

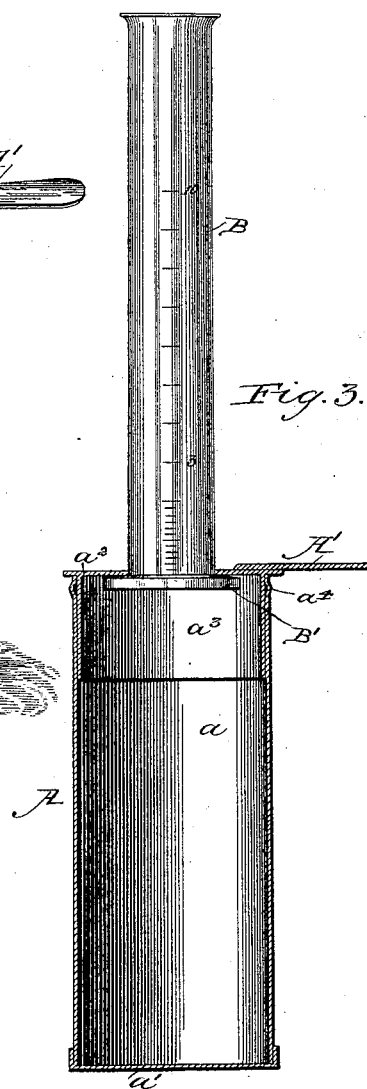
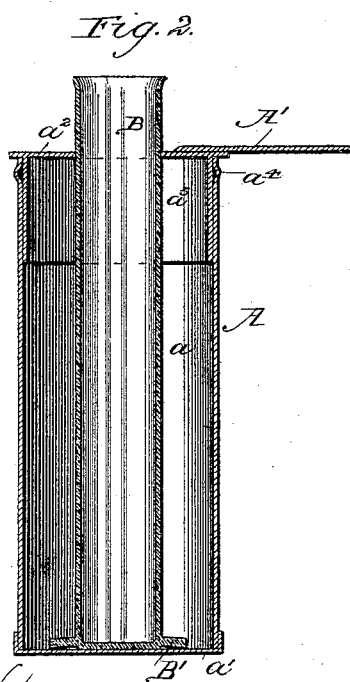
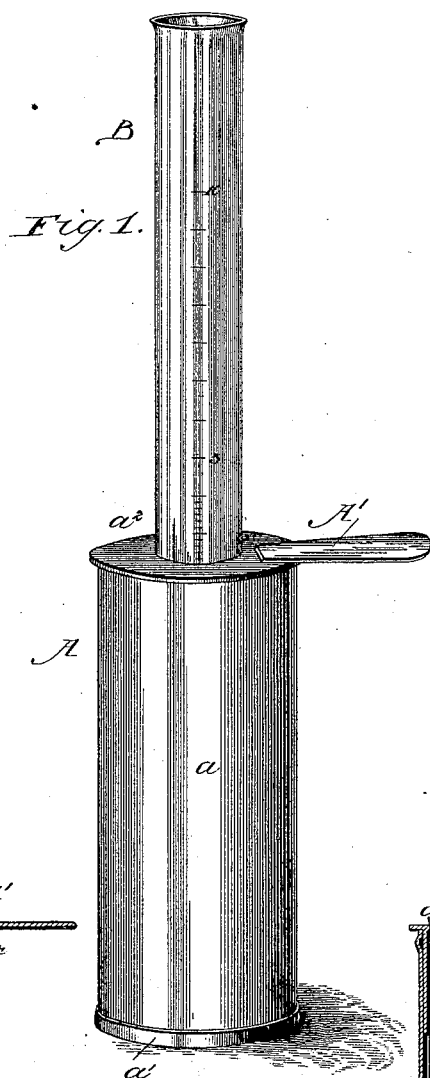
(No Model.)

L. FAGERSTEN.

APPARATUS FOR TESTING BUTTER.

No. 342,865.

Patented June 1, 1886.



Witnesses.

