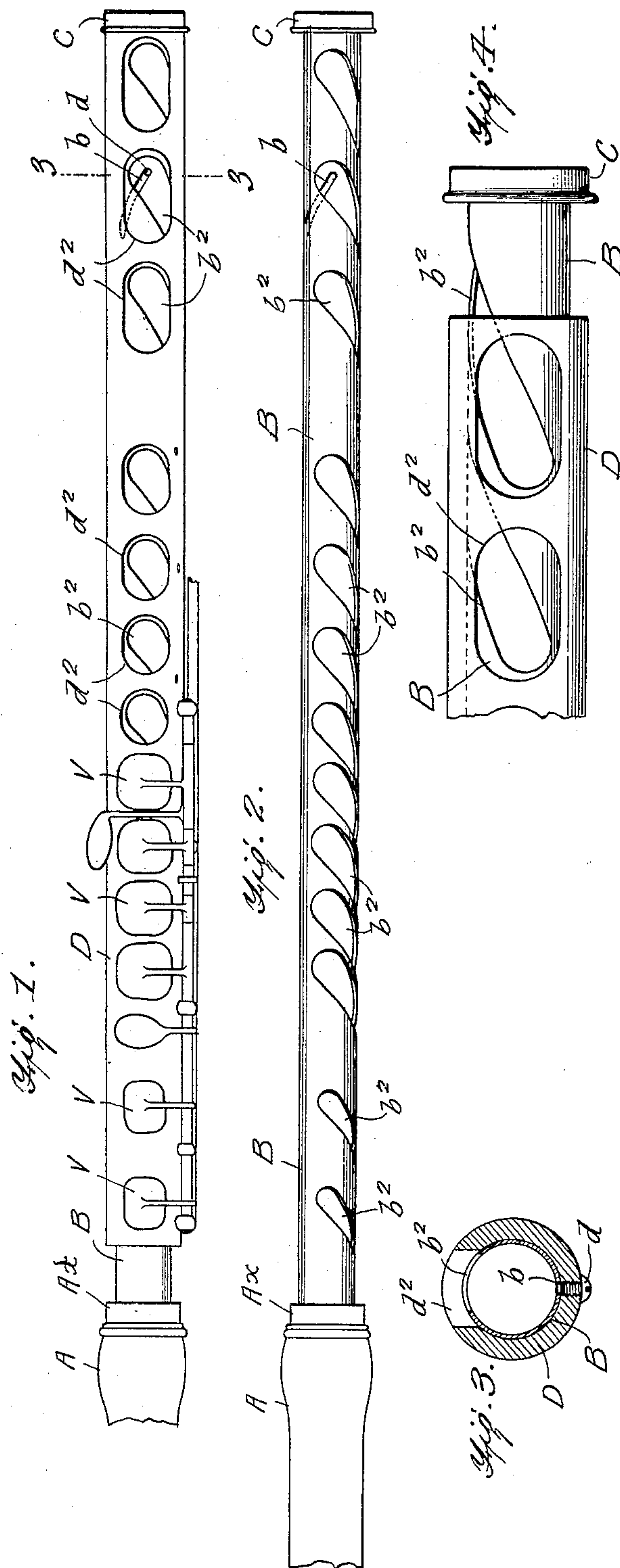


N. ALBERTI.  
WOOD WIND INSTRUMENT.  
APPLICATION FILED AUG. 5, 1911.

1,103,462.

Patented July 14, 1914.



WITNESSES

L. H. Schmidt  
L. A. Stanley

INVENTOR

NICHOLAS ALBERTI,  
BY Munn & Co.

ATTORNEYS

# UNITED STATES PATENT OFFICE.

NICHOLAS ALBERTI, OF CHICAGO, ILLINOIS.

## WOOD WIND INSTRUMENT.

1,103,462.

Specification of Letters Patent.

Patented July 14, 1914.

Application filed August 5, 1911. Serial No. 642,447.

*To all whom it may concern:*

Be it known that I, NICHOLAS ALBERTI, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented an Improvement in Wood Wind Instruments, of which the following is a full, clear, and exact description.

My invention relates to improvements in musical instruments, and it consists in the combinations, constructions and arrangements herein described and claimed.

An object of my invention is to provide means for tuning wind instruments, such as flutes, clarinets and the like.

A further object of my invention is to provide means for simultaneously changing the pitch of the notes produced by the opening of the different valves.

