

J. W. MITCHELL & W. O. WALKER.
 APPARATUS FOR TESTING MILK AND MILK PRODUCTS.
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987,811.

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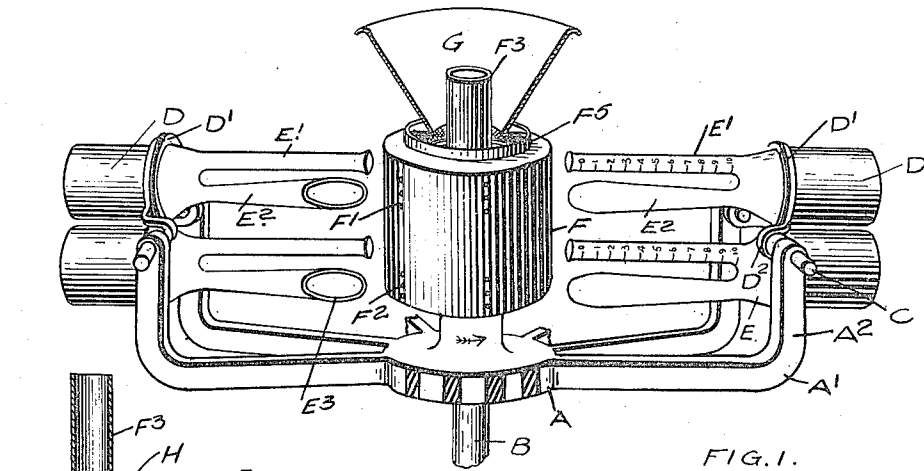


FIG. 1.

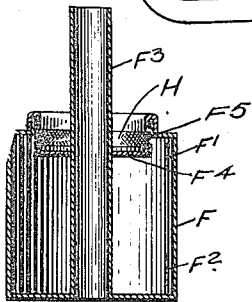


FIG. 3.

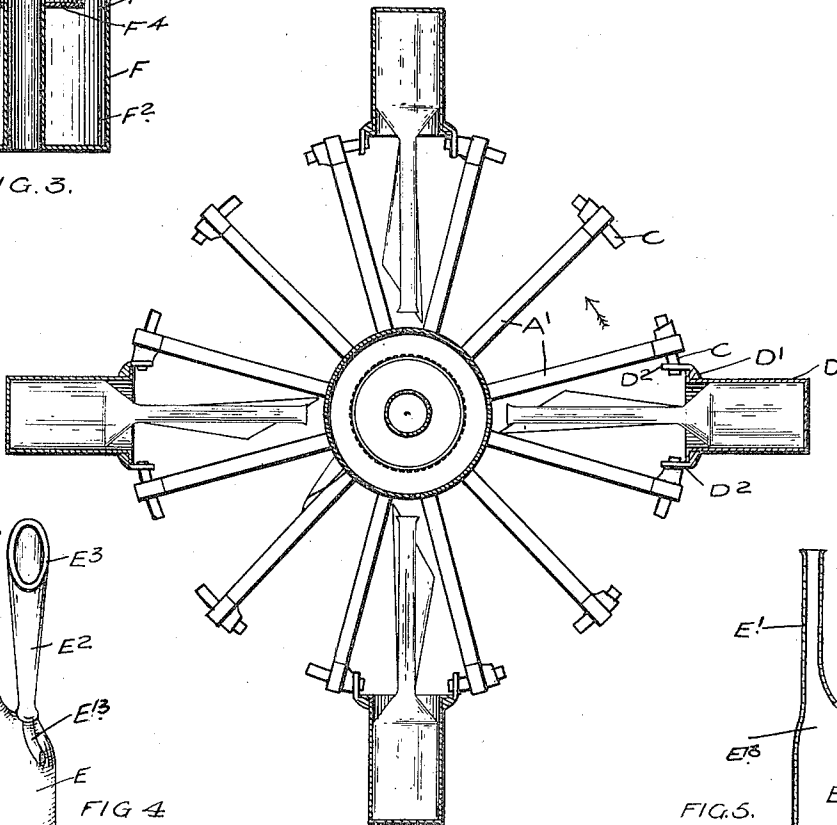


FIG. 2.

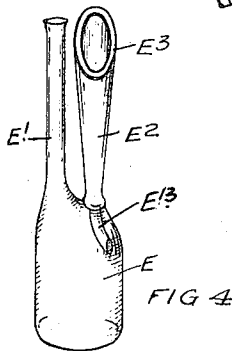


FIG. 4.

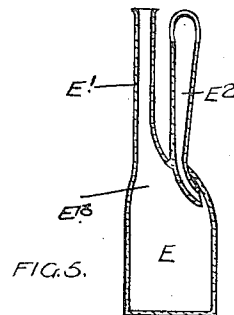


FIG. 5.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR TESTING MILK AND MILK PRODUCTS.

987,811.

Specification of Letters Patent. Patented Mar. 28, 1911.

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To all whom it may concern:

Be it known that we, JOEL WALTER MITCHELL and WILLIAM OSCAR WALKER, both of the city of Kingston, in the county of Frontenac, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Apparatus for Testing Milk and Milk Products, of which the following is the specification.

