Aug. 26, 1930. J. M. DOLLISON 1,773,965

WIND INSTRUMENT

Filed Jan. 25, 1927

Fig. 1

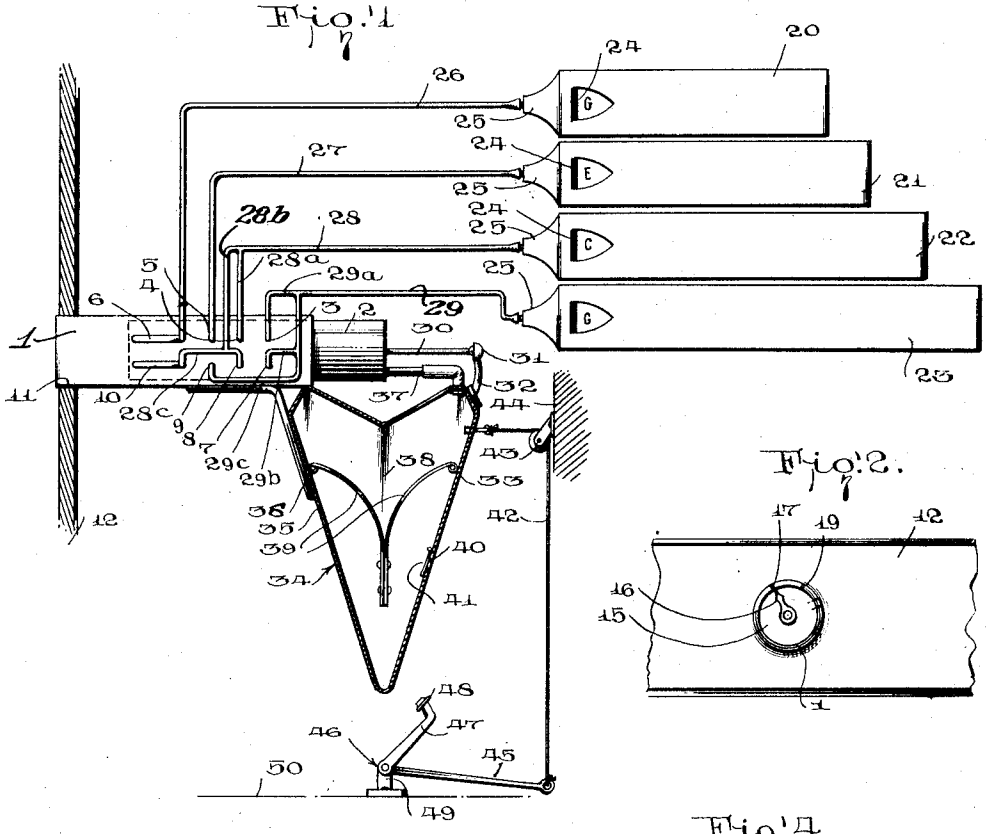


Fig. 2.

Fig. 4.

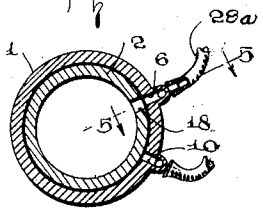


Fig. 5.

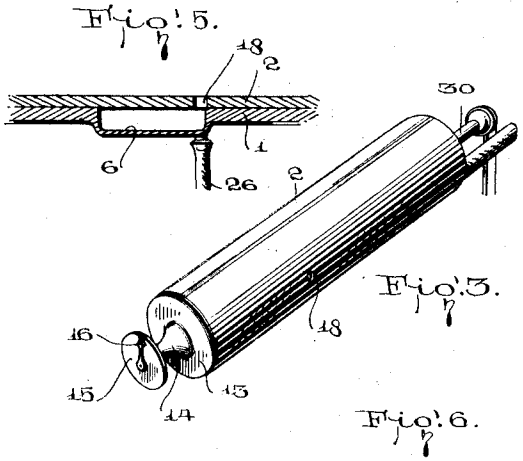


Fig. 3.

Fig. 6.



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Patented Aug. 26, 1930 1,773,965

UNITED STATES PATENT OFFICE

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WIND INSTRUMENT

Application filed January 25, 1927. Serial No. 163,526.

My invention relates generally to musical instruments, more particularly to wind instruments, and it consists in the combinations, constructions and arrangements herein described and claimed.

An object of the invention is to produce a wind instrument which includes a slidable control tube having connection with a source of air under pressure and adapted to operate a series of pipes for producing different sounds sequentially

A further object of the invention is the provision of a wind instrument of the character described which in one form is adapted to produce series of tones such as are heard in bugle calls and which is adapted for use on an automobile, boat or the like as a means for sounding a signal, call, or greeting.

