Although my present invention is referred to as a trombone brace, it should be understood not only that this invention may conceivably be applied to wind instruments other than trombones, but also that said invention may be regarded as including, in addition to the mentioned brace, the associated parts between which said brace is interposed; and an improved tuning adjustment is also claimed herein.

It being usual to interpose between the horn or trumpet-like element of a trombone and a U-shaped slider, the latter being manually manipulable to vary the tone of the instrument, an intermediate section to which the mentioned parts and also a suitable mouthpiece are connected, it is a primary object of my invention to employ, in the mentioned intermediate section, a transverse connecting element which is curved suitably for convenient engagement by one hand (as, the left hand) of a user during manipulation of the so-called slide by his other hand.

It having heretofore been usual to employ straight braces in the connection of parallel guide elements for the support of trombone sliders, it is an object of my invention not only to provide a brace, of the general character referred to, which is adapted to be comfortably and conveniently engaged by the last three fingers of the user's hand but to improve the appearance and the strength of the mentioned brace,—obviating all necessity for applying thereto any special curved bracket or grip element; and, in a preferred embodiment of my invention, incorporating special so-called "thimbles" in the construction of the said intermediate section, I may employ therebetween a brace which is secured at right angles to a reduced or relatively constricted portion of only one of the mentioned thimbles, being secured at an acute angle to an expanded portion of the companion thimble.

Other objects of my invention, including the use of a cylindrical reinforcement upon a straight portion of the mentioned brace, and the interposition of a curved elliptical plate between the forwardly inclined or curved end of said brace and an expanded cylindrical portion of a lower thimble, may be best appreciated from the following description of an illustrative embodiment of my invention, taken in connection with the appended claims and the accompanying drawings, in which

Fig. 1 may be referred to as a side elevational view of a trombone in which an embodiment of my invention is included.

Fig. 2 is an enlarged view, corresponding to the central portion of Fig. 1,—this view showing how a curved brace to which my invention relates may conform to the last three fingers of one hand of the user.

Fig. 3 is a view comparable with Fig. 2, but centrally sectioned in a vertical plane.

Referring first to usual trombone parts, I show at 11 a horn comprising a rectang tube 12,—said tube being presumably connected with the "bell" of the horn by a transverse brace 13; and at 14, I show a so-called slide. The latter may comprise an outer, U-shaped in general form, including parallel limbs 15, 15', united thru a return bend 15", and also an inner section including rather short parallel limbs 16, 16',—the limbs 15, 15' being provided with a brace 17, thru which may extend an adjusting screw 18 (for use in tuning) and the limbs 16, 16', being similarly interconnected by a transverse element 19, adapted to serve not only as a brace but also as a handle to be grasped by the right hand of the user, to manipulate the entire slide.

The horn 11 and the slide 14 are shown as held together by an intermediate section 20. This section, carrying a mouth-piece 21, is shown as including not only a frustoconical horn-attachment projection 22 but a pair of parallel inner guide tubes 23, 23'—adapted to support the slide 14; and my invention relates particularly to improved bracing means serving both for the interconnection of the guide tubes 23, 23' and for the manual support of the entire instrument during actual playing of the trombone.

By way of comparison, it may be noted that the brace 19 extends directly between the parallel short tubes 16, 16', said brace being merely reinforced at its ends by external tubes 24, 24'; but, instead of similar-
ly connecting the inner ends of the guide tubes 23, 23' (as has heretofore been customary) said inner ends being shown as surrounded by forwardly-faring "thimbles" 26, 26' (respectively comprising constricted portions 26, 26'), said thimbles being adapted freely to receive reinforced inner ends of the slideable parallel tubes 16, 16'), I now interconnect the constricted portion 26' of the upper thimble 25 with an expanded or main portion of a lower thimble 25' by interposing therebetween a special brace B which includes not only a straight section 27 (shown as provided with an external reinforcement 28) but also a curved section 29. The latter section having a somewhat elliptical or ovoidal edge 30, as a practical expedient for forming an especially rigid joint, I am now interposing between the curved end of the described brace and the thimble 25', with which it joints at acute angle, a transversely curved reinforcing attachment plate 31, also somewhat elliptical or ovoidal in outline; and, as a matter of fact, whether or not the last-mentioned plate is formed of German silver or substantially the same material as the remaining described parts, I prefer to secure said plate to said brace (preferably by "hard" solder) in advance of a soldering of said plate to the thimble 25', said plate having such an enlarged circumference and area of contact as adapts it to be easily and permanently secured (without danger of "burning" the metal) by means of so-called "soft" solder.

