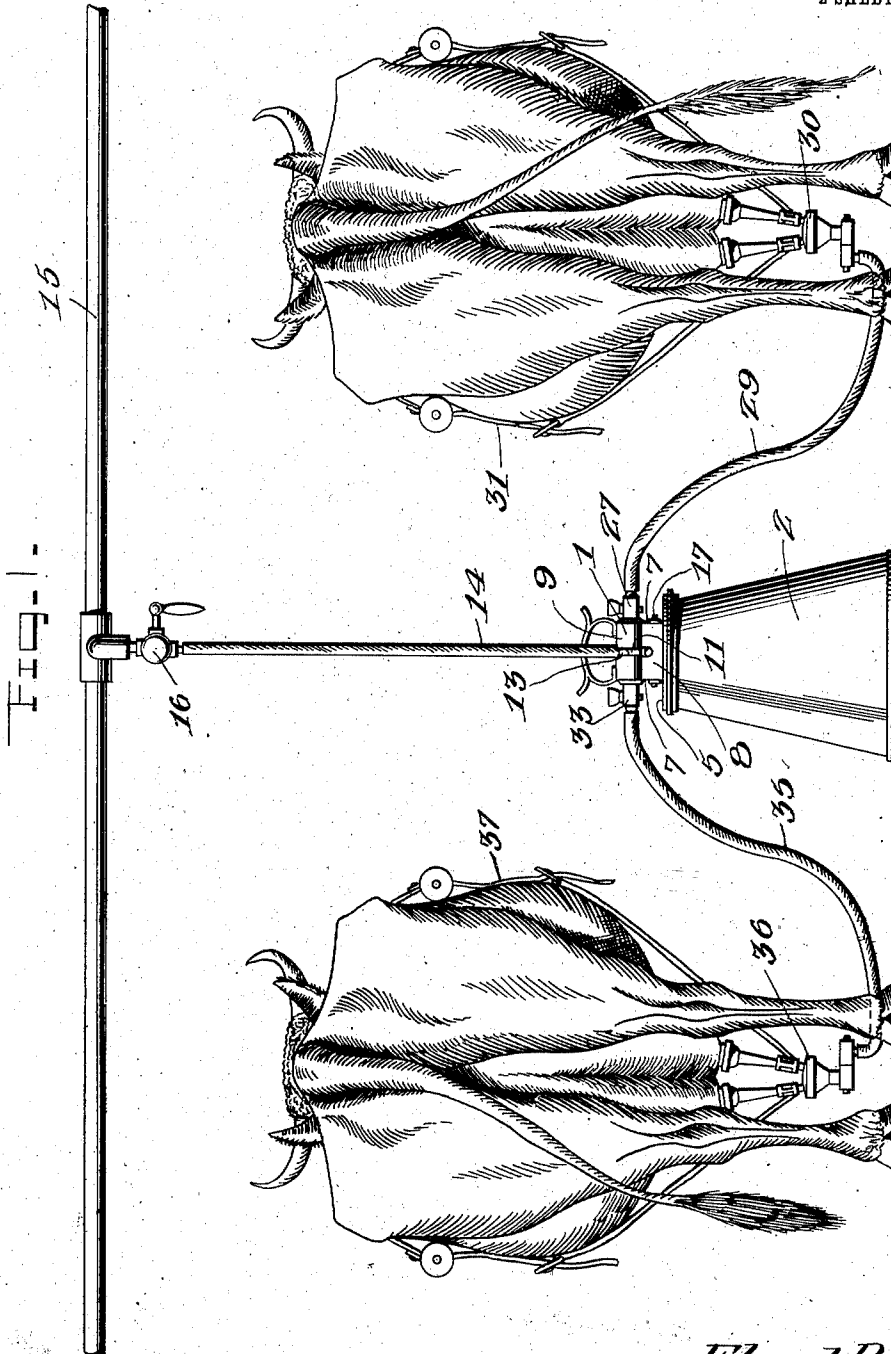


F. B. GROFF.
VACUUM AUTOMATIC MILKING MACHINE.
APPLICATION FILED NOV. 22, 1909.

967,513.

