

(No Model.)

5 Sheets—Sheet 1.

J. GALLEAZZI.
ACCORDION.

No. 517,648.

Patented Apr. 3, 1894.

Fig. 1.

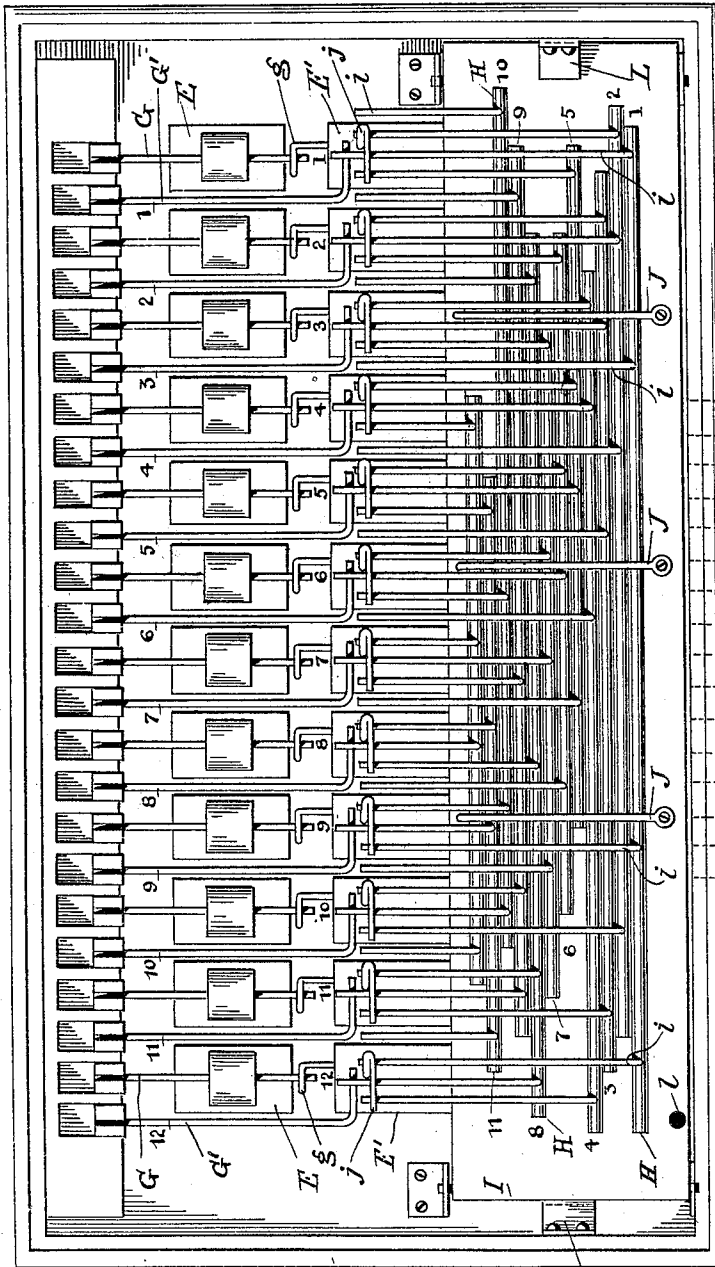


Fig. 2.

1	2	3	4	5	6	7	8	9	10	11	12
# C	# F	B	E	A	D	G	C	F	A	D	G
#C1 #C1 #F2 #F2	#C1 #C1 #F2 #F2	B3 B3 B3 B3	E4 E4 E4 E4	A5 A5 A5 A5	D6 D6 D6 D6	G7 G7 G7 G7	C8 C8 C8 C8	F9 F9 F9 F9	A10 A10 A10 A10	D11 D11 D11 D11	G12 G12 G12 G12
E4 E4 E4 E4	A5 A5 A5 A5	#C1 #C1 #F2 #F2	B3 B3 B3 B3	E4 E4 E4 E4	A5 A5 A5 A5	D6 D6 D6 D6	C8 C8 C8 C8	F9 F9 F9 F9	A10 A10 A10 A10	D11 D11 D11 D11	G12 G12 G12 G12
MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR	MAJOR
MINOR	MINOR	MINOR	MINOR	MINOR	MINOR	MINOR	MINOR	MINOR	MINOR	MINOR	MINOR

Witnesses.