I show a yoke 32, carrying the mentioned screw 18, as curved at both its ends for attachment to the short tubes 16, 16'. This is favorable to an easy and reliable tuning adjustment by rotation of a nut 33, comprising a long-threaded hollow sleeve to which a retaining collar 33' (preferably provided with an oppositely extending outer sleeve) may be secured; but, since substantially the entire weight of a trombone may be normally sustained by hollow braces such as I have described, in order to provide not only for strength and beauty but for a maximum of convenience, security and comfort during prolonged use, I consider it best to curve and forwardly incline only the lower end of the described novel brace B.

Altho I have herein described a single complete embodiment of my invention, it should be understood not only that various features thereof might be independently employed but also that numerous modifications thereof might be devised, by workers skilled in the arts to which this case relates, without involving the slightest departure from the spirit and scope of my invention, as the same is indicated above and in the following claims.

I claim as my invention:

1. In a musical instrument of the trombone type, an intermediate section comprising: parallel tubular guides; thimbles thereon; and interconnecting means therefor including a hand-adapted brace which joins the lower of said thimbles at an acute angle, the upper end of said brace being joined to the other of said thimbles substantially at right angles.

2. In a musical instrument of the trombone type, an intermediate section comprising: parallel tubular guides; thimbles thereon; and interconnecting means therefor including a hand-adapted brace which joins the lower of said thimbles at an acute angle, said brace being substantially straight at its upper end, and said end being joined to a relatively constricted portion of the upper thimble.

3. In a musical instrument of the trombone type, an intermediate section comprising: parallel tubular guides; thimbles thereon; and interconnecting means therefor including a hand-adapted brace which joins the lower of said thimbles at an acute angle, said brace being curved only at its lower end and there attached to a relatively enlarged portion of the lower thimble.

4. In a musical instrument of the trombone type, an intermediate section comprising: parallel tubular guides; thimbles thereon; and interconnecting means therefor including a hand-adapted brace which joins the lower of said thimbles at an acute angle, said brace being curved only at its lower end and there attached to a relatively enlarged portion of the lower thimble by means comprising a curved plate which is substantially elliptical in outline.

5. For use in the interconnection of parallel tubular guides adapted to support a trombone slide: a brace comprising a straight portion, adapted to be secured at right angles relatively to one of said guides, said brace comprising also a curved portion, adapted to be secured at an acute angle relatively to the other of the said guides.

6. For use in the interconnection of parallel tubular guides adapted to support a trombone slide: a brace comprising a straight portion, adapted to be secured at right angles relatively to one of said guides, said brace comprising also a curved portion, adapted to be secured at an acute angle relatively to the other of the said guides, and said curved portion being secured to a substantially elliptical attachment plate.

7. For use in the interconnection of parallel tubular guides adapted to support a trombone slide: a brace comprising a straight portion, adapted to be secured at right angles relatively to one of said guides, said brace comprising also a curved portion, adapted to be secured at an acute angle relatively to the other of the said guides, and said curved portion being secured to a substantially elliptical attachment plate.
attachment plate, and the opposite ends of said brace being respectively cut substantially to conform to a reduced portion of a thimble carried by an upper guide and to an enlarged portion of a similar thimble carried by a lower guide.

8. In a musical instrument of the trombone type, an intermediate section comprising parallel tubular guides; thimbles thereon; and interconnecting means therefor including a hand-adapted brace which joins the lower of said thimbles at an acute angle, the point of the angle being directed toward the mouth of the instrument.

In witness whereof, I have hereunto affixed my signature.

EARL WILLIAMS.