No. 735,803. PATENTED AUG. 11, 1903.

B. PARIS.

KEY WIND MUSICAL INSTRUMENT.

APPLICATION FILED MAR. 15, 1901.

NO MODEL.

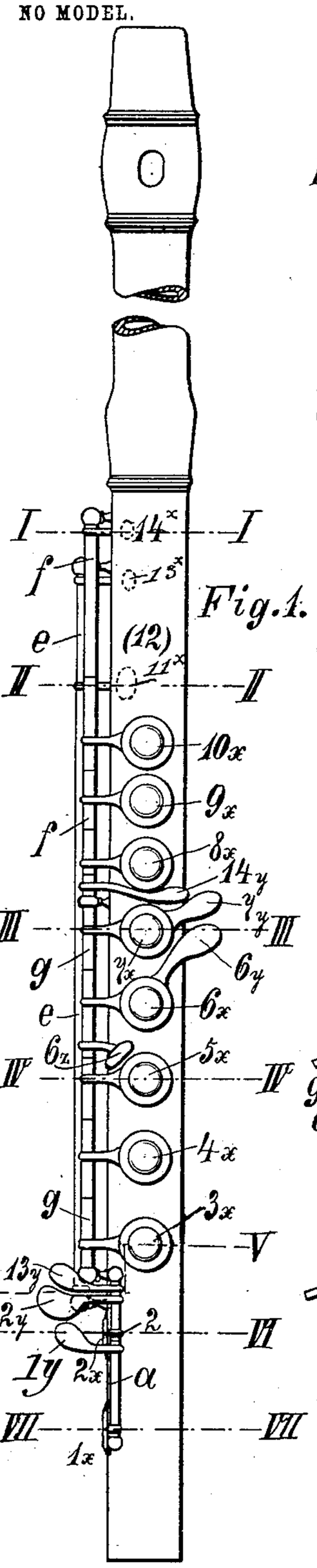

Fig. 1.

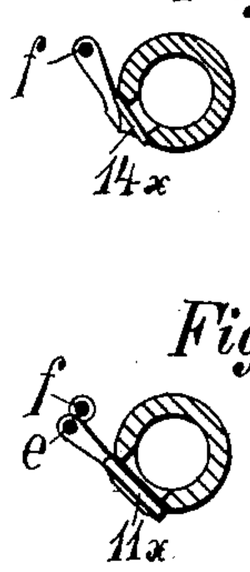

Fig. 1b.

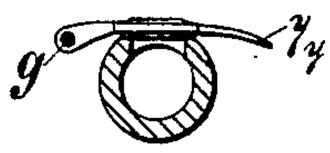

Fig. 1c.

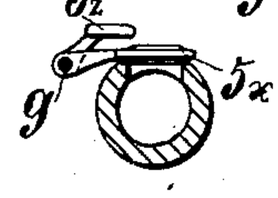

Fig. 1d.

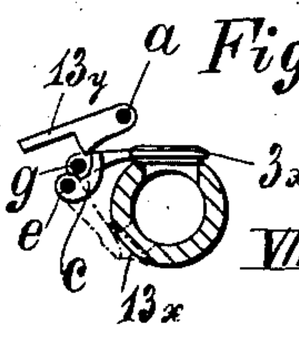

Fig. 1e.

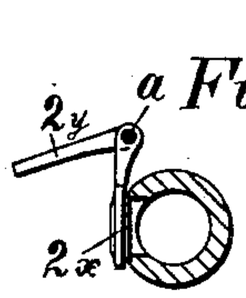

Fig. 1f.

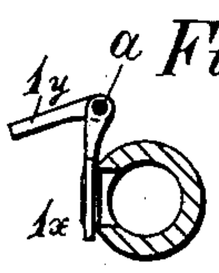

Fig. 1g.