Patented Aug. 16, 1910.

2 SHEETS—SHEET 1.



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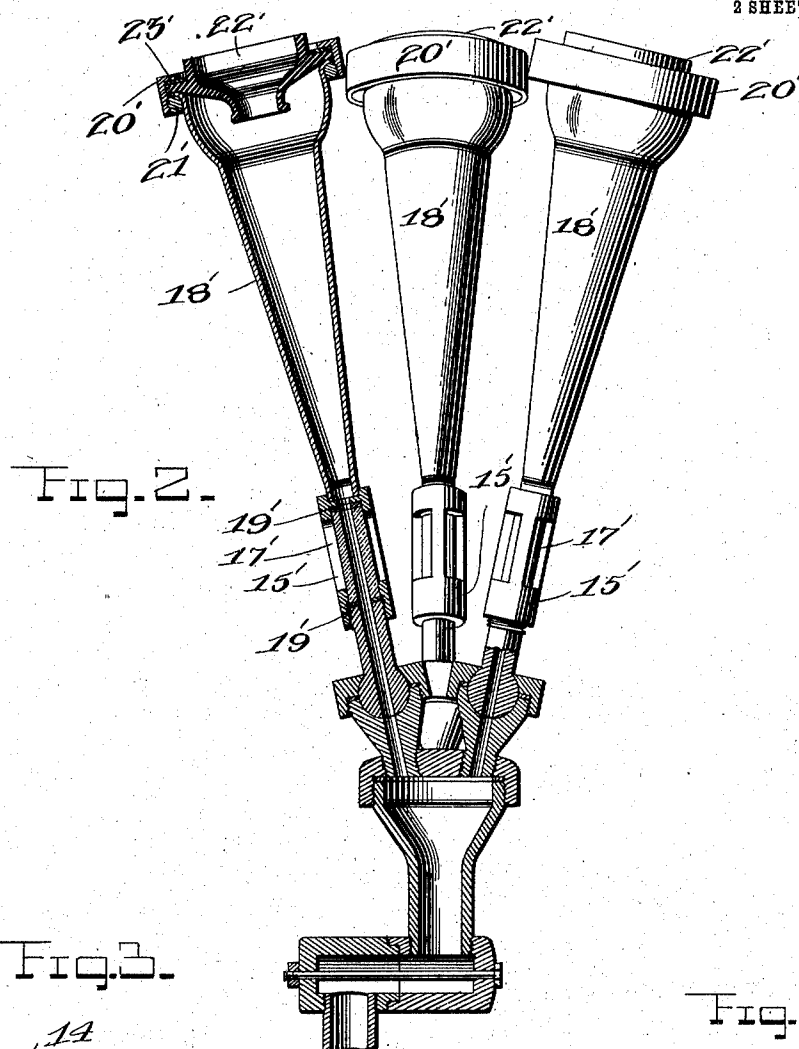
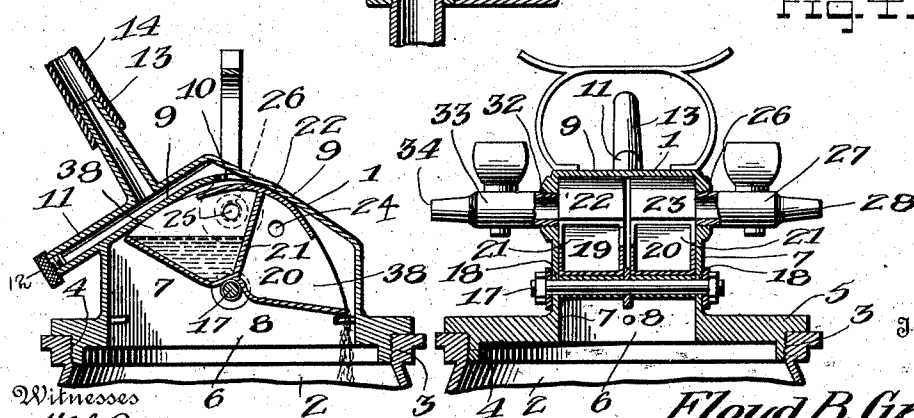


Fig. 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

FLOYD B. GROFF, OF ST. JOHNSVILLE, NEW YORK.

