C. G Christman

Flute.

No. 6,968. Patented Dec. 25, 1849.

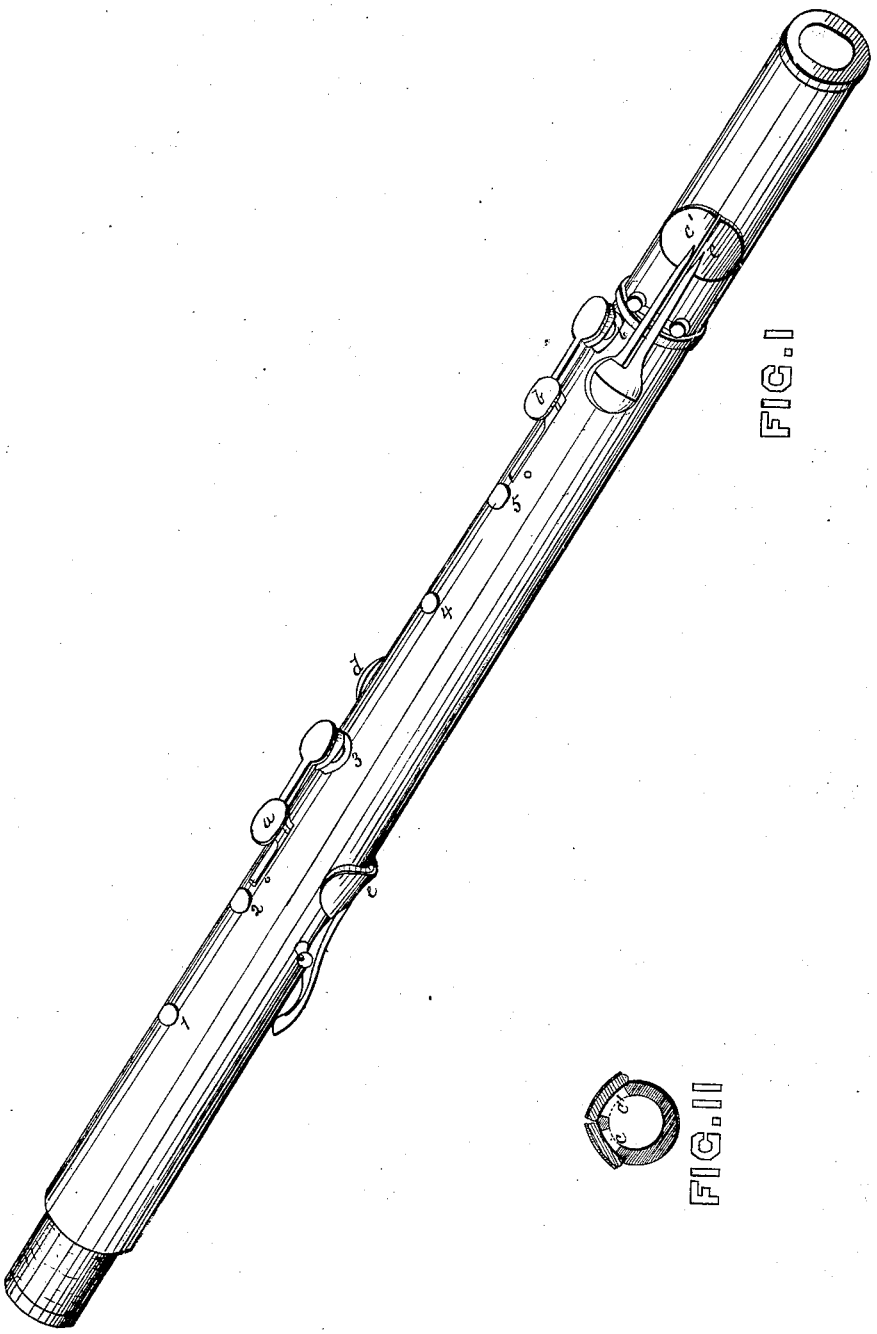

FIG. I

FIG. II

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES G. CHRISTMAN, OF NEW YORK, N. Y.

FLUTE.

Specification of Letters Patent No. 6,968, dated December 25, 1849.