*W. Rogers*

*Frank Gillispie*

*Inventor:*  
*Lorenzo Fagersten*

*By Chas. G. Page*  
*Atty.*

# UNITED STATES PATENT OFFICE.

LORENZO FAGERSTEN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO  
JAMES B. MARSH, OF SAME PLACE.

## APPARATUS FOR TESTING BUTTER.

SPECIFICATION forming part of Letters Patent No. 342,865, dated June 1, 1886.

Application filed August 27, 1885. Serial No. 175,430. (No model.)

### *To all whom it may concern:*

Be it known that I, LORENZO FAGERSTEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and Improved Apparatus for Testing Butter and Its Bogus Compounds, of which the following is a specification.

The invention relates to an apparatus adapted for carrying out a process for treating butter and its bogus compounds, forming the subject of an application for Letters Patent of the United States filed by me on or about the 6th day of July, 1885, and serially numbered 170,837. Said process, briefly described, consists in heating butter or its bogus compounds up to, but not beyond, the curding-point, and then subjecting the same for a brief period—say about ten minutes—to heat proximating to, but not above, the said curding-point, in order to complete the curding, the result of such process being that, in the case of genuine butter, the fat becomes transparent, while in the case of any of its bogus compounds the fat becomes opaque, whereby in each and every instance the genuine article can be known from the spurious article without further test or treatment. As mentioned in said application, certain well-defined and interesting auxiliary indications appear as incident to said process, but need not necessarily be observed or taken into account, since the condition of the fat is in each case so marked and decided as to permit even the most unskilled to determine as to whether the article is genuine or bogus. To render said process certain and reliable, it is absolutely essential that the article to be tested should not be heated above that point at which a curd commences to appear, and also that the heat to which it is subsequently subjected should approximate to, but not go above, the curding-point. It is also desirable, in the first instance, that the article should be subjected to a gradually-increasing temperature, so that it can be frequently inspected, and thus the moment at which the curding-point is reached be noted. It is further desirable that the receptacle in which the butter or its bogus compound is heated should be surrounded by uniformly-distributed heat, so that the article

contained within said receptacle may be heated uniformly throughout. In addition to these desiderata may be mentioned the desirability of providing a simple and convenient construction of apparatus, which can be readily handled and used in connection with such source of heat as may at the time be most available—such, for example, as a lamp, stove, or the like. To these and other ends I provide an apparatus consisting, essentially, of a transparent tube, desirably of glass, closed at one end to form a bottom, and fitted to be let down into and drawn up from a small water drum or vessel, which is closed at the bottom, and at the top provided with a cap having an aperture suitable for the passage of the glass tube. This glass tube is at its lower closed end provided with a flange or foot serving to prevent the tube from being drawn entirely out from the drum, in which way, while the tube can be drawn up substantially its entire length from the drum, it will be checked when lifted to a determinate height. This feature prevents the glass tube from being accidentally separated from the drum and either lost or broken, and as the tube just fits the aperture in the cap or top end of the drum, water which is heated in the drum to raise the temperature of the butter or bogus compound placed in the tube, will be prevented from bubbling over, which feature, in case the drum is placed over the chimney of a lamp, will be of especial advantage. The cap is detachable from the body of the drum, so as to permit water to be filled into the latter or emptied out, as occasion may require, but is adapted to fit with a degree of tightness which will admit of the entire apparatus being raised by a handle attached to the cap without the accidental detachment of the cap from the drum or body.

In the drawings illustrating an apparatus of such construction, Figure 1 is a perspective view with the glass tube shown raised to the highest limit. Fig. 2 is a vertical central section with the glass tube lowered to the bottom of the drum or vessel. Fig. 3 represents a like section through the drum, but with the glass tube, which is shown in elevation, raised, as in Fig. 1.

