E. A. COUTURIER.

CORNET.

APPLICATION FILED SEPT. 3, 1912.

1,073,593.

Patented Sept. 23, 1913.

2 SHEETS—SHEET 1.

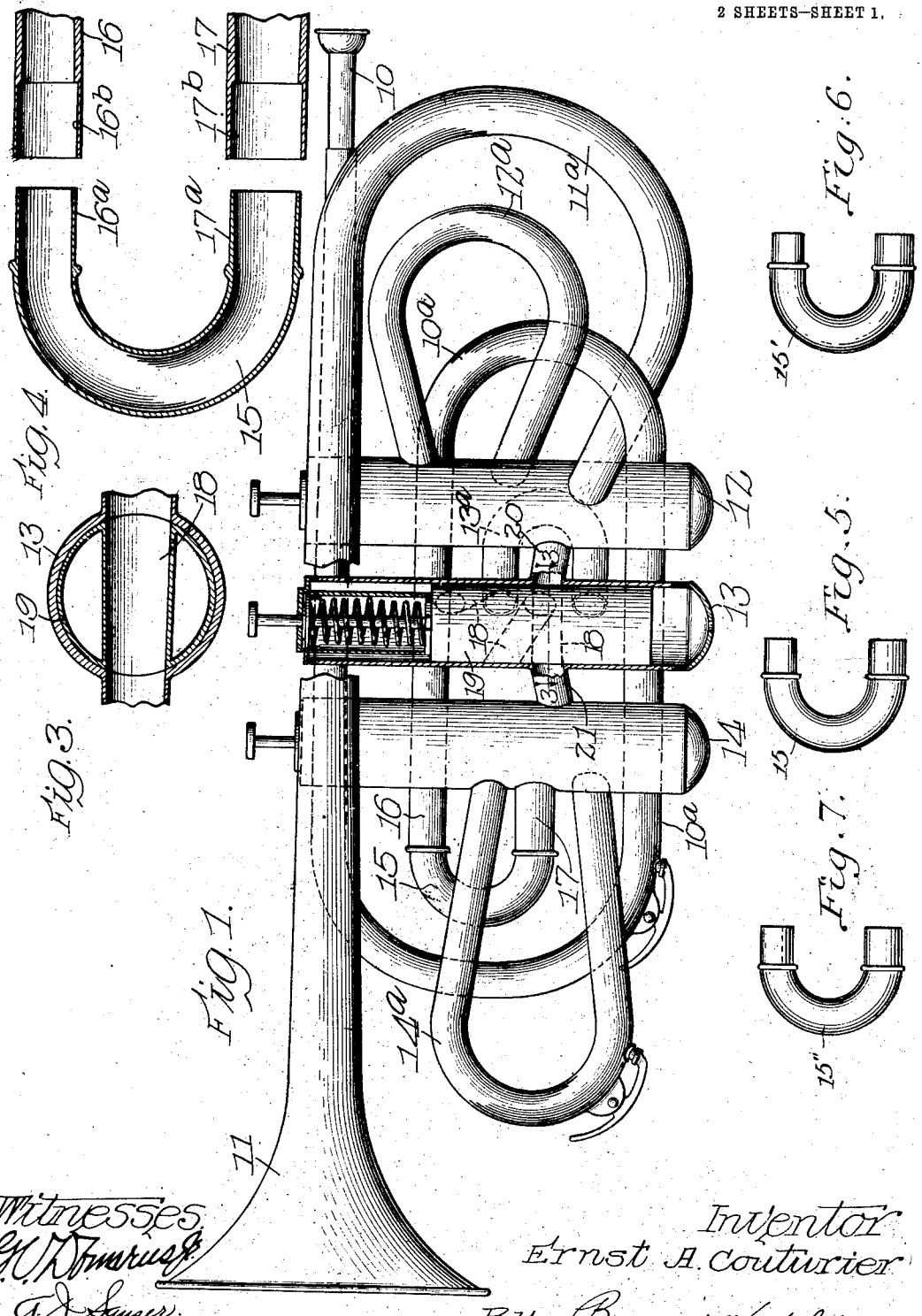

Fig. 1.

Fig. 4.

Fig. 3.

Fig. 6.

Fig. 5.

Fig. 7.

Witnesses.
G. F. Bowers Jr.
A. J. Sauser.

