(No Model.)

H. J. LIGHT.

WIND MUSICAL INSTRUMENT.

No. 454,748. Patented June 23, 1891.

Fig 1

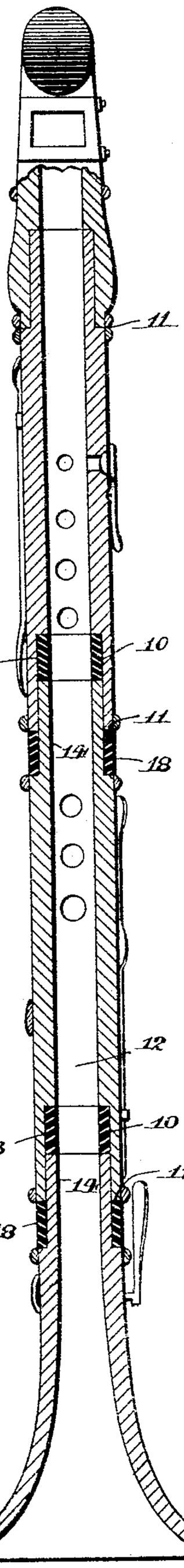


Fig 2

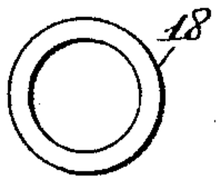
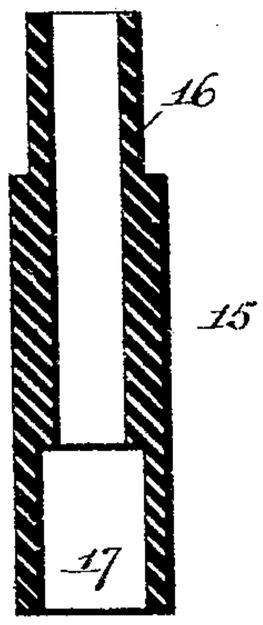


Fig 3



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HARRY JOHN LIGHT, OF SEDAN, KANSAS.

WIND MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 454,748, dated June 23, 1891.

Application filed December 29, 1890. Serial No. 376,145. (No model.)

To all whom it may concern:

Be it known that I, HARRY JOHN LIGHT, of Sedan, in the county of Chautauqua and State of Kansas, have invented a new and Improved Device for Changing the Key of Wind Musical Instruments, of which the following is a full, clear, and exact description.

My invention relates to a means for changing the tone, pitch, or key of wind musical instruments, and has for its object to provide certain devices whereby the bore or tube of the instrument may be lengthened as much as may be necessary to produce the requisite change in pitch, whether it be slight, like the change from the American pitch to the French pitch, or other low pitch sometimes necessary to chord with a piano or other instrument not quite up to the natural pitch of the wind instrument, or whether it be great, as the change from B-flat to A, &c., including the other keys in which music is written.

The invention consists in the novel devices introduced into the instrument and their construction and combination with the instrument, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a central vertical section through a clarionet having the improvement applied. Fig. 2 is a plan view of one of the rings employed, and Fig. 3 is a central longitudinal section through an auxillary or extension upper section.

By an acquaintance with and use of certain wind musical instruments—to wit, the clarionet, flute, bassoon, oboe, saxophone, fife, flageolet, piccolo, and others of similar construction—it is ascertained that such instruments can be tuned or changed in key to only a slight degree, but not so that a B-flat clarionet, for instance, can be tuned or changed in pitch of tone to the key of A. It can be changed only to a very slight degree, not even enough to change the instruments from the American concert-pitch to the French concert-pitch, which is lower. Hence it has been found necessary by manufacturers to make separate instruments keyed on different notes or tones of the musical scale, B-flat, A, &c., and also to manufacture separate instruments keyed at high orchestra or American pitch, and also others at the low orchestra or French pitch, thus making it absolutely necessary for the professional musician using such instruments to provide himself, if desiring a complete outfit, not only with a full set corresponding to the several keys in which music is written, but also with another or second set for either the American or French pitch. The prime object of this invention is to render such an outlay unnecessary and to provide a means whereby one instrument may be changed to any desired pitch or be played in any key and to make the change in an expeditious and convenient manner and at a trifling expense. The first method is by the insertion of flat rings or short tube-sections 10 between the sections of the instrument at the joints thereof. The rings or washers may be made of bone, gutta-percha, celluloid, or other suitable material, and in constructing said rings or washers the top and bottom edges are made straight, and their interior diameters correspond precisely to the diameter of the bore of the instrument. The rings are placed, as heretofore stated, between the several joints 11 of the instrument, the joints being somewhat lengthened, if found necessary. The joints of the instruments are of the mortise-and-tenon pattern, and the inside diameters of the rings are made nearly or exactly the size of the bore or tube 12 of the instrument at the joint, and the outside diameters of the rings are very nearly or exactly the size of the mortise 13, made to receive the tenon 14 of another section; but the outside diameters of the rings are such that they may be easily placed in position or removed when the instrument is disjointed. The inside diameters of the rings are such that when placed in the mortise and the other section of the instrument is replaced the tube or bore of the instrument will be uniform through the joint, as before. It will thus be observed that each ring added lengthens the tube or bore.

The change of the pitch of the instrument will depend upon the extent to which the length of the tube of the instrument is increased—that is, upon the width or number of the rings inserted and the number of joints in which they are introduced, whether one,

two, three, or more, as a ring may be inserted at one joint only to produce a slight change of pitch, or more rings, or wider ones, and at more joints, as the required change in the pitch of the instrument may demand.

The first joint in which the ring or rings should be inserted in the clarionet, for instance, is the joint between the left and right hand finger sections or pieces, and if greater change be required in the pitch of the instrument then more rings should be inserted in or between such other joints as may be found necessary. This is to prevent the instrument from becoming out of tune with and in itself, so that the scales of the new key will be perfect throughout.

In Fig. 3 I have illustrated a modification or a partial substitute for the rings, which consists in an extra section 15, of greater length than the tube-sections 10, having a tenon 16 at its upper end and a mortise 17 at its lower end, and this extra tube-section is placed between the mouth-piece and the first finger-section. By this means the tube of the instrument is lengthened at the first joint, as by rings, and if such extra section does not sufficiently change the tone of the instrument rings may be employed also.

Tuning slides or cylinders have been used between the mouth-piece and left-hand piece, allowing the instrument to be drawn or lengthened, thereby changing the pitch of the instrument only slightly, but not enough to change the key of the instrument from, for instance, B-flat to A without making the instrument out of tune with itself; but such slides or cylinders let into the inside of the instrument have not proved satisfactory and are comparatively little used, not being sufficient to change the instrument even from American concert-pitch to French concert or low orchestra pitch without putting it out of tune with itself.

In order that the extension of the instrument may have the usual smooth appearance, exterior rings 18 are employed to fill the spaces covered by the extension of the sections.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a wind musical instrument, the combination, with the sections thereof, of a ring or tube-section removably inserted at the joint of the sections, substantially as described.

2. In a wind musical instrument, the combination, with the sections thereof, of a ring inserted within the bore at the joint of two sections, the interior wall of which ring is flush with the walls of the bore, substantially as specified.

3. In a wind musical instrument, the combination, with the sections thereof, of a ring removably inserted within the socket of a section at its connection with another section, substantially as described.

4. In a wind musical instrument, the combination, with the sections thereof, of a ring removably inserted in the socket of one section at its joint with a second section, and an exterior ring filling the space created by the extension of the sections, substantially as described.

HARRY JOHN LIGHT.

Witnesses:
M. B. LIGHT,
JOHN LIGHT.