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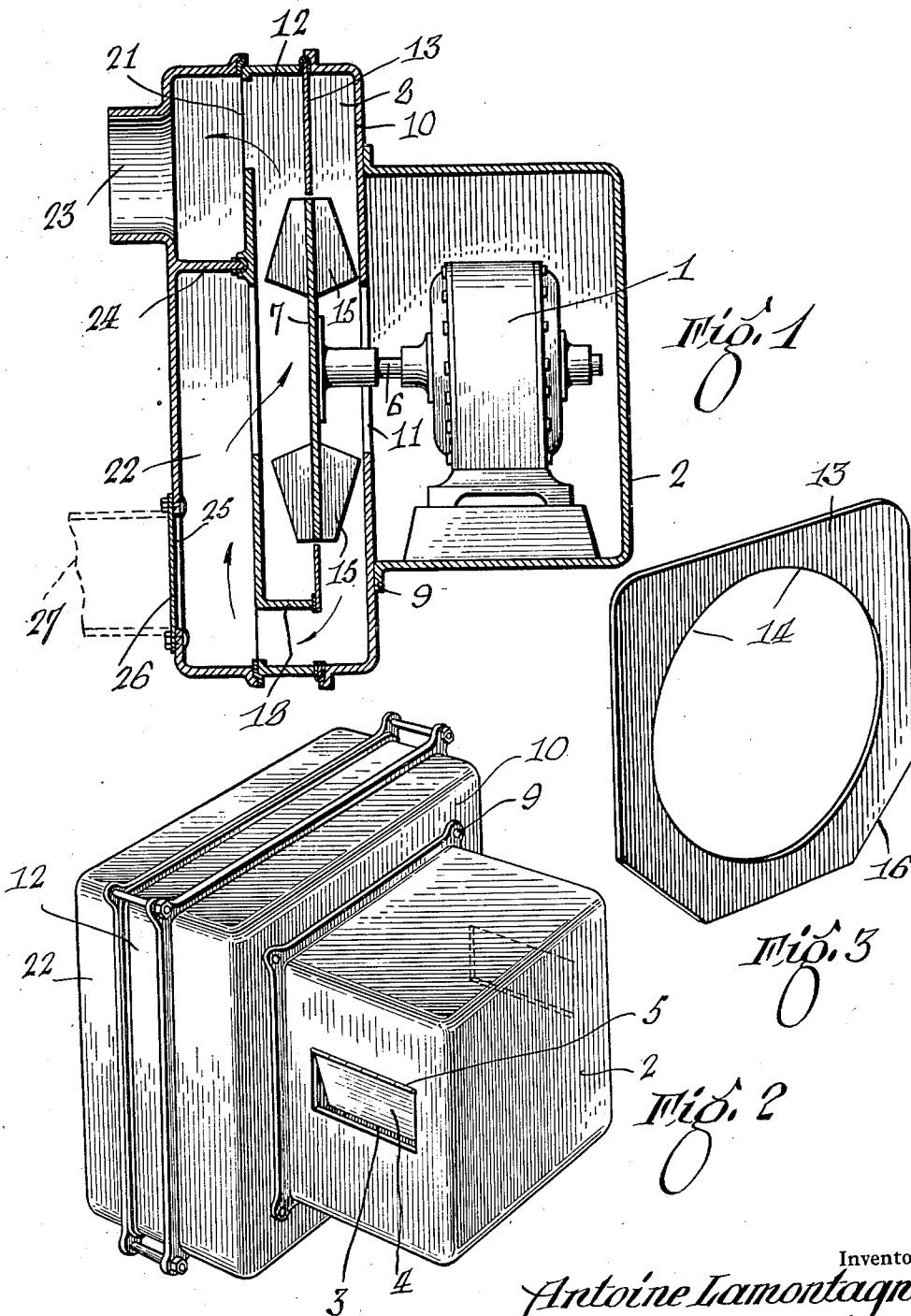
1,573,973