W. Hartenwerdt,
Charles Raullett

Inventor.

Joseph Galleazzi
by *A. H. St. Marie*
att'y

(No Model.)

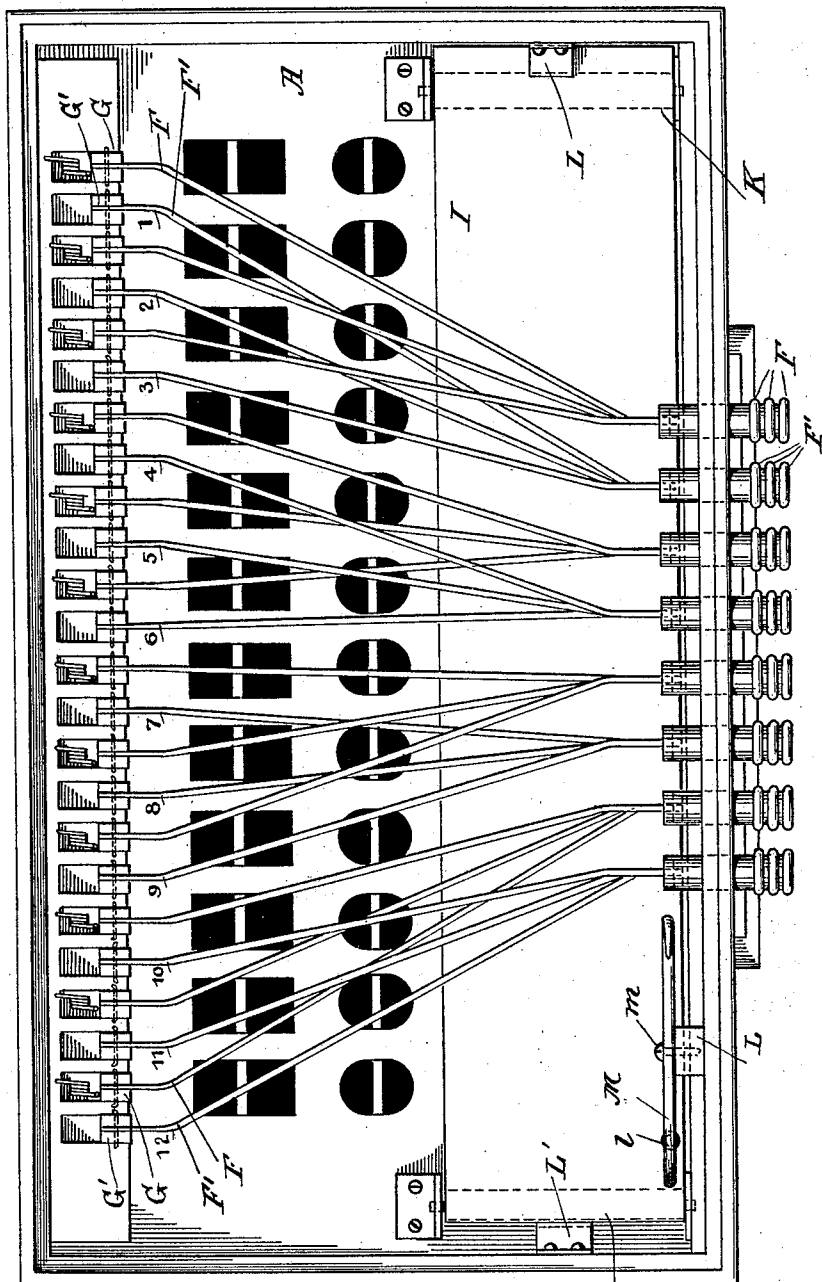
5 Sheets—Sheet 2.

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Fig. 3.



Witnesses.

H. Monteverde

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(No Model.)

5 Sheets—Sheet 3.

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Fig. 4.

