

C. ST. JOHN.
MOUTH-ORGAN.

No. 176,124.

Patented April 11, 1876.

Fig. 1.

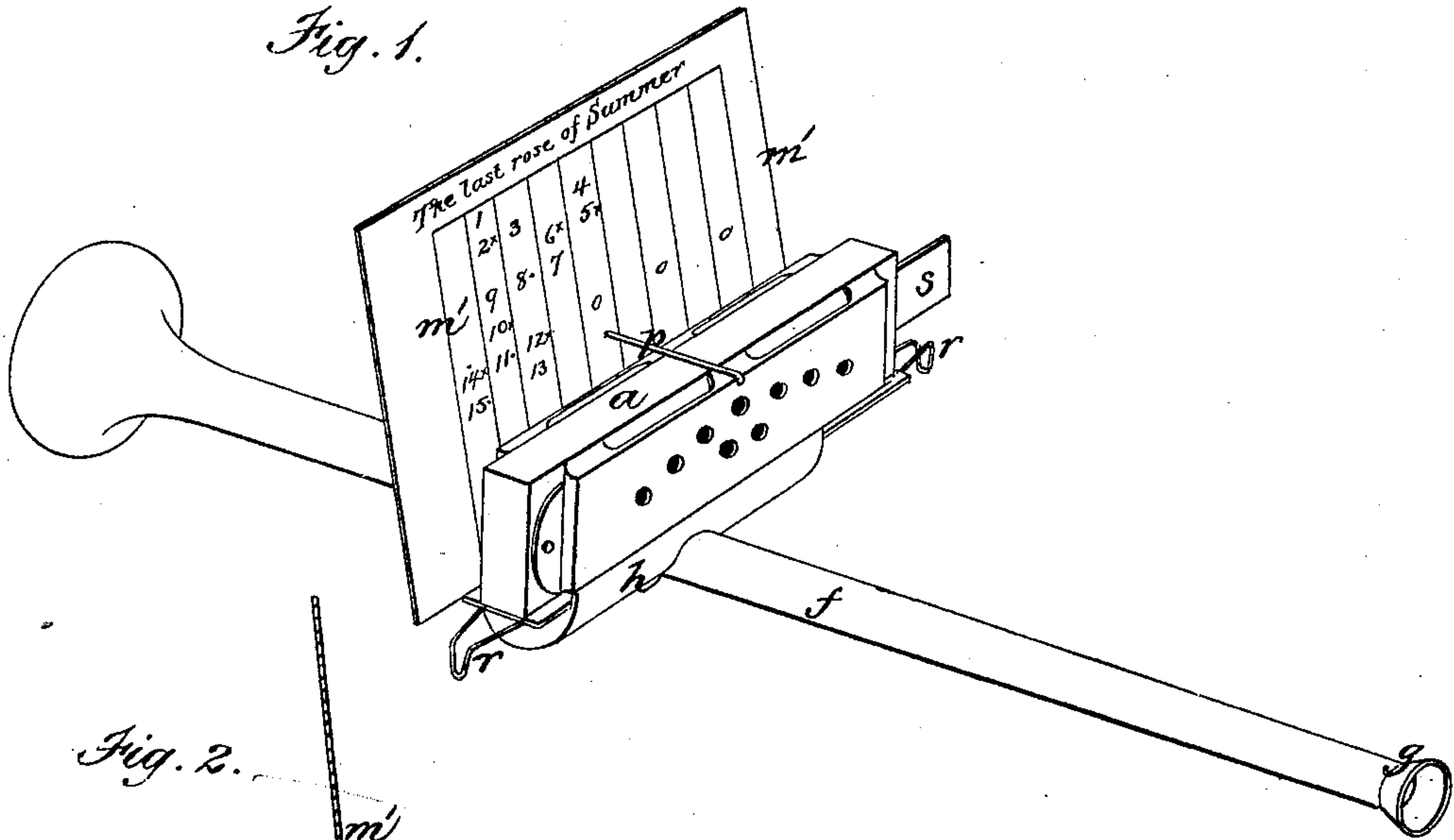


Fig. 2.