Other objects and advantages of the invention will be apparent from the following description, considered in conjunction with the accompanying drawings, forming a part of this application, in which—

Figure 1 is a view mainly in side elevation and partly in section, showing a form of the invention adapted to produce tones similar to those of bugle calls together with supporting structure for certain parts of the device,

Figure 2 is a fragmentary face view of a supporting member for the tubular casing of the device,

Figure 3 is a perspective view of the control tube of the device,

Figure 4 is a transverse section through the slidable control tube and its casing,

Figure 5 is a section along the line 5—5 of Figure 4.

Figure 6 is a diagram showing two groups or series of notes representing the tones of two different calls or sounds which can be produced selectively by means of the device.

The embodiment of the invention shown in Figure 1 is adapted to produce musical sounds resembling bugle calls and comprises an open ended tubular casing 1 in which a control tube 2 is slidable. The tubular casing is provided with a series of spaced ports 3, 4, 5, and 6, respectively, which are in alinement longitudinally of the casing, and a second series of spaced ports 7, 8, 9, and 10, respectively, which also are in alinement longitudinally of the casing, but are spaced circumferentially of the casing from the first named ports. One end portion of the tubular casing may fit snugly in an opening 11 in a dash board 12 of an automobile or like support and for convenience of description will be hereinafter referred to as the inner end portion of the casing. The corresponding end of the control tube 2 is closed by head 13 from which extends a central stem 14 carrying a circular manipulating head 15 on which a radial pointer or hand 16 is mounted. The head 15 is of less diameter than the bore of the casing 1 and the pointer 16 is adapted to point to an index mark 17 on the inner end of the casing 1 when a lateral port 18 in the control tube 2 is in line radially with the first series of ports in the casing 1 and to a second index mark 19 on the inner end of the casing 1 when the control tube has been turned in the casing 1 until the port 18 is in registration with the second series of ports in the casing 1. It will be seen that the tube 2 is rotated and adjusted longitudinally by means of the manipulating head 15. It will also be seen that when the tube 2 is in a position where the post 18 will register with the ports 3, 4, 5 and 6 a series of sounds will be emitted and when this port 18 is in registration with the ports 7, 8, 9 and 10 a series of different sounds will be emitted.

Conventional sound pipes 20, 21, 22, and 23 are provided and are adapted to produce different musical sounds or notes when air is blown therethrough. It is obvious that different arrangements of notes, or calls, may be produced by varying the sequence or order of operation of the respective pipes.

Air conducting tubes 26, 27, 28, and 29, are connected with the intake neck portions of the pipes 20, 21, 22 and 23, respectively. The tube 26 may be connected with the port 6. The tube 27 may be connected with the port 5. The tube 28 may have branches 28^a, 28^b, and 28^c connected with the ports 4, 8, and 10, respectively. The tube 29 may have branches 29^a, 29^b, and 29^c connected with the ports 3, 7, and 9 respectively.

The control tube 2 is closed at its outer end by a head from which extends a central operating stem 30 which is connected at its outer end by a ball and socket joint 31 with an arm 32 on a wing or side member 33 of a bellows 34. The opposite wing or side member 35 of the bellows may be secured to a bracket 36 on the casing 1, whereby the bellows will be supported adjacent to the casing 1. The bellows is adapted to discharge air through a flexible tube 37 into the outer end of the control tube 2, the tube 37 being suitably connected with the discharge outlet of the bellows and with an intake port in the head at the outer end of the control tube. The aforesaid motion transmitting connection between the bellows and the control tube is sufficiently loose or flexible to permit the control tube to be moved inwardly in the casing 1 when the bellows is contracted and outwardly in casing 1 when the bellows is expanded without any binding action between the control tube and the casing or between any adjacent elements of the motion transmitting connection between the bellows and the control member.

