(No Model.)

J. J. BAILEY, Jr.

ATOMIZER.

No. 566,282. Patented Aug. 18, 1896.

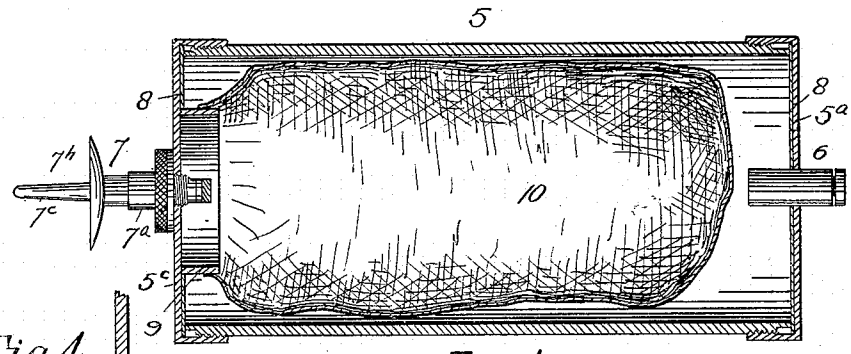

FIG. 1

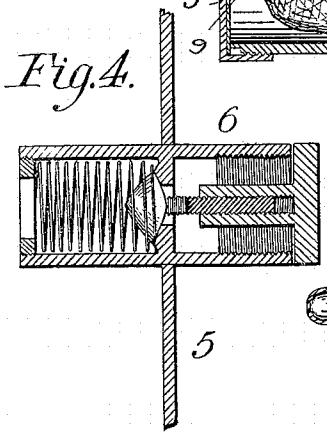

Fig. 4.

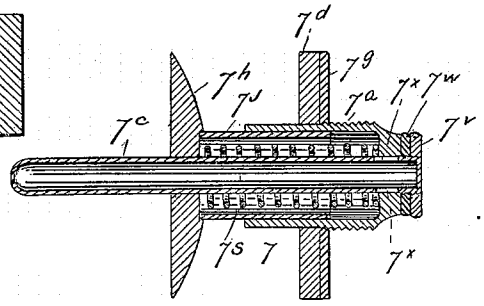

FIG. 3.

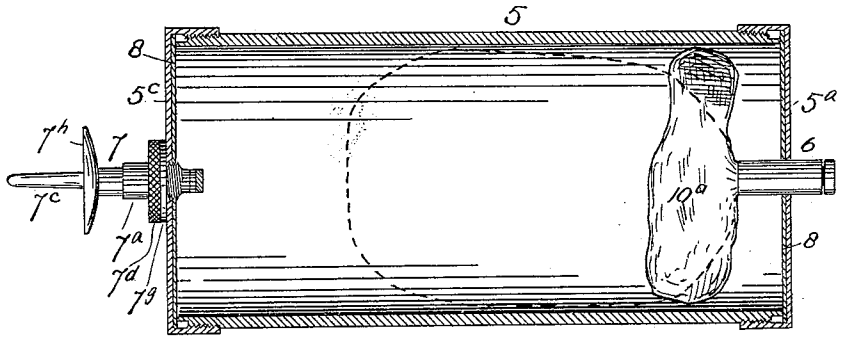

FIG. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

JOHN J. BAILEY, JR., OF DENVER, COLORADO.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 566,282, dated August 18, 1896.

Application filed June 26, 1895. Serial No. 554,093. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. BAILEY, Jr., a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented a certain new and useful Improved Air-Compression Liquid-Ejector; 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to an improved device for ejecting or discharging liquid by air compression.

My object is to provide a device which may be used by bicyclists, pedestrians, and others as a means of protection against the attacks of dogs or other vicious animals, footpads, hold-ups, or other evilly-disposed persons.

The device consists of a receptacle of convenient size and shape containing a distensible sack and provided with a check-valve for the introduction of air and an eduction-valve for the escape of liquid.

Having thus briefly explained the nature of the invention and its general construction, I will now proceed to describe the same more in detail, reference being made to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a longitudinal section illustrating one form of device. Fig. 2 is a similar view showing another form of construction. Fig. 3 is a section taken through the eduction-valve, the parts being shown on a larger scale. Fig. 4 is a sectional view in detail, illustrating the air-check valve, shown on a larger scale.

Similar reference-characters indicate corresponding parts in the views.

Let the numeral 5 designate the receptacle, 6 the air-check valve, and 7 the liquid-eduction valve. The receptacle 5 comprises, preferably, a cylindrical body part and two heads 5^a and 5^c, screwed thereon in such a manner as to be air and liquid tight. To this end each head is provided with a lining 8, of packing material.