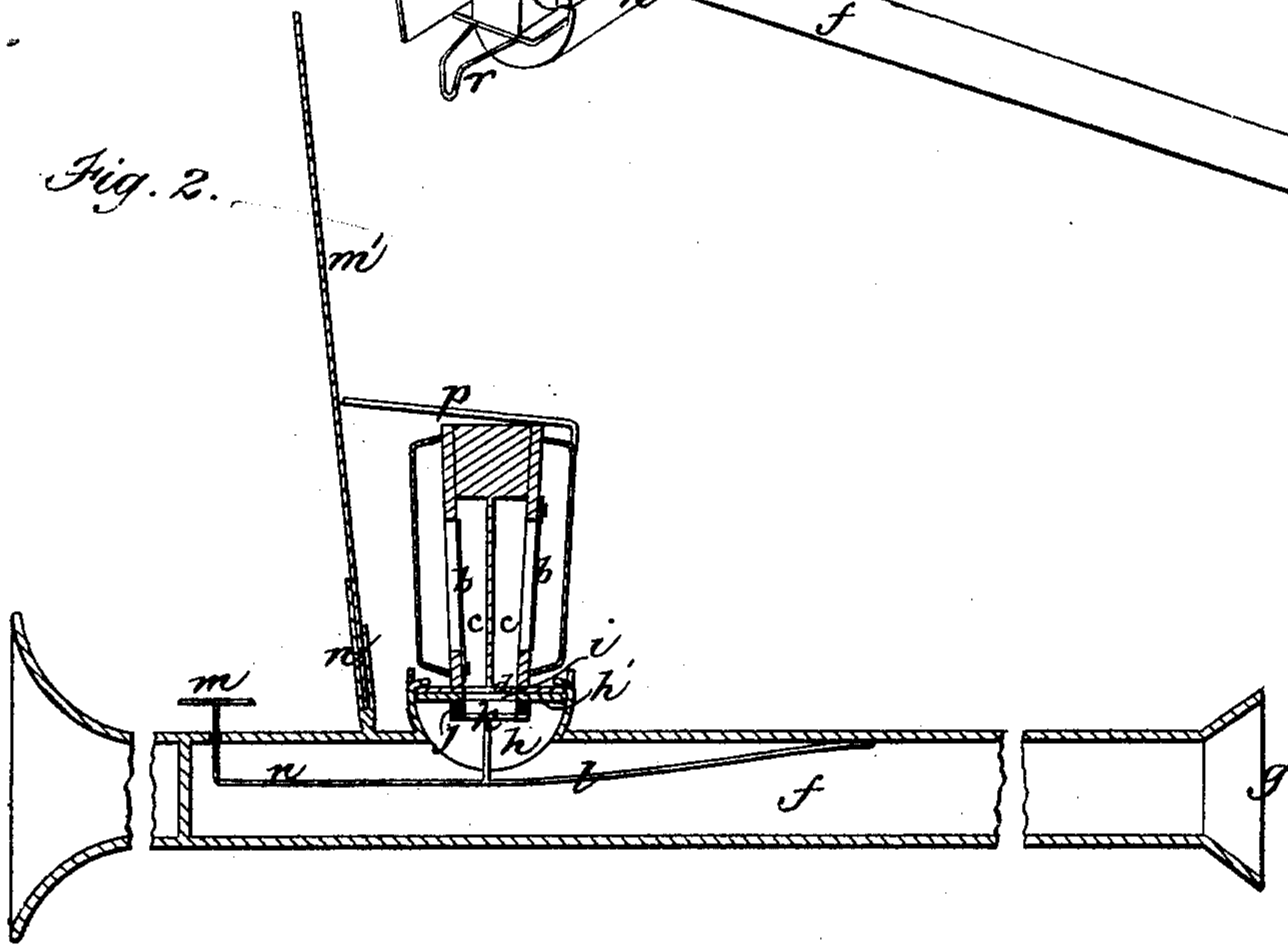
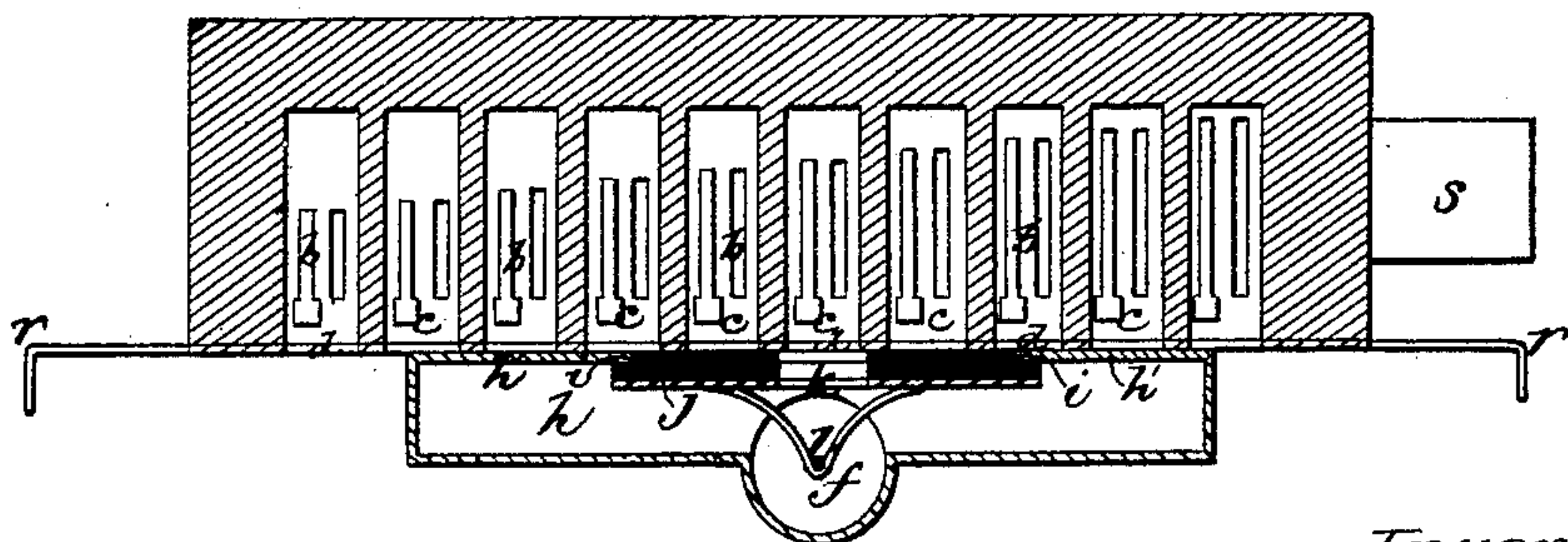


