

R. A. CASAROTTI.
MILKING MACHINE.
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1,379,800.

Patented May 31, 1921.

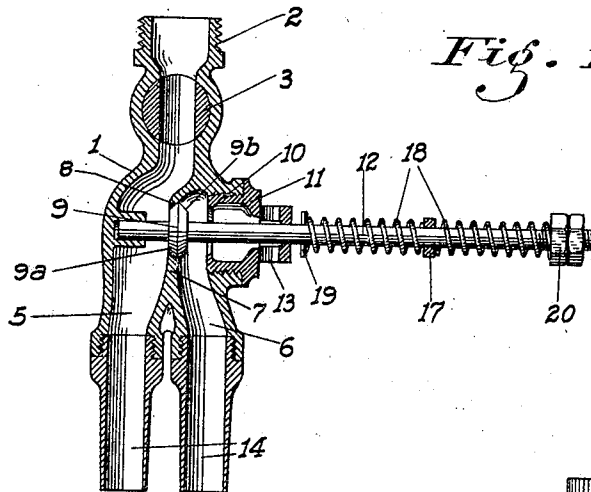


Fig. 1

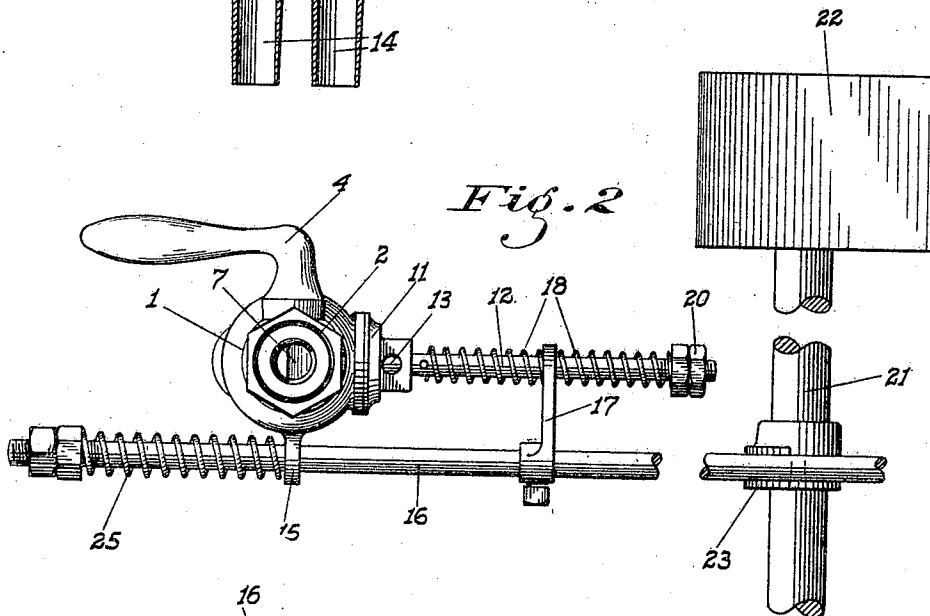


Fig. 2

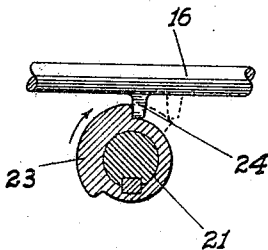


Fig. 3

INVENTOR.
Romeo A. Casarotti
BY *Campbell*
ATTORNEY

UNITED STATES PATENT OFFICE.

ROMEO A. CASAROTTI, OF NICASIO, CALIFORNIA.

MILKING-MACHINE.

1,379,800.

Specification of Letters Patent.

Patented May 31, 1921.

Application filed April 8, 1920. Serial No. 372,114.

To all whom it may concern:

Be it known that I, ROMEO A. CASAROTTI, a citizen of the United States, residing at Nicasio, in the county of Marin, State of California, have invented certain new and useful Improvements in Milking-Machines; and I do declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this application.

This invention relates to improvements in milking machines such as are now widely used, and which operate to milk the cows by means of an intermittently applied vacuum.

In all such machines, the pulsator is the part which is the most important, since this member controls the vacuum.

All pulsators now made, as far as I am aware, either make use of a diaphragm influenced by air pressure, or else some complicated valve mechanism. These devices are not only expensive, but on account of the extreme thinness of the diaphragm, etc., necessary to obtain the required sensitiveness, are continually wearing or giving out, thus not only delaying milking operations, but incurring great expense to keep them up.

Also these pulsators do not work efficiently, as they do not control the vacuum equally and regularly, a feature which is necessary to assure proper milking of the cows.

The principal object of my invention therefore is to provide a pulsator, constructed in a substantial fashion and in which the vacuum cut-off is mechanically controlled, and in which the periods of cut-off or alternations are positively timed according to a predetermined plan, and which times will be repeated in fixed and assured sequence during the entire operation of the milking.

A further object of the invention is to produce a simple and inexpensive device, and yet one which will be exceedingly effective for the purposes for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of ref-

erence indicate corresponding parts in the several views.

Figure 1 is a sectional elevation of my improved pulsator.

Fig. 2 is a top plan view of the same, showing the valve actuating mechanism.

Fig. 3 is a fragmentary view of the valve-actuating cam coöperating with valve controlling rod.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 denotes the hollow body of the valve, the upper end of which is tapped as at 2 to adapt it for connection to a pipe-line. Immediately below such tapped end is an ordinary straight-way shut-off valve 3, turned by means of a handle 4. This valve is for the purpose of cutting off the main pipe line from the body of the valve-casing therebelow.

