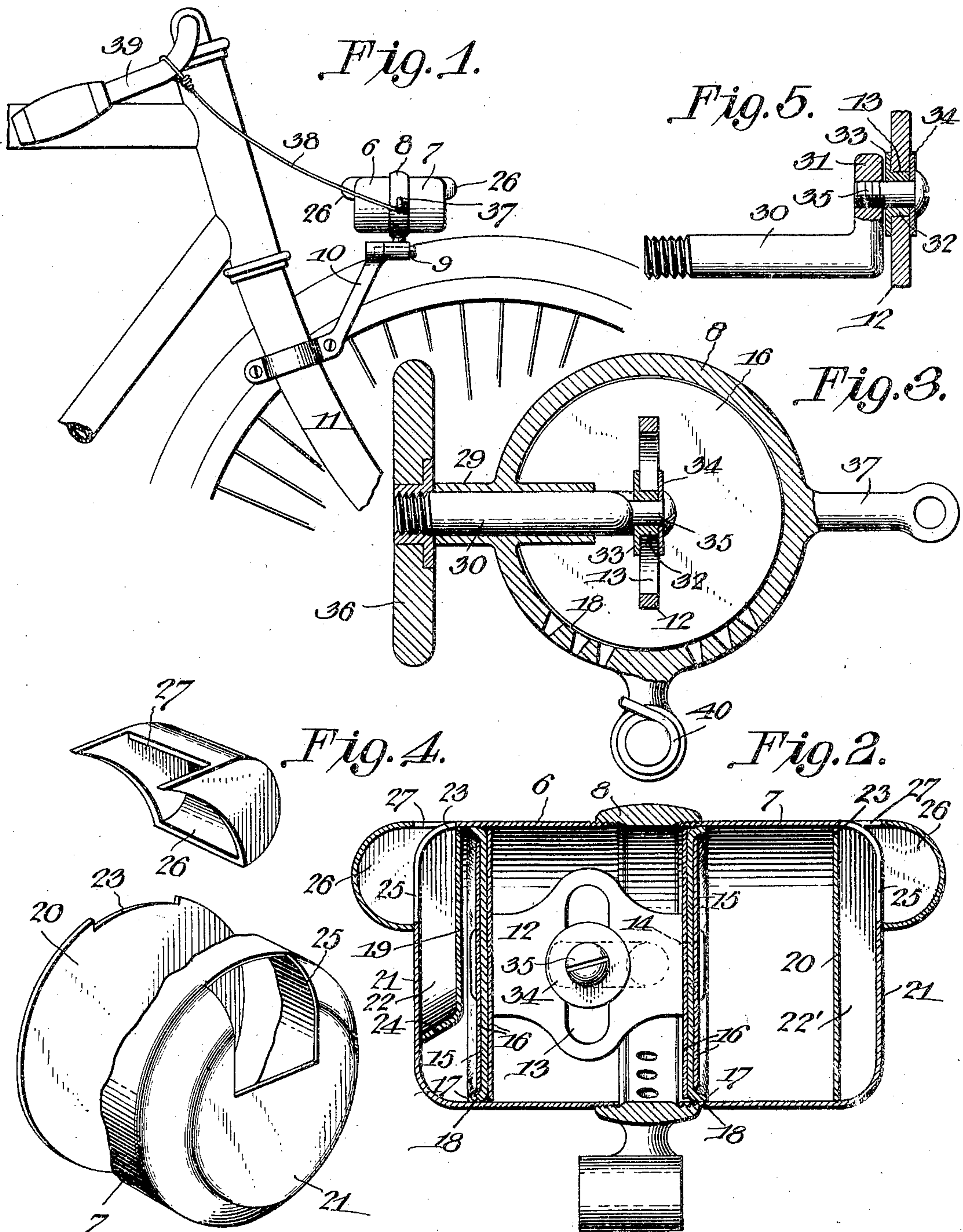


No. 793,631.

PATENTED JULY 4, 1905.

