C. L. W. NELSON.

CORNET.

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**1,165,278.**

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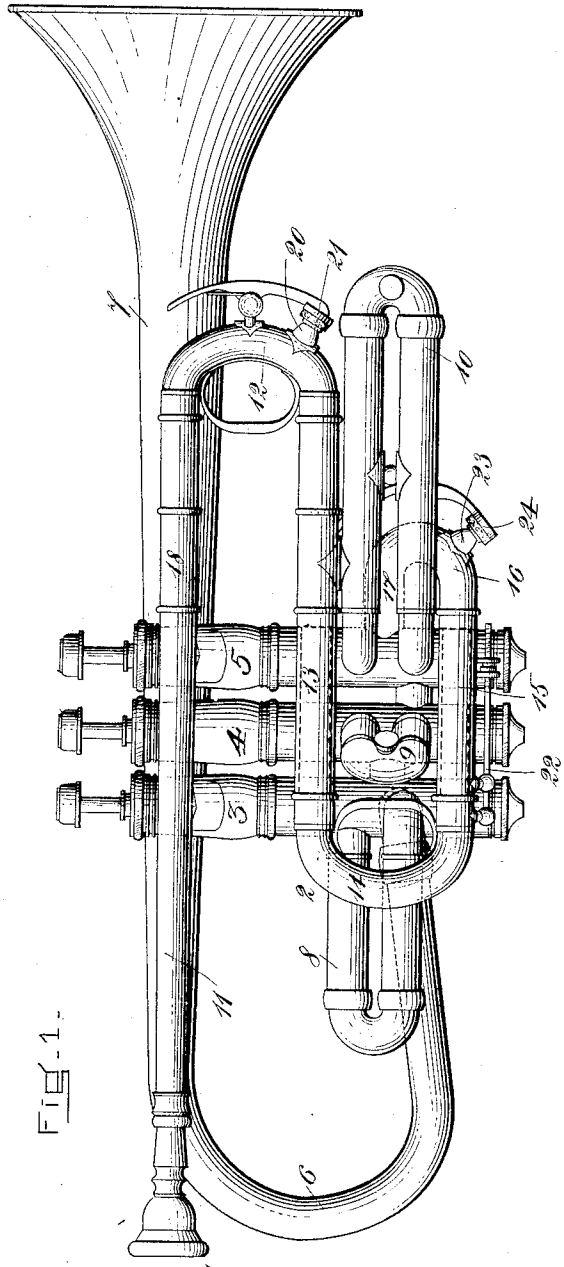


Fig. 1.

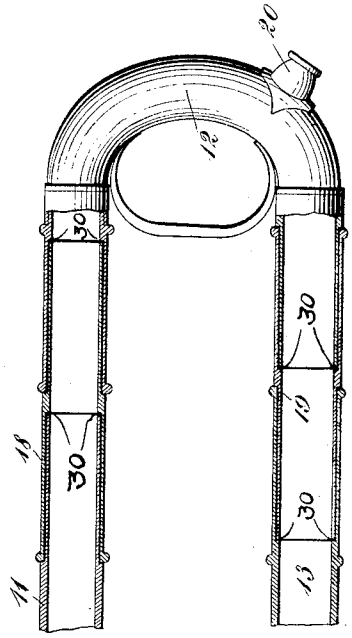


Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## CORNET.

1,165,278. Specification of Letters Patent. Patented Dec. 21, 1915.

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*To all whom it may concern:*

Be it known that I, CARL L. W. NELSON, of Medford, in the county of Middlesex and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Cornets, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification in explaining its nature.

My invention relates to an improvement in cornets, and it is among the objects of my invention to improve the acoustic properties and tone of the instrument through a new disposition and arrangement of its tubes; to provide also for changing the pitch of the instrument without the formation within the bore thereof of harmful air pockets which affect the tone of the instrument, and this by means of a tuning slide supplemented by adjustable tube sections; also to improve the resonance of the instrument and the intensity and quality of its tone by an improved disposition and arrangement of the tube extension in its relation to the outermost valve casing and the extension therefrom, and to provide also whereby a moisture opening may be made at the lowermost extremity of the instrument and moisture prevented from entering the third valve casing and extension therefrom and also to provide whereby the valve controlling the moisture opening may be located in a position where it can be controlled by the inactive little finger of the left hand of the operator holding the instrument.

My invention accordingly comprises various elements of construction, form and arrangement, all of which can best be seen and understood by reference to the drawings, in which—

Figure 1 shows the instrument in side elevation, and Fig. 2 is a tubular portion of the instrument shown in vertical longitudinal section, to which special reference will hereinafter be made.

1 represents the mouthpiece of the instrument. From this there extends a leading tube 2 having various crooks or bends therein and connecting, as will later be more fully explained, with the third of a series of valve casings 3, 4 and 5, respectively. These valve casings connect with one another in the usual manner and contain the customary valves and valvular passages (not shown). Connecting with the first valve casing 3 of the series of casings is a tube 6 which merges at the outer end thereof into the bell 7. The tubes 2 and 6 are formed preferably to provide a bore of gradually increasing diameter from the mouthpiece to the bell. The valve casings 3, 4 and 5 are provided with the usual tube extensions 8, 9 and 10 respectively. The extension 10 from the valve casing 5 is of that type which springs from the right side of the casing and turns to extend forward therefrom in the general direction of the bell.