Below said valve the body is branched to form two passages 5 and 6. The passageway 5 has continuous communication with the valve 3, while the other is normally shut off therefrom by a wall 7.

A port forming a valve seat 8 is bored through the wall, and is adapted to receive a double taper-faced valve 9, one face 9^a of which seats therein, this valve opening outwardly away from the passageway 5. The opposite and outer face 9^b of this valve is adapted to seat in a valve-seat or port 10 oppositely disposed to the seat 8, and formed in a plug or cap 11 screwed into the body. The valve 9 of course bears against its seats one at a time, there being a suitable distance between such seats. The valve 9 is mounted on a stem 12 projecting through the cap 11 and slidable therein.

Atmospheric pressure is admitted through the valve-seat 10 to the passageway 6 by means of holes 13 provided in the cap 11. Tapered tubular members 14 are secured in the lower ends of the passageway in parallel alinement, being adapted to receive the usual form of rubber tubing thereover.

A bearing boss 15 projects from one side of the body 1 at right angles to the stem 12 and substantially in alinement therewith to form a bearing for a rod 16 slidable therein. This rod has an arm 17 fixed thereto, which extends to the stem 16, the latter being slidable therethrough. The arm is held in a fixed position relative to said stem by

means of springs 18 on the stem on each side of the arm and bearing thereagainst, the other end of one of the springs bearing against a pin 19 in the stem, and the other end of the other spring bearing against adjusting nuts 20.

These springs are both of the same strength, so are counterbalanced, thus insuring that the stem will move longitudinally when the arm moves laterally, while allowing a certain amount of flexibility of said stem relative to the arm.

Turnably mounted at right angles to the rod 16 thereunder is a shaft 21, driven by a belt 22 or other drive at a predetermined R. P. M., as may be found best suited. Fixed on this shaft in alinement with the rod 16 is a cam 23, adapted to engage a rigid lug 24 on the rod. This cam is so shaped that with the rotation of the shaft, the lug will be engaged thereby, and will be moved along a distance equal to the space between the valve-seats 8 and 10, and will be then held in such position during approximately one-half the rotation of said shaft. The cam then disengages from the lug, thus releasing the same and the rod is pulled back to normal position by means of a suitably arranged spring 25.

By this means, the valve 9 will be positively shifted from one valve seat to the other at predetermined and regularly occurring times.

In the position of the valve shown in Fig. 1 of the drawings, atmospheric pressure is entering the passageways 6. When the valve is moved outwardly the seating of the valve in the seat 10 cuts off the atmosphere and opens communication from said passageway to the vacuum-pipe.

The operations caused by the alternating vacuum is common to all milking machines, and hence will not be here described.

In practice, in a dairy, there are of course a number of said pulsators, or different batteries thereof. Each battery would be actuated in unison by a common rod 16, while all the rods 16 would be actuated from the single power driven shaft 21.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfils the object of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:—

1. A pulsator for milking machines comprising a valve body adapted to be con-

nected to a vacuum pipe line, a passageway leading from said body in continuous communication with said pipe line, another passageway leading from said body, the body being provided with spaced and oppositely alined ports leading to the last named passageway from the vacuum pipe line and the atmosphere respectively, and a common valve adapted to alternately seat in such ports to close the same.

2. A pulsator for milking machines comprising a valve body adapted to be connected to a vacuum pipe line, a passageway leading from said body in continuous communication with said pipe line, another passageway leading from said body, the body being provided with spaced and oppositely alined ports leading to the last named passageway from the vacuum pipe line and the atmosphere respectively, and a common valve adapted to seat in either at a time of such ports and to be positively normally seated in the port leading from the vacuum pipe line.

3. A pulsator for milking machines comprising a valve body adapted to be connected to a vacuum pipe line, a passageway leading from said body in continuous communication with said pipe line, another passageway leading from said body, the body being provided with spaced and oppositely alined ports leading to the last named passageway from the vacuum pipe line and the atmosphere respectively, a common valve adapted to alternately seat in such ports to close the same, a spring normally holding the valve seated in one of the ports, and a common means for moving said valve from said port to close the other port and for holding the same in such last named position for a predetermined period of time against the pressure of the spring.

4. A pulsator for milking machines comprising a valve body adapted to be connected to a vacuum pipe line, a passageway leading from said body in continuous communication with said pipe line, another passageway leading from said body, the body being provided with spaced and oppositely alined ports leading to the last named passageway from the vacuum pipe line and the atmosphere respectively, a common valve adapted to alternately seat in such ports to close the same, a stem on the valve projecting from the body, a rod parallel to the stem, an arm on the rod connected to the stem, and means for moving said rod a distance equal to the spacing of the ports in the body.

5. A pulsator for milking machines comprising a valve body adapted to be connected to a vacuum pipe line, a passageway leading from said body in continuous communication with said pipe line, another passageway leading from said body, the body being provided with spaced and oppositely

alined ports leading to the last named pas-
sageway from the vacuum pipe line and the
atmosphere respectively, a common valve
adapted to alternately seat in such ports to
close the same, a stem on the valve project-
5 ing from the body, a rod parallel to the stem,
an arm on the rod connected to the stem, a
power driven shaft at right angles to the

rod, a cam on the shaft, and a lug on the rod
with which the cam engages, the lug being 10
held by the cam in such moved position for
a predetermined portion of the rotation of
the cam.

In testimony whereof I affix my signature.

ROMEO A. CASAROTTI.