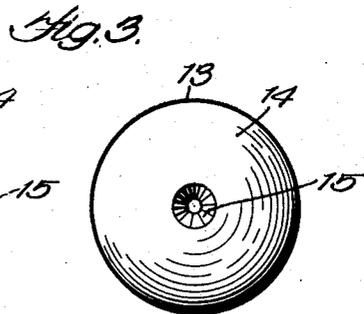
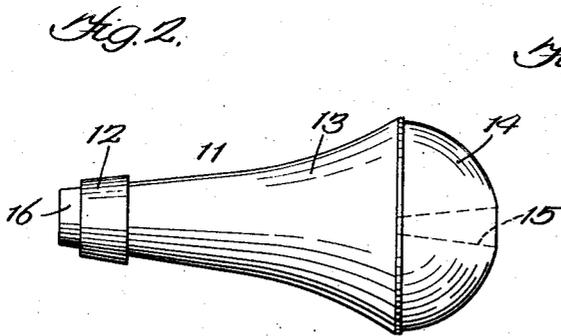
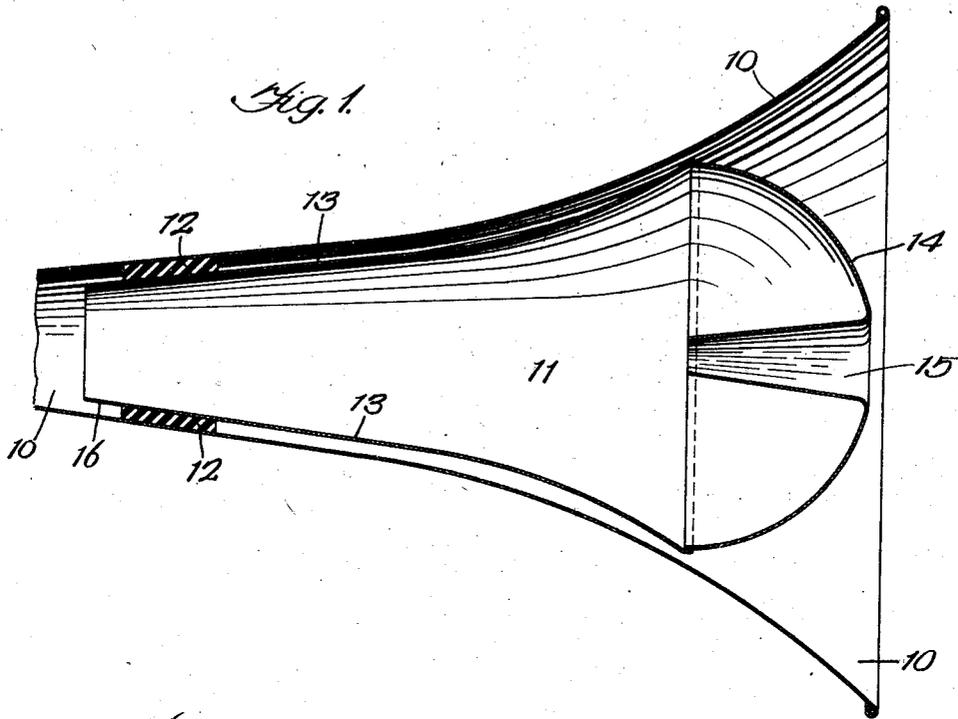


E. A. COUTURIER.
MUTE FOR MUSICAL INSTRUMENTS.
APPLICATION FILED MAY 14, 1921.

1,425,318.

Patented Aug. 8, 1922.



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UNITED STATES PATENT OFFICE.

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MUTE FOR MUSICAL INSTRUMENTS.

1,425,318.

Specification of Letters Patent. Patented Aug. 8, 1922.

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To all whom it may concern:

Be it known that I, ERNST A. COUTURIER, a citizen of the United States, residing at Laporte, in the county of Laporte and State of Indiana, have invented certain new and useful Improvements in Mutes for Musical Instruments, of which the following is a specification.

