

G. A. BRODIE.
COW MILKING APPARATUS.
APPLICATION FILED FEB. 17, 1912.

1,051,482.

Patented Jan. 28, 1913.

2 SHEETS—SHEET 1.

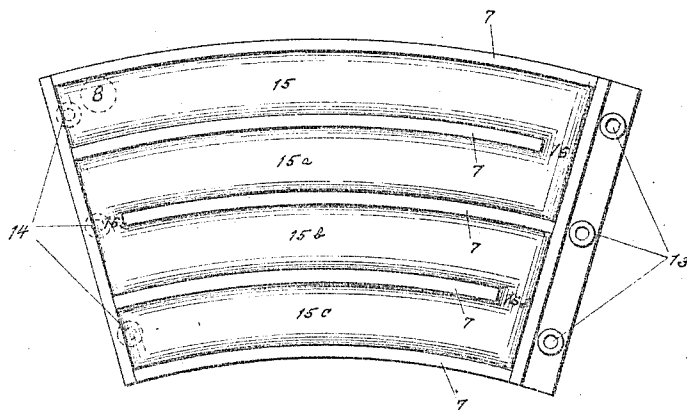


Fig. 1

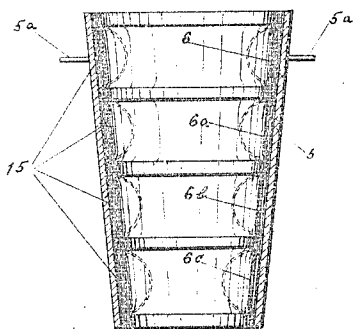


Fig. 3

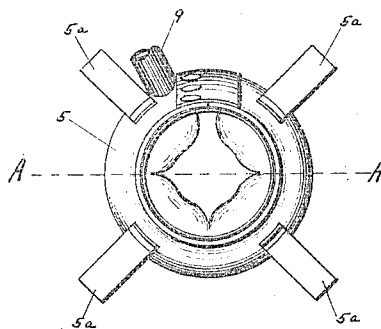


Fig. 2

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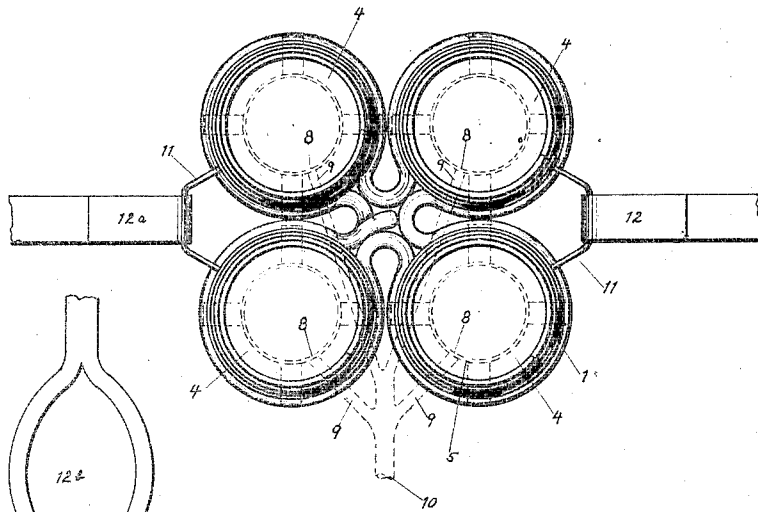


Fig. 4

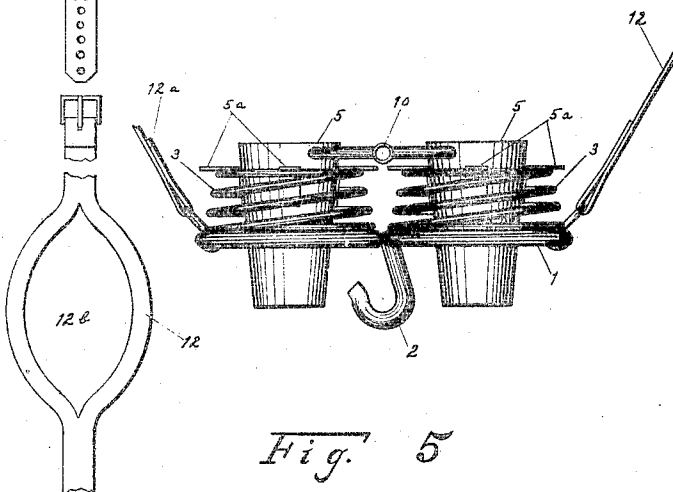


Fig. 5

Fig. 6

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UNITED STATES PATENT OFFICE.