Fig. 3.



Witnesses.

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UNITED STATES PATENT OFFICE.

CORNELIUS ST. JOHN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MOUTH-ORGANS.

Specification forming part of Letters Patent No. **176,124**, dated April 11, 1876; application filed February 7, 1876.

To all whom it may concern:

Be it known that I, CORNELIUS ST. JOHN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Musical Instruments, of which the following is a specification:

In the accompanying drawings, forming a part of this specification, Figure 1 represents a perspective view of my invention. Fig. 2 represents a longitudinal section of the same, and Fig. 3 a transverse section.

This invention relates to that class of musical instruments known as harmonicas or mouth-organs. These instruments are provided with a series of free reeds, like those of an accordion, and a series of holes or air-passages, by means of which air is blown or drawn through the reeds. In playing this class of instruments heretofore it has been the invariable practice, so far as I am aware, to hold the instrument in the hand and apply the lips to the holes or air-passages, sliding the instrument along the lips to enable the different tones to be produced. The holes or air-passages are usually small, and are separated only by very narrow intervening spaces, consequently it is difficult for the player to so contract his lips as to enable him to blow or draw air through a single air-passage, and thereby sound a single note, it being necessary for the majority of players to give their performances the effect of duets, thus manifestly preventing the clear and sharp rendering of any piece where single notes are necessary, or the concerted action of a number of instruments each playing a single part. The harmonica or mouth-organ, manipulated in the ordinary manner, is an instrument upon which proficiency of execution is difficult to attain, in consequence, both of the above-described difficulty of adapting the mouth to its air-passages and the frequent changes of position and methods of forcing air through the reeds required in producing different notes, it being necessary to consequently slide the instrument back and forth over the lips, and to expel the breath to produce one series of tones, and to inhale it to produce another series of tones, the instrument being all the time out of the range of the operator's vision.

