are now used for blowing and the sound-tongues 2 for drawing.

By depressing the different keys each tone of the chromatic-scale can either be blown or drawn.

In the form of construction illustrated in Figs. 9 to 11 two shafts 6 are arranged on each of which ten holders 7 for sound-tongues (Fig. 12), carrying each two sound-tongues 8, are loosely mounted. The rotating of the holders 7 is effected by a pressure exerted upon the sheet-metal-plate 37, carrying keys 36. Each sheet-metal-plate 37 has twenty incisions 38 (Fig. 13) corresponding to the twenty holders 7 of sound-tongues. According to whether these incisions 38 are more or less deep, the several holders 7 are more or less rotated (Fig. 11), whereby the sound-tongues 8 are brought in suitable succession into the sound slots.

I claim:

1. A mouth-organ, comprising in combination with the casing, a shaft journal in said casing, disks mounted on said shaft, and sound-tongues fixed radially on said disks.

2. A mouth-organ as specified in claim 1, comprising in combination with a casing having a mouth piece and a shaft journaled in said casing, disks with sound-tongues keyed on said shaft, and a lever for rotating said shaft a certain angle, whereby any desired adjusting of said sound-tongues with regard to said mouth piece for playing a certain key is obtained.

3. A mouth-organ as specified in claim 1, comprising in combination with the shaft, sound-tongues-carrying disks loosely mounted on said shaft, keys, and levers for rotating said disks in order to adjust said sound-tongues to a certain scale.

4. A mouth-organ as specified in claim 1, comprising in combination a casing, sound-plates having sound-slots, a rotatable shaft, and rotatable disks on said shaft which carry sound-tongues to be brought onto the one or other side of said sound-plates according to whether said sound-tongues are to be operated by blowing or by drawing.

In testimony whereof I affix my signature.

OTTO FAHRNI.