GEORGE A. BRODIE, OF PORTLAND, OREGON.

COW-MILKING APPARATUS.

1,051,482.

Specification of Letters Patent. Patented Jan. 28, 1913.

Application filed February 17, 1912. Serial No. 678,296.

To all whom it may concern:

Be it known that I, GEORGE A. BRODIE, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Cow-Milking Apparatus, of which the following is a specification.

My invention relates to a cow-milking apparatus of the character whereby milk is drawn from the cow by means of inflating and exhausting the linings of rubber pulsators by means of air pressure: said action having the same effect as that of the human hand in milking; this action greatly increases the efficiency of the apparatus and is in no way injurious to the cow.

The object of my invention is to provide a mechanism that is simple in construction, durable, inexpensive in manufacture, and further, to provide an apparatus of this kind that may be easily moved about by reason of its unusually light weight and lack of intricate and cumbersome machinery.

With the above and other objects in view my invention consists in certain novel features of construction and arrangements of parts hereinafter fully described, and particularly pointed out in the appended claims.

In order to clearly explain my invention so that others skilled in the art may be able to understand and construct same, reference must be had to the accompanying drawings forming part of this application, in which—

Figure 1 is a view showing the inside of one of the pulsators of my invention, opened and lying flat. Fig. 2 is a plan view of Fig. 3. Fig. 3 is a longitudinal section of one of the pulsators taken on dotted line A A of Fig. 2. The dotted lines in said Fig. 3 indicate the linings of one of the pulsators partially inflated. Fig. 4 is a plan view of my complete invention; parts of the straps broken away. The dotted lines in this view indicate detachable parts. Fig. 5 is a side elevation of Fig. 4, and Fig. 6 is a plan view of the straps (with parts broken away) by means of which the complete apparatus is attached to the body of a cow.

Like characters of reference indicate like parts in all the figures of the drawings.

In the practice of my invention I employ a frame 1, which is preferably formed of a single piece of wire terminating in a hook 2, underneath frame 1, as shown in Fig. 4; said hook serving as a holder for a milk

pail. On the top side of frame 1, are fastened helical springs 3, of approximately the same inside diameter as the openings 4, of frame 1; passing through helical springs 3, and openings 4 of the frame 1, are pulsators 5, which rest on helical springs 3, by means of guards 5^a, said pulsators being made of soft rubber of a thickness consistent with strength and durability and having thin rubber linings (6—6^a—6^b and 6^c) which are fastened to ribs 7 in such a manner as to form a plurality of convolutions as shown in Figs. 2 and 3 respectively. At the large end of each of the pulsators 5, is an opening 8, into which is fastened a suitable length of rubber hose 9, each piece of which is connected to a larger hose 10, said hose 10, being connected to an air-pump which forms no part of my invention and therefore is not shown. Fastened to frame 1 are brackets 11, to which are attached the ends of straps 12 and 12^a, said straps having elliptical openings 12^b, which fit over the hip bone of the cow, thus holding the complete apparatus in a fixed position on the body of the cow.

In order to operate my invention it is first necessary to take the pulsators,—one of which is shown in a flat position in Fig. 1—and button said pulsators into the shape of a hollow cone as shown in Fig. 3; said operation being performed by folding the ends of Fig. 1 which contain the female members 13, of the clasps, and fastening said female members 13, to male members 14, of said clasps; this being done the pulsators are inserted into their respective places as shown in Figs. 4, and 5, respectively. The next operation is to connect the small pieces of hose 9, to large hose 10, and then connect the large hose 10, to a suitable air-pump, after which the complete apparatus as shown in Fig. 4, is attached to the body of the cow and fastened into place by means of straps 12, and 12^a. Each one of the pulsators 5, fitting over a teat of the cow and held in such position by means of springs 3. We are then ready for the operation of milking, which will be hereinafter fully described.