My invention has for its object to remedy

the difficulties above named, and enable the operator to exercise perfect control over the instrument, so that he can sound one note alone, or several simultaneously, at will, and also to enable an inexperienced person to perform on the mouth-organ without any considerable degree of practice in a manner satisfactory, at least, to himself.

To these ends my invention consists, first, in the combination with a mouth-organ or harmonica, of an air-tube adapted to constitute a means of communication between the operator's mouth and the air-passages of the organ, in such manner as to enable the operator to sound, at will, any one note singly, or several simultaneously, and also adapted to support the organ, and allow it to be operated at a sufficient distance from the operator's mouth to enable him to watch its movements.

My invention also consists in the provision of a graduated chart or guide, located at a fixed point on the supporting air-tube, and provided with figures or characters so located as to indicate to the operator the successive motions of the harmonica, and methods of winding the reeds, which are necessary in playing the particular tune for which the chart is prepared, all of which I will now proceed to describe.

In the drawings, *a* represents a harmonica or mouth-organ, of any suitable construction, having the usual sets of free reeds *b* and air-passages *c*, which extend from one side of the organ to the reeds, the mouths or openings *d* of the air-passages being of uniform size, and at uniform distances apart. *f* represents an air-tube of any suitable shape, which is provided at one end with a suitable mouth-piece, *g*. *h* represents a hollow cross-piece, which is located in a transverse position on the tube *f*, at a suitable distance from the mouth-piece, and has a flat upper plate, *h'*, which constitutes a support or seat for the side of the harmonica, which contains the openings of the air-passages, the harmonica being adapted to slide freely on the cross-piece, which is provided with suitable guides, to prevent it from being displaced laterally. *i* represents an opening or slot in the upper plate *h'* of the cross-piece *h*, this opening communicating with the interior of the air-pipe *f*, and being

of such length as to register with any desired number, preferably four, of the air-passage openings d of the harmonica.

j represents a valve, which partially closes the opening i , said valve being provided with an opening, k , of a size substantially corresponding to that of one of the openings d of the harmonica. The valve j is located under the plate h' , and is held with a yielding pressure against the under side of the plate, by a suitable spring, l . m represents a key or button, which is connected by a bent shank, n , with the valve j , the key or button being located in a position to be conveniently depressed by the operator's finger. It will be seen that when the valve j is held by its spring against the upper plate of the cross-piece h , the size of the orifice therein is limited to that of the opening k of the valve, which, as before described, is substantially equal to the size of each of the openings of the air-tubes. The harmonica being in place on the cross-piece, with one of its air-passages registering with the opening k of the valve j , when the operator blows or draws air through the tube, the reed of this particular air-passage is sounded, each current of air producing a single well-defined note, and by sliding the harmonica over the opening k , as over the lips, the desired tune or part in a concerted piece may be performed by a succession of single notes or tones. When the operator desires to produce the effect of "full harmony," or in other words, to combine several notes or tones, he depresses the valve j by means of the key m , thus opening the slot i to its fullest extent, and causing it to connect with all the air-passages which register with it. It will thus be seen that the operator is enabled to fully control his instrument and sound one or several notes at a time at will, this provision being particularly useful, as it is necessary to combine several tones or notes to produce certain accidental chords. m' represents a chart or guide, which is composed preferably of a piece of stiff paper, or other suitable material, held at a fixed point by a holder, n , on the tube f , in convenient proximity to the harmonica, the latter lying between the chart or guide and the performer. This chart or guide is graduated or divided into a series of vertical spaces, o , each of which is equal in width to the width of one of the perforations or air-passage openings d and half of the intervening spaces between it and the adjacent openings. Consequently, when the harmonica is moved a distance equal to the width of one of the spaces o , one of its air-passages is disconnected from the orifice k and another air-passage is connected with said orifice. The harmonica is provided with a pointer, p , which is so located that when its outer end is opposite the center of one of the spaces o one of the air-passages registers with the orifice k , and when opposite one of the division-lines, two of the air-passages register with said orifice. The chart or guide, therefore, enables the performer to

