No. 759,933. PATENTED MAY 17, 1904.

F. SUDRE.

MUSICAL INSTRUMENT.

APPLICATION FILED AUG. 20, 1902.

NO MODEL.

FIG.1

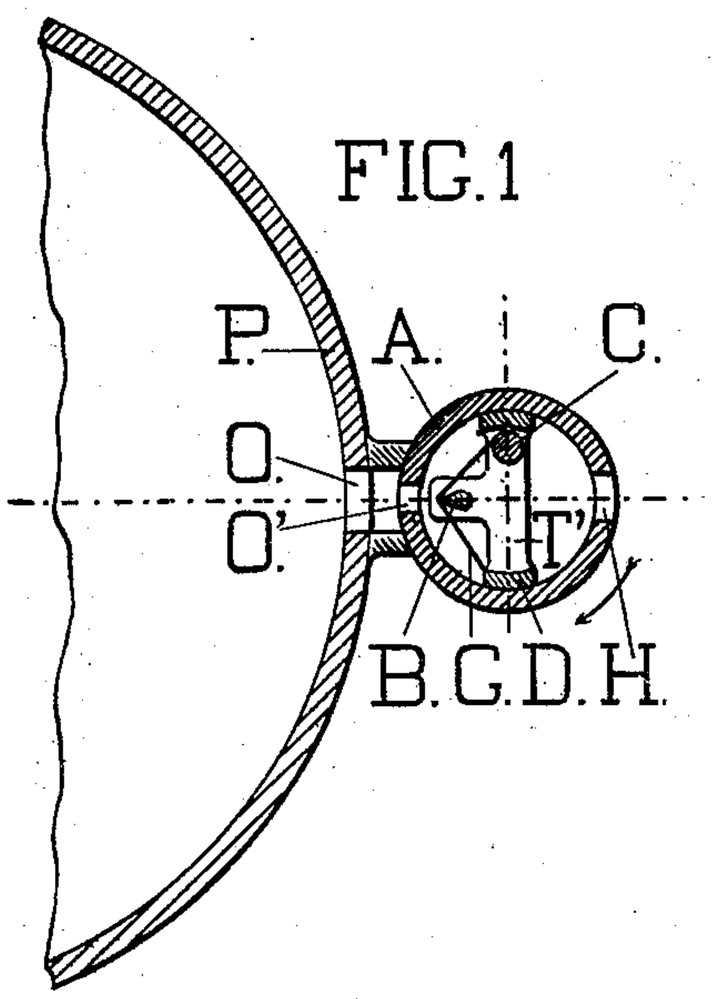


FIG.2

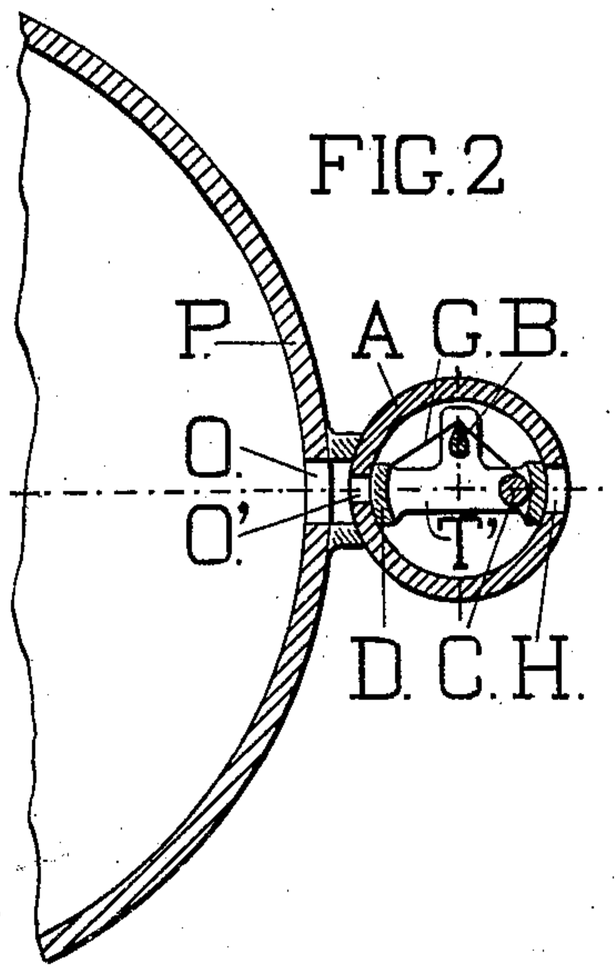


FIG.5