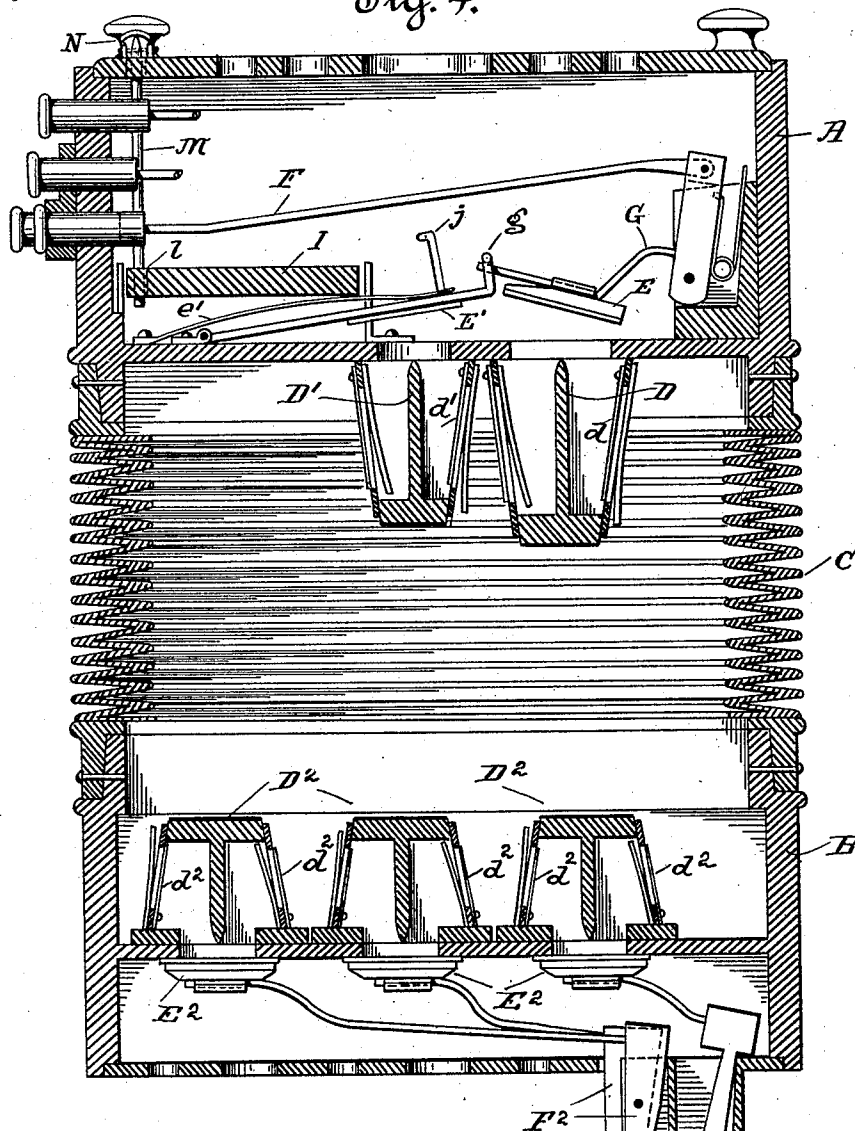
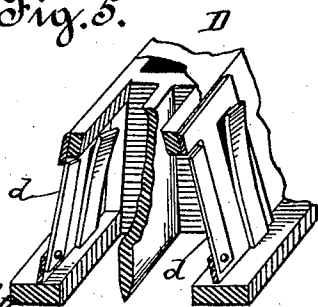


Fig. 5.



Witnesses.

Ed. Fontenelle

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(No Model.)

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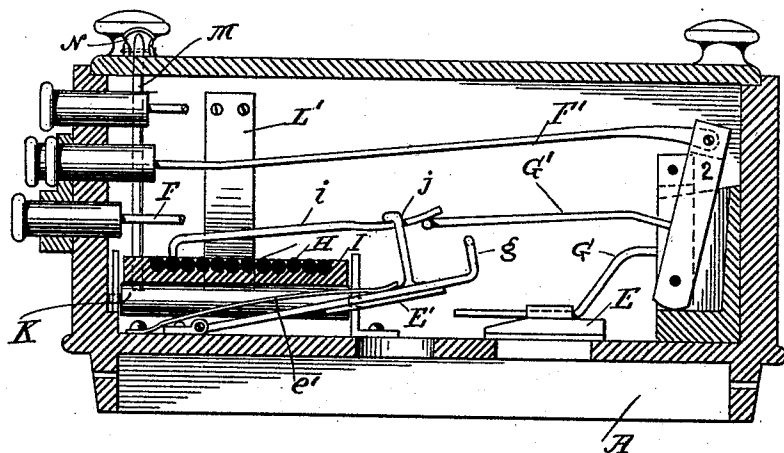


Fig. 6.

