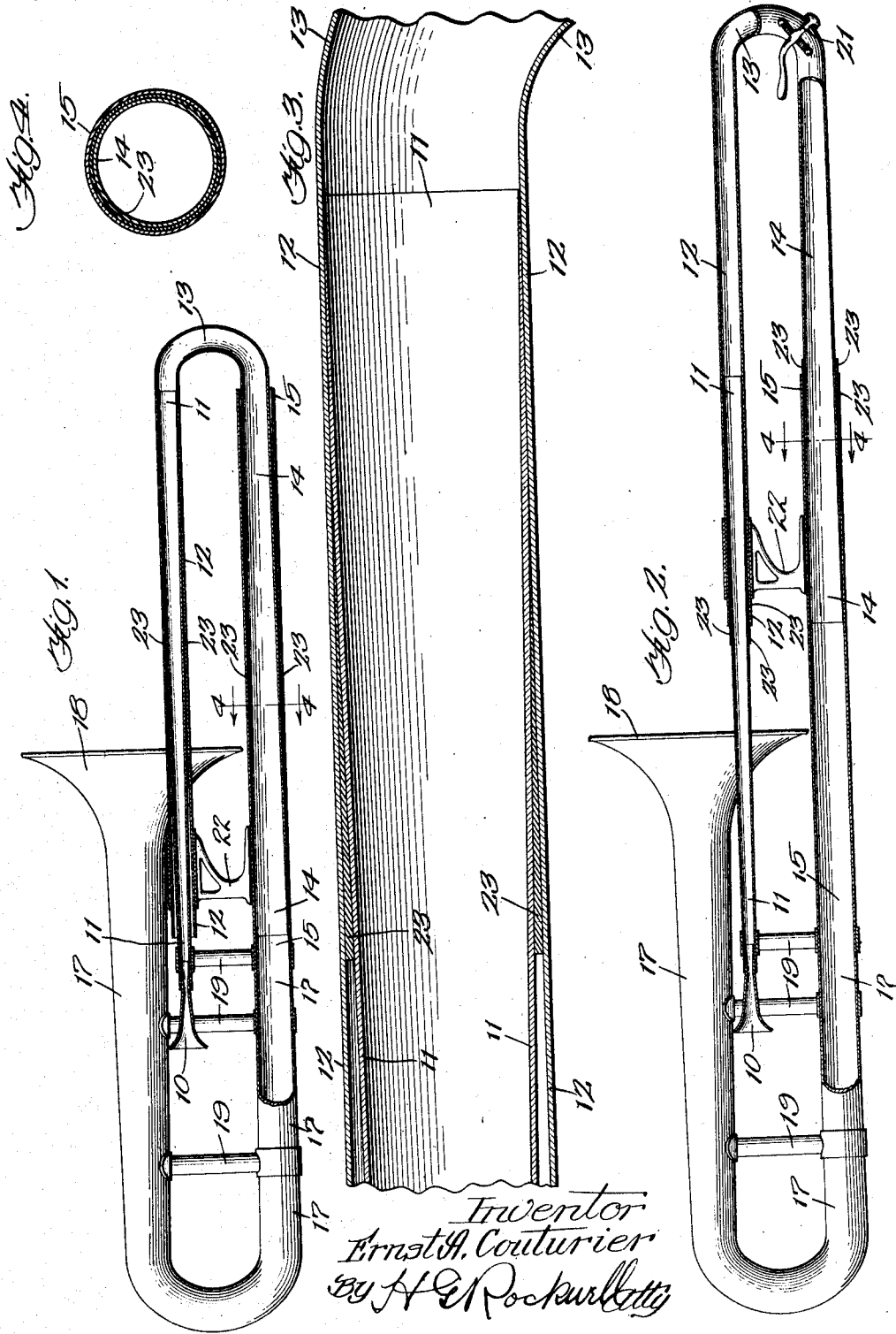


E. A. COUTURIER.
SLIDE TROMBONE.
APPLICATION FILED JUNE 25, 1919.

1,385,202.

Patented July 19, 1921.



UNITED STATES PATENT OFFICE.

ERNST A. COUTURIER, OF LAPORTE, INDIANA.

SLIDE-TROMBONE.

1,385,202.

Specification of Letters Patent.

Patented July 19, 1921.

Application filed June 25, 1919. Serial No. 306,582.

To all whom it may concern:

Be it known that I, ERNST A. COUTURIER, a citizen of the United States, and resident of Laporte, in the county of Laporte and State of Indiana, have invented certain new and useful Improvements in Slide-Trombones, of which the following is a specification.

My invention relates to slide trombones and has for its primary object an improved construction and arrangement whereby the sound vibrations emanating from the mouthpiece of the instrument pass successively through parts each of which has a larger bore than the preceding one. Another object is to provide an improved construction for slide trombones whereby, to the greatest extent possible, the bore of the instrument is continuously and gradually increased in diameter in the direction of travel of the sound vibrations; in other words, I aim to reduce to a minimum the length of cylindrical tubing in the instrument and to eliminate any reduction of the diameter of the bore in the path of the vibrations from mouthpiece to bell. A further object lies in the provision of improved guiding means whereby the novel slide of my invention has its legs kept in perfect axial alinement with those parts of the tubing with which they telescope.

