E. E. WHITNEY.

TROMBONE SLIDE.

APPLICATION FILED FEB. 19, 1914.

1,130,358.

Patented Mar. 2, 1915.

Fig. 1.

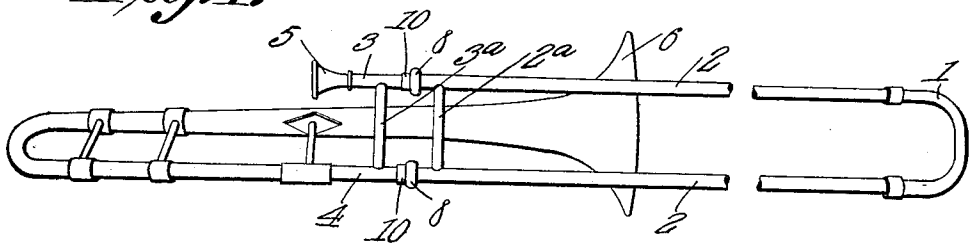


Fig. 2.

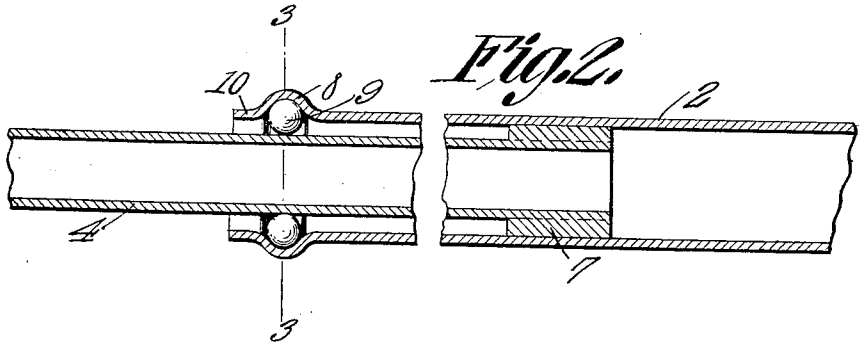
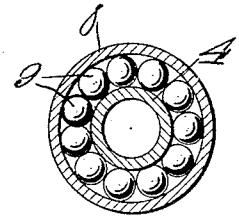


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

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TROMBONE-SLIDE.

1,130,358. Specification of Letters Patent. Patented Mar. 2, 1915.

Application filed February 19, 1914. Serial No. 819,792.

To all whom it may concern:

Be it known that I, ELMER E. WHITNEY, a citizen of the United States, residing at Biddeford, in the county of York and State of Maine, have invented a new and useful Trombone-Slide, of which the following is a specification.

The present invention appertains to slide trombones, and aims to provide in a wind instrument of that character, novel and improved means for mounting the slide, whereby the same will be maintained in proper alinement at its various positions, and whereby the slide will move freely, or with as little friction as possible, to permit of the skilful manipulation of the slide.

The present invention also has for its object the provision of a slide bearing for a slide trombone which will be comparatively simple, non-encumbering, compact, and inexpensive in construction, and convenient, simple, practical and efficient in its use.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention has been illustrated in its preferred embodiment in the accompanying drawing, wherein:—

Figure 1 is an elevation of a slide trombone embodying the improvements, a portion of the slide being broken away. Fig. 2 is an enlarged longitudinal section of one tube or leg of the slide, and the fixed tube upon which it moves, portions being broken away. Fig. 3 is a cross section taken on the line 3—3 of Fig. 2.

The trombone illustrated in Fig. 1, embodies, as usual, a U-shaped slide 1 having the movable tubes or hollow legs 2, connected adjoining their ends by a brace and handle 2^a. The slide tubes 2 telescope over fixed tubes 3 and 4, as usual, the mouth piece 5 being connected to the fixed inner tube 3, and the other fixed tube 4 communicating with the bell 6. The fixed tubes 3 and 4 are connected as usual, by a brace 3^a. The fixed or inner tubes 3 and 4 project or telescope into the outer tubes 2 of the slide, and are equipped at their free or outer ends with bushings or stockings 7 snugly engaging the interior of the tubes 2.

In carrying out the present invention, the slide tubes 2 are constructed of relatively large diameter, with respect to the fixed tubes 3 and 4, and the stockings or enlarged bearing surfaces 7, are of relatively short length. The tubes 2 of the slide are of relatively large diameter and will thereby shorten the space between the successive tone positions of the slide, whereby the slide will have an increased number of tone positions, to thus increase the range of the instrument.

The present invention further includes the provision of an annular bead or corrugation 8 spun or otherwise formed upon each of the outer tubes 2 adjacent its mouth, and forming an annular ball race surrounding the corresponding fixed tube. A series of anti-frictional ball bearings 9 are disposed within the ball race 8 of each outer tube 2, and snugly embrace the corresponding fixed tube.

The mouth portion 10 of each outer tube 2 is in the form of an annular lip projecting from the corresponding ball race 8. It will be evident that the ball races 8 may be readily and inexpensively formed by spinning or bulging the outer tubes 2 outwardly adjoining their mouths or ends, as will be obvious to the artisan.

The outer tubes 2 of the slides being mounted for rectilinear or reciprocatory movements upon the stockings 7 of the fixed tubes, and the outer tubes 2 having the ball bearings embracing the fixed tubes, will properly guide the slide upon the fixed tubes, and the movable or outer tubes 2 of the slide will be maintained in alinement with the fixed tubes at all times. Furthermore, the friction of the slide will be reduced to a minimum, which enables the player to readily and skilfully manipulate the slide, without inconvenience.

An important factor in the provision of the anti-frictional bearings, is the fact that the ball races may be readily and inexpensively formed, and will not encumber the instrument.

In connection with the mounting of the slide, it is also to be observed that the slide or outer tubes are of relatively large diameters, so as to increase the tone range of the trombone, without lengthening the slide.

From the foregoing, taken in connection with the drawing, the advantages and capabilities of the present improvements will be obvious to those versed in the art to which the present invention relates, it being observed that the objects aimed at have been carried out satisfactorily.

Having thus described the invention, what is claimed is:—

In a device of the character described, a pair of telescoping tubes, the outer tube having an annular bulge adjacent its end, and a series of ball bearings fitted within the said bulge and embracing the inner tube.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ELMER E. WHITNEY.

Witnesses:
GEORGE W. HILL,
WALTER R. FALL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."