VACUUM AUTOMATIC MILKING-MACHINE.

Specification of Letters Patent. Patented Aug. 16, 1910.

967,513.

Application filed November 22, 1909. Serial No. 529,359.

To all whom it may concern:

Be it known that I, FLOYD B. GROFF, a citizen of the United States, residing at St. Johnsville, in the county of Montgomery and State of New York, have invented certain new and useful Improvements in Vacuum Automatic Milking-Machines, of which the following is a specification.

This invention has relation to automatic milkers and the same particularly relates to improvements upon my inventions already protected by Patents #878,057 and #878,058.

In connection with my improvements I herewith describe and illustrate my inventions as an entirety, disclosing the many late and novel features which have been worked out since the date of my patents above mentioned.

My improvements particularly reside in the milker proper and are calculated to enable the milk to be more gently relieved from the cow's udder and without unnecessary waste of time.

A minor improvement is made in the teat cups, which will be described fully herein-after.

With these and other objects in view my invention consists of the novel construction and arrangement of parts as are fully described in this specification, illustrated in the accompanying drawings forming a part thereof and particularly pointed out in the appended claims.

Reference being had to the drawings: Figure 1 is an elevational view showing my device complete. Fig. 2 is a view of the teat cups assembled as when in use, partly in section. Fig. 3 is a vertical longitudinal section of the milker. Fig. 4 is a vertical transverse section of the milker.

Referring more particularly to the drawings my invention is described as follows: The milker 1 is arranged to be seated securely upon the bucket or receptacle 2 which receptacle is desirably of the shape illustrated in Fig. 1 of the drawings. The milker is screwed into the mouth of the receptacle rigidly and in such manner as to prevent leakage of air for the atmosphere thereinto, or set thereon, a rubber washer being interposed between the milker and said receptacle. The threads 3 of the milker 1 engage threads 4 of the receptacle. Said threads 3

are formed on the outer periphery of the base 5 of said milker.

Cut in the base 5 is a rectangular opening 6 and extending upward from the sides thereof are the longitudinal walls 7 and end walls 8. The said walls have thereupon and integral with the said side walls 8 a top or covering 9. Said covering is so held to the longitudinal walls 7 that air is prevented from passing into the milker 1 from the atmosphere.

Running slantingly downward and communicating with the milker through the perforation 10 is a tube 11 provided with a screw-cap 12 at its end. Communicating with the first-mentioned tube 11 and integral therewith is a second tube 13 formed at right angles thereto, which tube 13 is received by a hose or pipe 14 (Fig. 1) which connects with a suitable pump or suction supply (not shown) by means of the pipe 15. A stop cock 16 is arranged at the upper end of the pipe 14, whose function is obvious.

Pivottally arranged within the milker 1 upon suitable spindles 17 arranged in bearings 18 are two cups 19 and 20, which cups are entirely independent of each other.

Each cup is divided into two compartments by means of partitions 21. The top of each cup is partially covered by means of hoods 22 and 23, respectively. Each compartment is provided with a perforation adjacent the partition of its respective cup. For instance the cup 20 is provided with the perforations 24 and 25. Either perforation in the cup 20 is adapted to register with a corresponding perforation 26 in the longitudinal wall 7 of the milker. Into this perforation 26 is inserted a metal faucet 27 the mouth 28 of which is received by a hose or pipe 29 connected to a set of teat cups 30 of the type more fully illustrated in Fig. 2. These cups are supported by means of the self-adjusting belt 31. Likewise the cup 19 is provided with two similar perforations each of which may register with a perforation 32 in the opposite longitudinal wall of the milker. This perforation receives a faucet 33 the mouth or nozzle 34 of which is received by the hose 35 connected to the set of teat cups 36 supported by the self-adjusting belt 37. The cups 19 and 20 are held in spaced relation to one another by the washer 38 encircling the spindle 17 at its center.

