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1,494,631

J. ROBERTS

MILK SAMPLING DEVICE

Filed June 16, 1921

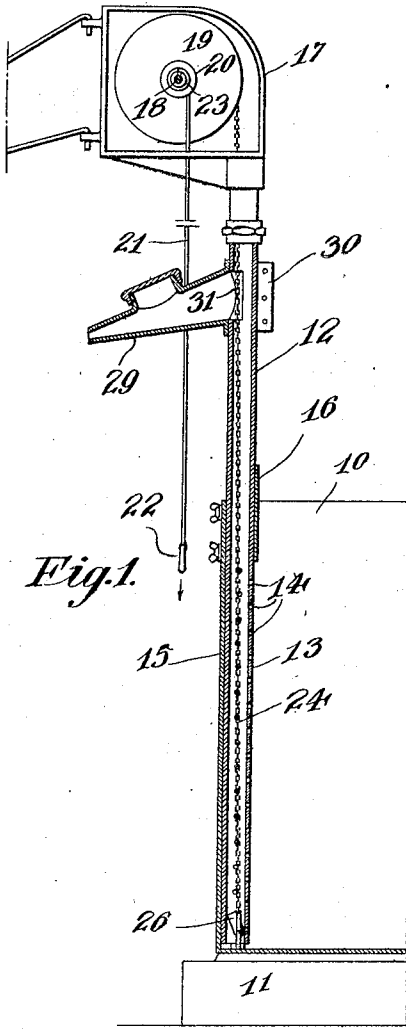


Fig. 1.

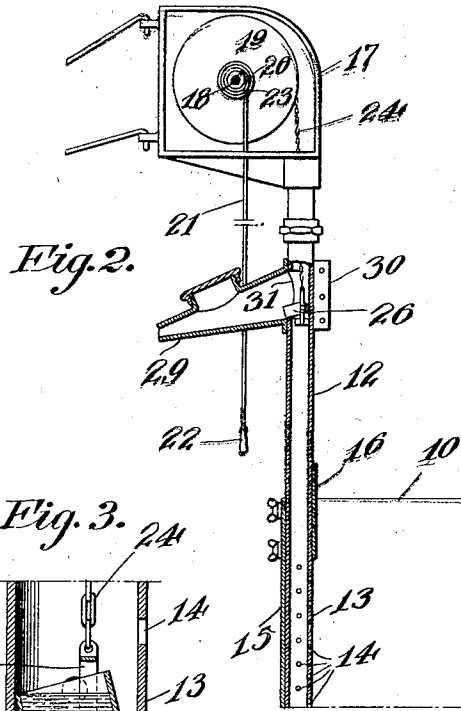


Fig. 2.

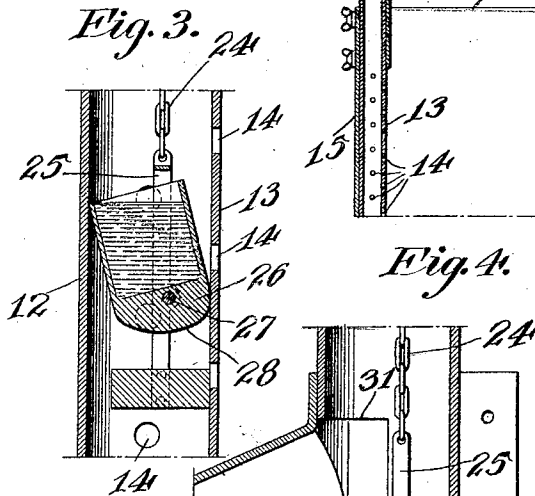


Fig. 3.

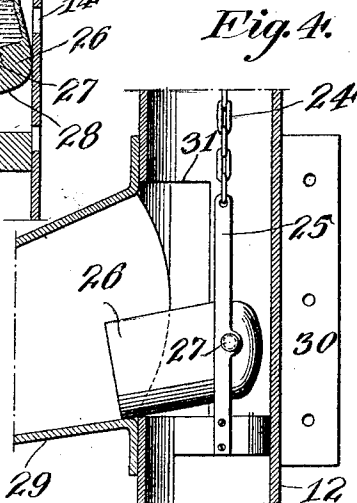


Fig. 4.

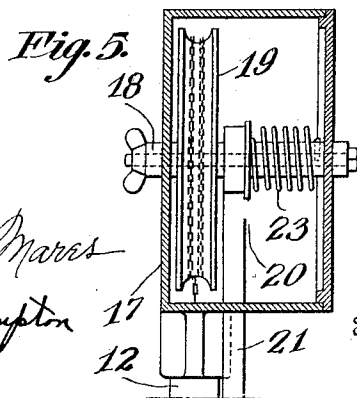


Fig. 5.

Witnesses:

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UNITED STATES PATENT OFFICE.

JOSEPH ROBERTS, OF PHILADELPHIA, PENNSYLVANIA.

MILK-SAMPLING DEVICE.

Application filed June 16, 1921. Serial No. 478,192.

To all whom it may concern:

Be it known that I, JOSEPH ROBERTS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Milk-Sampling Devices, of which the following is a specification.

One object of my invention is to provide an improved device for sampling milk in a sanitary and expeditious manner and which will be advantageous for use in creameries or other places where it is necessary to test the qualities of various quantities of milk which is received from time to time.

Another object is to so construct my improved device that it can be easily and conveniently operated and will be of a strong and durable formation.