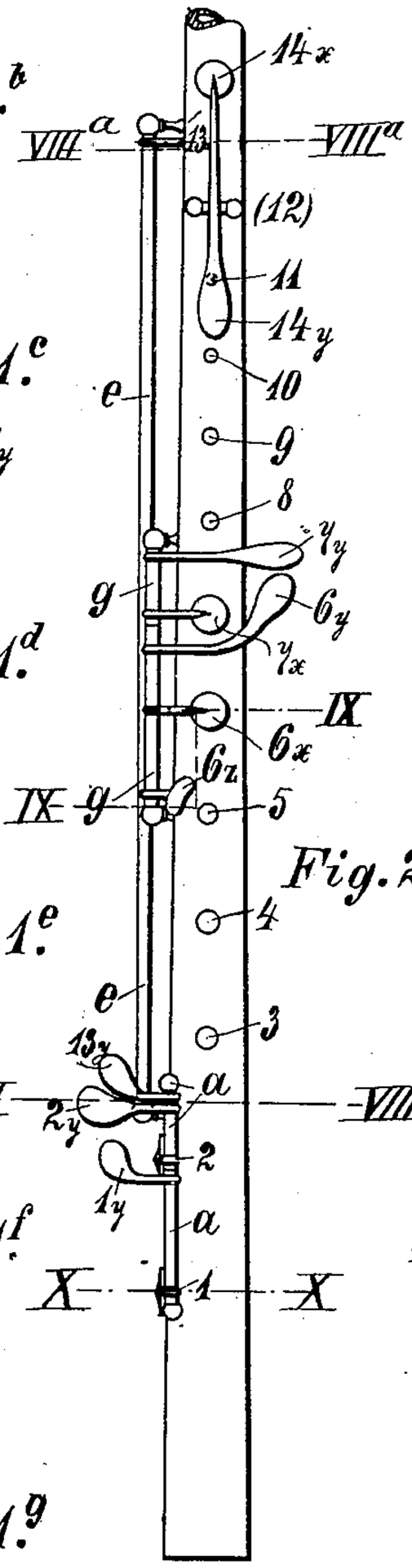

Fig. 2.

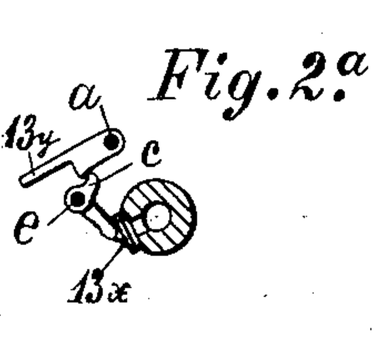

Fig. 2a.

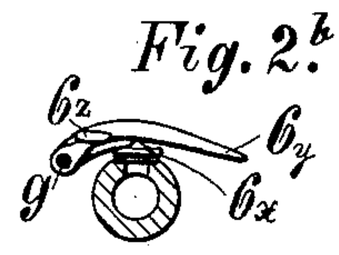

Fig. 2b.

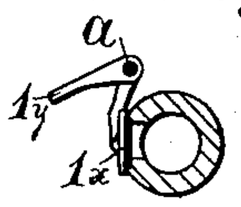

Fig. 2c.

Witnesses

1 Frederick J. Dieterman

2 Alfred Schuster

Inventor

Bernhard Paris

No. 735,803. Patented August 11, 1903.

UNITED STATES PATENT OFFICE.

BERNHARD PARIS, OF SCHLACKENMÜHLE, GERMANY.

KEY WIND MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 735,803, dated August 11, 1903.

Application filed March 15, 1901. Serial No. 51,365. (No model.)

To all whom it may concern:

Be it known that I, BERNHARD PARIS, a subject of the German Emperor, residing and having my post-office address at Schlackenmühle, near Oberköditz, near Königsee, Thuringia, in the Empire of Germany, have invented certain new and useful Improvements in Key Wind Musical Instruments, Such as Flutes, Hautboys, and the Like, of which the following is a specification.

This invention relates to improvements in key wind musical instruments, such as flutes, hautboys, and the like.