The leading tube 2 consists of various parts as follows:—The part 11 which extends from the mouthpiece forward beyond the third valve casing 5; the part 12 forming a vertical bend or crook in the tube by which it turns downwardly from the part 11 and back upon itself; the part 13 which extends backward beneath the part 11 in substantial parallel alinement therewith and beyond the first valve casing 3; the part 14 is another vertical bend in the tube and from which a part 15 extends forward in substantial parallel alinement with the part 13 beyond the third valve casing and beneath the valve extension 10 of this casing; a bend 16 extending from the end of the part 15 and upwardly and laterally inclined to avoid the extension 10, and a part 17 extending backward from the part 16 to connect with the third valve casing on the forward side thereof facing the bell. I have found that this arrangement of the leading tube possesses a great advantage in the improved resonance of the instrument and the intensity and quality of its tone. This is especially accounted for by providing the outermost valve casing 5 with a type of extension shown coupled with the manner in which the leading tube connects with the outermost valve casing with relation to its extension. The tube 2 presents, also, further elements of novelty which can best be understood in the light of its several parts above referred to. The parts 11 and 13 of the tube are provided with adjustable tube sections 18 and 19, respectively, having telescopic connection with the main or fixed portions thereof and interposed between the same and the bend or crook 12 in the tube. The bend 12 in the tube comprises a tuning

slide made to have telescopic connection either with the tube sections 18, 19, when these sections are employed in extension of the tubular parts 11 and 13, or with the main fixed portions of the parts 11 and 13 when the tube sections 18, 19, are removed, the instrument in either case then being provided with a tuning slide.

The tube sections 18, 19, possess the essential advantage of preventing the formation of air pockets within the bore of the tube of such length as to impair the tone of the instrument. In other words, when the tuning slide is alone used for changing the pitch of the instrument, the movement of the slide changes the bore of the instrument at the joints and this movement is oftentimes so excessive as to form air pockets within the bore of the instrument of such length as will retard the vibration of the air column and so flatten certain notes. With the tuning slide a change of pitch may be effected without the formation of air pockets which will affect the tone of the instrument, for the reason that the air pockets are of insufficient length. In other words, the change of pitch is effected by adjustment of the sections and also of the tuning slide for changing the length of the air column. Accordingly, instead of two long air pockets left in the bore of the instrument when the tuning slide alone is relied upon to effect such a change, four relatively short pockets 30 will be left in the bore of the instrument and these pockets are so short as not to impair the tone of the instrument.

A further adaptability of the tube sections 18, 19, is that by the removal of these sections the pitch of the instrument may be changed from B low pitch to B high pitch. It is also to be observed that the tube section 18 telescopically connects with the fixed portion of the tube 11 by fitting over the same and that the tuning slide telescopically connects with this same section by fitting over it, while the section 19 telescopically connects with the fixed portion 13 of the tube by fitting within it, and likewise the sliding tube telescopically connects with the same tube section 19 by fitting within it. Such an arrangement is for the purpose of maintaining a proper bore through the leading tube of which the sections and tuning slide form a part.

The bend 12 in the tube comprising the tuning slide is provided on the under side thereof with a moisture opening 20 controlled by a valve 21 located upon the slide.

The bend 14 in the tube 2 consists of a slide having telescopic connection with the tubular parts 13 and 15. This slide constitutes a quick-changing slide for changing the key from B♭ to A, its extension being limited by means of a stop 22 of usual form. The easy accessibility of this slide to the right hand of the operator is especially to be noted, it being extensible in a direction reverse to that of the slide 14 and in the direction of the mouth of the instrument.

The bend 16 at the lower extremity of the tube 2 just before the tube connects with the valve casing 3 is provided with a moisture opening 23 controlled by a valve 24 located upon the bend 16 in the tube. The location of this valve allows the performer to open or shut the same at will by using the ordinarily inactive little finger of the left hand that holds and supports the instrument, thereby leaving the right hand entirely free.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States:—

1. In a cornet, a leading tube having in it a tuning slide with parts of the leading tube extending respectively to and from said slide and through which parts and tuning slide the wind passes at all times during the playing of the instrument, said parts of the tube comprising fixed portions and movable portions in extension of said fixed portions, said movable portions of the tube having adjustable connection with the fixed portions thereof and said tuning slide having adjustable connection with said movable portions of the tube.

2. In a cornet, a leading tube having therein a tuning slide, with parts of the leading tube extending, respectively, to and from said slide, said parts of the tube comprising fixed portions and movable portions in extension of said fixed portions, said movable portions having a detachable connection with said fixed portions of the tube whereby they may be adjustable with relation thereto or removed therefrom, said tuning slide having telescopic connection with either said movable portions of the tube or the fixed portions thereof when said movable portions are removed.

3. In a cornet, a leading tube having a tuning slide and a quick-change slide, with parts of the tube extending, respectively, to and from said slides, said parts of the tube extending to and from said tuning slide comprising fixed tubular portions and movable tubular portions in extension of said fixed portions, said movable portions having telescopic connection with said fixed portions of the tube whereby they may be adjusted with relation thereto, and with which movable portions of the tube said tuning slide has telescopic connection whereby it may be adjusted with relation to said movable portions.

4. A cornet, comprising a mouthpiece, a leading tube and a series of valve casings, the outermost one of which casings is provided with a tube extension connecting with said casing on the right side thereof and

turned to extend forward therefrom, said leading tube extending in part forward beyond the outermost valve casing and beneath the extension thereof, thence bent to extend laterally and upwardly from beneath said extension, and thence extending backward to connect with said outermost valve-casing on the front side thereof, said laterally and upwardly extending bent portion of the tube having in it a moisture opening and a valve controlling said opening accessible to the little finger of the left hand of the operator holding the instrument.

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