July 23, 1929. R. E. LAZARE ET AL 1,722,249

MUSICAL INSTRUMENT

Filed Jan. 23, 1928

Fig. 1

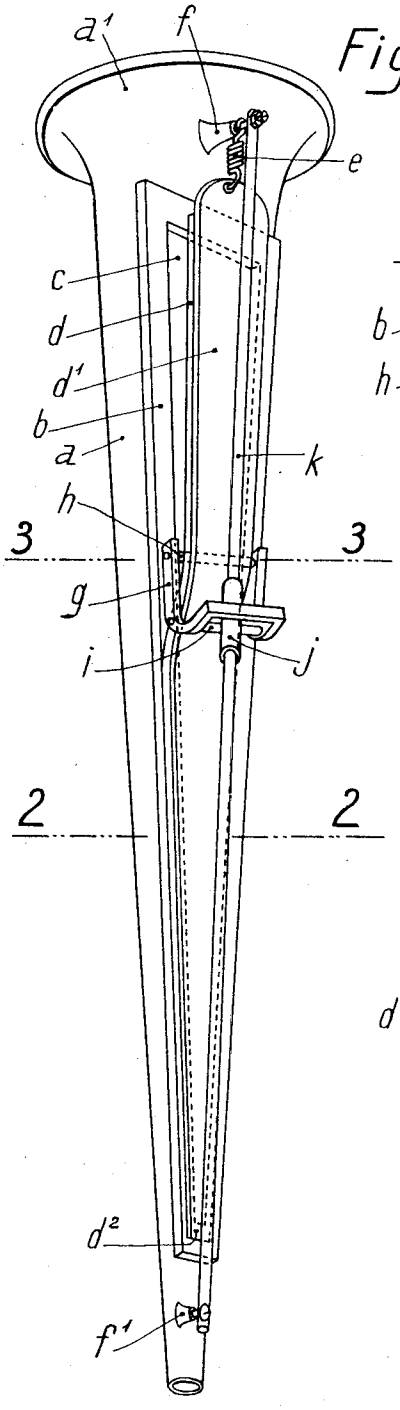


Fig. 3

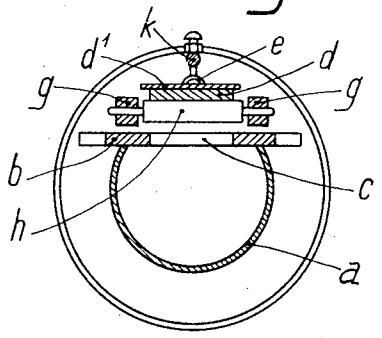
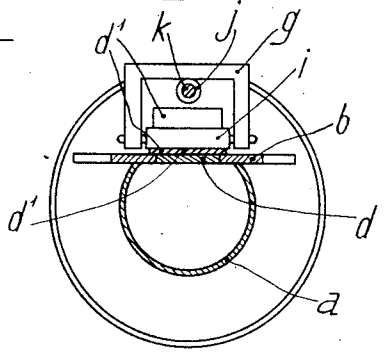


Fig. 2



Inventors
Rene Emile Lazare & William Clapham
By Addison A. Armstrong
His Attorney

Patented July 23, 1929. 1,722,249

UNITED STATES PATENT OFFICE.

RENÉ EMILE LAZARE, OF PARIS, AND WILLIAM CLAPHAM, OF CHANTILLY, OISE, FRANCE.

MUSICAL INSTRUMENT.

Application filed January 23, 1928, Serial No. 248,922, and in France August 12, 1927.

Our invention relates to sliding musical wind instruments of the type in which a straight or curved conical body of tubular form presents the aspect of the body of a saxophone or analogous instrument and is pierced with a longitudinal opening of suitable dimensions, preferably in the form of an elongated trapezoid with the wider base disposed toward the bell of the instrument. Associated with the instrument is a closing member disposed in such a way as to gradually cover and uncover the said opening in a longitudinal direction for the purpose of obtaining varied sounds according to the increasing and decreasing vibrations.

One improvement resides in the fact that the closing member comprises a band of supple material, such as rubber or the like, preferably reinforced by a longitudinally supple and laterally rigid blade. The said band is given suitable dimensions and is disposed in such wise that the extremity thereof at the mouthpiece end of the instrument constantly closes the said opening adjacent thereto, a suitable expedient such as a spring being adapted to maintain the remaining portion of the said band in disengaged position above the opening.