Springs 39 are attached to the wings or side members of the bellows and normally contract the latter. The bellows has an air intake opening 40 which may be located in the side member 33 of the bellows and is controlled by the inwardly opening check valve 41. A pull cable 42 is connected at one end to the side member 33 of the bellows and may extend through a guide pulley 43 on an adjacent support 44 to an arm 45 of a bell crank lever 46 which has an arm 47 provided with a pedal 48. The bell crank lever 46 may be fulcrumed on a bracket 49 on a support 50 which may be the floor of the automobile that is equipped with the aforesaid dash board 12, in which event the support 44 is any suitable frame member of the automobile.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. When the pedal 48 is depressed, the bellows will be expanded against the action of the springs 39. When the pressure has been removed from the pedal, the springs 39 will be effective to contract the bellows so that air will be forced into the control tube 2 and at the same time the control tube will be moved inwardly in the casing 1 until the port 18 has registered with all the ports 3, 4, 5 and 6 or 7, 8, 9, and 10 in the casing sequentially according to whether the control tube has been adjusted in the casing to cause its port to register with the first named group or series of ports or the second named group or series of ports in the casing. A series of sounds or notes having the musical values indicated in the left hand portion of the diagram in Figure 6 will be produced when the port 18 of the control tube registers with the casing ports of the first group during an inward stroke of the control tube and a series of sounds or notes having the musical valves indicated in the right hand portion of the diagram of Figure 6 will be produced when the port 18 registers with the casing ports of the second group during an inward stroke of the control tube. The control tube thus may be termed a slide valve for controlling the flow of air under pressure from the bellows to the respective groups of ports in the casing and it is obvious that any desirable number of groups of ports within limits similar to those hereinbefore described may be provided in the casing 1. The series of sounds or notes which are produced in each instance during an operating stroke of the control tube will resemble the notes of a bugle call which will vary according to the group of casing ports that is used in the production of such notes. It also will be observed that the ports 6 and 10 are relatively long so that the notes which are produced at the ends of the respective calls or signals will be relatively long.

I claim:

1. A musical signal comprising a plurality of sound pipes, a tubular casing having a plurality of parallel series of outlet ports, each port of which having communication with one of the sound pipes, the respective ports of each series being spaced longitudinally of the casing and the respective series of ports being spaced circumferentially of the casing, a hollow valve having communication with a source of air under pressure and slidably and rotatably mounted in the tubular casing and having an outlet port adapted to be alined with the casing outlet ports of any selected series, and to successively register with such port as the hollow valve is moved longitudinally in the casing.

2. A musical signal comprising a plurality of sound pipes, a tubular casing having a plurality of parallel series of outlet ports, each port of which having communication with a sound pipe, the respective ports of each series being spaced longitudinally of the casing and the respective series of such ports being spaced circumferentially, a hollow valve slidably and rotatably mounted within the casing and having an inlet connected with a source of air under pressure, the valve also having an outlet port adapted to aline with any selected set of outlet ports and to be brought into registration with such ports successively as the hollow valve is moved longitudinally in the casing, and cooperative index elements on the tubular casing and the hollow valve for indicating when the last mentioned port of the valve is in alinement with one series of outlet ports.

3. In a musical signal, a plurality of sound pipes, a tubular casing having a plurality of series of outlet ports, each port of which having connection with one of the sound

pipes, the respective ports of each series being spaced longitudinally of the casing and the respective series of ports being spaced circumferentially of the casing, a hollow valve having an inlet connected with a source of air under pressure, said hollow valve being longitudinally and rotatably adjustable in the tubular casing and having an outlet port adapted to aline with any selected set of outlet ports, and to register with the same successively as the valve is moved in a longitudinal direction, and pneumatic means for conducting air into the valve incident to longitudinal movement of the latter in one direction.

4. In a musical signal, a plurality of sound pipes, a tubular casing having a longitudinal series of lateral outlet ports, each of which having communication with one of the sound pipes, a hollow valve slidable in the casing and having an inlet port and an outlet port, the outlet port of the valve being adapted to register with the casing outlet ports sequentially as the valve slides in the casing, a bellows having communication with the inlet port of the valve, and a motion transmitting connection between said bellows and the valve whereby the valve will be moved longitudinally in the casing as the bellows is expanded or contracted.

5. In a musical signal, a plurality of sound pipes, a tubular casing having a longitudinal series of outlet ports, each of which having communication with one of the sound pipes, a hollow valve slidable in the casing and having an inlet port and an outlet port, the outlet port of the valve being adapted to register with the casing outlet ports successively as the valve slides in the casing, a normally contracted bellows having communication with the inlet port of the valve, and a motion transmitting connection between the bellows and the valve whereby the valve will be moved longitudinally in the casing as the bellows is expanded or contracted and means for expanding the bellows at will.

6. In a musical signal, a casing having a plurality of conduits leading therefrom, a plurality of sound producing pipes communicating with the conduit, a hollow valve slidably and rotatably mounted in the casing and normally severing communication between the conduit and the casing and having a single port to successively register with the conduit, a normally contracted bellows having communication with the slide valve, manually operable means for expanding the bellows, and a rigid connection between the bellows and slide valve whereby to shift the valve longitudinally incident to the expansion and contraction of the bellows.

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