To all whom it may concern:

Be it known that I, CHARLES G. CHRISTMAN, of New York, in the county of New York and State of New York, have invented a new Improvement in Flutes; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is perspective view of the flute. Fig. 2 is a section of one of the double keys.

My invention consists in certain improvements in the musical instrument called the flute, whereby certain notes are produced which are wholly unknown in the old instrument and secondly, the improvement in the quality, power and significance of certain other notes which, although produced on common flutes are yet of a very defective and unsatisfactory character. It is well known that there is a very great drawback in the pleasure derived from playing or hearing this popular instrument which arises from the fact that previous to my improvements, in almost every key it is out of tune, as for instance the E and A holes on the old flute are known to produce very poor, weak, and indistinct notes, whereas in my flute, these notes are full, clear, and powerful, and as satisfactory as the best notes formerly produced. Secondly, it is well known that in ascending and descending it is perfectly impossible to produce perfect semitones both ways, on the old flute, as for instance D sharp and E flat, G sharp and A flat, A sharp and B flat, whereas by my improvements I am enabled to give the variations required to sound these with as much delicacy and perfection, as they can be produced on the violin, so that I have the power to give all the various shades of pitch (enharmonics) requisite to give the major and minor chromatic scales in perfect tune.

My flute is constructed as follows. In Figure 1, is a view of the flute; the piece having the embouchure is omitted as that is of common construction, also are omitted several keys which are of like common construction, and are employed by me as in the old flute—these I have omitted, to avoid complexity of parts in the description.

My flute is made generally after the ordinary manner, using for that purpose materials well known.

1, 2, 3, 4, 5, 6, represent six holes common to every flute, and it is by opening and closing these in various combinations that the successive sounds or notes are produced, but in some of these combinations very imperfect notes are given, as in the notes E and A, which are produced by the third and sixth holes. The manner in which I improve the tone of these notes is by changing the position of the holes by which they are produced and removing them a greater distance down the flute, thus widening the spaces between them and the next nearest hole, and reaching the said holes by a key formed to be actuated by the finger at the place where the said holes were formerly put, and are commonly played as at (*a*, *b*). By this means these notes are given in full volume and perfection, a thing which could not be accomplished before, without great skill in execution, and then with much uncertainty.

The next head of my invention consists in producing perfect semitones on the sharp and flat keys. It is well known that in a stringed instrument a certain length of string which produces D sharp will require a slight variation in length to produce E flat, or any other sharp and flat. Although in ascending or descending by semitones, both notes are indicated at the same place. In the violin and kindred instruments the difficulty is easily met by a slight shift of the finger, but in instruments where the notes are arbitrarily fixed, the difficulty is not so easily overcome, and in many instruments cannot be at all. This was the case with the flute, until I overcame it by the device I shall now describe. At the point (*c*) is produced on the old flutes, by one key, the notes D sharp and E flat, now as is well known these notes were never perfect but discordant. In order to make this part perfect I produce two holes, as seen at (*c*, *c'*,) Fig. 2, one of which holes shall be larger than the other, these I then cover with a double key (*c*, *c'*,) Fig. 1 and construct them by interlocking their handles or operating ends, so that (*c'*) can be worked without the other, but so that (*c*) cannot be operated without also opening (*c'*). Now by opening (*c'*) a perfect E flat is sounded, and by opening the combined keys (*c*, *c'*,) D sharp is given. At (*d*) and (*e*) are placed two more sets of keys covering pairs of holes on the same principle as those at (*c*,

c'.) These are for producing the notes G sharp and A flat, and A sharp B flat. In operating, E and A, keys are fixed in range with the range of the six holes, upon the top of the keys, finger points are placed, over the part usually indicating those notes in the old flutes, as seen at the letters (a) and (b), thus rendering the fingering part, easy of accomplishment.

What I claim as my invention and improvement and desire to secure by Letters Patent is—

1. Removing the third and sixth holes from their ordinary place on the old flute to a point farther down, and sounding the notes produced by the said holes, by keys operated at the natural fingering place, thereby producing with ease a quality of tone, now unattainable, or attained only by great skill, and then with uncertainty.

2. I claim producing the true sharp and flat keys by means of the double holes and operating keys, as described herein.

C. G. CHRISTMAN.

Witnesses:
S. H. MAYNARD,
J. P. PIRSSON.