By means of this improvement the band can be gradually brought into closing and opening position from the extremity thereof by subjecting the said band to sliding pressure, either by the hand or by means of a suitable element. The said band being either in total or partial closing position can likewise gradually disengage the opening by withdrawing the sliding pressure element toward the mouthpiece of the instrument.

A second improvement consists in providing a loose slide as a pressure element in combination with the closing band forming the object of the first improvement. The said slide may be of any suitable type mounted on one or more longitudinal guides disposed in a suitable manner either on the interior or on the exterior of the instrument body. The slide is in engagement either directly or by a suitable intermediary element, such as a roller, with the closing band in such a manner that the band becomes fitted in the opening from the point at which the slide happens to be positioned out to the end of the opening.

Still another improvement resides in the fact that the slide forming the object of the preceding improvement is provided with a raising element disposed in sliding engagement with the under face of the closing band. The said raising element in combination with the band tensioning member assures a reliable means for uncovering the opening toward the bell end of the instrument whereas the slide or its intermediary element assures a covering and uncovering of the opening toward the mouthpiece end of the instrument.

Our invention will be more readily understood by reference to the accompanying drawing forming part of this specification and in which—

Fig. 1 is a perspective view of our improved instrument;

Fig. 2 is a section along the line 2—2 of Fig. 1; and

Fig. 3 is a section along the line 3—3 of Fig. 1.

Referring to the drawing, *a* represents the instrument body which is open longitudinally and has tightly fixed thereon a frame *b* provided with a longitudinal opening *c* slightly trapezoidal in form. A closing band *d* of spongy rubber, provided with a liner d^1 of steel or leather, is fixed in one end of the opening *c* at d^2.

The band *d* is of such dimensions that it may be fitted in the opening *c* so as to completely close it, whereas the liner d^1 is of slightly larger dimensions and rests on the frame *b*. The extremity of the band *d* and its liner d^1 is of slightly larger dimensions and rests on the frame *b*. The extremity of the band *d* and its liner are permanently attached to the frame *b* at the said point d^2 which represents one extremity of the opening *c*. The other extremity of the said band and liner is raised up by means of a spring *e* having one end fixed to a foot *f* rigid with the body of the instrument *a* and the other end fixed to the liner d^1 which is thereby stretched tight in an elevated position.

A slide *g* has mounted between its frame members two rotatable rollers, the one *h* engaging the band *d* from beneath, and the other *i* pressing on the top surface of the liner d^1. The roller *h* serves the purpose of maintaining the band *d* in raised disengaged posi-

tion throughout the portion toward the bell a^1 of the instrument and the roller i serves to maintain the liner d^1 in engagement with the frame b between the slide and the mouthpiece of the instrument thereby closing the corresponding portion of the opening c.

The slide g is maintained in position by means of a guide tube j rigidly connected thereto and slidably engaging a guide k secured by means of a screw at one extremity to a foot f^1 provided for that purpose and secured at the other extremity by means of a screw to the foot f.

From the foregoing it will be obvious that the musician by pulling and pushing the slide g, can cover and uncover the opening c to any desired degree and at will thereby giving the particular notes desired.

The particular slide shown is merely described by way of example and may be replaced by any other expedient which will produce an analogous result. The same is true of the frame which is merely an accessory for facilitating the closing and opening of the body of the instrument in the longitudinal direction. The said frame might be readily replaced by two tubes or rods of metal tightly attached to the edges of the opening extending in the longitudinal direction, and adapted to produce a tight fit on the closing element as well as a suitable loose fit in connection with the operating member.

Likewise the reinforcing liner instead of being of steel or leather as described in the example illustrated might readily be replaced by a strip of rubber of a more rigid character than that of the closing band.

One or more regulating elements, such as screws, (not illustrated) may be provided on the instrument, mounted on the foot supports of the guide so as to regulate the displacement of the operating member with a view to tuning the instrument to a given pitch.

The instrument is provided with a reed or other suitable type of mouthpiece attached thereto in a manner well known in the art.

One or more octave keys might be readily disposed on the instrument and adapted to be actuated automatically by the slide at predetermined points in the stroke thereof.

The forms and the accessory dispositions of the various parts of the device described, the dimensions, the constituent materials, the details and means of execution, and more particularly the composition of the closing band and its tensioning arrangement as well as the disposition of the sliding element and its guide, can all be varied without departing from the present invention except as defined by the appended claims.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is—

1. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a closing element adapted to fit snugly in the said opening and manually operated means for causing the said closing element to cover and uncover the said opening in the longitudinal direction and gradually when moved to and fro.

2. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a trapezoidal frame tightly fitted on said opening, a closing element adapted to fit snugly in the said frame and manually operated means for causing the said closing element to cover and uncover the said frame in the longitudinal direction and gradually when moved to and fro.

3. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a band of supple material adapted to fit snugly in the said opening and manually operated means for causing the said closing element to cover and uncover the said opening in the longitudinal direction and gradually when moved to and fro.

4. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a trapezoidal frame tightly fitted on said opening, a band of supple material adapted to fit snugly in the said frame and manually operated means for causing the said band to cover and uncover the said frame in the longitudinal direction and gradually when moved to and fro.

5. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a band of supple material adapted to fit snugly in the said opening, a reinforcing liner mounted on said band and manually operated means for causing the said closing element to cover and uncover the said opening in the longitudinal direction and gradually when moved to and fro.

6. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a trapezoidal frame tightly fitted on said opening, a band of supple material adapted to fit snugly in the said frame, a reinforcing liner mounted on said band and manually operated means for causing the said band to cover and uncover the said frame in the longitudinal direction and gradually when moved to and fro.

7. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a trapezoidal frame tightly fitted on said opening, a band of supple material adapted to fit snugly in the said frame, a reinforcing liner mounted on said band and adapted to overlap said frame when said band is in closed

position and manually operated means for causing the said band to cover and uncover the said frame in the longitudinal direction and gradually when moved to and fro.

8. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a closing element adapted to fit snugly in the said opening and slidably mounted means engaging both sides of said closing member for the purpose described.

9. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a trapezoidal frame tightly fitted on said opening, a closing element adapted to fit snugly in the said frame and slidably mounted means engaging both sides of said closing member for the purpose described.

10. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a band of supple material adapted to fit snugly in the said opening and slidably mounted means engaging both sides of said closing member for the purpose described.

11. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a trapezoidal frame tightly fitted on said opening, a band of supple material adapted to fit snugly in the said frame and slidably mounted means engaging both sides of said closing member for the purpose described.

12. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a band of supple material adapted to fit snugly in the said opening, a reinforcing liner mounted on said band and slidably mounted means engaging both sides of said closing member for the purpose described.

13. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a trapezoidal frame tightly fitted on said opening, a band of supple material adapted to fit snugly in the said frame, a reinforcing liner mounted on said band and adapted to overlap said frame when said band is in closed position and slidably mounted means engaging both sides of said closing member for the purpose described.

14. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a trapezoidal frame tightly fitted on said opening, a band of supple material adapted to fit snugly in the said frame, a reinforcing liner mounted on said band and slidably mounted means engaging both sides of said closing member for the purpose described.

15. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a supple band fixed in one extremity of the said opening at one of its ends, a spring normally holding said band above said opening and a sliding frame engaging both sides of said band and adapted to remove said band on one side and replace said band on the other with respect to said opening as the said frame is moved to and fro.

16. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a supple band fixed in one extremity of the said opening at one of its ends, a spring normally holding said band above said opening a slidably mounted frame adjacent said opening and a pair of rollers carried by said frame and engaging the opposite sides of said band adapted to remove said band on one side of said frame and replace said band on the other side with respect to said opening as the said frame is moved to and fro.

17. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a supple band fixed in one extremity of the said opening at one of its ends, a spring normally holding said band above said opening a slidably mounted frame adjacent said opening, a guide for said frame, a tube loosely mounted on said guide attached to said frame and a pair of rollers carried by said frame and engaging the opposite sides of said band adapted to remove said band on one side of said frame and replace said band on the other side with respect to said opening as said frame is moved to and fro.

18. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a closing element adapted to fit snugly in the said opening, slidably mounted means engaging both sides of said closing element and means for regulating the length of stroke of said slidable means for the purpose described.

19. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a supple band fixed in one extremity of said opening at one of its ends, a spring normally holding said band above said opening, a sliding frame engaging both sides of said band and adapted to remove said band on one side and replace said band on the other with respect to said opening as the said frame is moved to and fro and means for regulating the length of stroke of the said frame for the purpose described.

20. In a musical wind instrument having a body with a longitudinally extending opening formed therein, the combination of a supple band fixed in one extremity of said opening at one of its ends, a spring normally holding said band above said opening, a sliding

frame engaging both sides of said band and adapted to remove said band on one side and replace said band on the other with respect to said opening as the said frame is moved to and fro, means for regulating the length of stroke of the said frame and a plurality of octave keys disposed at different points of the stroke of said frame adapted to be automatically operated thereby.

In testimony whereof, we have signed our names to this specification at Paris, France, this fifth day of January, 1928.

RENE EMILE LAZARE.
WILLIAM CLAPHAM.