R. C. AYRES.  
BICYCLE WHISTLE.  
APPLICATION FILED FEB. 18, 1904.



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# UNITED STATES PATENT OFFICE.

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## BICYCLE-WHISTLE.

SPECIFICATION forming part of Letters Patent No. 793,631, dated July 4, 1905.

Application filed February 18, 1904. Serial No. 194,288.

*To all whom it may concern:*

Be it known that I, RAYMOND C. AYRES, a citizen of the United States, residing at Saginaw West Side, in the county of Saginaw and State of Michigan, have invented a new and useful Bicycle-Whistle, of which the following is a specification.

This invention relates to alarm mechanisms of the whistle type, particularly designed for use on bicycles, automobiles, and vehicles in general, and has for its object to provide a simple, cheap, and durable alarm of this character capable of being readily attached to any portion of a vehicle and designed to give warning of the approach of the vehicle by the production of a musical sound.

A further object of the invention is to provide a whistle having an air-compressor attached thereto and operated by contact with any movable part of the vehicle, said whistle being adapted to consume the entire volume of air from the compressor at each sounding of the alarm, thereby dispensing with the use of auxiliary air-tanks, safety-valves, and the like.

A further object of the invention is to provide a whistle producing a sound known as the "cuckoo" and in combination with its mate or duplicate whistle producing a cuckoo-chime effect.

A still further object is to provide the compressor cylinder or casing with terminal resonant chambers having curved air-deflecting chambers in communication therewith.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of an alarm constructed in accordance with my invention, showing the same attached to the front forks of a bicycle. Fig. 2 is a longitudinal sectional view of the same. Fig. 3 is a transverse sectional view. Fig. 4

is a perspective view of a portion of the casing, showing one of the partitions and cylindrical chambers detached. Fig. 5 is a detail sectional view of the crank-pin and anti-friction-roller.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The alarm comprises a casing consisting of a pair of cylinders 6 and 7, the inner end of each of which is threaded in a common supporting-ring 8, said ring being pivoted, as shown at 9, to a bracket 10, secured in any suitable manner to the front forks 11 of a bicycle.

Slidably mounted on the cylinders 6 and 7 is a plate 12, provided with a vertically-disposed slot or opening 13 and having its opposite ends reduced, as indicated at 14, for the reception of the piston-heads 15, said piston-heads each comprising a pair of disks or washers 16, between which is interposed a packing-ring 17, formed of leather, rubber, or other suitable material. The packing-rings 17 are extended beyond the disks or washers to form annular lips 18, which act as valves and permit the entrance of air to the rear end of the cylinders on the instroke of the pistons and expand and compress the air in said cylinders on the outstroke of the pistons. Arranged within the cylinders 6 and 7 are annular disks or partitions 19 and 20, said partitions being secured to the interior walls of the cylinders in any suitable manner, as by brazing, soldering, or the like and spaced from the cylinder-heads 21 to form resonant chambers 22 and 22'. The partitions 19 and 20 are each provided with segmental slots or openings 23, through which air is admitted from the compressor to the resonant chambers, the lower portion of the partition 19 being bent inwardly and downwardly, as indicated at 24, to reduce the volume of the chamber 22 and to produce, in combination with the chamber 22', a chime effect.

Rectangular openings 25 are formed in the cylinder-heads 21, and surrounding said openings and secured to or formed integral with the heads 21 are semicircular air-deflecting chambers 26, which constitute the whistles, said whistles being provided with blowing-



orifices 27, disposed above the resonant chambers, as shown.

By having the whistles 26 semicircular in shape the current of air from the compressor, after passing through the slots or openings 23, will strike the concave walls and be deflected downwardly into the resonant chambers and thence upwardly through the blowing-orifices 27, thereby producing a note or sound of great carrying power.

