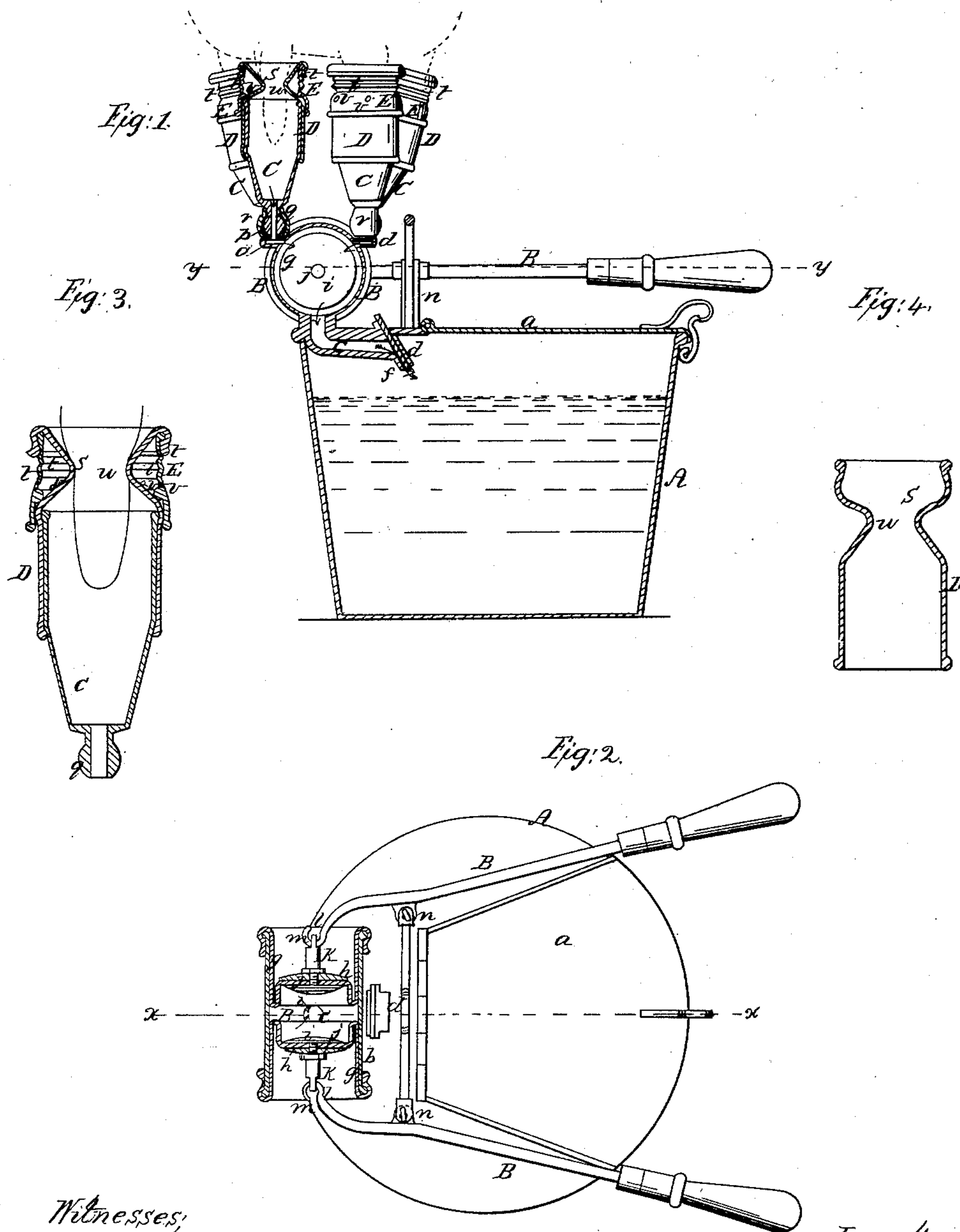


L. O. COLVIN.
 DEVICE FOR MILKING COWS.

No. 28,351.

Patented May 22, 1860.



Witnesses;
 Mich Hughes
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 L. O. Colvin

UNITED STATES PATENT OFFICE.

L. O. COLVIN, OF CINCINNATUS, NEW YORK.

COW-MILKER.

Specification of Letters Patent No. 28,351, dated May 22, 1860.

To all whom it may concern:

Be it known that I, L. O. COLVIN, of Cincinnati, in the county of Cortland and State of New York, have invented a new and Improved Apparatus or Device for Milking Cows; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a vertical central section of my invention, taken in the line *x, x*, Fig. 2. Fig. 2, a horizontal section of the same, taken in the line *y, y*, Fig. 1. Fig. 3, a detached vertical central section of one of the teat-tubes. Fig. 4, a detached vertical central section of the elastic portion of the teat-tube.

Similar letters of reference indicate corresponding parts in the several figures.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A, represents a milk-pail which may be constructed of tinned plate or other suitable material and of any proper size. This pail A, may be provided with a lid *a*, and on the upper part of the pail at one side a pump B, is secured. The cylinder *b* of the pump is secured to the top of the pail in a horizontal position and it communicates by means of a passage *c*, with the interior of the pail, said passage *c*, having a valve *d*, at its end. This valve is formed of a strip of india rubber, or other suitable elastic material fitted in a socket *f*, said socket extending up through the top of the pail so that the rubber may be readily removed and replaced when necessary.