Inventor
Ernst A. Couturier
By Brown & Hopkins.
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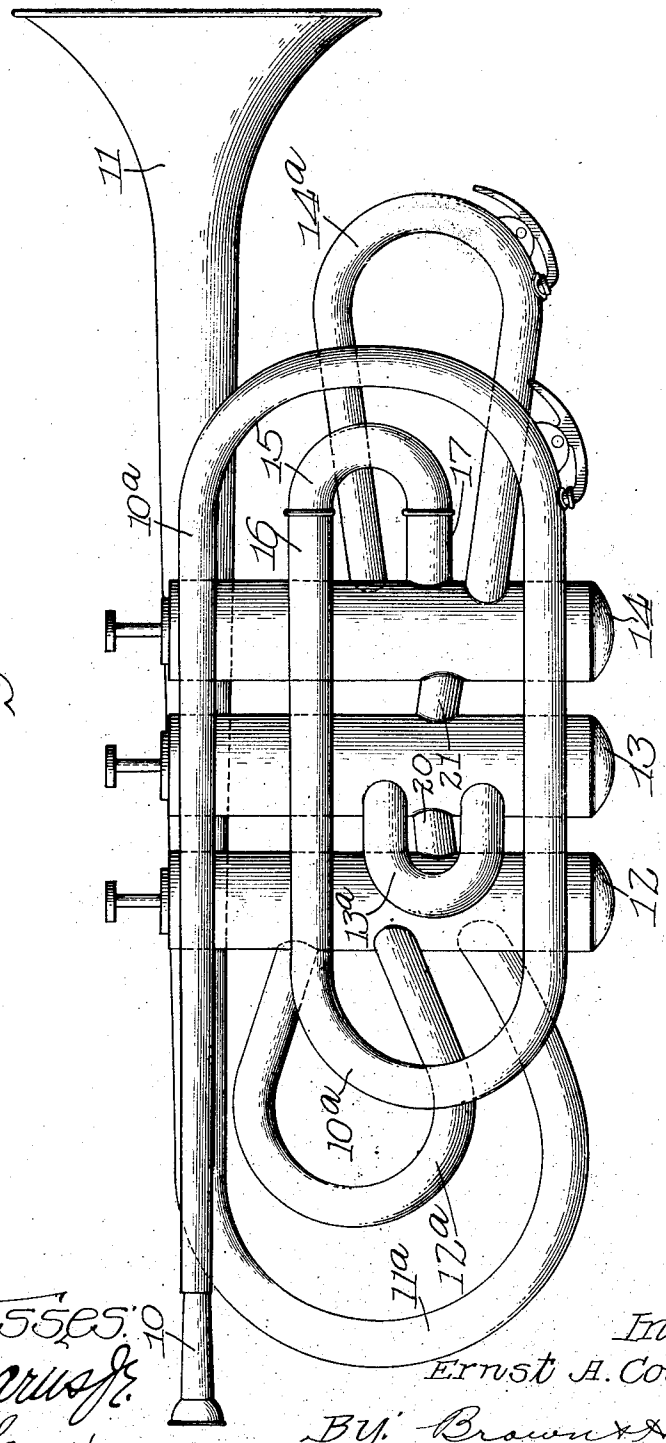

Fig. 2.

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UNITED STATES PATENT OFFICE.

ERNST A. COUTURIER, OF CHICAGO, ILLINOIS.

CORNET.

1,073,593. Specification of Letters Patent. Patented Sept. 23, 1913.

Application filed September 3, 1912. Serial No. 718,182.

To all whom it may concern:

Be it known that I, ERNST A. COUTURIER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Cornets, of which the following is a specification.

My invention relates to cornets and has for its object the provision of an improved valved wind instrument which shall have means for producing more perfect tones than have heretofore been possible from cornets.

With the above and other objects in view, this invention consists substantially in the combination, arrangement, and construction of parts, all as hereinafter described, shown in the accompanying drawings, which form a part of this specification and show the preferred embodiment of my invention, and more specifically set forth in the subjoined claims.

In the accompanying drawings which form a part of this specification and which illustrate the preferred embodiment of my invention, Figure 1 is an elevation of one side of the cornet with some parts broken away and one valve shown in interior elevation. Fig. 2 is an elevation of the opposite side of the cornet. Fig. 3 is a horizontal section of a valve on the line 3—3 of Fig. 1. Fig. 4 is a section through a part of the pipe and a removable portion thereof. Fig. 5 is a detached elevation of a removable section of the cornet. Fig. 6 is an elevation of a section of tubing interchangeable with the section shown in Fig. 5 and somewhat longer. Fig. 7 is an elevation of a section of tubing interchangeable with the section shown in Fig. 5 and somewhat shorter.

To produce the most desirable tone from a cornet it is essential that the vibration produced at the mouth piece be conveyed to the bell of the instrument through a constantly enlarging pipe, and it is a detriment to the cornet now in use that they have, intermediate the mouth piece and the bell, a number of cylindrical portions of the pipe. In order to produce the most desirable sounds from a cornet I provide that the pipe through which the vibrations produced at the mouth piece pass shall be constantly expanding from the mouth piece to the bell, this expansion to be present whether the instrument is used in the well known open position or with any combination of the valves.