My invention relates to mutes and has for its primary object the provision of an improved mute by the use of which a musical instrument may be caused to produce its normal tones in miniature while retaining the perfect intonation and normal quality of the tones.

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:

Fig. 1 is a central longitudinal section of the bell of a musical instrument and of my invention operatively positioned thereon.

Fig. 2 is a side elevation of the present invention and Fig. 3 is a front or outer end elevation thereof.

Reference numeral 10 indicates the continuously and gradually enlarging bell of a musical instrument, such, for example, as a cornet or trumpet. The mute forming the present invention, generally indicated at 11, is adapted to be removably secured within such a bell, but out of contact therewith, by means of a frusto-conical annulus 12, of soft rubber, or the like, which tightly embraces the mute near its inner end and is wedged into the tapering bore of the bell.

My mute comprises a body portion 13 which is itself a bell-shaped tube substantially conforming in contour to the bell 10, but of smaller size in order that it may be readily mounted in the bell. The outer, larger diameter end of the tubular body portion 13 is capped by a hemispherical end closure 14 having its convexity outwardly exposed. The center of closure 14 is formed into a frusto-conical, re-entrant, sound delivery tube 15 which is greatest in diameter at its outer end and diminishes toward its inner end. This sound delivery tube and the end closure 14 are coaxial with the body portion 13 and also with bell 10 when the mute is in use. Tube 15 extends inwardly into the mute preferably to the transverse

plane defined by the juncture of body 13 and closure 14.

The annulus 12 tightly embraces the inner, small diameter end 16 of the mute, and is made of resilient material, not only that the mute may be wedged into position in bell 10, but also to leave the major portion of the mute out of contact with the bell 10 and thus free to respond to the sound vibrations of the musical instrument and undisturbed by any influence which might act to impair the intonation of the tones produced or alter their quality. The material of annulus 12 being imperforate, it is obvious that the entire volume of sound normally produced in bell 10 must enter the mute. The latter absorbs a large part of this volume of sound, permitting the delivery from the outer end of tube 15 of only that volume ordinarily to be expected from a musical instrument whose bell, at its outer end, substantially equalled in diameter the large, outer end of tube 15. It is believed also that the co-axial relation of bell 10, body 13, closure 14 and tube 15 is influential in retaining in the mute's miniature tones the normal intonation and tone quality of the instrument embodying bell 10.

In the operation of my invention, the inner, small diameter end 16 is inserted in the bell 10 of a musical instrument and annulus 12 so wedged within the bell as to hold the mute co-axial therein and out of contact with the bell. The instrument embodying bell 10 is now played in the usual manner, the whole volume of sound produced entering mute 11, where, as above described, a large portion of it is absorbed and the remainder delivered from tube 15 unaltered in intonation and quality.

I claim:

1. In a mute, the combination with a bell-shaped tubular body portion, of an outwardly convexed hemispherical closure for the larger end thereof, and a re-entrant sound delivery tube intersecting the center of said closure and tapering inwardly therefrom, the inner end of said tube terminating in the plane of the maximum diameter of said body portion.

2. In a mute, the combination with a bell-shaped tubular body portion, of an outwardly convexed hemispherical closure for the larger end thereof, and a re-entrant inwardly tapering sound delivery tube centrally intersecting said closure, equal in

length to a radius of the closure, and coaxial with said body portion.

3. A mute, comprising a bell shaped body adapted for insertion in the mouth of a wind instrument, an outwardly convex closure for the larger end of said body, and an outwardly tapered sound delivery tube extending inwardly from and centrally of said closure and terminating at its inner end within said body and remote from the smaller end thereof.

4. A mute of substantially bell shape having a convex outer end wall centrally equipped with an outwardly tapered sound delivery tube projecting inwardly from said

wall into the interior of the mute and terminating at substantially the greatest diameter thereof.

5. A mute of substantially bell shape provided at its larger end with an outwardly convex wall having at the center thereof an inwardly extending sound delivery tube projecting axially into the mute and terminating remote from the smaller end thereof, said tube being of relatively small diameter at its inner end and of progressively increasing diameter toward its outer or delivery end.

ERNST A. COUTURIER.