

UNITED STATES PATENT OFFICE.

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CORNET.

SPECIFICATION forming part of Letters Patent No. 620,450, dated February 28, 1899.

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To all whom it may concern:

Be it known that I, JOHN HEALD, a citizen of the United States of America, and a resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Cornets and Similar Instruments, of which the following is a full, clear, and exact description.

10 This invention relates to improvements in cornets, trombones, and analogous musical instruments, and more particularly to devices comprised as a part of the instrument or as
15 a substitute appliance therein for changing at pleasure the key of the instrument, either a semitone or a full tone, so that, for instance, in a cornet by the manipulation of the device the instrument may be changed from a B-flat to an A cornet, and also for tuning the instrument, more especially when it is employed in a band or orchestra, so that it will harmonize with the other instruments in company with which it is played.

20 The objects of the invention are to provide in the cornet or analogous instrument an improved device for the purposes mentioned which is comparatively simple and inexpensive of construction, durable, applicable in a convenient place on the instrument, whereby
25 it may be utilized with facility and entire efficiency, and which is in no way unsightly or obtrusive in appearance; and to these ends the invention consists in the provision at the place of and to constitute a suitable one of
30 the return-bends of the cornet, trombone, or similar instrument of a double tubular slide to constitute a key-changing and tuning device, and, furthermore, to the particular construction of parts, all substantially as will be
35 hereinafter described, and set forth in the claims.

The invention is illustrated in the accompanying drawings, in which—

40 Figure 1 is a side view of the cornet, having thereon the compound slide device for key-changing and tuning the instrument. Fig. 2 is a sectional view longitudinally through the double slide device which constitutes the key-changing and instrument-tuning device. Fig. 3 is a plan or top edge view of
45 Fig. 2.

In the drawings, A represents the leading tube of the cornet, with which the shank a and mouthpiece a^2 are connected, the same as usual in cornets, comprising between the
50 mouthpiece end thereof and the piston-tubes B several return-bends, (indicated at 1, 2, and 3.)

In a cornet the most convenient and practicable place of location of the present combined key-changing and tuning slide is at the second bend 2, said device comprising as a part thereof a U-shaped tubular portion, which constitutes the return-bend required at the
55 said point 2 for joining the parallel tube-sections d and d^2 . The ends 6 of said sections d and d^2 of the leading tube which are toward the mouthpiece are open, and said tubes are of uniform diameter.

60 The improved key-changing and tuning device consists of the pair of parallel tubes $f f$, open from end to end, being of uniform diameter externally and internally and adapted to have a close though comparatively free sliding fit within the tube-sections $d d^2$, said
65 pair of parallel tubes $f f$ being united by the cross-bar f^2 , formed as a part of or affixed to the outer end portion of said paired tubes, together with the parallel tubular members
70 $g g$, united by the intermediate U-shaped tubular portion g^2 , the said parallel tubular members $g g$ being endwise open and having a close though comparatively free sliding fit in the tube members $f f$.

75 The upper one of the tubular slide members g has projecting rearwardly from its outer end portion the lug h , rigidly supporting the rod i , which constitutes a guide-stem and thumb-abutment, the length of said rod being parallel with the length of the said
80 tubes $f f$, its extension being endwise toward the mouthpiece end of the instrument.

85 The inner slide members $g g$, near the junction therewith of the uniting tubular bowed portion g^2 , are provided with the annular shoulders g^3 , and from the upper one of these shoulders is provided the rearwardly-extended lug j , having the perforation j^2 , through which the guide-stem i has relatively a slide movement. The end of the said rod i has
90 provided thereon the enlarged thumb-piece, which is constituted by the head k of a screw,

the shank k^2 of which screws into an axial tapped hole therefor in the other end of the rod.

In order to combine the inner U-shaped slide, comprising the tubular parallel legs or sections $g g$, with the tubular slide members $f f$, with the rod i in its sliding engagement through the lug j , the screw and thumb-piece $k^2 k$ is first removed, and after the parts are assembled replaced. The part k , which constitutes the thumb-piece, also constitutes a stop for limiting the outward movement of the U-shaped slide.

The tube members $f f$ and $g g$, the one fitting within the other and both within the cornet tube-section $d d^2$, are comparatively thin, so as not to obstruct the freedom of the wind-passage, and they are, moreover, comparatively long, and in practice in cornets which I have constructed for commercial purposes I have made the legs of the slide members so that they may enter the tube-sections $d d^2$ about two and one-fourth inches and have so located the thumb-piece, which constitutes the abutment, to limit the outward draft of the inner U-shaped slide, so that the latter may be drawn out one and five-eighths inches.