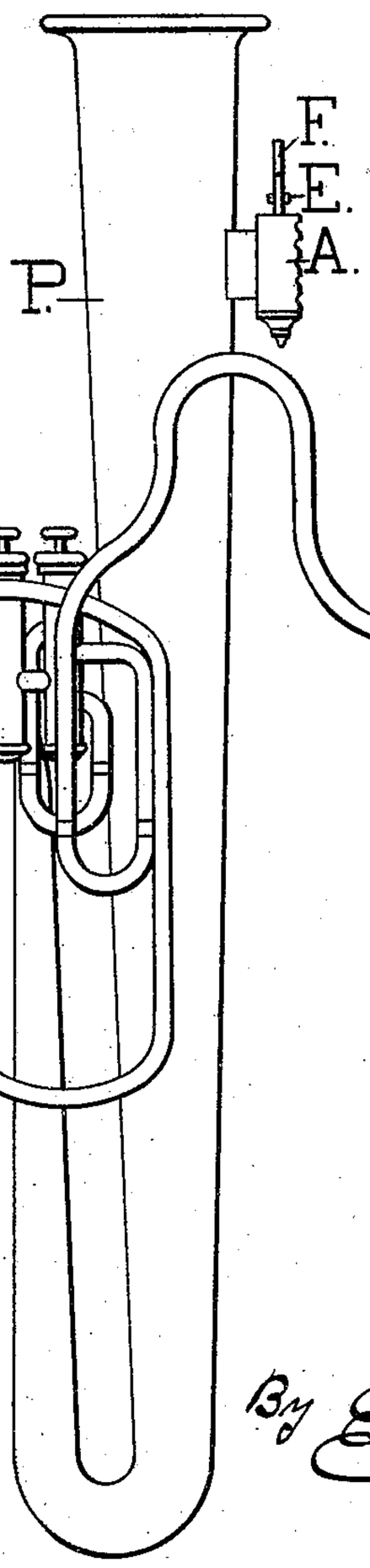


FIG.3

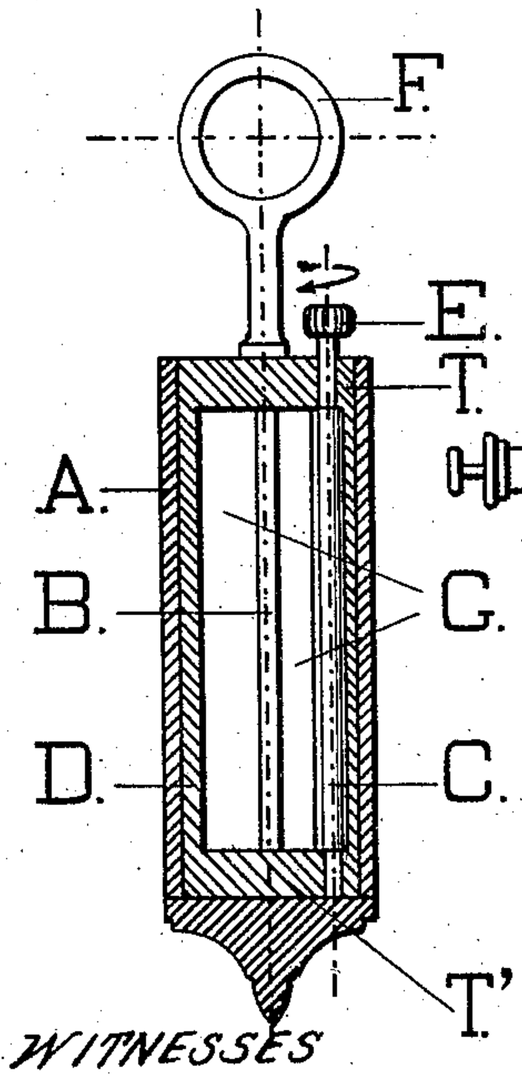
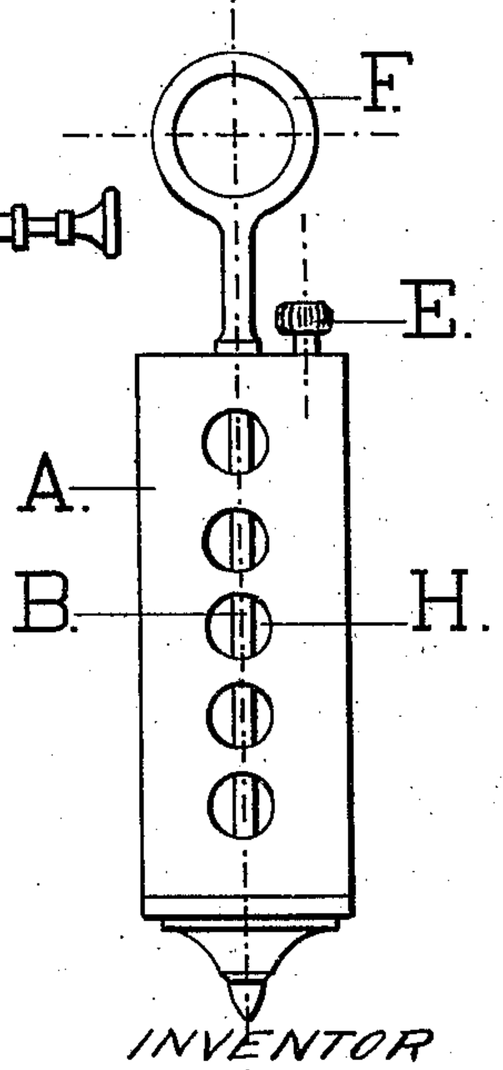


FIG.4



WITNESSES

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ATTORNEYS

No. 759,933. Patented May 17, 1904.