know whether the orifice k is in connection with one or two of the air-passages of the harmonica, and enables him to avoid the liability of sounding two notes when only one is desirable, and vice versa. The spaces o are not of themselves a sufficient guide to enable an inexperienced player to perform successfully on the harmonica. I therefore provide the spaces with a series of characters, preferably numerals, to indicate where the harmonica must stop to connect any particular reed or reeds with the air-tube. When numerals are employed, I prefer to represent the successive notes of the tune to be played by ordinals—for instance, the first note of the tune by the figure 1, the second by the figure 2, and so on through the entire tune. These ordinals are arranged in the spaces o in such manner that when the pointer p is moved from one space to another, following the ordinals in their regular order, and pausing before each ordinal long enough to enable the operator to sound the note it represents, the tune will be performed for which the chart or guide is arranged.

The characters on the chart are accompanied by suitable symbols to indicate when the air should be drawn through the harmonica instead of blown, and when the valve should be depressed so as to sound a combination of notes; for instance, when the air is to be drawn a cross accompanies the character representing the note, and when the valve is to be depressed a dot. By this arrangement a person can perform any comparatively simple tune on a harmonica without much practice, and by providing himself with a number of charts, each prepared for a different tune, he can extend his repertoire as far as is desirable. The degree of control given over the instrument enables several instruments to be played together in concerted music with a fine effect, and the ease with which proficiency of execution may be acquired renders my invention extremely desirable with the masses who do not possess time, disposition, or means to learn to perform on other wind-instruments.

I do not limit myself to any particular characters or graduations of the chart m , as any arrangement that will accomplish the described result will not depart from the spirit of my invention. The harmonica may, if desired, be provided with suitable guards r to prevent it from sliding entirely off from the cross-piece of the air-tube, and, for convenience of operation, I prefer to provide it at one end with a handle, s . The chart or guide m may be applied to the harmonica and move with it instead of being fixed, in which case the pointer p must be attached rigidly to the air-tube.

I have represented the air-tube in the form of a trumpet in order to produce a graceful appearance. It should be borne in mind, however, that the tube is closed at one end, so that air blown or drawn through it must pass through the air-passages and reeds of the harmonica. If desired, a detachable air-tube,

adapted to register with one or two air-passages at a time, may be employed instead of the tube shown, which the performer can apply to the harmonica and discard at will, using said tube only for the production of a single note, or two notes at a time, and applying the instrument to his lips in the usual manner at other times.

The chart or guide may be applied to a trombone or other wind-instrument where a sliding motion of a part of the instrument is necessary to the production of different tones. In case of such application it would be advisable to bend the stationary part of the instrument, so that its sliding part shall be adapted to move in a line substantially at right angles with the line of the operator's vision, the chart being fixed to the stationary part, while the sliding part is provided with a suitable pointer.

I claim as my invention—

1. A harmonica or mouth-organ, combined with an air-tube having an orifice which is adapted to register with one or more of the air-passages of the mouth-organ, the latter being adapted to slide on the air-tube, so as to connect any of its air-passages with the orifice of the air-tube, substantially as described, for the purpose specified.

2. An attachment for a harmonica or mouth-

organ, consisting of an air-tube having a variable opening adapted to register with one or more of the passages of the mouth-organ, and a graduated mechanical guide or chart so located on the tube and provided with such graduations and characters as to indicate mechanically to the operator the successive positions of the mouth-organ with relation to the opening of the air-tube in playing a given tune, substantially as described.

3. The combination of the guide or chart *m* with the air-tube *f* and a sliding harmonica or mouth-organ, substantially as described.

4. The air-tube *f*, having the cross-piece *h*, opening *i*, and valve *j*, in combination with a harmonica or mouth-organ, substantially as described.

5. The combination of the guide or chart *m'* with the air-tube *f* and a sliding harmonica or mouth-organ having a pointer, *p*, all arranged to operate substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CORNELIUS ST. JOHN.

Witnesses:

PHILO O. SOPER,
C. F. BROWN.