A. LAMONTAGNE

TURBINE FOR ORGANS OR THE LIKE

Filed Sept. 12, 1925

2 Sheets-Sheet 1



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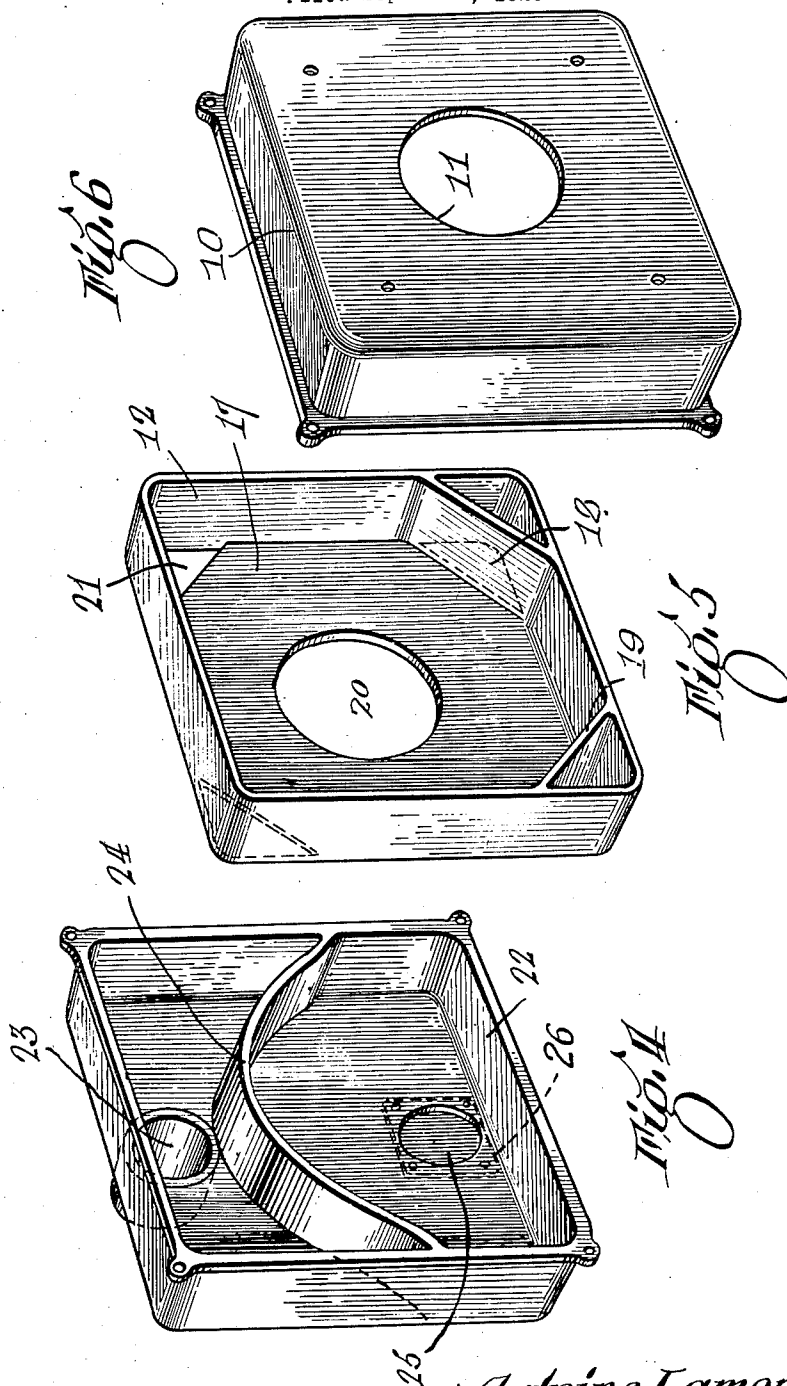
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TURBINE FOR ORGANS OR THE LIKE

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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

ANTOINE LAMONTAGNE, OF MONTREAL, QUEBEC, CANADA.

TURBINE FOR ORGANS OR THE LIKE.

Application filed September 12, 1925. Serial No. 55,970.

