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E. J. GULICK

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TUNING DEVICE FOR WIND MUSICAL INSTRUMENTS

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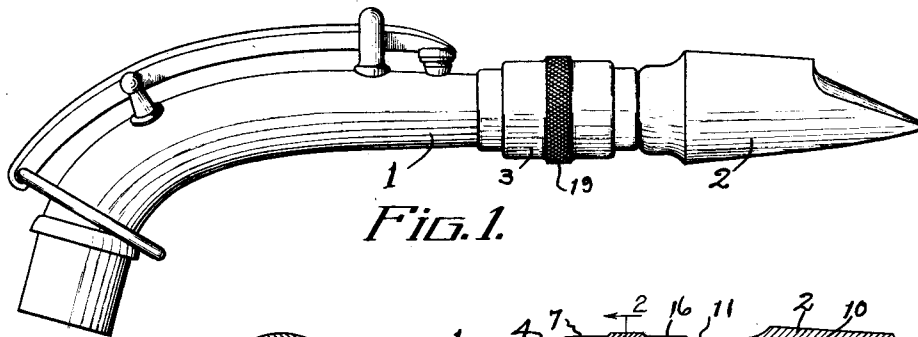


Fig. 1.

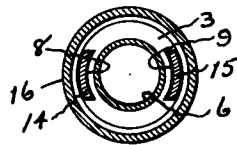


Fig. 2.

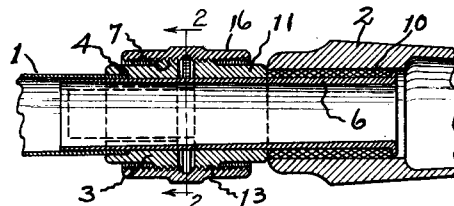


Fig. 3.

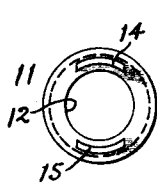


Fig. 4.

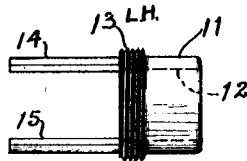


Fig. 5.

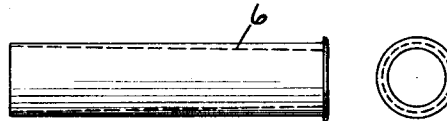


Fig. 6.



Fig. 7.

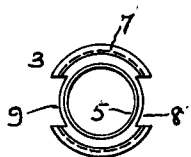


Fig. 8.

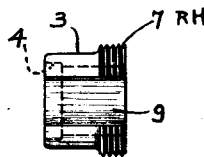


Fig. 9.

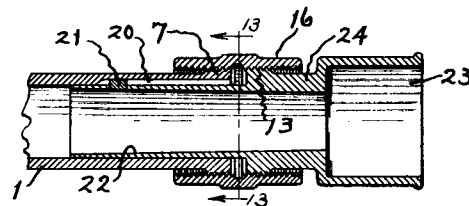


Fig. 12.

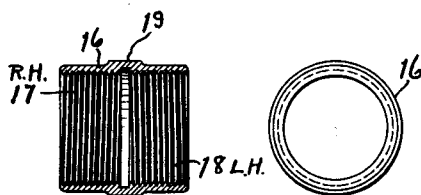


Fig. 10.

Fig. 11.

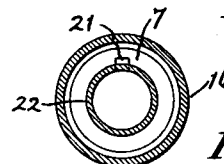


Fig. 13.

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TUNING DEVICE FOR WIND MUSICAL INSTRUMENTS

Application filed October 11, 1928. Serial No. 311,716.

This invention relates to wind musical instruments of the reed type and especially to saxophones, clarinets, and the like.

The principal object of the invention is to provide an improved tuning device for saxophones, clarinets and like musical instruments.

Another object of the invention is to provide an improved tuning device for saxophones, and like reed instruments, in which screw means is incorporated to cause the mouthpiece of the instrument to move at a greater speed than the actuating means.

A third object of the invention is to provide improved means for adjusting the mouthpiece of reed musical instruments for tuning purposes, such means including an adjusting nut or collar which is provided with right and left hand threads for causing the mouthpiece to move at double the speed of the adjusting collar.