Other objects and advantages of the invention will appear from the following description, taken in conjunction with the accompanying drawings which form a part of this specification and illustrate the preferred embodiment of the invention.

In the drawings:

Figure 1 is a side elevation of the invention partially sectioned along the axis of the tubing and showing the playing slide drawn in.

Fig. 2 is a similar view illustrating an extended position of the slide.

Fig. 3 is an enlarged sectional detail of fragments of the tubing illustrating the guiding means for maintaining axial alinement of the slide legs and those parts with which they telescope.

Fig. 4 is a fragmentary section on line 4-4 of Figs. 1 and 2.

Reference numeral 10 indicates any suitable form of mouthpiece the vibrations emanating from which pass successively into an exteriorly and interiorly frusto-conical mouthpiece 11; an interiorly cylindrical

slide leg 12; a slide bow 13 having a continuously and gradually increasing bore; an exteriorly and interiorly frusto-conical slide leg 14; an interiorly cylindrical bell-branch 15; and a bell 17 from the flared mouth 18 of which they emerge. These parts increase in internal diameter in the order named, this increase being purposely exaggerated in the drawings.

The mouthpiece 11, bell-branch 15 and bell 17 are fixed with respect to each other by means of the customary brackets 19. The slide of the present invention comprises the female leg 12 which receives telescopically the mouthpiece 11, the male leg 14 which telescopes within bell-branch 15, and the bow 13, this bow carrying the usual water key 21. A hand piece 22, fixed to leg 12 and extending toward but not touching the bell-branch 15, enables the player to manipulate the slide.

It will be noted that the interiorly cylindrical leg 12 of the slide surrounds and slides along the exteriorly frusto-conical mouthpiece 11 and that the exteriorly frusto-conical leg 14 slides within the interiorly cylindrical bell-branch 15. To provide for perfectly smooth movement of the slide it is necessary to maintain axial alinement between the mouthpiece 11 and leg 12 and between leg 14 and bell-branch 15. To this end I braze about the outside of each of these exteriorly frusto-conical parts 11 and 14 at the large bore end only thereof a guide collar 23 which is itself exteriorly cylindrical to smoothly fit the cylindrical tube within which it slides and is concentric with that tube. These two guide collars 23 guide the slide smoothly in its movements, preventing jamming or chattering.

To produce the most desirable tones from an instrument of this character it is essential that, to the greatest extent mechanically possible, the vibrations produced in the mouthpiece be conveyed to the bell of instrument through a constantly and gradually enlarging pipe. It is a disadvantage of slide trombones now in use that the vibrations, in their travel to the bell, must pass from the second leg of the slide into a receiver pipe which, being received within such second leg, is necessarily of smaller cross-sectional area. The tone of the ordinary type of slide trombone is injured by this constriction of the air passage, but, as described above, the construction of the present invention avoids any

such constriction and, hence, results in the production of better tones than heretofore.

I claim:

1. In a trombone, the combination of a
5 cylindrical bell-branch, a mouthpipe of progressively increasing diameter, and a slide comprising a cylindrical leg telescopically surrounding said mouthpipe and slidingly fitting the larger end thereof and a leg of
10 progressively increasing diameter telescopically disposed within and with its larger end slidingly fitting said bell-branch, the bore through said instrument having no portion of more restricted diameter than a preceding portion irrespective of the position of said slide.
2. In a trombone, the combination of a cylindrical bell-branch, a mouthpipe of progressively increasing diameter, a slide
20 comprising a cylindrical leg telescopically surrounding said mouthpipe and slidingly fitting the larger end thereof and a leg of progressively increasing diameter telescopically disposed within said bell-branch, the
25 bore through said instrument being devoid of restrictions irrespective of the position of said slide, and tapered guide collars surrounding said mouthpipe and the tapered leg of said slide, the perimeters of said collars being cylindrical and adapted to slidingly fit within the cylindrical leg of said
30 slide and the cylindrical bell-branch respectively.
3. In a trombone, the combination of a cy-

lindrical bell-branch, a mouthpipe of pro- 35
gressively increasing diameter, a slide comprising a cylindrical leg telescopically surrounding said mouthpipe and a leg of progressively increasing diameter slidingly disposed within said bell branch, said mouth- 40
pipe and said last-mentioned leg being of substantially uniform exterior diameters at their telescoping ends to slidingly fit said first-mentioned leg and said bell-branch, and collars interiorly tapered and of exterior 45
uniform diameter mounted upon said mouthpipe and said second-mentioned leg and adapted to respectively slidingly fit within said first-mentioned leg and said bell-branch. 50

4. In a trombone, the combination of a cylindrical bell-branch, a mouthpipe of progressively increasing diameter, and a slide comprising a cylindrical leg of uniform interior diameter telescopically engaged with 55
said mouthpipe and a leg of progressively increasing diameter telescopically engaged in said bell branch, the telescopic portion of said bell-branch being of uniform interior diameter, said mouthpipe being provided 60
with an exterior tapered collar of uniform exterior diameter to slidingly fit the cylindrical branch of said slide and the tapered leg of said slide being provided with a similar tapered collar of uniform exterior di- 65
ameter adapted to slidingly fit the cylindrical bell-branch.

ERNST A. COUTURIER.