These objects, and other advantageous ends which will be described hereinafter, I attain in the following manner, reference being had to the accompanying drawings in which—

Figure 1 is a fragmentary elevation partly in section showing the device in a position occupied during the taking of a sample of milk,

Figure 2 is a view of the same general character as that shown in Figure 3 illustrating the device in another position during the taking of a sample of milk,

Figure 3 is an enlarged fragmentary section showing a portion of my improved device illustrating the dipper when being lifted through the perforated elevator tube; said dipper containing a sample of milk,

Figure 4 is an enlarged fragmentary sectional view showing said dipper having tilted to discharge the sample of milk,

Figure 5 is a fragmentary section showing the elevating means for the dipper.

Referring to the drawings and particularly to Figures 1 to 5 inclusive, 10 represents a milk tank or can, such for example as a tank of the type used in creameries to receive and weigh the milk as it is received and I have illustrated this tank as resting upon a scale 11. The weighing of the milk, however, has no particular bearing on the construction or operation of the device of my invention.

An elevator tube 12 has its lower portion 13 extending downwardly into the tank 10 and has a plurality of perforations 14. This

tube 12 can be made of a strong pipe and is detachably secured to a side 15 of the tank by any suitable means, such for example as by a clamp 16. The tube 12 extends upwardly above the top of the tank 10 providing a superstructure which at its top forms a mounting for a case 17 in which is mounted a shaft 18 upon which is freely rotatable a flanged elevator wheel 19. To this elevator wheel is connected a pulley 20 having one end of a pull strap 21 secured thereto. The pull strap extends downwardly through the casing and may be provided with any suitable handle such as shown at 22. The pulley 20 has one end of a torsion spring 23 secured thereto; said torsion spring having its other end fixed to the shaft or case so that when the pulley is rotated by a downward pull on the strap 21, the spring 23 will be wound and placed under tension during which action the elevator wheel 19 will be rotated in one direction. The elevator wheel 19 has one end of a flexible device or connection, such as a chain 24, secured thereto; the other end of said chain extending downwardly within the elevator tube 12; it being noted, as shown in Figure 2, that the axis of the tube 12 is tangent with the peripheral surface of the elevator wheel 19 so that when the elevator wheel is rotated in the manner above described, the chain 24 will be lowered in the tube 12.

A weighted frame or yoke 25 is secured to the chain 24 and is positioned within the tube 12, as clearly shown in Figures 3 and 4. A dipper 26 is pivoted at 27 between the arms of the yoke preferably in a plane at one side of the longitudinal axis of the dipper. The bottom 28 of the dipper is so weighted that when the dipper is empty, it will maintain an upright position even in view of the fact that the pivot 27 is at one side of the longitudinal axis as above described. If, however, the dipper has milk therein, as shown in Figure 4, it will tilt on its pivot 27 and engage the inner surface of the elevator tube; said inner surface of the elevator tube preventing further tilting of the dipper during movement of the dipper upwardly through the elevator tube to a predetermined position as will hereinafter be more completely described.

A spout or chute 29 extends laterally from the tube 12, and in the present instance, the chute is shown as a separate part which has

a portion 30 which surrounds the tube 12 and is clamped thereto. This chute tapers outwardly and has its bottom slanting downwardly away from the tube 12. The tube 12 is interrupted within its length by providing an opening 31 in registry with the wide portion of the interior of the chute 29 so that the interior of the chute communicates with the interior of the tube 12. In operation, assuming the tank to contain milk from which a sample is to be taken, the operator pulls strap 21 downward thereby imparting rotation to elevator wheel 19 and causing the dipper to be lowered in tube 12, as indicated in Figure 1. Since this tube 12 is perforated the milk within the tank will flow into the tube 12 through the perforations 14 of said part 13 up to the level of the milk in the tank 10 outside of the confines of the tube 12. In other words, the dipper 26 will be lowered into the milk within the tube 12. When the strap 21 is released the spring 23 will rotate the elevator wheel 19 in an opposite direction and the chain 24 will be wound thereon and the dipper with its sample of milk will be raised within the tube as shown in Figure 3. As soon as the dipper reaches the opening 31 in the tube 12, the dipper will swing on its pivot 27 into the position shown in Figure 4 and the milk will be discharged into the chute 29 and will run downward through the pipe sections into a sampling jar, not shown. This action may be repeated as often as milk is added to the can or the cans refilled.

While I have described my invention as taking a particular form, it will be understood that the various parts of my invention may be changed without departing from the spirit thereof, and hence I do not limit myself to the precise construction set forth, but consider that I am at liberty to make such changes and alterations as fairly come within the scope of the appended claims.

Having thus described my invention, what

I claim as new and desire to secure by Letters Patent is:—

1. A milk sampling device including an elevator tube; a discharge chute leading therefrom; a dipper movable in the elevator tube and adapted to automatically discharge its contents into the chute; an elevator wheel; a flexible member connecting the wheel and dipper and normally wound on the wheel; means for rotating the wheel to unwind the flexible member and lower the dipper, and means for automatically rewinding the flexible member and holding the wheel in wound position.

2. A milk sampling device including an elevator tube; a discharge chute leading therefrom; a dipper movable in the elevator tube and adapted to automatically discharge its contents into the chute; an elevator wheel; a flexible member connecting the wheel and dipper and normally wound on the wheel; means for rotating the wheel to unwind the flexible member and lower the dipper, and a spring normally holding the wheel in wound position.

3. A milk sampling device including an elevator tube; a discharge chute leading therefrom; a dipper movable in the elevator tube and adapted to automatically discharge its contents into the chute; an elevator wheel; a flexible member connecting the wheel and dipper and normally wound on the wheel; a pulley secured to the wheel; a spring normally holding the wheel in wound position, and a pull strap for rotating the pulley and wheel against the tension of the spring.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH ROBERTS.

Witnesses:

CHAS. E. POTTS,
ELIZABETH GARBE.