To all whom it may concern:

Be it known that I, ANTOINE LAMONTAGNE, subject of the King of Great Britain, residing at Montreal, Province of Quebec, Canada, have invented certain new and useful Improvements in Turbines for Organs or the like; and I do hereby declare that the following is a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention pertains to a novel turbine for organs, although it may also be used in other installations where the functions of the device may be used.

In the present organ constructions, a high pressure for the pipes is obtained by mounting two or more rotors for the purpose of imparting the required compression to the air driven thereby. In the operation of such a system, the air is driven from one rotor to the other, successively gaining in compression.

The object of the present invention is to eliminate the necessity of a plurality of rotors for creating the desired high pressure. This object is accomplished by constructing the rotor casing in such a manner that the rotor itself is contained in two separate compartments. One of these compartments receives the air which is compressed by half of the rotor to the maximum compression obtainable by the rotor. The partitions dividing the compartments are so ported that the compressed air driven by the first half of the rotor is delivered to the second half by which it is doubled in pressure and thus render suitable for high pressure purposes. Incidental to the reduction in the number of rotors necessary for high pressure, the fixed or anchoring parts necessary to support a plurality of rotors are materially reduced in number.

A further feature of the invention is the provision of a secondary outlet formed in the rotor casing in such a manner as to receive air under the first stage of compression by the rotor. This air is suitable for ordinary purpose, but the secondary outlet for supplying it may be blocked if desired, thus limiting the apparatus to the production of air under high pressure, or using both outlets for two different pressures.

The invention is fully disclosed in the

following description and in the accompanying drawings in which;

Figure 1 is a vertical section of the device;

Figure 2 is a perspective view of the apparatus;

Figure 3 is a perspective view of the separator disc surrounding the rotor;

Figure 4 is a perspective view of the outlet section of the turbine casing;

Figure 5 is a perspective view of the intermediate section of the turbine casing; and

Figure 6 is a perspective view of the inlet section of the turbine casing.

Reference to these views will now be made by use of like characters which are employed to designate corresponding parts throughout.

The motor 1 for driving the rotor of the turbine is disposed within a motor box 2 having air ducts 3 for the intake of air required by the rotor. The ducts are provided with doors 4 suitably mounted on hinges 5 so that they will open when a depression within the motor box occurs.

The shaft 6 of the motor carries a rotor 7 disposed within a casing consisting of three sections, the inlet section 8 being secured to the open side of the motor box on ears 9 projecting from the latter. The wall 10 of this section which covers the open side of the motor box has an air port 11 establishing communication between the motor box and the rotor casing. An intermediate section 12 is secured to the inlet section 8, and a partition 13 is interposed between the two sections. This partition has a circular opening 14 within which the rotor turns. The partition is disposed in a plane parallel to a diameter of the rotor and lies in the particular plane that bisects the rotor blades 15 radially with respect to the rotor unit. This partition furthermore has its lower corners cut off as indicated by the numeral 16 in Figure 3, whereby the fluid driven from the rotor may flow from the inlet section 8 through the spaces formed by the cut-away corners in the manner described below.

The base 17 of the intermediate section 12 has its lower corners cut away as at 18 in alinement with the cut off corners 16 of the partition 13. The corners 18 are also bridged by integral corner plates 19, forming a conduit in continuation with the spaces 16. The base 17 has an opening 20 which is concentric with the rotor. Finally,

the upper corners of the base are also open as indicated by the numeral 21 in Figures 1 and 5.

The outlet section 22 is secured to the intermediate section and is formed with an outlet port 23 opposite the open corners 21. This section contains an internal dividing wall 24 which engages the base 17 of the section 12 in such a manner as to separate the opening 20 from the outlet 23. On the other side of the dividing wall, the outlet section has a second outlet port 25 which is closed by a cover plate 26 when not in use. When it is desired to use the second outlet 25 for the purpose stated below, the cover plate is removed and a pipe 27 is secured over the outlet 25 as illustrated in dotted lines in Figure 1.