In the drawings reference numeral 10 indicates the mouth piece of the instrument; and 11 is the bell thereof; 12, 13 and 14 are the valves; 12^a is the valve pipe of the valve 12, 13^a is the valve pipe of the valve 13, and 14^a is the valve pipe of the valve 14. It is at times necessary to alter the number of vibrations produced by the cornet in order to adapt it to the exact pitch of other instruments. This is done in the ordinary cornets by lengthening the pipe through which the vibrations pass and this lengthening is accomplished by pulling out, as far as necessary, U-shaped slides forming parts of the pipe of the instrument. The ordinary cornet has such slides, both on the valve pipes and on a section of the pipe through which all vibrations must pass whether the valves are in use or not. The pulling out of these slides leaves cylindrical pockets in the pipe which are detrimental to the quality of tone produced from the instrument. For tuning the instrument I provide that an approximately U-shaped section 15 of the pipe thereof intermediate the mouth piece and the valve casing be removable and when it is desired to lengthen the pipe for varying the pitch I provide a longer section 15′, shown in Fig. 6, of a shape similar to 15 and interchangeable therewith, or, should it be desired to shorten the pipe, I provide a shorter section 15″ shown in Fig. 7 similarly shaped and interchangeable with section 15. The long section is of such a length as to lower the pitch of the cornet one-eighth of a tone or less, and the shorter section is so constructed as to raise the pitch one-eighth of a tone or less; thus the cornet is given a range of pitch of one-quarter of a tone or less. By this interchange of members I avoid the interposition in the pipe of any cylindrical portion adjacent the member 15. This appears more clearly in Fig. 4 in which the gradual expansion of the pipe is somewhat exaggerated. 16 is a portion of the mouth pipe as it comes to the member 15 from the mouth piece of the instrument; 17 is that portion of the mouth pipe nearest the bell from member 15. The end 16^a of the member 15 is adapted to be sheathed in the slightly enlarged inner portion 16^b of the

pipe of the instrument and the end 17ª of the member 15 is adapted to be sheathed into the slightly enlarged inner portion 17ᵇ of the pipe 17. When these two ends are respectively sheathed, the continuity of the pipe of the instrument remains unbroken, and while it would be possible to partially withdraw the member 15 from its full engagement with the portions 16ᵇ and 17ᵇ of the pipe and thereby vary the pitch of the instrument, it is a fact that such action would impair the tone produced by interposing in the pipe 2 cylindrical pockets. It is to avoid the forming of any such pockets that I provide for tuning by means of a plurality of members similarly shaped to member 15, of varying lengths, and interchangeable therewith.

The gradual enlargement of the pipe of the instrument continues through all the apertures in the valves, so that in any combination of the valves the vibrations produced at the mouth piece pass through to the bell in a constantly enlarging pipe. In the valves of the instrument, 18 indicates the apertures through which the vibrations are carried to the different portions of the instrument as desired. 19 indicates the plunger of one of the valves. In Fig. 3 one of the apertures 18 is illustrated in section and the enlargement somewhat exaggerated.

In the accompanying drawings and in the foregoing specification are set forth the preferred embodiment of my invention but it is obvious that one skilled in the art may make modifications thereof without departing from the principle of the invention.

I claim:

1. A cornet whereof the diameter of the air passage is continuously and gradually increased from the inlet to the outlet thereof, and having means for varying the pitch of the cornet while maintaining the continuous and gradual increase of the diameter of the air passage.

2. A cornet whereof the diameter of the air passage is continuously and gradually increased from the inlet to the outlet thereof, and having means for varying the pitch of the instrument within a range of one-quarter of a tone while maintaining the continuous and gradual increase of the diameter of the air passage.

3. A cornet whereof the diameter of the air passage is continuously and gradually increased from the mouth piece to the bell, a section of the mouth pipe of the cornet being removable, a section of pipe similar to said removable section interchangeable therewith and of such a length as will cause the pitch of the instrument to be lowered one-eighth of a tone or less, and a section of pipe similar to said removable section interchangeable therewith and of such a length as to raise the pitch of the instrument one-eighth of a tone or less.

4. The combination with a cornet a section of the sounding tube of which is removable, of a set of substitute tubes interchangeable with the removable section for tuning the cornet by definite small amounts.

5. The combination with a cornet pitched in a given key and having a section of its sounding tube removable, of a set of substitute tubes interchangeable with the removable section for tuning the cornet within the given key by definite small amounts.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 30th day of August A. D. 1912.

ERNST A. COUTURIER.

Witnesses:

H. G. ROCKWELL,

GRACE R. COUTURIER.