The check-valve 6 may be of any construction adapted to be connected with suitable air-forcing apparatus, such, for instance, as is employed to inflate the pneumatic tires of bicycles. This valve is suitably inserted in an aperture formed in the head 5^a.

The eduction-valve may be of any suitable construction. As shown in the drawings, it comprises a casing 7^a and a spring-actuated eduction-tube 7^c. The casing 7^a is provided with a flange 7^d, having a milled edge, and a packing-washer 7^g, located between said flange and the adjacent head 5^c. The eduction-tube 7^c is provided with a flange 7^h, made fast thereto. To this flange is attached a hollow casing 7^j, which telescopes within the casing 7^a. Between the flange 7^h and the bottom of the casing 7^a is located a coil-spring 7^s. The eduction-tube 7^c protrudes through an opening formed in the bottom of the casing. This protruding extremity is closed and threaded to receive a nut 7^v. Between this nut and the bottom of the casing is a packing-washer 7^w. Above the nut and the packing-washer the eduction-tube is provided with ports 7^x. Hence these ports are normally closed from communication with the interior of the receptacle.

Referring now specially to Fig. 1, the head 5^c is provided with an interiorly-protruding flange 9, to which is attached the mouth of a liquid-containing sack 10. This sack is supplied with liquid before the eduction-valve is applied. Air is then introduced by pumping it into the receptacle 5 through the valve 6. The air within this receptacle is sufficiently condensed to give the required pressure on the sack 10. Then by pressing downward on the flange 7^h the eduction-tube is forced through the casing 7^a and into the receptacle far enough to open the ports 7^x and allow some of the liquid in the sack to escape, said liquid being forced out in a strong jet by the air-pressure on the sack. As soon as the pressure on the flange 7^h ceases the eduction-tube is returned to its normal position by the spring 7^s closing the ports 7^x and cutting off the escape of the liquid.

In the construction shown in Fig. 2 a sack 10^a is attached to the inner extremity of the air-check valve 6. When this sack is in the collapsed condition, the liquid is poured into

the receptacle 5 in any desired quantity. The sack is then inflated by pumping air thereinto through the valve 6 until the sack is distended to the position indicated by dotted lines. This inflated sack compresses the liquid in the receptacle to such an extent that as soon as the ports of the eduction-valve are opened or placed in communication with the interior of the receptacle, in the manner heretofore explained when referring to Fig. 1, the liquid is forced out in a jet or stream until the eduction-tube is allowed to return to its normal position, closing the ports against the escape of liquid.

Any desired liquid may be employed, as ammonia of any desired strength, according to the object or end sought.

This instrument may be carried in the pocket or in a suitable pouch attached to the frame of the bicycle and so located as to be within easy reach of the rider. It may be operated easily by holding it in one hand, one finger being used to press on the flange 7^h and force the eduction-tube inward sufficiently to open the ports 7^x.

The sack employed in connection with this device is preferably composed of rubber and adapted to stretch as it is distended. Any other suitable material that will withstand the action of the liquid may, however, be employed.

If desired, the distensible sack may be omitted altogether and the air and liquid placed in direct contact. That is, the liquid may be placed in the receptacle and air subsequently forced in to give the liquid the desired pressure. If this form is used, care must be taken that the device is not held in such a position whereby the ports in the eduction-tube are open, so that the air will escape instead of the liquid.

Having thus described my invention, what I claim is—

1. In a device of the character described, the combination with a suitable receptacle having a rigid casing, of an air-check valve attached to said casing, eduction-valve mechanism also attached to the casing, said mechanism comprising a valve-casing 7^a, screwed into the main casing, a spring-held eduction-tube passing through the casing 7^a, its inner extremity being provided with a suitable stop to hold the tube in position, said tube being provided with a port normally closed, means attached to the eduction-tube for forcing the same into the main casing sufficiently to open the port, and a closed, distensible sack located in the main casing and communicating with one of the valves, substantially as described.

2. The combination with a suitable receptacle having a rigid, air-tight casing adapted to hold compressed air, of a normally-closed eduction-valve attached to the casing, an air-check valve also attached to the casing and adapted to be connected with suitable means for compressing the air within the casing to any desired density, and the closed, distensible and collapsible sack located within the casing and connected with the eduction-valve, said sack being externally acted on by the compressed air in the casing, whereby the liquid contents of the sack will be forcibly ejected as soon as the eduction-valve is opened, substantially as described.

3. In a device of the character described, the combination of a perfectly tight, rigid casing, an air-check valve attached to said casing and adapted to be connected with suitable air-forcing apparatus, a normally-closed eduction-valve also attached to the casing, and a closed collapsible sack located in the closed chamber of said casing and connected with one of the valves, substantially as described.

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

JOHN J. BAILEY, JR.

Witnesses:
CHAS. E. DAWSON,
ALFRED J. O'BRIEN.