UNITED STATES PATENT OFFICE.

FRANÇOIS SUDRE, OF PARIS, FRANCE.

MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 759,933, dated May 17, 1904.

Application filed August 20, 1902. Serial No. 120,382. (No model.)

To all whom it may concern:

Be it known that I, FRANÇOIS SUDRE, a citizen of the French Republic, residing at Paris, France, have invented certain new and useful Improvements in Musical Instruments, of which the following is a specification.

This invention relates to improvements in musical instruments; and the object is to obtain similar tunes to those of reed instruments with metal wind instruments having flaring mouths, whether operated by pistons or otherwise, without changing the method of fingering of these instruments or necessitating previous teaching.

In the annexed drawings, Figure 1 is a transverse section of part of an instrument with my improvements applied thereto. Fig. 2 is a similar view thereof in its closed position. Fig. 3 is a section through the axes of Fig. 4; Fig. 4, a front elevation of the device. Fig. 5 shows an instrument provided with the improvements.

The arrangement essentially comprises a cylindrical tube A, closed at the bottom and connected to bell P of a brass instrument of which the tone or sound is to be modified. At the side of the bell is a longitudinal slot or aperture O′, and in tube A a corresponding slot or aperture O is provided. These two apertures may have the same width, if desired. On the opposite side of tube A holes H are provided.

In the tube A a vibrating diaphragm G is fixed, one part of which is connected to a crosspiece D and the other end of which is rolled on a roller C. In the tube A is a vertical rod B, round which the vibrating diaphragm is passed, this rod being adapted to act as a bridge to the said vibrating diaphragm, as in a violin.

The parts B C D are connected above and below to the two ends T T′, the upper one, T, of which is provided with a rod carrying a ring F, permitting the whole arrangement of the vibrating diaphragm inside of tube A to be turned for taking it out for inspection and to change the diaphragm, &c.

A button E is fixed on the axle of roller C to permit the regulation of tension of the diaphragm G.

For disconnecting the apparatus and playing the instrument in an ordinary manner it is sufficient to give the ring F a quarter-turn in the direction of the arrow, Fig. 1, the crosspiece D closing then the slit O′, as shown in Fig. 2. For using the apparatus with instruments as described the diaphragm is brought into the position indicated in Fig. 1.

In a general way the object of the invention is to obtain with metal wind instruments with flaring mouths similar sounds to those obtained with reed instruments, clarinets, hautboys, organs, &c. This result is obtained without the performer changing his mode of playing by opening or operating at the desired moment the devices provided with vibrating diaphragms which are placed in or on the body of the instrument before the outlet-bell. The sounds obtained are then modified, the vibrations of the column of air putting the diaphragms into vibration, and the vibrations, combining with the sounds initially issued, alter the original sound of the instrument. The result is that a performer playing an instrument of the class mentioned obtains similar sounds to those produced by reed instruments without altering his mode of playing, according to the diaphragm operated. If the performer using a mouthpiece instrument wishes to play a reed instrument, he would have to make long and tedious studies which can be dispensed with by the present invention.

My invention can be applied to brass instruments with mouthpieces, in which the sounds are obtained by the manipulation of valves or stops producing the vibration of the column of air in the instrument, and all the notes can be modified as desired according to the use made of the vibrating diaphragms described.

I declare that what I claim is—

1. The combination with a musical instrument of the class described, of a cylinder in communication with the bell thereof, a vibrating diaphragm mounted in said cylinder, means for regulating the tension of said diaphragm and means for closing communication between said cylinder and instrument substantially as described.

2. The combination with a musical instrument of the class described of a cylinder in

communication with the bell thereof and provided with a series of apertures opposite said communication, a vibrating diaphragm mounted in said cylinder means for regulating the tension of the diaphragm and means for closing communication between the cylinder and instrument, substantially as described.

3. The combination with a musical instrument of the class described of a cylinder in communication with the bell thereof and provided with a series of apertures opposite said communication, a cross-piece or frame mounted in said cylinder and adapted to be rotated to close communication with the instrument, a vibrating diaphragm mounted on said cross-piece, a rod on the latter adapted to act as a bridge for the diaphragm and means for regulating the tension of the latter substantially as described.

In witness whereof I have signed this specification in the presence of two witnesses.

FRANÇOIS SUDRE.

Witnesses:
EDOUARD CARON,
PHILIPPE VALLET.