10 Our invention relates to improvements in an apparatus for testing milk and milk products, and the object of the invention is to devise an apparatus of this class, which will automatically add the water to the contents of the testing bottles while the machine is in motion, so that the testing may be accomplished expeditiously and thereby effect a saving in time and labor.

15 A further object is to make the machine of simple construction and readily attached to machines already in use.

A still further object is to insure of the machine and the testing bottles being kept clean and sanitary.

25 Our invention consists of a central shaft, a spider comprising a series of arms mounted thereon and provided with end trunnions, cups arranged in pairs and swung on the trunnions between adjacent arms, testing bottles held in the cups and provided with a graduated neck and a filling neck, a centrifuge comprising a casing having upper and lower rows of orifices located on the same plane as the filling necks and a deflecting 30 strainer located at the top of the centrifuge, the parts being otherwise arranged and constructed in detail as hereinafter more particularly explained.

40 Figure 1, is a perspective view of our improved apparatus partially broken away and in section. Fig. 2, is a sectional plan showing portion of the cups and bottles, the bottles being shown in full. Fig. 3, is a detail of the centrifuge. Fig. 4, is a perspective detail of the bottle. Fig. 5, is a longitudinal section through the bottle and necks thereof.

In the drawings like letters of reference indicate corresponding parts in each figure.

50 A is a spider, which is journaled on a shaft B and comprises arms A' bent at the outer end at A² substantially at right angles to the main portion of the arm.

55 C are trunnions secured in the end of the arm and D are a pair of semi-cylindrical

cups, which are provided with a connecting rim D' having the centrally opposed lugs D², which are journaled on the trunnions C.

E are the bottles, which are placed in the cups D. Each bottle is provided with a graduated neck E' and a substantially funnel or cone-shaped neck E² having a beveled outer end E³. The position in which the cups and bottles are shown in the drawing is that which they assume when the machine is in motion. When the machine is stationary the cups and bottles stand upright. 60 65

F is the centrifuge, which comprises a cylinder having upper and lower sets of perforations F' and F² in its periphery, each set of perforations being substantially of the same width as the outer end of the funnel-shaped neck E² of the bottle E. As will be readily seen there are two layers of bottles, which assume the horizontal position 70 75 when the machine is in motion and consequently the upper and lower necks E² are directly opposite the upper and lower sets of perforations F' and F² respectively.

F³ is the center tube of the cylinder, which 80 is secured on the shaft B.

F⁴ is a deflecting plate horizontally disposed beneath the top of the centrifuge F and opposite the flanged opening F⁵ into which a funnel G is fitted in order to feed 85 the water into the centrifuge.

H is a strainer of wire gauze or netting extending from the flange F⁵ to the deflecting plate F⁴, such wire gauze being designed to prevent dust or foreign matter passing 90 into the centrifuge and stopping the jets F' or F². Both the centrifuge and the spider carrying the bottles are secured to the shaft and rotate in unison. As the machine revolves the water in the centrifuge is forced 95 by the centrifugal action outwardly in the form of a spray and is caught by the cone-shaped necks of the bottles circularly arranged as will be readily understood.

The inner ends of the funnel or cone-shaped necks of each bottle are extended in somewhat the form of a curve E³ at its entrance into the bottle for the purpose we shall presently describe. 100

The milk is first placed in the bottle 105 through the funnel-shaped neck. Sulfuric acid of about equal quantity is then poured through the funnel-shaped neck and passes along to one side of the bottle separate from the milk, thereby preventing the churning 110

of the milk, The sulfuric acid and milk are then commingled by shaking. After the number of bottles required to fill the machine have been placed in the cups the machine is set in motion and the bottles assume the position shown in the drawing. The water is then poured into the funnel G and the centrifugal force throws such water outwardly as hereinbefore described into the cone-shaped necks, thereby quickly forcing the butter fat up the graduated tube for the test. The water as it passes outward in the form of a spray is caught by the beveled end of the cone-shaped neck, which cuts across the streams of spray. The high side of the beveled neck is on the side of the bottle forward as to direction of rotation. As the low side is within the end of the graduated neck it will be understood that there will be no liability of the overflow of the butter fat from the open end of the graduated neck.

From this description it will be readily understood that we produce an apparatus, which is very simple in construction and readily attached to machines already in use.

Another advantage in the construction of the bottle, which we use in our machine, is that the fat cannot escape through the cone-shaped neck as it is of reduced size at the

end of the neck and has a bend or turn inside of the bottle. Neither can the butter fat escape from the graduated neck as will be understood from what has been hereinbefore described.

What we claim as our invention is:

1. An apparatus for testing milk and milk produce comprising a centrifuge cylindrical in form with perforations in the periphery and an upper opening, a deflecting plate located below the opening and bottles supported on suitable arms provided with suitable necks for receiving the liquid from the centrifuge.

2. An apparatus for testing milk and milk produce comprising a centrifuge cylindrical in form and provided with perforations in the periphery and an upper opening, a deflecting plate located below the opening, a circumferential strainer extending from the bottom of the deflecting plate to the opening and bottles supported on suitable arms and provided with suitable necks for receiving the liquid from the centrifuge.

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