

P. MELFI.
FLUTE ATTACHMENT.
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1,013,037.

Patented Dec. 26, 1911.

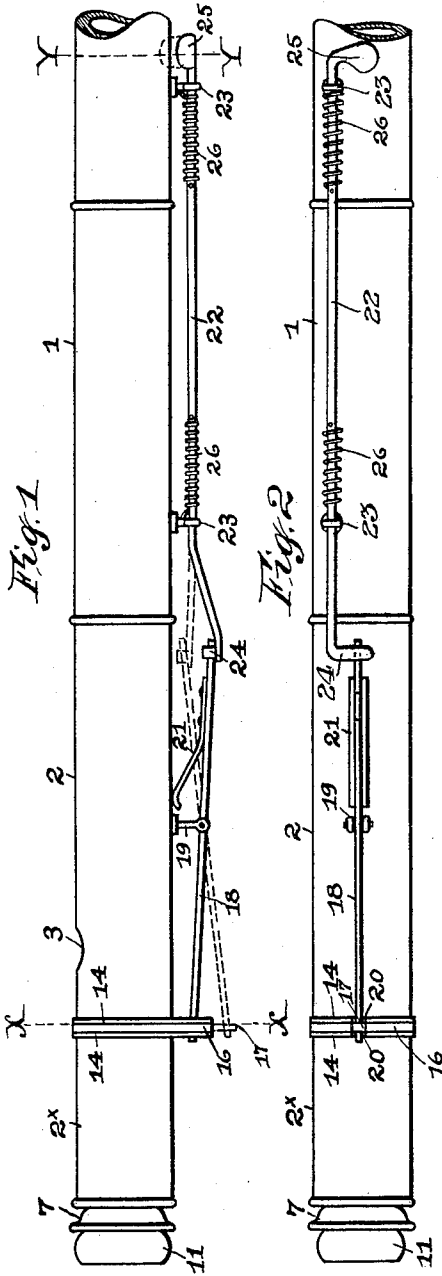


Fig. 5.

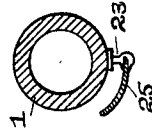


Fig. 4.

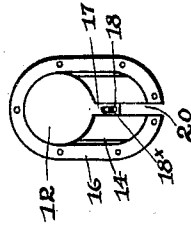


Fig. 3.

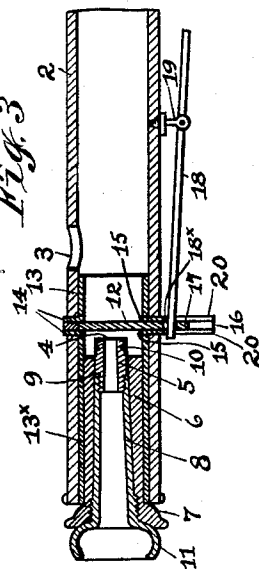
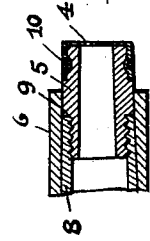


Fig. 6.



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FLUTE ATTACHMENT.

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To all whom it may concern:

Be it known that I, PEPPINO MELFI, a citizen of the United States, and resident of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Flute Attachments, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention pertains to a flute, and it resides in a device designed to be applied to the so-called head of the instrument whereby the tone can be modified so as to produce a "duo voce" effect.

The main object of the present invention is to provide a simple and inexpensive attachment which can be applied either to the usual flute-head, or to a specially constructed head, and thus cause the instrument to produce a new and most beautiful double tone having the character of the flute and a reed-instrument played "unisono."

To that end the invention consists in the novel construction and arrangement of the component parts of the tone-modifying attachment as will be hereinafter fully described.

Referring to the drawings Figure 1 is a side view of a portion of a flute having my invention applied thereto, Fig. 2 is a bottom view of the same; Fig. 3 is a longitudinal sectional view of a portion of the head; Figs. 4 and 5 are transverse sections on the lines —X—X— and —Y—Y— respectively in Fig. 1 and Fig. 6 is an enlarged detail sectional view of a portion of the attachment showing more clearly the manner of supporting the vibratory diaphragm.

Like characters of reference indicate like parts in the several views of the drawings.

—1— denotes the flute-body which may be of any well known style or make, the fingering-keys being omitted.

—2— denotes the usual removable section which is provided with a blow-hole —3— and is commonly termed the head.