Fig. 7.

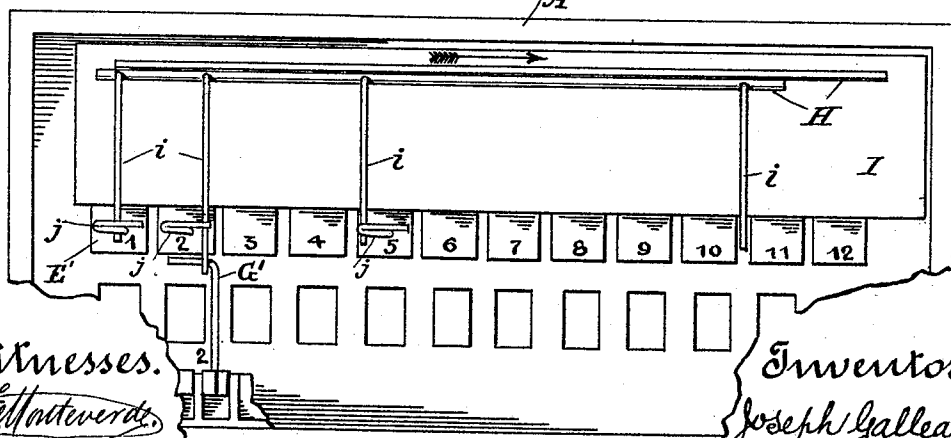
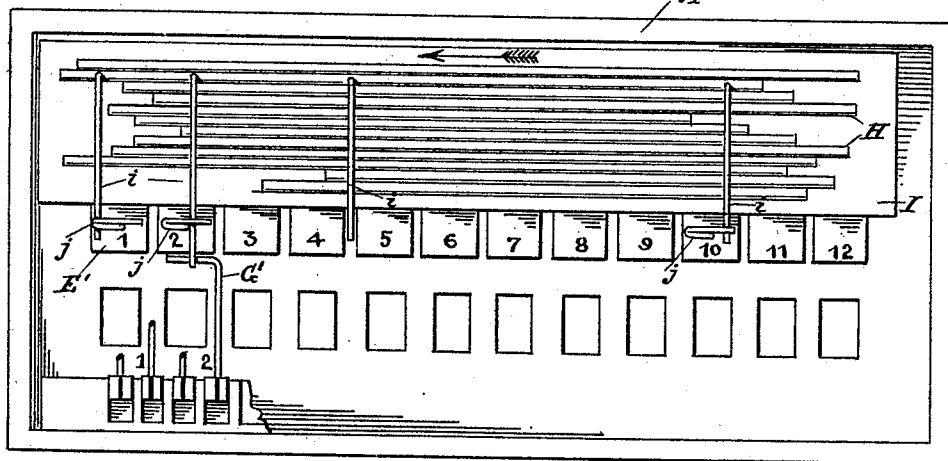


Fig. 8.

Witnesses.

Stettinwerdt.

Charlie Raultt.