Assuming that the cornet is, when the U-shaped slide $g g g^2$ is in its innermost position, with its stop-shoulders g^3 in abutment against the ends of the slide-tubes $f f$, adapted for the production of given tones or keys—as, for instance, those based on B-flat—then by drawing the key-changing slide from its said innermost to its outermost position, as limited by the lug j coming against the abutment k , the instrument will be converted to an A cornet.

Fig. 1 illustrates the manner of manipulating the key-changing slide for elongating the wind-passage for lowering the key, as above mentioned, and in order to restore the instrument to a key a semitone higher the musician then compresses between the thumb and fingers the U-bend g^2 and the uniting cross-bar f^2 , causing the key-changing slide to be returned to its innermost position within the tubular sections $f f$ without disturbing the relations of said latter sections to the tubular cornet-sections $d d^2$. The instrument being adjusted to key either for B-flat or A, as desired, and it is then desired to adjust the instrument to tone, so that it will be exactly in key with other instruments with which it is to be played in accompaniment, the tuning-slide $g g$, and with it the key-slide, is moved slightly in or out to secure such variations in the tone either slightly higher or lower as will accord to the requirements and circumstances under which the instrument is to be played.

I do not limit the application of the combined key-changing and tuning slide to the location at the bend 2 of the cornet, for it is possible to acquire a key-changing and tuning of the instrument at one of the other return-bends of the leading tube of the cornet; but

the place of the application of the described compound slide shown is by far the most practicable, convenient, efficient, and preferable.

The compound key-changing and tuning slide, substantially as described, may be comprised with equally satisfactory results in a trombone, either at and in part constituting the return-bend of the trombone nearer the mouthpiece or at the bend nearer the trumpet end thereof, and obviously the device is applicable in other specific types of musical wind instruments of the trumpet class.

I am aware that it has heretofore been proposed to provide in a cornet a tuning-slide in one of the return-bends of the leading pipe and to provide a key-changing slide at another of the return-bends thereof; but such independent arrangements of the devices I do not claim; but,

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

1. In a cornet or other trumpet instrument, the combination with parallel pipe-sections thereof constructed with open outer ends, of a pair of tubular sections which are open from end to end, and adapted for longitudinal sliding movement within said first-named sections, and the pair of tube-sections, adapted for endwise-telescoping movements relative to the aforesaid endwise-movable tube-sections, having the uniting tubular bowed or return bent portion, substantially as and for the purposes set forth.

2. In a cornet or analogous instrument, the combination with parallel tubular sections thereof as the ones $d d^2$, having open outer ends, of the tubular sections $f f$ open from end to end, and having a uniting-bar, and adapted for endwise movement within said first-named tube-sections, and the tube-sections $g g$ adapted for endwise movement within the tube-section $f f$, and having the uniting tubular bow-section g^2 , substantially as described.

3. In a cornet or analogous instrument, the combination with parallel tubular sections thereof as the ones $d d^2$, having open outer ends, of the tubular sections $f f$ open from end to end, and having a uniting-bar, and adapted for endwise movement within said first-named tube-sections, and the tube-sections $g g$ adapted for endwise movement within the tube-section $f f$, and having the uniting tubular bow-section g^2 , and means for limiting the inward and outward adjustments of said last-named tube-section relative to the one $f f$, for the purposes set forth.

4. In a cornet, the combination with paired parallel endwise open tube-sections one of which is provided with a laterally-extended support h having an endwise-extended rod with a thumb-piece abutment k at its end, of a U-shaped tubular slide the parallel legs of which are fitted within the aforesaid tube-sections, and one thereof having the lug j in

sliding and guiding engagement with said rod.

5 5. For a cornet or analogous instrument, the tuning-slide, consisting of the parallel tube members *ff* open from end to end, and having a transverse uniting member combined with the U-shaped tubular key-changing slide, the parallel legs of which fit within said tube members *ff* and are movable rela-
10 tively thereto, and stop devices for limiting

the inward and outward movements of the one slide relative to the other, substantially as described.

Signed by me, at Springfield, Massachusetts, this 9th day of September, 1898.

JOHN HEALD.

Witnesses:

WM. S. BELLOWS,
M. A. CAMPBELL.