My attachment consists essentially of a vibratory diaphragm —4— composed of any suitable material and placed within the cylindrical head —2— and disposed between the blow-hole —3— and outer end of the head. To support said diaphragm in the head, I prefer to attach the same to the end of a small tip —5— provided in the inner end of a tube —6— which is inserted removably into the outer end of the head —2—

and preferably protrudes therefrom. The said tube and tip may be composed of hard rubber or porcelain or other suitable material. The tube is fitted comparatively tight in the head so as to prevent it from accidentally slipping out, and it is provided on its outer end with an annular shoulder or flange —7— abutting against the head. The said tip is inserted removably within the tube —6— and is preferably secured to a tube —8— telescoping in the tube —6—. To attach the tip to the said inner tube, I screw-thread the parts and form the tip with an external shoulder —9— abutting against the end of the tube.

The vibratory diaphragm —4— may be secured over the end of the tip in any suitable and convenient manner; however, in order to permit the same to be conveniently removed when desired, I provide a collar —10— which is slipped onto the tip so as to stretch the diaphragm firmly over the end thereof as more clearly shown in Fig. 6.

The inner tube —8— may be of any suitable material and is inserted into the tube —6— with a tapering fit, and it is threaded and screwed into the said outer tube. The outer end of the inner tube protrudes and is formed with a cup-shaped head —11— which is seated on the flange —7— on the outer tube as shown in Fig. 3.

It will be understood that the player of the instrument blows and fingers the same in the usual and well known manner. The force of the air within the head —2—, incident to blowing into the hole —3—, causes the diaphragm —4— to vibrate whereby the tone of the instrument is modified so as to produce a "duo voce" effect.

As hereinbefore stated, the described attachment is applicable to the ordinary head of a flute, in which instance it is obviously necessary to remove the same when it is desired to produce the natural tone of the instrument. However, the said attachment may remain in the head, and at the same time permit the production of the natural flute-tone. In this case, I provide the instrument with a specially constructed head, as represented in the drawings, in order to permit the use of a movable plate —12— for opening and closing the passage in the head between the diaphragm —4— and blow-hole —3—, whereby the said diaphragm may be exposed to and shielded from the force of air at will of the player. The said

plate is adapted to be shifted transversely through the passage of the head and is disposed adjacent to the diaphragm. In using this plate, I divide the head —2— so as to provide a removable outer end section as indicated at 2*, the joint of the two sections being adjacent to the blow-hole —3—. To unite the two sections I insert within their adjacent ends two metal tubes —13—13* to which are permanently secured transversely disposed metal-plates 14—14— which abut against the respective sections. Said plates are elongated so as to extend downwardly from the head and the upper ends of the plates are curved to correspond with the circumference of the head and they are provided with circular apertures —15—15. The plates are riveted or otherwise fastened together with an intervening inverted U-shaped plate —16—. By thus spacing the two plates —14—14— apart, a guide is provided for the sliding plate —12— which may be either circular or elliptical shape. Said plate is formed with a downwardly extending tongue —17— which may have fastened to it any suitable means whereby the plate can be conveniently operated by the player of the instrument. The sliding plate is of such size as to adapt it to close the passage of the head when it is moved inwardly. The said plate may be shifted in and out by the left hand of the player if desired, however, in order that it may be more conveniently operated and at the same time avoid interference with the fingering of the instrument, I provide a suitable key-mechanism similar to that ordinarily used on a flute and designed to be actuated by the thumb of the player's right hand. While said key-mechanism may be of any suitable style, still at the same time I prefer to use the construction shown which consists of a lever —18— extending lengthwise of the flute-head and pivoted intermediate of its ends to a downwardly projecting post —19— suitably secured to the main section —2— of the head. The forward end of the lever passes through an elongated aperture 18* in the outer end portion of the tongue —17— which extends from the plate 12 whereby the latter is shifted in and out incident to the movement of the lever. To permit the lever to be connected to the tongue, the plates —14—14— are provided with vertical slots —20—20— through which the lever extends. To normally hold the plate 12 in its inner position to shield the diaphragm from the force of the air blown into the hole —3— so as to prevent its vibratory action, and thus allow the instrument to produce its natural tone, I provide a suitable spring —21— between the rear end portion of the lever and the head. This spring consists preferably of a thin spring-metal plate se-

cured at one end to the lever and bearing with its opposite end against the head.