The operation of the device is as follows:

During the rotation of the rotor, air is drawn through the ducts 3 into the motor box 2, and thence through the inlet port 11 to the inlet section 8. The air is acted upon by one half of the rotor, namely, the half lying at the inlet side of the partition 13. This air is driven through the spaces formed by the cut-away corners 16, beneath the plates 19 and through the cut-away corners 18 of the intermediate section 12 to the outlet section 22. When the second outlet port 25 is closed, the air is drawn through the central opening 20 of the base 17 and to the half of the rotor disposed within the intermediate section. The air being previously under pressure received at the first half of the rotor is now increased to double this pressure by the second half of the rotor. Finally, the doubly compressed air passes through the open corners 21 of the base 17 and to the outlet 23. In this manner there is provided at the outlet 23 a supply of air of twice the pressure that can ordinarily be delivered by the rotor. The apparatus therefore makes possible the production of a pressure which would ordinarily require two rotors of the size actually employed. Since such a high pressure is often required in the operation of organs, the two rotors ordinarily necessary in such cases may be replaced by a single rotor of the same type if the casing is constructed in the manner set forth.

For obtaining air at low pressure, that is, air at the first stage of compression, the cover plate 26 is removed and a pipe 27 is connected to the second outlet 25.

While a specific embodiment of the invention has been illustrated and described, it is to be understood that various alterations in the details of construction may be made without departing from the spirit of the invention as indicated by the appended claims.

Having thus fully described the invention, what I claim as new and desire to protect by Letters Patent is:

1. In combination with a rotor, a partition lying in a plane parallel to a diameter of the rotor and bisecting the rotor blades radially, and means of communication from one side of the partition to the other.

2. In combination with a rotor, a partition lying in a plane parallel to a diameter of the rotor and bisecting the rotor blades radially, and a conduit leading from one side of the partition to the other side and passing outside the periphery of the rotor.

3. In combination with a rotor, a partition lying in a plane parallel to a diameter of the rotor and bisecting the rotor blades radially, means for admitting fluids to one side at the rotor, a conduit leading from said side to the other side of the rotor, and independent outlets leading directly from said other side and from said conduit.

4. In combination, a casing for a rotor having a rotor mounted therein adjacent one wall thereof, said wall having an inlet port, a partition surrounding the rotor and lying in a plane parallel to a diameter of the rotor, a second partition at the side of the rotor opposite said wall, an outlet formed in the remaining wall of the casing, said partitions being ported to permit flow from the inlet side of the rotor, through the secondary partition to the remaining side of the rotor and thence to the outlet.

5. In combination, a casing for a rotor having a rotor mounted therein adjacent one wall thereof, said wall having an inlet port, a partition surrounding the rotor and lying in a plane parallel to a diameter of the rotor, a second partition at the side of the rotor opposite said wall, an outlet formed in the remaining wall of the casing, said partitions being ported to permit flow from the inlet side of the rotor, through the secondary partition to the remaining side of the rotor and thence to the outlet, a dividing wall disposed between the second partition and said remaining wall of the casing, said outlet being disposed on one side of said wall, said remaining wall of the casing having a second outlet at the other side of the dividing wall.

6. In combination, a casing, a pair of spaced partitions dividing said casing into three sections, a rotor disposed within one of said partitions, the casing wall adjacent said rotor having an inlet port, the other partition having a central opening, said partitions being ported to permit a flow from the inlet side of the rotor through the central opening to the space between the partitions, an outlet formed in the remaining wall of the casing, second partition being further ported to permit flow from the space between the partitions to the outlet, and a dividing wall extending from said last named casing wall to the second partition and separating said opening from the outlet.

7. In combination, a casing, a pair of spaced partitions dividing said casing into three sections, a rotor disposed within one of said partitions, the casing wall adjacent said rotor having an inlet port, the other partition having a central opening, said partition being ported to permit a flow from the inlet side of the rotor through the central opening to the space between the partitions, an outlet formed in the remaining wall of the casing, second partition being further ported to permit flow from the space between the partitions to the outlet and a dividing wall extending from said last named casing wall to the second partition and separating said opening from the outlet, said last named casing wall having a second outlet separated from the first named outlet by said dividing wall.

In witness whereof, I have hereunto set my hand.

ANTOINE LAMONTAGNE.