The vessel A, designed both as a holder of

the glass tube B and as a receptacle for containing the water in which the tube is to be immersed, is preferably formed of a cylindric shell or drum,  $a$ , closed at one end to provide a bottom,  $a'$ , and provided at its opposite end with a cap,  $a''$ , which is detachably fitted to the cylindric body, so as to close the same at the top. The cap is provided with a handle,  $A'$ , by means of which the entire apparatus can be readily lifted from the stove, lamp, or other heater whereon the vessel may have been placed for the purpose of heating the water.

In order to prevent the cap from being accidentally drawn off from the body when the apparatus is thus raised by the handle, the cap is adapted to fit the cylindric body of the drum or receptacle with a degree of tightness which shall be equivalent to locking the cap thereon.

A simple and convenient way of securing the cap upon the body of the drum will be to form the cap of a disk having a pendent annular flange or neck,  $a^3$ , adapted to closely fit the cylindric body at one end, and preferably within the latter, although evidently it might fit upon in lieu of within the cylindric body with like results. If desired, some suitable packing could be arranged between the cap and the drum—as, for example, a gasket or packing could be applied within an annular groove formed by a continuous bead or indentation in the body, as at  $a^4$ , Figs. 2 and 3.

The transparent tube B, which is preferably of glass, extends through an aperture in the cap, and is provided at its lower end with a flange or foot,  $B'$ , which prevents the tube from being entirely drawn up through the cap or cover of the drum. When the tube is let down within the drum to the farthest extent, as in Fig. 2, the flange or foot-piece of the tube may be permitted to rest upon the bottom of the drum; but when the tube is drawn up, as in Figs. 1 and 3, the foot will come in contact with the cap or top end of the drum, and serve as a stop or shoulder, which prevents the detachment of the tube from the drum.

In using this apparatus water is placed within the drum and a suitable quantity of butter or supposed butter, which is to be tested, is placed within the transparent tube. The drum is then placed upon some heater or some suitable source of heat, which by heating the drum, and consequently the water within the latter, will serve to indirectly heat the contents of the tube with a heat which is uniformly distributed around the latter.

By heating a quantity of water within which the tube containing the article is immersed

the temperature can be made to rise slowly, thus giving the operator ample opportunity for frequently inspecting the contents of the tube, which may be done by frequently drawing up the glass tube, and then lowering it into the water. During such portion of the operation the limited sliding connection between the tube and drum will be found extremely serviceable, since, when the tube is raised, it will of necessity be at such times in readiness to drop back into the water, and to thus maintain a position about in the middle of the body of such liquid. As soon as the curding-point has been reached, which is determined by the appearance of the melted article within the tube, as set forth in my application for the process, the operator will lift the entire apparatus off and away from the source of direct heat, and let it stand for, say, ten minutes, during which time the heat remaining in the two receptacles and in the water will sufficiently approximate to the temperature of the curding-point to complete the curding. The article is then ready for inspection; and if it is genuine butter the body of fat will be clear and transparent, whereas if it is a bogus compound thereof the body of fat will be opaque.

The glass tube may have a scale—such as a test-tube or a hydrometer-jar—if desired, so as to permit certain indications as to the different qualities of good butter to be tested, as noticed in said application, although these said matters are incidental to my invention.

What I claim as my invention is—

1. In a butter-tester, the combination, with the vessel A, having the continuous packing-bead  $a^4$ , of the cap  $a''$ , having the pendent annular flange or neck  $a^3$ , adapted to pass into the body of the vessel and compress the packing in said bead  $a^4$ , the handle  $A'$ , secured to said cap, and the transparent tube B, passing through the aperture in the cap and having a base,  $B'$ , larger than said aperture, all arranged for joint operation as set forth.

2. The combination, with the vessel A, of an apertured cap-piece provided with a handle,  $A'$ , and having the pendent annular flange  $a^3$ , adapted to pass into the body of the vessel, and the glass tube B, passing through the aperture and having a base,  $B'$ , to support said tube on the bottom of the vessel and prevent the tube from being detached therefrom when said tube is raised toward the cap-piece, as shown and described.

LORENZO FAGERSTEN.

Witnesses:

CHAS. G. PAGE,  
FRANK GILLESPIE.