On the flute-body —1— is mounted a longitudinally extending oscillatory rod —22— journaled in posts —23—23— secured to the body. The forward end of the rod —22— extends beyond the joint of the flute-body in head and is formed with an angular offset —24— lying across the bottom of the rear end portion of the lever. Said offset forces the rear end of the lever toward the head, whereby the resultant outward movement of the opposite end of the lever shifts the aforesaid plate 12 to open position so as to expose the diaphragm to the force of air blown into the hole —3—, whereby the said diaphragm is caused to vibrate to produce the required tone effect. The rear end of the rod —22— is provided with a well known key —25— arranged in position to be manipulated by the thumb of the player's right-hand for actuating the rod for the purpose stated.

—26—26— denote light spiral-springs surrounding the rod —22— and fastened at their ends to the rod and its supporting posts respectively. Said springs serve to hold the offset —24— against the bottom of the lever.

What I claim is:—

1. The combination with a flute-head, of a tone-modifying attachment comprising a vibratory member supported therein and disposed between the blow-hole and outer end of the head as set forth.
2. The combination with a flute-head, of a tone-modifying attachment comprising a vibratory diaphragm secured removably therein and disposed between the blow-hole and outer end of the head as set forth.
3. The combination with a flute-head, of a tone-modifying attachment comprising a tubular member inserted removably therein and disposed between the blow-hole and outer end of the head, and a vibratory member secured to the inner end of the tubular member as set forth.
4. The combination with a flute-head, of a tone-modifying attachment comprising a series of detachably connected telescoping tubes inserted removably in the outer end of the head, and a vibratory diaphragm supported by one of said tubes as set forth.
5. The combination with a flute-head, of a tone-modifying attachment comprising a series of telescoping tubes inserted removably in the outer end of the head, the innermost tube having its outer end projecting from the head and formed with a cup-shaped enlargement, and a vibratory diaphragm secured over the opposite end of the innermost tube as set forth.
6. The combination with a flute-head, of a tone-modifying attachment comprising a vibratory member supported removably there-

in, and disposed between the blow-hole and outer end of the head, and a movable plate supported in the head and arranged between said vibratory member and blow-hole as set forth.

7. The combination with a flute-head, of a vibratory diaphragm supported therein and disposed between the usual blow-hole and outer end of said head, and a movable plate disposed between said diaphragm and blow-hole for opening and closing the passage of the head as set forth.

8. The combination with a flute-head, of a tone-modifying attachment comprising a tubular member inserted therein and provided with a vibratory diaphragm on its inner end, and a sliding plate supported in the head and disposed in front of the diaphragm for opening and closing the passage of the head as set forth.

9. The combination with a flute-head, of a tone-modifying attachment comprising a vibratory member supported removably therein, and disposed between the usual blow-hole and outer end of the head, a movable plate disposed adjacent to said diaphragm for opening and closing the passage of the head, and key-mechanism for actuating said plate as set forth.

10. The combination with a flute-head, of a tone-modifying attachment comprising a tube inserted removably therein and provided on its inner end with a detachable vibratory diaphragm disposed adjacent to the usual blow-hole, a transversely sliding plate disposed to open and close the passage in the head between the blow-hole and diaphragm, and means for operating said plate as set forth.

11. The combination with a flute-head, of a tone-modifying attachment secured removably therein between the usual blow-hole and outer end of said head, and comprising a vibratory diaphragm, a plate supported in the head and disposed between the said blow-hole and attachment and normally shielding the diaphragm from the force of the air within the head, key-operated mechanism for actuating the plate to expose the diaphragm to the force of air for the purpose stated, and a spring engaging said mechanism for moving the plate to its normal position as set forth.

12. The combination with a flute-head provided with a detachable outer end section, of a tone-modifying attachment comprising a vibratory diaphragm inserted removably in said section as set forth.

13. The combination with a flute-head provided with a detachable outer end section, of a vibratory diaphragm supported removably in said section, and a transversely sliding plate disposed at the joint of said section and main portion of the head and adapted to be removed with said section, said plate being adapted to open and close the passage of the head as set forth.

14. The combination with a flute-head, of a tone-modifying attachment comprising a tube inserted removably therein and provided on its inner end with a detachable tip, and a vibratory diaphragm secured removably on the outer end of said tip as set forth.

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Witnesses:

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