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att'y

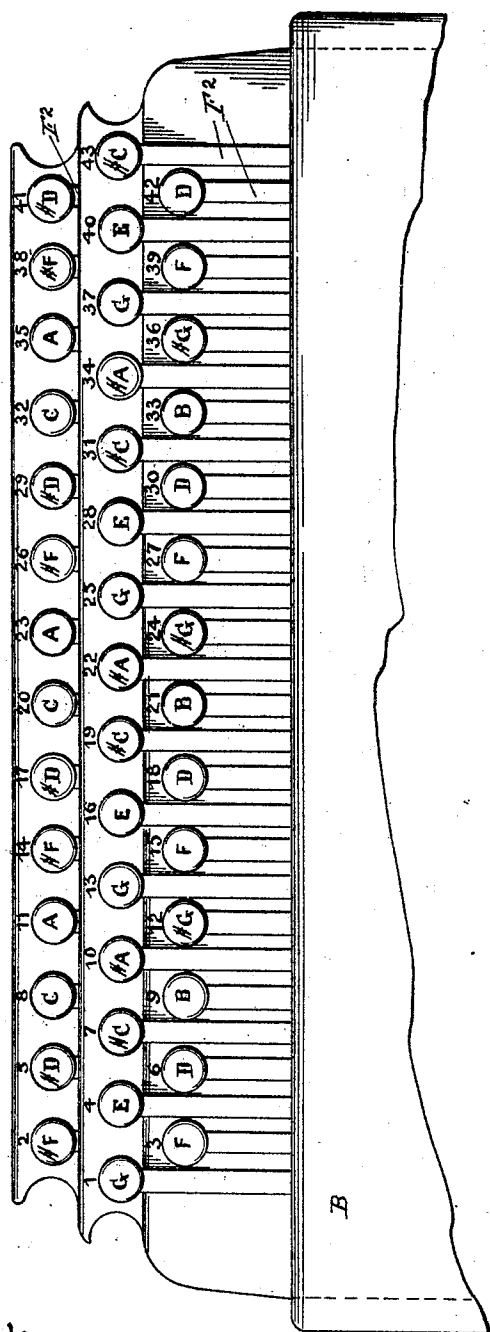
(No Model.)

5 Sheets—Sheet 5.

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Patented Apr. 3, 1894.



Witnesses.

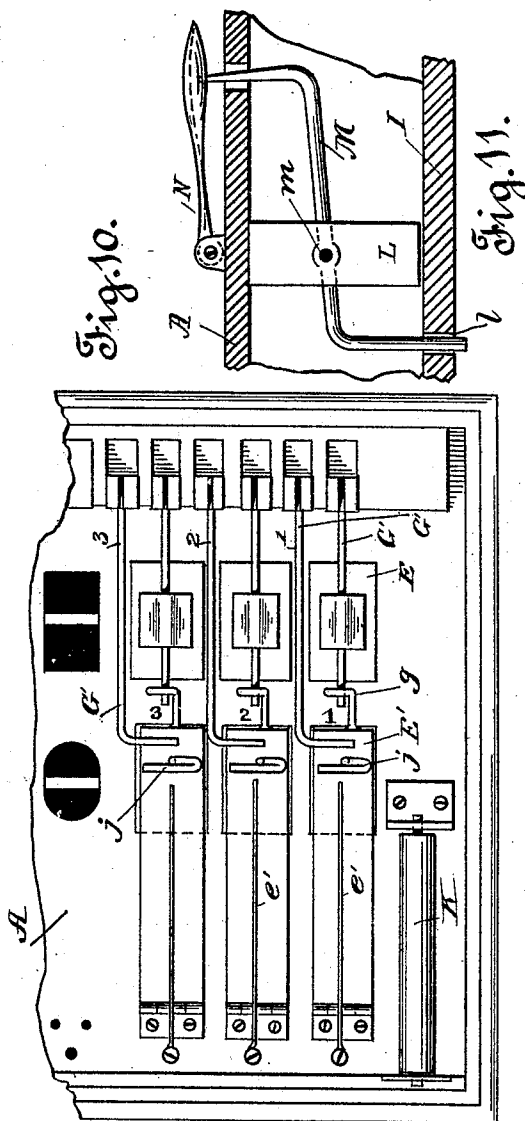
Ed. Monteverde.

Charlie Raulott.

Fig. 9.

Inventor.

Joseph Galleazzi.
by *A. H. Ste Marie.*
att'y



UNITED STATES PATENT OFFICE.

JOSEPH GALLEAZZI, OF SAN FRANCISCO, CALIFORNIA.

ACCORDION.

SPECIFICATION forming part of Letters Patent No. 517,648, dated April 3, 1894.

Application filed September 9, 1893. Serial No. 485,203. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH GALLEAZZI, of the city and county of San Francisco, in the State of California, have invented certain new and useful Improvements in Accordions and Similar Wind-Instruments of Music; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

The object of my invention is to provide a new mode of construction for accordions and other wind instruments of same nature that will enable one to make these instruments small and portable and yet of a compass equal to that of the piano, so they may be carried about with convenience and used for playing all sorts of musical compositions, from a ballad to an opera.