The supporting-ring 8 is provided with a bearing 29, in which is journaled a crank-shaft 30, the reduced end 31 of which is provided with an antifriction-roller 32, which engages the slot 13 in the connecting-plate 12, as shown, and prevents undue friction of the parts. The roller 32 is preferably formed with an annular flange 33, which engages one side of the plate 12, a washer 34, held in position by the crank-pin 35, engaging the opposite side of the plate and serving to prevent lateral displacement of the plate as the same is reciprocated. The shaft 30 extends beyond the supporting-ring 8, as shown, and threaded, keyed, or otherwise secured thereto is a friction-wheel 36, formed of fiber or other suitable light material, the rim of which engages the front wheel of the bicycle when the supporting-ring is tilted and causes the shaft to rotate, the rotary motion of the shaft imparting a reciprocatory movement to the plate 12 and piston-heads 15, as will be readily understood. An arm 37 projects laterally from the ring 8 opposite the bearing 29, and secured to an eye in the end of said arm is one end of a cord, chain, or other flexible medium 38, the opposite end thereof being connected to the handle-bar 39 of the bicycle, so that by exerting a slight upward pull on said cord it will cause the ring 8 to tilt on its pivotal connection 9 to thereby bring the friction-wheel in contact with the tire, the wheel being thrown out of contact with the tire when the cord is released by means of a spring 40.

In operation an upward pull exerted on the flexible cord or chain causes the arm 37 to tilt the friction-wheel in contact with the tire of the bicycle, causing the shaft to rotate and alternately reciprocate the pistons. As the pistons move backward and forward the air admitted to the cylinders is compressed and alternately forced through the segmental slots or openings to the whistles, thereby producing a sound known as the "cuckoo."

The pitch of the whistles may be changed at will by bending the partitions to reduce the volume of the sounding-chambers, thereby producing a musical alarm capable of sounding a single distinct note or any combination of notes, resulting in the production of a chord or harmony of sounds.

Having thus described the invention, what is claimed is—

1. In a whistle, the combination with a casing, perforated partitions arranged within the

casing and defining resonant air-chambers, one of said partitions being bent inwardly to reduce the volume thereof, curved air-deflecting chambers each having a blowing-orifice in the top thereof communicating with the adjacent resonant chamber, and alternately-acting pumping devices for forcing air to said chambers.

2. In a whistle, the combination with a supporting-ring, a pair of cylinders secured thereto, alternately-acting pistons arranged within the cylinders, a slotted plate connecting said pistons, a crank-shaft journaled in the supporting-ring one end of which engages the slot in said plate the opposite end thereof being provided with a friction-wheel, a resonant air-chamber arranged at the end of each cylinder, and air-deflecting chambers each having a blowing-orifice in the top thereof communicating with the adjacent resonant chamber.

3. In a whistle, the combination with a supporting-ring, cylinders threaded in said ring, alternately-acting pistons arranged within the cylinder, a slotted plate connecting said pistons, a crank-shaft journaled in the supporting-ring, a flanged antifriction-roller journaled on one end of the crank-shaft and adapted to engage the slot in the connecting-plate, a friction-wheel secured to the opposite end of the shaft, slotted partitions arranged within the cylinders defining resonant air-chambers, and curved air-deflecting chambers in communication with said resonant chambers.

4. The combination with a supporting-ring, a pair of cylinders secured thereto, alternately-acting pistons each provided with a packing-ring forming valves for the admission of air to said cylinders, a slotted plate connecting said pistons, a crank-shaft journaled in the supporting-ring, a roller-bearing crank-pin engaging the slot in the connecting-plate, washers carried by the crank-pin and engaging said plate on each side thereof, and a whistle arranged at the end of each cylinder.

5. The combination with a bracket for attachment to a bicycle or other vehicle, of a supporting-ring pivoted to said bracket, a pair of cylinders secured to the supporting-ring, a pair of alternately-operating pistons arranged within the cylinders, a friction-wheel journaled on one side of the supporting-ring for operating the pistons, an arm projecting from the opposite side thereof, a whistle arranged at the end of each cylinder, and means secured to the projecting arm for tilting the friction-wheel in contact with the wheel of the vehicle.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

RAYMOND C. AYRES.

Witnesses:

E. P. WHALEY,

W. W. VAN BRUNT.