The object is a simplification of the finger action in playing key wind instruments—such as flutes, hautboys, and the like—principally for the purpose of producing the most suitable combination of holes for the production of a tune, and thus rendering this task easier for the player than on instruments hitherto used.

The invention consists in the construction of a new form of flute, hautboy, or the like, the peculiarity of which will be shortly explained in following six paragraphs, viz:

First. In playing the key-notes of the chromatic scale, beginning with the high notes, the eight fingers and one thumb which are at disposal are applied to the keys one after the other in their natural order.

Second. The simplest and most natural way of applying the fingers for ten successive notes is obtained by means of replacing the thumb of the right hand, which appears to be indispensable for holding the instrument, by the forefinger of the said hand, said finger also operating the key, which otherwise would have to be operated by the thumb.

Third. In passing from the first octave to the second the last note of the first octave does not require a new touch, the touch used being, so to say, only a part of the touch for the first note of the second octave.

Fourth. It is possible to produce any suitable combination of holes, especially for the upper notes, since each key can be played by itself and all combinations of keys are avoided.

Fifth. There is no difference in playing separate keys. No key is played more easily or with more difficulty than another and the instruments are actually chromatic and not diatonic instruments rendered chromatic.

Sixth. Owing to the perfect regularity in the arrangement and distance apart of the holes, the production of all tones is quite regular, easy, and sure, and the tune according to the equalized chromatic scale is perfectly pure.

The invention is shown in the annexed drawings in two forms of construction.

Figure 1 represents a flute. Figs. 1^a, 1^b, 1^c, 1^d, 1^e, 1^f, 1^g are sections on lines I I, II II, III III, IV IV, V V, VI VI, and VII VII of Fig. 1, respectively. Fig. 2 represents the lower part of a hautboy. Fig. 2^a is a section, partly on line VIII VIII and partly on line $VIII^a$ $VIII^a$, of Fig. 2; and Figs. 2^b and 2^c are sections on lines IX IX and X X of Fig. 2, respectively.

The springs which either keep the keys open or closed are not shown in the drawings, and the octave-keys are omitted in the hautboy.

The keys 1^x to 11^x of the flute, as shown in Fig. 1, are loosely arranged on bars, as will be more fully explained hereinafter. They are all normally open and can be closed separately. Key 14^x serves as a tremolo-key and is closed. Key 1^x serves as a foot-key—that is to say, it only serves to lengthen the flute and does not require a special finger, but is operated by the fourth finger of the right hand. No hole is bored at 12, and the lever 13^y for key 13^x is arranged at the side of lever 2^y and is firmly connected with rod *a*, on which the keys 1^x and 2^x are pivotally arranged. The said lever 13^y does not directly operate the key 13^x, but, as will be seen from Fig. 1^c, first operates an intermediate lever *c*, which is firmly connected with the rod *e*, the object of the latter being to communicate the movement of the said lever *c* to the remotely-placed key 13^x and also serving as a support for the key 11^x, which revolves loosely thereon, as shown in Fig. 1^b. On rod *g* the keys 3^x to 7^x and on rod *f* the keys 8^x to 10^x are loosely revoluble. The rod *f* is also itself revoluble, and the tremolo-key 14^x, as well as its lever 14^y, which latter is arranged between the keys 7^x and 8^x, is rigidly fixed thereon. The said lever 14^y is worked by the fourth finger of the left hand.

In the hautboy (shown in Fig. 2) the lever 14^y of key 14^x is arranged at the side of the hole 10 and is operated by the first finger of the left hand. In this instrument the holes 3, 4, 5, 8, 9, 10, and 11 can be reached and covered by the fingers and are consequently not provided with keys.