This will be fully understood by referring to Figs. 1 and 2. The pump is provided with two pistons which are formed of india rubber bags *g, g*, the outer ends of which are fitted on or over the ends of the cylinder *b*, as shown clearly in Fig. 2. The inner end of each bag *g*, has two metal disks *h, i*, secured to it, the disks *h*, being at the outer sides of the bags and the disks *i*, at the inner sides. These disks *h, i*, are secured to the bags by means of a screw *j*, attached centrally to each disk *i*. These screws pass through the bags *g*, and disks *h*, and on the outer parts of the screws *j*, nuts *k*, are fitted, having eyes *l*, at their outer ends through which eyes hooks *m*, at the ends of brakes or levers B, B, are fitted. The fulcra of the

levers B, B, are at the upper ends of uprights *n, n*, on the pail.

At each side of the cylinder *b*, there is a longitudinal chamber or recess *o*. These chambers communicate with the cylinder as shown plainly in Fig. 1, and each chamber has a cup-shaped projection or socket *p*, on its upper surface and one near each end. In each socket *p*, the ball *q*, at the lower end of a tube C, is fitted. These balls have each an opening through them so as to form a communication between the cylinder *b*, and the tubes C, and the balls are secured air-tight in their sockets by india-rubber tubes *r*, which snugly encompass the sockets and balls and still admit of the free movement of the latter within the former. The elastic tubes *r*, are quite short, merely covering the sockets and balls. The tubes C, as well as the cylinder *b*, may be of tinned plate, and the lower ends of the tubes may be of conical form, in order to admit of room or space for a free movement or adjustment of the same.

On the upper part of each tube C, an india-rubber tube D, is fitted. These tubes D, are made of cup-form at their upper parts, as shown clearly at *s*, in Figs. 1, 3, and 4. The cup-form *s*, of the tubes D, are above the tubes C, and over the elastic tubes D, metal tubes E, are fitted said tubes projecting down a short distance over the tubes C. The tubes E, are provided with projecting ledges or ridges *t*, which extend entirely around the tubes as shown more particularly in Fig. 3. The upper parts of the tubes D, are drawn over the upper ends of the tubes E, and the contacted parts *u*, of the elastic tubes D, may be enlarged as occasion may require by drawing the upper ends of said tubes more or less over on the tubes E, the ledges or ridges *t*, serving to retain the upper ends of the tubes D, at the desired points. The tubes E, are perforated as shown at *v*, said perforations being directly opposite the contracted parts of the elastic tubes D, as shown clearly in Figs. 1 and 3.

The operation is as follows. The operator adjusts the teats of the animal within the tubes D, and expands or contracts said tubes by drawing their upper ends more or less over the tubes E, as previously described so that said tubes may properly fit the teats. The pail A, is then placed between the knees or legs of the operator, the

latter being seated and the levers B, B, are shoved simultaneously toward and from each other, and the elastic bags *g*, are moved in a corresponding manner within the cylinder *b*. As the bags are moved from each other a vacuum is produced within the cylinder *b*, and the milk will flow from the teats into the cylinder by the suction produced thereby, the teats being subjected to a lateral pressure, as well as to a downward draw, in consequence of the perforations *v*, in the tubes E. This lateral pressure and the downward suction or draw produced intermittently by the action of the pump B, subjects the teats to a natural action or an action quite similar to that given by a calf in drawing its nourishment from the cow. As the bags *g*, are shoved toward each other, the milk drawn from the teats during the previous outward movement of the bags, is forced down through the passage *c*, into the pail, the valve *d*, opening outward.

I do not confine myself to the elastic bags *g*, for pump pistons, for others may be used. The bags however would probably be preferable as they may be readily removed when necessary, and they are not liable to leak. They can also be readily attached to the cylinder.

In milking cows by a machine it is essential that the operation be as natural as possible, or like that produced by the sucking of a calf, or the operation of the hand. A continuous draw as produced by many devices has proven injurious and such machines have not therefore been adopted. It is also essential that all parts of the machine may be perfectly cleansed and consequently it should be so constructed that the several parts may be readily detached and adjusted together. By my arrangement it will be seen that this may be readily done even to the valve *d*. It is further essential that the working of the machine should not tend to displace it from a proper position. This it will be seen would not be liable to occur in my invention as the levers B, B, are moved

simultaneously toward and from each other and the position of the levers relatively with the other parts of the device in connection with their movement have no tendency to disturb the position of the device because the force applied to move one of the pistons and brakes in one direction, is counterbalanced or neutralized by the power applied to move the opposite brake and piston. It is also necessary to produce the vacuum as quickly as possible, and it will be noticed that by having two pistons moving in opposite directions, the vacuum is produced in half the time that it would be, if a single piston only were employed.

I do not claim broadly the employment or use of a pump, attached to a milk receptacle for milking cows, for such device has been previously used, nor do I claim broadly the use of an elastic glove to fit the teat, but

I do claim as new and desire to secure by Letters Patent,

1. The arrangement of the adjustable elastic tube D, between the tubes E, C, as and for the purpose herein shown and described.

2. The attaching of the tubes C, of the teat-tubes to the pump cylinder *b*, by means of the balls *q*, sockets *p*, and elastic tubes *r*, for the purpose set forth.

3. The employment in combination with the milk pail of a pump provided with double pistons and double brakes or lever, that move in opposite directions, so that the force required to move one of the brakes and pistons in one direction will be counterbalanced or equalized by the force applied to move the opposite piston and brake, thus preventing the pail and apparatus from being capsized or displaced by the act of pumping, and also producing a quick vacuum within the pump, all as herein shown and described.

L. O. COLVIN.

Witnesses:

MICHL. HUGHES,
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