Referring to the accompanying drawings, for a detailed description of my invention,—Figure 1 is a plan view of one end of an accordion embodying my improvements, the outer cover removed, showing the means for opening the valves that cover the reed-cells, excepting the studs or pistons which are omitted. Fig. 2 is a diagrammatic view indicating the major and minor chords that can be played by working the pistons and devices connecting the same with the valves on the end of the instrument shown at Fig. 1. Fig. 3 is a view similar to Fig. 1, from which the valves have been removed to show the air-openings beneath, but having the studs or pistons left out of Fig. 1. Fig. 4 is a transverse section taken through the center of the instrument, illustrating its general construction and also the manner of playing the notes of the bass scales. Fig. 5 is a broken perspective view of some of the reed-cells, showing details of same. Fig. 6 is a sectional view similar to the upper part of Fig. 4, indicating how the major chords are played. Fig. 7 is a plan of the part shown in section in Fig. 6. Fig. 8 is a similar plan showing how the change from a major to a minor chord is effected. Fig. 9 is a plan of the key-board shown in section at the lower end of Fig. 4. Fig. 10 is a broken

plan giving details of the valves shown at Fig. 1. Fig. 11 is a detailed view of a shifting device used to effect the change from a major to a minor chord.

The accordion is composed of perforated boxes A B united by bellows C and having reed-cells D D' D² that are covered by valves E E' E² operated by means of studs or pistons F F' and keys F². The whole instrument thus formed does not exceed in measurement thirteen inches in length by six and three-fourth inches in width and nine inches in height, the height being computed from the outer ends of the boxes A B, with the bellows contracted. The piston end of the instrument is used to play notes in the bass clef and harmonic relations, comprising thirty-six bass. The key-board end comprises between three and four octaves extending from baritone to treble. But smaller instruments than the one herein illustrated may also be made on the same principle, the compass varying between two and thirty-six bass and from one to three rows of keys.

The reed-cells D D' D² are each provided with four reeds *d d' d²*, two of which always have the same pitch and work on opposite sides, so the same notes may be rendered whichever way the bellows are worked, that is whether being opened or closed. The advantage of this construction over that usually followed is that sweeter and better sustained music is obtained, as all notes, whether slurred or dotted, may be had in all tones. The reeds being in pairs, two notes are heard upon the opening of each valve. In the case of the complement base the two pairs of reeds are tuned to a different pitch, so that by opening two valves, as illustrated in Fig. 4, four notes are heard in three different octaves. When chords are played three valves are opened, on the side indicated at Fig. 6, and six notes are heard.

The valves E are opened by means of the pistons F and spring-pressed or spring-returned levers G, giving the bass notes when so opened. The valves E', which are hinged and normally kept closed by springs *e'*, are opened at the same time and by the same operation, the levers G being made to project inwardly and engage with hooks *g* projecting from the ends of the valves E' opposite, so

that harmonic relations are heard while the bass notes are played. An illustration of the joint working of these two sets of valves is given at the upper part of Fig. 4.