Other objects of the invention are mentioned and described herein.

The preferred embodiment of the invention is illustrated in the accompanying drawing, wherein,

Figure 1 illustrates a side view of the mouthpipe of a saxophone carrying my invention;

Fig. 2 is a section taken longitudinally through the invention and parts shown in Fig. 1;

Fig. 3 is a section taken on line 3—3 of Fig. 2;

Figs. 4 and 5 illustrate end and side views, respectively, of the adjustable sleeve;

Figures 6 and 7 illustrate side and end views, respectively, of the sliding tube which supports the mouthpiece;

Figures 8 and 9 illustrate end and side views, respectively, of the mouthpipe head;

Figures 10 and 11 illustrate side and end views, respectively, of the adjusting collar or nut, the former being in section;

Fig. 12 illustrates a modification in longitudinal section; and

Fig. 13 is a section taken on line 13—13 of Fig. 12.

Similar numerals of reference indicate like

parts throughout the several views on the drawing.

Referring to the details of the drawing the numeral 1 indicates the mouthpipe of a saxophone which carries the usual mouthpiece 2, the latter being adapted to carry the usual reed—not shown. The numeral 3 indicates a mouthpipe head, of tubular formation and provided with the cylindrical bore 4 in which the end of pipe 1 is rigidly fixed, by soldering or otherwise, the head being provided also with the reduced concentric bore 5 in which the tuning tube 6 is arranged and adapted to slide, as hereinafter described.

The pipe head 3 is also provided with an annular enlargement at its outer end upon which the right hand screw threads 7 are formed, said threads being interrupted on opposite sides of the head by the opposed slots 8 and 9 which cut through said threads transversely thereof and in the head exterior and coextensive therewith. Numeral 6 indicates the slidable and adjustable tuning tube upon the outer end of which the mouthpiece 2 is removably mounted upon the cork sleeve 10.

As heretofore stated, the tuning tube 6 is slidably arranged in the bore 5 of head 3 and may extend rearwardly thereof to the interior of pipe 1, said tube having the adjusting sleeve 11 rigidly secured to the exterior thereof by solder, or otherwise suitably, the connection being effected in the sleeve bore 12 intermediate the extremities of the tube. An annular enlarged portion on the exterior of sleeve 11 is provided with the screw threads 13 which are preferably of the same diameter as threads 7 on element 3, but left hand threads.

Numerals 14 and 15 indicate a pair of opposed and parallel guide bars or prongs projecting from the inner end of sleeve 11 adjacent threads 13 and in an enlarged circle concentric with bore 12, said prongs having slidable engagement with the two slots 8 and 9 in element 3 to cause the sleeve 11 and tube 6 to move rectilinearly, as hereinafter described. To facilitate the construction of the sleeve 11 in a machine tool the two prongs 14 and 15 are formed arcuately in cross section, al-

though they may be otherwise formed, being preferably formed integral with the sleeve. The numeral 16 indicates the tubular actuating collar or nut which encompasses the pipe head 3 and sleeve 11 for reciprocally actuating the latter, said collar being provided with a series of right hand screw threads 17 interiorly thereof which engage the right hand threads 7 of element 3, and another series of interior screw threads 18 which are left hand and engage the left hand threads 13 on sleeve 11. The exterior of the collar 16 may be provided with the knurled enlargement 19 to facilitate manual rotation thereof.

As illustrated in Fig. 3 the collar 16 is at the limit of its inward movement and adjustment thereof can be effected only by screw movement away from the pipe 1, is, clockwise, thereby causing the sleeve 11 and the tube 6 to move longitudinally at double the speed of said collar, the latter also traveling longitudinally of the pipe 1 through the screw threads 7.

In the modification illustrated in Figures 12 and 13 the mouth-pipe 1 has the screw threads 7 formed on an integral annular enlargement thereon and the interior thereof is provided with a longitudinal key-way or slot 20 in which the guide key 21 carried by tube 22 is slidably arranged to prevent rotation of said tube when the latter is reciprocally actuated by the collar 16, as hereinafter described. In this construction the forward end of the tube 22 carries the mouthpiece socket element 23 which is adapted to receive a reed-mouthpiece of a well known type, and said socket portion may be integral with said tube, and the screw threads 13 of element 11 are formed on the annular enlargement integral with the tubular intermediate section 24 of said tube.