In both instruments (shown in Figs. 1 and 2) key 6^x is provided with two levers, one of which, 6^y, is arranged at the side of the lever 7^y and the other, 6^z, having somewhat the shape of a kidney, near key 5^x, Fig. 1, or hole 5, Fig. 2. Of the eight fingers and the thumb of the left hand which are at disposal for operating the keys or stopping the holes the thumb and the first, second, third, and fourth fingers of the left hand consecutively close the holes or operate the keys, respectively, of the holes 11 10 9 8 7, each respectively in its natural order. The fourth finger of the left hand may also operate the lever 6^y of the key 6^x. The first finger of the right hand can also close the keys 6 by means of lever 6^z, and it operates the key 5^x, the keys 6^x and 5^x being thus capable of being operated separately or both together. The second and third fingers of the right hand close the keys 4^x and 3^x, respectively, and the fourth finger of the same hand closes the key 2^x (by means of lever 2^y) or alone together with key 1^x, (by means of lever 1^y.) In addition the said fourth finger of the right hand may simultaneously press down the two levers 13^y and 2^y, by which keys 13^x and 2^x are opened and closed, respectively. The last-mentioned key is the ordinary one for the little finger of the right hand. Key 2^x alone is only used for the key-note of hole 1, the keys 2^x and 1^x together only for the key-note of the whole tube. The arrangement of providing key 6^x with two levers serves for facilitating playing, since said key 6^x can be simultaneously closed with key 7^x by the first finger of the right hand near hole 5 or in the alternative by the fourth finger of the left hand near lever 7^y. Hole 13 produces a tone half a tone higher than hole 11. It is smaller than hole 10 and represents a reduced hole 12 displaced for the distance of one section. The note of hole 13 is the last note of the first octave if the tone of hole 1 is taken as the first note—that is to say, if hole 1 represents the note D hole 13 will be C♯. The other holes are then as follows: 2 equals D♯, 3 equals E, 4 equals F, 5 equals F♯, 6 equals G, 7 equals G♯, 8 equals A, 9 equals A♯, 10 equals B, 11 equals C, 14 equals D. Owing to the fact that on opening key 13^x key 2^x can then be simultaneously closed and the fingers of the right hand must then be applied, because otherwise the instrument would fall from the hand. The movement for the first note of the second octave is already half ready, since it only remains to apply the fingers of the left hand in order to produce it in full. Consequently by means of arranging the levers 2^y and 13^y side by side only one finger is used and a mechanical connection between two holes is thus rendered unnecessary and the playing on the instrument is considerably facilitated.

It should be particularly mentioned that by arranging the lever 6^z close to the hole or key 5 or 5^x and in consequence of its somewhat raised position the mechanical connection of two keys is also dispensed with in this case. By this means the two keys 5^x and 6^z, or in Fig. 2 hole 5 and key 6^z, can both be played together, as well as each separately, by one finger better than by means of a key connection.

What I claim is—

1. In a keyed wind instrument of the flute and hautboy class, the combination of a tube having a series of ten normally open tone-holes 1 to 10 (numbering from the open end) arranged in succession to produce when stopped a chromatic scale, independent keys for said holes respectively, the key for the sixth of said tone-holes having two levers to said key, located respectively in close proximity to the keys of the fifth and seventh holes, to be operated alternatively by the first finger of the right hand and fourth finger of the left hand in common with said fifth and seventh keys respectively.

2. In a keyed wind instrument of the flute and hautboy class, the combination of a tube having a series of eleven normally open tone-holes 1 to 11 (numbering from the open end) arranged in a succession to produce when stopped a chromatic scale and a normally closed hole 13 one semitone distance above hole 11, independent keys for said holes respectively, the key for the sixth of said tone-holes having two levers to said key, located respectively in close proximity to the keys of the fifth and seventh holes, to be operated alternatively by the first finger of the right hand and fourth finger of the left hand in common with said fifth and seventh keys respectively, the lever for opening the key for hole 13 lying in close proximity to that for closing hole 2 and adapted to be operated by the same finger.

In witness whereof I have signed this specification in the presence of two witnesses.

BERNHARD PARIS.

Witnesses:
FREDERICK J. DIETZMAN,
ALFRED SCKUDLEK.