5 Chords are played by opening three valves on the side nearest to the pistons, as already noted. One of these valves is opened in each case by means of one of the pistons F' and levers G' that engage with rods *i* at-
 10 tached to rock-shafts H and acting upon double hooks *j* secured to the free end of the valves E'. The other two valves are raised at the same time by other rods *i* carried by the same rock-shafts and also acting upon the
 15 hooks *j* but not acted upon by or adapted to come in contact with the levers G'. According to this arrangement, if lever G' No. 1 is worked the rod *i* opposite will be raised and with it valve E' No. 1, and rock-shaft No. 1
 20 being set in motion two other rods *i* on it will open valves Nos. 9 and 12. If lever No. 2 is operated valves Nos. 2, 1, and 10 will be opened in a similar manner, and so on to the end of the entire series, as may be understood
 25 by examination of Fig. 1, which indicates the correct position of the working parts for securing the major chords. Minor chords may be had by the same instrumentalities, except the working parts must be operated in such
 30 a way as to open different valves from those used for the major chords, that is one different valve in the three that are called into play. This is effected by shifting the board I, which is made movable or sliding endwise, thereby
 35 changing the position of the rock-shafts and rods thereon with relation to the double hooks *j*. It will be observed by reference to Fig. 1 that each rock-shaft has four rods *i*, of which one is engaged with one of the levers G', two are
 40 under the hooks *j* on one side or the other, and the fourth is free. If the board I, and consequently the rock-shafts and rods, be moved to the left it will be seen that the rods engaged with the levers G' must remain so
 45 engaged, but that of the two rods under the hooks *j* one will be freed whereas the fourth one previously free will come under one of the hooks. The result is that if the levers G' be now worked two of the valves that could
 50 be opened before the board was moved can again be opened but there will be a change in the other or third one. For example, if lever G' No. 2 is worked with the board I, and consequently shaft No. 2, in its normal position
 55 (see Figs. 1, 6, and 7) valves Nos. 2, 1, and 10 will be opened and the chord of F sharp major given. If, on the other hand, the same lever be operated with the board moved to the left (see Fig. 8 in addition to those above-named),
 60 shaft No. 2 having the rod opening valve No. 10 disconnected from the hook *j* of said valve and its extra rod that was previously free engaged with the hook of valve No. 5, valves Nos. 2, 1, and 5 will now open and give the
 65 chord of F sharp minor. It is thus possible, by pushing the same piston and operating a single lever, to produce different harmonic

relations, owing to the repeated use of some of the same valves and reeds, only in different combinations.

Fig. 2 gives a table of the major and minor chords that can be played by working the different levers with the board I, and mechanism thereon, in its two different positions. This diagram will be readily understood after explaining the meaning of one of its sections. In the first section, for instance, the figure 1 at the top means that if lever G' No. 1 be worked in the two different positions of the board I it will give the chords of C sharp major and of C sharp minor marked in the spaces below.

The figures at the right of the letters indicate the numbers of the valves opened by the lever and connections in the two positions of the sliding board. The other sections are marked after the same manner.

The instrument herein shown and described gives twelve chords of each the major and minor sixth, twelve chords of each the major and minor third, and twelve chords each of the fourth and fifth, when played upon at both ends.

The rock-shafts H are set in suitable grooves in the board I, as shown in Fig. 6, and are kept in their bearings by means of cross-bars J. The board I is set upon end-rollers K and is kept down by stops L. It is moved by a bent lever M fulcrumed at *m* on the side of the box A and having one end inserted in a hole *l* in the board I while the other end projects outside the instrument under a thumb-piece N within the reach of the user at the time that he manipulates the various pistons.

The valves E² are operated by means of the spring-pressed levers or keys F² previously mentioned and which are arranged in three rows as shown at Fig. 9. The pistons F F' are likewise disposed in three rows, at the opposite end of the accordion, where they barely occupy a space four inches long by one and one-half inches wide.

A spring L' may be used, if desired to force back the board I after the lever M is released, but it is thought that its own weight will cause it to reassume its normal position if the instrument be held in the usual way when playing.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In an instrument of the character described, the combination with the valves E E', and their operating mechanism, of a hook projecting from the valve E', and a lever secured to the valve E and projecting under and adapted to raise said hook, and independent means for raising said valve E' whereby the valve E' will always be opened when the valve E is opened but may be itself opened without opening the valve E.

2. In an instrument of the character described, the combination of a series of valves E', a piston or key adapted to operate one of said valves, a series of rods adapted to de-

5 tachably connect the said valve E' with certain other of the valves to form major chords, and mechanism for shifting said rods whereby they may be made to connect the said valve with certain other valves of the series to form minor chords.

10 3. The combination of a series of valves, hooks projecting therefrom, operating pistons, levers connected with said pistons, a series of rods engaging over said levers and also engaging under said hooks and connecting the valves in chords, and means for shifting said rods so as to vary the chords.

4. The combination, in an instrument of the character described, of valves, detachable rods 15 opening said valves, a shaft joining said rods, an operating lever or key, and a shifting board for the shaft and rods whereby a change in the valves acted upon is effected, substantially as set forth. 20

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH GALLEAZZI.

Witnesses:

HENRY P. TRICOU,
A. H. STE MARIE.