No. 874,960. PATENTED DEC. 31, 1907.

B. HAMANN.

AIR PUMP.

APPLICATION FILED FEB. 27, 1907.

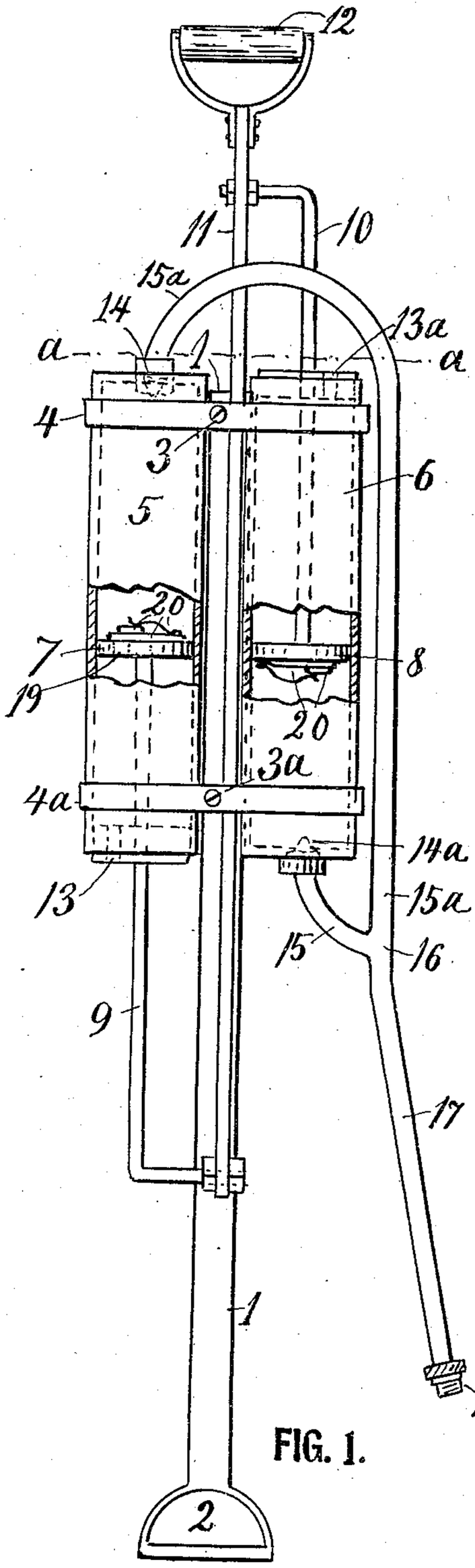

FIG. 1.

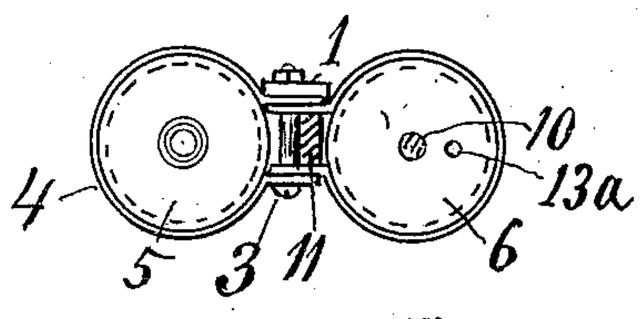

FIG. 3.

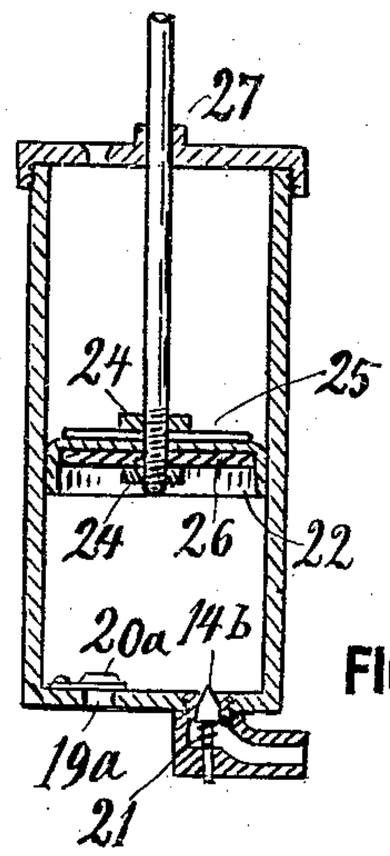

FIG. 4.

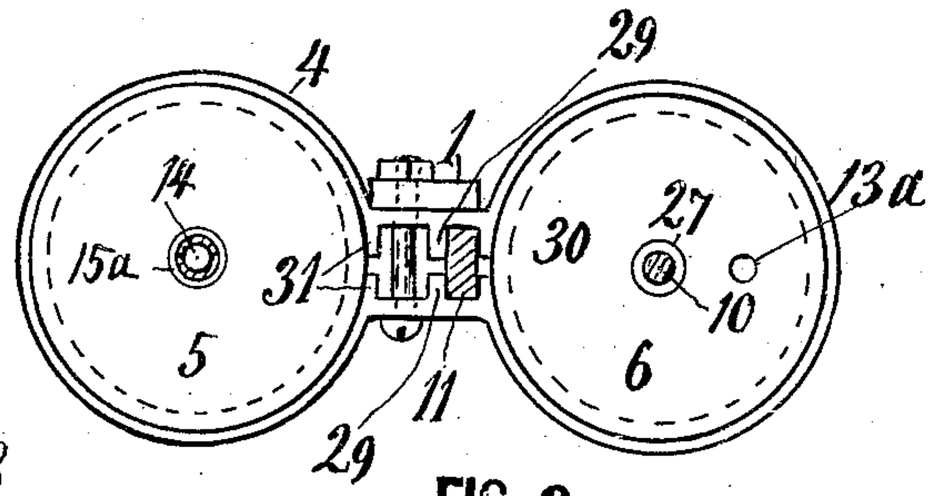

FIG. 2.