After my invention is arranged as above described, the next operation is to pump air into hose 10, from whence it passes into the small pieces of hose 9, then into airtight chambers 15, inflating rubber lining 6; thence passing through port 16, into cham-

ber 15^a, inflating lining 6^a. The air then passes through port 16^a, and into chamber 15^b, inflating lining 6^b. The air then passes through port 16^b, into chamber 15^c. After this operation the linings are all inflated and take the approximate form of the inside parts of the human fingers when the hand is closed; as shown in Fig. 2. It is obvious that the above operations cause an even flow of milk from the cow and in no way produce injurious effects.

With the backward stroke of the pump the linings are exhausted and the upper rims of pulsators 5, are pressed firmly against the udder of the cow, and the operations of inflating and exhausting are successively repeated until all of the milk is drawn from the cow.

My improved cow-milking apparatus may be constructed of any preferred material and made of any size deemed suitable to meet all the requirements of such apparatus, and while I have described a preferred form of construction and combination of elements considered essential in materializing my invention, it will be understood that I desire to include in this application all mechanical equivalents and substitutes that may be considered to come within the scope and pervue of my invention.

Having thus fully described the construction and operation of my invention so that others skilled in the art may be able to construct and use the same, what I claim as new, and desire to secure by Letters Patent is—

1. In a cow-milking apparatus a metallic frame with a plurality of circular openings; said metallic frame terminating in a hook which serves as a pail holder; the upper side of said metallic frame having helical springs fastened thereto; pulsators with rubber linings passing through said helical springs and through the circular openings in said metallic frame; said pulsators being supported by a plurality of guards attached to the outside thereof, and resting on helical springs which hold said pulsators close to the udder of the cow, substantially as described.

2. In a cow-milking apparatus a metallic frame with a plurality of circular openings; said metallic frame terminating in a hook which serves as a pail-holder; the upper side of said metallic frame having helical springs fastened thereto; pulsators with rubber linings passing through said helical springs and through the circular openings in said metallic frame; an opening in the upper end of each pulsator to allow the passage of air between the outside texture and the linings thereof; said pulsators being

supported by a plurality of guards attached to the outside thereof, and resting on helical springs which hold said pulsators close to the udder of the cow, substantially as described.

3. In a cow-milking apparatus a metallic frame with a plurality of circular openings; brackets forming a part of said metallic frame; said metallic frame terminating in a hook which serves as a pail holder; the upper side of said metallic frame having helical springs fastened thereto; pulsators with rubber linings passing through said helical springs and through the circular openings in said metallic frame; said pulsators being supported by a plurality of guards attached to the outside thereof, and resting on helical springs which hold said pulsators close to the udder of the cow, substantially as described.

4. In a cow-milking apparatus a metallic frame with a plurality of circular openings; said metallic frame terminating in a hook which serves as a pail holder; the upper side of said metallic frame having helical springs fastened thereto; pulsators with rubber linings passing through said helical springs and through the circular openings in said metallic frame; said pulsators being made flat for convenience in manufacture; means for fastening said pulsators into the form of hollow cones; said pulsators being supported by a plurality of guards attached to the outside thereof, and resting on helical springs which hold said pulsators close to the udder of the cow, substantially as described.

5. In a cow-milking apparatus a metallic frame with a plurality of circular openings; said metallic frame terminating in a hook which serves as a pail holder; the upper side of said metallic frame having helical springs fastened thereto; pulsators with rubber linings passing through said helical springs and through the circular openings in said metallic frame; said pulsators being made flat for convenience in manufacture; means for fastening said pulsators into the form of hollow cones; said pulsators being supported by a plurality of guards attached to the outside thereof, and resting on helical springs which hold said pulsators close to the udder of the cow; and means for fastening the metallic frame containing the pulsators, to the body of the cow, substantially as shown and described.

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

GEO. A. BRODIE.

Witnesses:

W. F. SLAUGHTER,
W. E. MANN.