The operation of my improved milker is as follows: The teat cups being placed in position for milking, the stop cock is turned causing a suction within the milker through the tubes 11 and 13 and perforation 10. This suction is transmitted to the cow's teats by means of said hose 29 and 35 and sets of teat cups 30 and 36, respectively.

As the operation of each cup is similar I will only explain the operation of one of them. When one compartment 38 of the cup 20 is filled with milk (as illustrated in Fig. 3) which passes therinto through the said opening 26, it will rock over to its other position so that perforations 24 and 26 will register. This action continues until the cow's udder is relieved of its milk. The object of this is to offer a relief to the cow's udder. A constant draw upon the teats is injurious and will sometimes cause bleeding, but the relief offered by this arrangement obviates such objections to milking machines. It will be observed that the relief offered to the cow's udder is entirely controlled by the flow of the milk therefrom. This device accommodates itself equally well to a hard milking cow as to an easy milking cow.

The only difference in the construction of the teat cups from that shown in my Patent No. 878,058 is that the couplings 15¹ are provided with three openings 17¹ instead of two. Instead of the funnel shaped partitions 18¹ being screwed into the couplings they are secured thereto or formed integral therewith. The glass tubes remain the same but, however, washers 19¹ made of flexible material are interposed between the ends of the tubes and the adjacent part of the teat cup. Furthermore each cup is provided with a removable screw-cap 20¹ held in place by the endless screw-threaded flange 21¹. This screw cap receives the rubber rim 22¹. A metallic washer 23¹ is interposed between the rubber rim and the threaded annular washer 21¹. This is an entirely novel feature.

The object of the tube 11 at the top of the milker is to carry off any waste or dirt that may enter the tube 13 when the hose 14 is removed.

Although I have specifically described my invention yet I may exercise the right to make such changes in the construction thereof as will not depart from the spirit of the invention or the scope of the claims attached hereunto.

Having described my invention what I claim as new, is:

1. In a milking machine comprising a receptacle, a milker mounted thereupon and communicating with the receptacle, said milker comprising a plurality of cups pivotally mounted within the milker, a spindle upon which the cups are mounted, each of said cups divided into adjacent compart-

ments, means for the emission of milk into the compartments of the cups and means to cause a partial vacuum in the milker.

2. In a milking machine comprising a receptacle, a milker mounted upon and communicating therewith, said milker comprising two cups mounted within the milker each of which is divided into adjacent compartments, a spindle, upon which the cups are mounted, held in the longitudinal walls of said milker, each of said compartments provided with a perforation therein adjacent the partition of its respective cup, perforations in the longitudinal walls of the milker one of which perforations is adapted to correspond to and register with one or the other of the perforations in the compartments of the adjacent cup, means for the conduction of milk into the cups and means to cause a partial vacuum in the milker.

3. In a milking machine a milker comprising a plurality of cups pivotally mounted within the milker upon a suitable spindle, each of which cups are divided into adjacent compartments, means to enable milk to pass into the milker and means to cause a suction within the milker.

4. In a device of the class described a teat cup comprising a funnel-shaped portion, a rubber rim held to the large end thereof, a removable screw-cap, a threaded annular washer, said rubber rim interposed between the screw-cap and flange, a washer inserted between the rubber rim and screw-cap.

5. In a milking machine comprising a receptacle, a milker mounted thereon and communicating with the receptacle, said milker comprising a plurality of cups pivotally mounted within the milker, a spindle upon which the cups are mounted, each of the cups divided into adjacent uncommunicating compartments, means for the emission of milk into the compartments comprising perforations in the milker and a corresponding perforation in each compartment of each cup adapted to register with one of the perforations in the milker and a hose or pipe leading to said cups, and means to cause a partial vacuum in the milker.

6. In a milking machine a milker comprising a plurality of cups pivotally mounted within the milker upon a suitable spindle, each of which cups are divided into adjacent uncommunicating compartments, means to enable the milk to pass into the milker comprising perforations in the milker and cups adapted to register and means to cause a suction within the milker.

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

FLOYD B. GROFF.

Witnesses:

FRED D. STORMS,
FAYETTE GROFF.