WITNESSES:

D. E. Carlsen

E. C. Carlsen.

INVENTOR:

Benjamin Hamann

BY his ATTORNEY:

A. M. Carlsen.

UNITED STATES PATENT OFFICE.

BENJAMIN HAMANN, OF DETROIT, MINNESOTA.

AIR-PUMP.

No. 874,960. Specification of Letters Patent. Patented Dec. 31, 1907.

Application filed February 27, 1907. Serial No. 359,684.

To all whom it may concern:

Be it known that I, BENJAMIN HAMANN, a citizen of the United States, residing at Detroit, in the county of Becker and State of Minnesota, have invented certain new and useful Improvements in Air-Pumps; and I do declare the following to be a full, clear, and exact description of the invention, such as wlll enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to air-pumps, and more especially to the class of air-pumps used for inflating the rubber tires used on the wheels of bicycles and other cycles; and the object is to provide an air-pump of a construction rendering it effective and still cheap to make and keep in repair. This and other objects I attain by the novel construction and arrangement of parts illustrated in the accompanying drawing, in which—

Figure 1 is a side elevation of my improved air-pump with a portion broken away of each cylinder so as to expose the pistons. Fig. 2 is a sectional top view of Fig. 1 on the line *a a*. Fig. 3 is Fig. 2 reduced in size and slightly modified. Fig. 4 is a longitudinal central section through any of the pump cylinders, showing how both cylinder, piston and valves may be modified.

Referring to the drawing by reference numerals, 1 designates a standard with a stirrup 2 at its lower end for the operator to place his foot in and thus by his weight hold the standard in an upright position. To the upper portion of the standard are secured by bolts 3 and 3ª, two 8-shaped bands or yokes 4 and 4ª, in the loops of which are clamped by said bolts two cylinders 5 and 6, in which are moved pistons 7 by piston-rods 9 and 10, connected respectively to the lower and upper end of a rod 11, guided to slide in the yokes, and provided with a handle 12 by which it is reciprocated. In the present instance the cylinders are single-acting, taking in air through inlets 13 and 13ª and discharging it through valves 14 and 14ª, into hose branches 15 and 15ª, which unite at 16 into a single hose 17, whose end is provided with a suitable coupling 18, by which to attach it to the tire of the wheel, or such other place as the air pressure is to be applied.

To let the air in between the piston and the head of the cylinder having the outlet, I may, as shown in Fig. 1, provide each piston with an aperture 19 and a spring-closed valve 20 over it; or I may, as in Fig. 4, put such inlet 20ª in the same cylinder head having the outlet valve 14ᵇ. The last mentioned valve shows the general construction of the outlet valve, in that a spring 21 closes the valve as soon as the air ceases to pour out.

In Fig. 4 is also shown how the piston may be of the common type having a piece of leather 22, held by nuts 24 and plates or disks 25 and 26, and being bent over the edges of one of the plates toward the end of the cylinder in which the air is to be compressed, may act as inlet valve.

The cylinder-cover through which the piston rod passes may have a wearing collar or bearing 27, and the cover may be screwed on as at 28 in Fig. 4, or be a mere plug screwed or otherwise secured in the end of the cylinder.

In Fig. 3 is shown how the 8-shaped yokes may each be made up of two sections, whose ends overlap each other upon the bolt 3 holding them together and to the standard.

In Fig. 2 the yoke is shown as cast of malleable iron in one single piece with lugs 29. 30 and 31, of which 29 and 30 guide the handle rod 11, while 30 and 31 help to support the often very thin cylinders in their circular form and also hold them firmly in position.

The use of the pump being already explained, it may simply be added, that the pump keeps up a continuous exhaust of air as long as the handle is in motion, and if one of the pistons or valves should get out of order the other half of the pump will do the necessary service until repair can be had, which are two great advantages over ordinary bicycle pumps, and a third advantage is that the operator has a chance to pump air both by pulling and pushing on the handle, whereby he can obtain twice the regular amount of air without enlarging the piston and thereby double the resistance to his hand.

Having thus described my invention, what I claim is:—

1. In an air-pump, a suitable frame work, two parallel single-acting cylinders secured thereto and having each an air outlet valve in an end opposite from where the other cylinder has it, a pumping rod sliding in the frame work and extending beyond the opposite ends of the cylinders, a piston in each cylinder, a piston-rod extending from each

piston and fixed beyond the end of the cylinder to the pumping rod, and means for gathering the air from the two outlets into a single tube; said frame-work consisting of two 8-shaped yokes embracing the cylinders and a standard secured to the yokes and a bolt through each yoke between the cylinders for closing it tightly about the cylinders.

2. A pump of the class described, comprising a standard with a stirrup at its lower end, two horizontally disposed 8-shaped yokes fixed on the standard, a vertically sliding rod guided in the middle of the yoke and provided at its upper end with a handle, two cylinders clamped in the yokes, one at each side of the rod, a piston with a piston-rod, in each cylinder, one of said piston-rods extending downward and the other upward, and being beyond the cylinders secured by a transverse or lateral arm to the sliding rod, and means for letting air into the cylinders and means for gathering the expelled air into a single tube.

In testimony whereof I affix my signature, in the presence of two witnesses.

BENJAMIN HAMANN.

Witnesses:
L. T. STEUSETH,
CHAS. G. BUCK.