No. 629,812. Patented Aug. 1, 1899.

W. K. PETERS.

PNEUMATIC PUMP.

(Application filed Oct. 18, 1898.)

(No Model.) 2 Sheets—Sheet 1.

FIG. 1

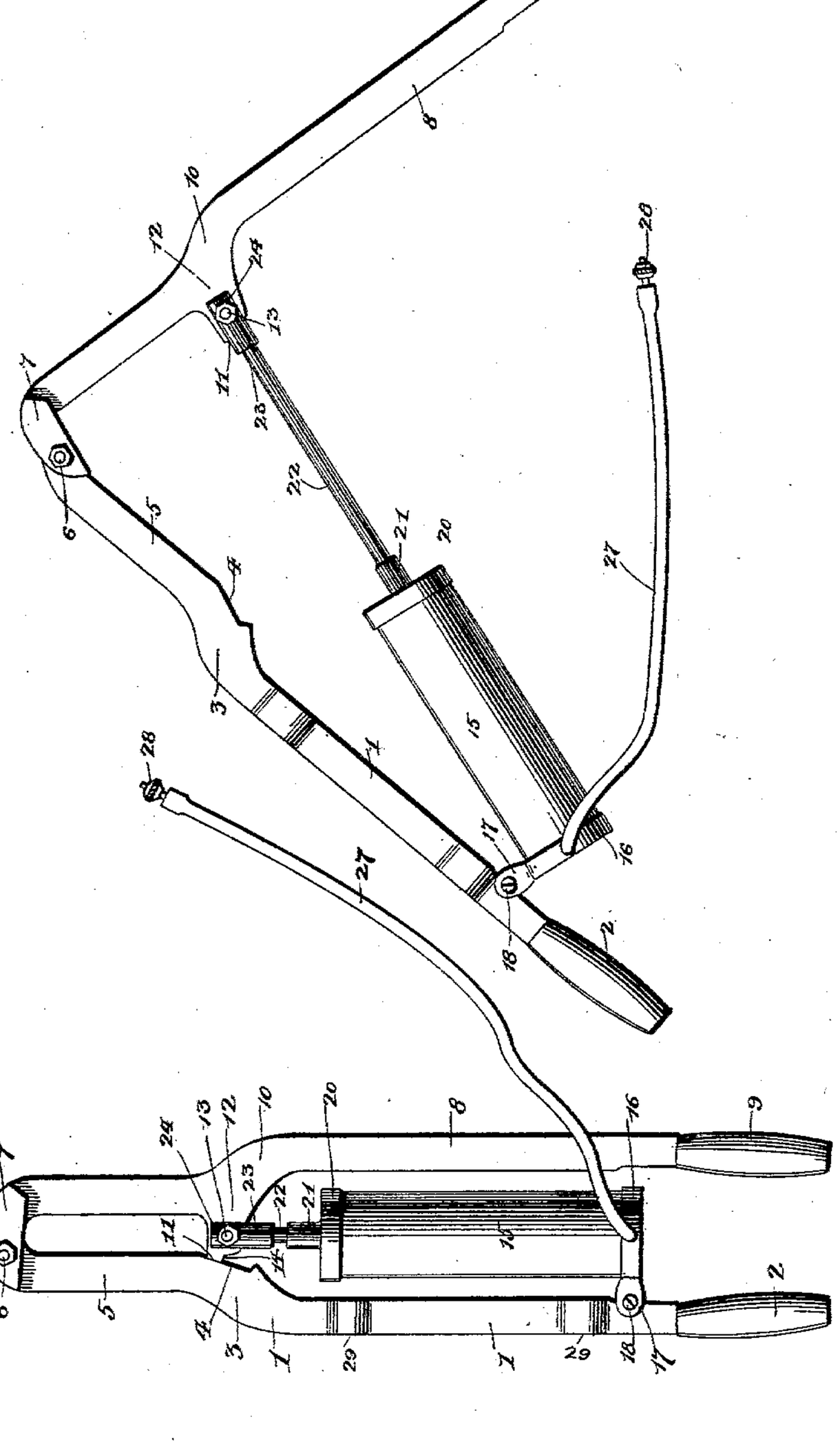

FIG. 2

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FIG. 3

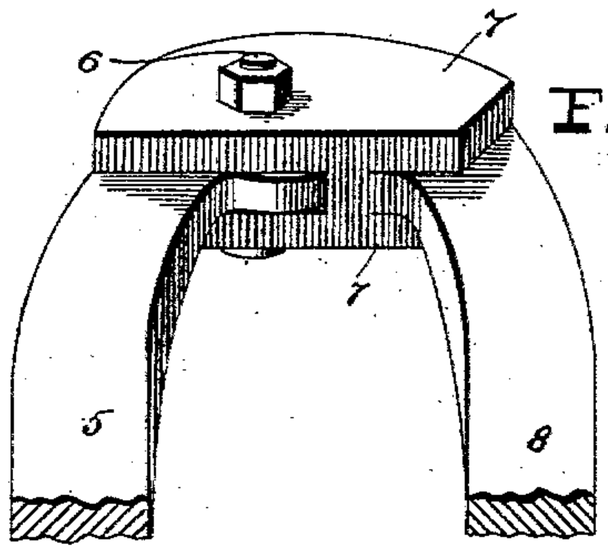


FIG. 4

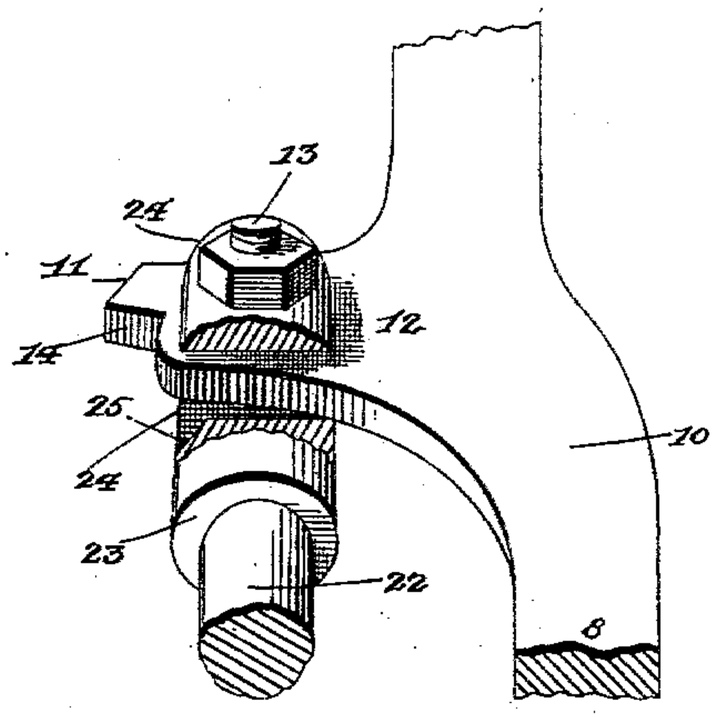


FIG. 5

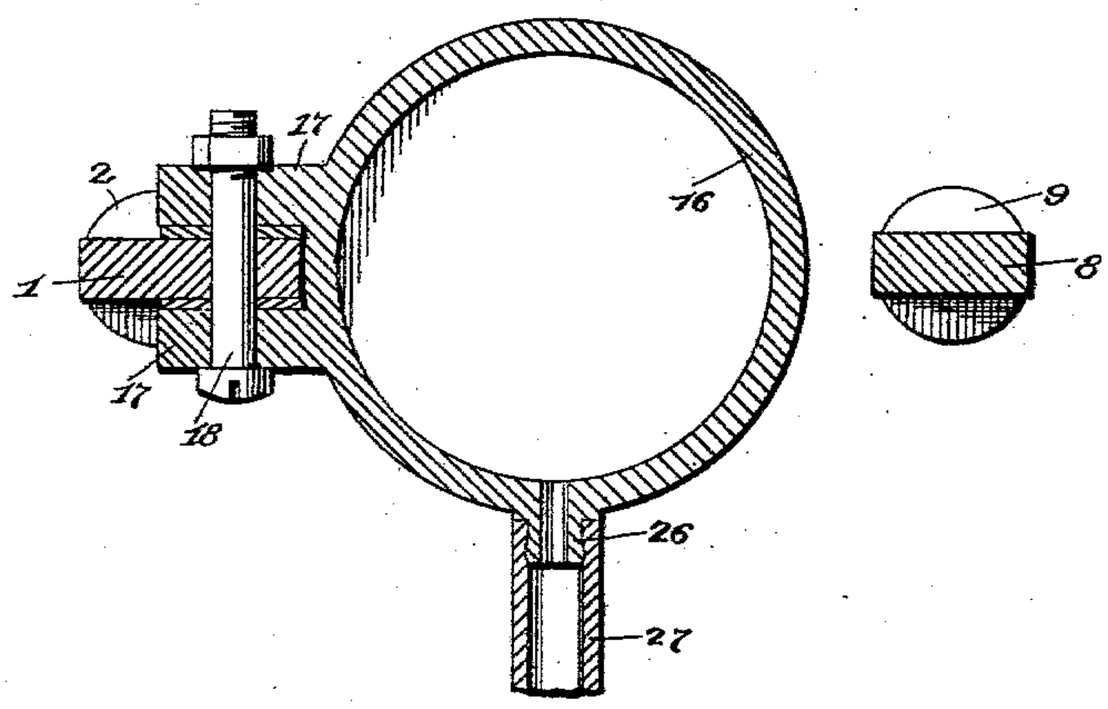
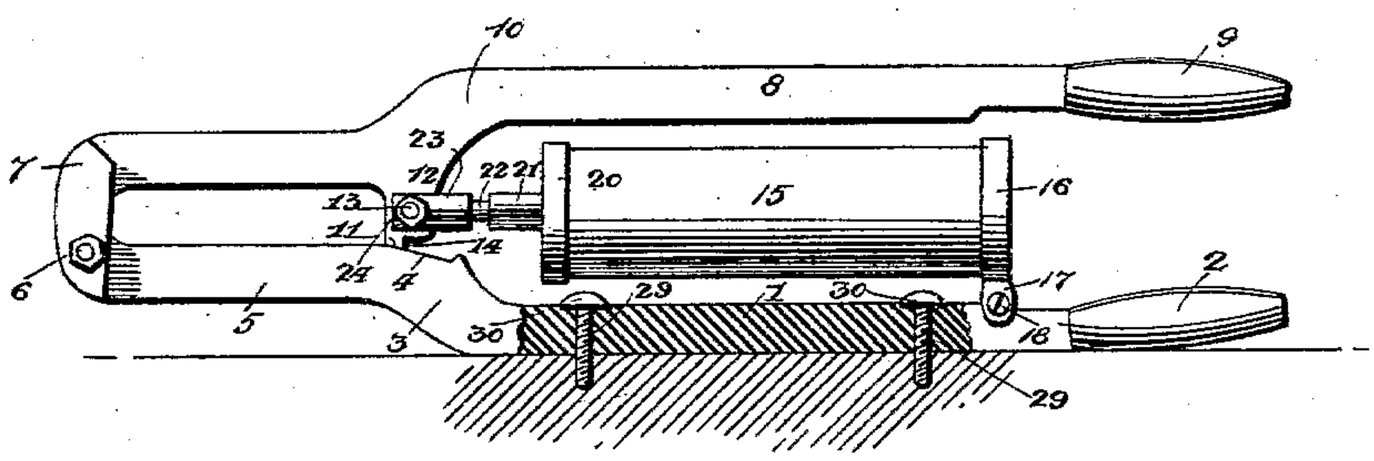


FIG. 6



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UNITED STATES PATENT OFFICE.

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PNEUMATIC PUMP.

SPECIFICATION forming part of Letters Patent No. 629,812, dated August 1, 1899.

Application filed October 18, 1898. Serial No. 693,935. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM K. PETERS, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Pneumatic Pumps; and I do declare the following to be 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 invention relates to pneumatic pumps, and more particularly to bicycle-pumps; and the object is to provide a simple, powerful, and inexpensive pump of this character.

To this end the invention consists in the construction, combination, and arrangement of the device, as will be hereinafter more fully described, and particularly pointed out in the claim.

The accompanying drawings show my invention in the best form now known to me; but many changes in the details might be made within the skill of a good mechanic without departing from the spirit of my invention as set forth in the claim at the end of this specification.

The same reference characters indicate the same parts of the invention.