I claim:

1. In a tuning device for wind reed musical instruments, a tubular instrument end, a tuning slide carried thereby, a rotary actuating collar arranged about said instrument end and tuning slide, and right and left hand complementary spiral connections between said collar, instrument end, and tuning slide to reciprocally actuate said tuning slide.

2. In a tuning device for wind reed musical instruments, a tubular instrument end, a tuning slide carried thereby, a rotary actuating collar arranged about said instrument end and tuning slide, and right and left hand complementary spiral connections between said collar, instrument end, and tuning slide to reciprocally actuate said tuning slide at a speed greater than the longitudinal movement of said collar.

3. In a tuning device for wind reed musical instruments, a tubular instrument end provided with a separate element head, a tuning slide carried within said head, a rotary actuating collar arranged about said head

and tuning slide, and right and left hand complementary spiral connections between said collar, instrument end head, and tuning slide to reciprocally actuate said tuning slide.

4. In a tuning device for wind reed musical instruments, a tubular instrument end, a tuning slide carried thereby, means for connecting a mouthpiece with said tuning slide, a rotary actuating collar, and right and left hand screw thread connections between said collar, instrument end, and tuning slide to reciprocally actuate said tuning slide at double the longitudinal speed of said collar.

5. In a tuning device for wind reed musical instruments, a tubular instrument end, a tuning slide arranged within said instrument end, a sleeve element rigidly encompassing and connected with said tuning slide exterior, a complementary boss and slot connection between said sleeve and the instrument end exterior to prevent rotation of said tuning slide, a rotary actuating collar encompassing said instrument end and sleeve, and right and left hand screw thread connections between said collar, instrument end and sleeve to reciprocally actuate said tuning slide.

6. In a tuning device for wind reed musical instruments, a tubular instrument end provided with a tubular separate element head, a tubular tuning slide arranged within said head, a sleeve element rigidly connected with and encompassing the tuning slide exterior, said sleeve having an extension portion, a complementary boss and slot connection between said sleeve extension and the exterior of said instrument end head to prevent rotation of the tuning slide, a rotary actuating collar arranged about said instrument end head and sleeve, and right and left hand screw thread connections between said collar, instrument end head, and sleeve to reciprocally actuate said tuning slide at a speed greater than the longitudinal movement of said collar.

7. In a tuning device for wind reed musical instruments, a tubular instrument end provided with a tubular separate element head having opposed guide slots on the exterior thereof, a tubular tuning slide arranged within said head, a sleeve element rigidly connected with and encompassing the tuning slide exterior, said sleeve carrying longitudinally extending guide elements which are slidably arranged in said head slots to prevent rotation of said tuning slide, a rotary actuating collar arranged about said instrument end head and sleeve, and right and left hand screw thread connections between said collar interior, instrument end head, and sleeve to reciprocally actuate said tuning slide at a speed greater than the longitudinal movement of said collar.

8. In a tuning device for wind reed musical

instruments, a tubular instrument end, a tuning slide arranged within said instrument end and held against rotation therein, said tuning slide having an extension which is
5 provided with a socket portion adapted to receive a reed-mouthpiece, a rotary actuating collar arranged about said instrument end and tuning slide, and right and left hand screw thread connections between said collar,
10 instrument end, and tuning slide to reciprocally actuate the latter at a speed greater than the longitudinal movement of said collar.

9. In a tuning device for wind reed musical
15 instruments, a tubular instrument end, a tuning slide arranged within said instrument end and held against rotation therein, said tuning slide projecting to the exterior of said instrument end and having an integral socket
20 portion formed thereon, said socket portion being adapted to receive a reed-mouthpiece therein, a rotary actuating collar arranged about said instrument end and tuning slide, the interior of said collar being provided
25 with two separate series of right and left hand screw threads adapted to engage corresponding screw threads on said instrument end and tuning slide exterior, respectively,
30 to reciprocally actuate the latter at a speed greater than the longitudinal movement of said collar.

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