A further object of my invention is to provide a device which is comparatively simple in its construction for accomplishing the first-named objects, and which is not liable to get out of order.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claim.

My invention is illustrated in the accompanying drawings forming part of this specification in which similar reference characters indicate like parts in the several views and in which,

Figure 1 is a plan view of an instrument constructed according to my invention; Fig. 2 is a plan view of the inner slotted tube; Fig. 3 is a section along the line 3—3 of Fig. 1; Fig. 4 is a detail view showing the relative positions of the slots.

In explanation of the purpose of the device, I may say that there is in use in this country and in others, what is known as "concert pitch" and "international pitch," the latter being approximately one-half tone lower than the former. Many times musicians are obliged to make use of both of these pitches, or they are compelled to transpose the music, which is a very difficult thing to do, and can be only done after one becomes an expert. It is customary with some musicians to have instruments of different pitch, but this is expensive and necessitates the carrying of an extra instrument.

Moreover, instruments such as flutes or clarinets are often used with pianos whose pitch varies from either the true concert

pitch or the international pitch. My purpose, as stated above, is to provide a device which may be quickly tuned to any pitch.

Referring now to Fig. 1, I have shown therein a flute which is constructed as follows:—A mouth piece A is provided which fits on the cylindrical member A\*. The latter is secured to the end of a metal tube B, the opposite end of the tube being provided with an end piece C.

Disposed on the outer side of the tube B is a sleeve D upon which the mechanism for operating the flute is carried. This mechanism consists of the valves V and the usual mechanism by which they are operated, but which forms no part of the present invention. The sleeve D, as will be seen from the drawings, is shorter than the metal tube B, and is designed to move longitudinally of the tube B, and at the same time to have a rotary movement with respect thereto. This movement I accomplish by means of a guide-slot *b* in the tube B into which a guide-pin *d* on the sleeve D projects.

The tube B is provided with a series of helical slots *b*<sup>2</sup>, the distances between consecutive slots representing a half tone. It will be noted that with respect to the length of the tube B these slots overlap, *i. e.* the end of any one slot is farther from the mouth piece than the beginning of the next slot.

The tube D is provided with the openings *d*<sup>2</sup>, these openings being covered by the valves V. It will be noted that these openings *d*<sup>2</sup> are oblong, some of them being longer than others. All of them are designed to be covered by valves like those shown at V.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. As has been stated before, the inner tube B forms part of the main sounding pipe. The tube D is a sleeve by means of which the position of the effective tone opening may be changed with respect to the pipe. This is accomplished by grasping the sleeve with its valve mechanism, and moving it toward or away from the mouth piece, as the case may be. The tube D, as stated, will have a longitudinal, and at the same time a rotary movement. The position of the valves V carried by the tube D will vary from their original position, and therefore when a tone is sounded it will be flatter or sharper



than when the sleeve D was in its original position. Moreover, not only one tone, but all of the tones are sharpened or flattened simultaneously, and to the same extent. By  
5 moving the sleeve D therefore, one may give an instrument any pitch so that when playing with a piano, for instance, which is at neither concert pitch nor international  
10 pitch, but between the two, the wind instrument may be tuned accurately by shifting the sleeve D as described. The guide slot *b* causes the rotation of the sleeve D so that it follows the spiral slots *b*<sup>2</sup>.

It will thus be seen that I have provided  
15 a device by means of which the pitch of the instrument may be changed quickly and accurately. It should be borne in mind that the valves for operating the instrument are in no wise affected, except that the positions of all the valves are shifted with  
20 respect to the openings in the tube B'. The mechanism is simple, and is not liable to get out of order like those instruments in which valves are put into or out of commission, and a new set of valves is used.

While I have shown my invention as ap-

plied to a flute, it will be obvious that it is equally applicable to a reed instrument, such as clarinets, in which the different  
30 tones are produced by covering or uncovering openings in the sounding pipe. I, therefore, do not consider the invention limited to a flute, but consider it as applicable to any device in which the tones are produced by uncovering and covering openings  
35 into the sounding pipe.

What I claim is:—

In a wood wind instrument, a sounding pipe provided with a single set of helical  
40 openings, a sleeve mounted on said sounding pipe and provided with a single series of valve openings arranged to register with the openings in the sounding pipe, said sleeve having a helical movement with respect to said sounding pipe, and means for  
45 maintaining the openings in the sleeve and pipe in registration.

NICHOLAS ALBERTI.

Witnesses:

L. A. STANLEY,  
SOLON C. KEMON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."