Figure 1 is a plan view of my improved bicycle-pump. Fig. 2 is a similar view showing the piston-rod extended to the full limit of its stroke. Fig. 3 is a detail perspective view of the hinged joint. Fig. 4 is a similar view of the piston-rod connection. Fig. 5 is a transverse section on the line of pivot-bolt 18. Fig. 6 shows the manner of fixing the pump to a bench, wall, or other support.

1 denotes a bar-frame provided with a handle or grip 2, and its opposite end is formed with an integral offset 3, having a diagonal or beveled edge 4, and it terminates in a longitudinal arm 5, the immediate end of which is fulcrumed on a pivot-bolt 6, fixed between the parallel guide-jaws 7 7, formed integral with the contiguous end of the hand-lever 8, the free end of which is also provided with a handle or grip 9. The lever 8 is provided with an offset 10, provided with an integral lateral arm 12, provided with an orifice for the reception of the pivot-bolt 13, and its immediate end terminates in limit-stops 11 and 14.

15 denotes the pump barrel or cylinder, provided with the fixed head 16, which is formed with the integral radial parallel lugs 17 17, which extend on opposite sides of the bar 1 and are pivoted thereto by means of the bolt 18, which forms the fulcrum upon which the cylinder 15 oscillates. 20 represents the opposite cylinder head or cap, removably secured thereto and formed with an integral axial guide-sleeve 21 for the piston-rod 22. The inner end of the piston-rod 22 is provided with the usual piston, packing-ring, and follower, which being of the ordinary approved form require no further description.

23 denotes the cross-head or coupling, fixed to the outer end of the piston-rod, and it is formed with parallel jaws which encompass the arm 12 of the lever 8, and they are pivoted thereto by the bolt 13.

25 denotes a beveled stop formed in the cross-head between the jaws 24 24, against which the stop 14 abuts, which serves to limit the outward movement of the hand-lever 8, and when the handles 2 and 9 are brought together the stop 11 on the lever 8 comes in contact with the diagonal edge 4 of the bar 1 and serves to limit the movement of the hand-lever in that direction.

26 represents a nipple on the cylinder-head 16, provided with a flexible tube 27, terminating in a screw-coupling 28, by means of which connection is made to the tire to be inflated.

29 29 denote transverse orifices in the frame-bar 1 to receive the screws 30 30 for conveniently fixing the pump to any suitable fixed support—such as an air-tank, counter, bench, the wall of a room, or, in fact, any place where it can be conveniently accessible for the purposes intended.

The manner of operating the pump is to connect the tube 27 to the object to be inflated and manipulate the handle bellows fashion until the desired result is accomplished.

A very important advantage of this form of pump is the fact that it can be operated by hand without being attached to a fixed

support and possesses all the advantages of that class of pumps known to the bicycle trade as "lever-pumps," and another very important advantage is that whether it is portably held in the hand or fixed to a support the best possible results are attained, as the leverage on the piston-rod increases as the resistance on the piston increases, the leverage being the least when the handles 2 and 9 are separated and the piston is at the beginning of the compression-stroke. There is little or no pressure on it, and when in this position the pivot-points 5, 6, and 13 form a triangle, as shown in Fig. 2, and as the handles approach each other the piston is forced inward in the cylinder, the air-pressure on the piston increases, and at the same time the leverage increases in proportion as the pivot-points 5, 6, and 13 tend to assume an approximately straight line, thereby securing the powerful leverage of the well-known "toggle-joint" principle as the piston finishes its stroke.

Having thus fully described my invention, what I claim as new and useful, and desire to secure by Letters Patent of the United States, is—

The combination in an air-pump, of the bar-frame 1 provided with the transverse orifices 29 29 and formed with the diagonal edge 4, with the hand-lever 8 pivoted to said bar-frame 1 and formed with the lateral arm 12 terminating in the limit-stops 11 and 14, the cylinder 15, the head 16 fixed to said cylinder and provided with the integral jaws 17 17 and the pivot-bolt 18 connecting said jaws and bar-frame, the cap 20 and the piston-rod 22 pivoted at its outer end to said lateral arm 12, substantially as shown and described.

In testimony whereof I have hereunto set my hand in presence of the subscribing witnesses.

WILLIAM K. PETERS.

Witnesses:

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