No. 714,459. Patented Nov. 25, 1902.

W. S. DANIEL & W. O. SHACKELFORD.

MILK COOLER.

Application filed Aug. 13, 1902.

(No Model.)

Fig. 1.

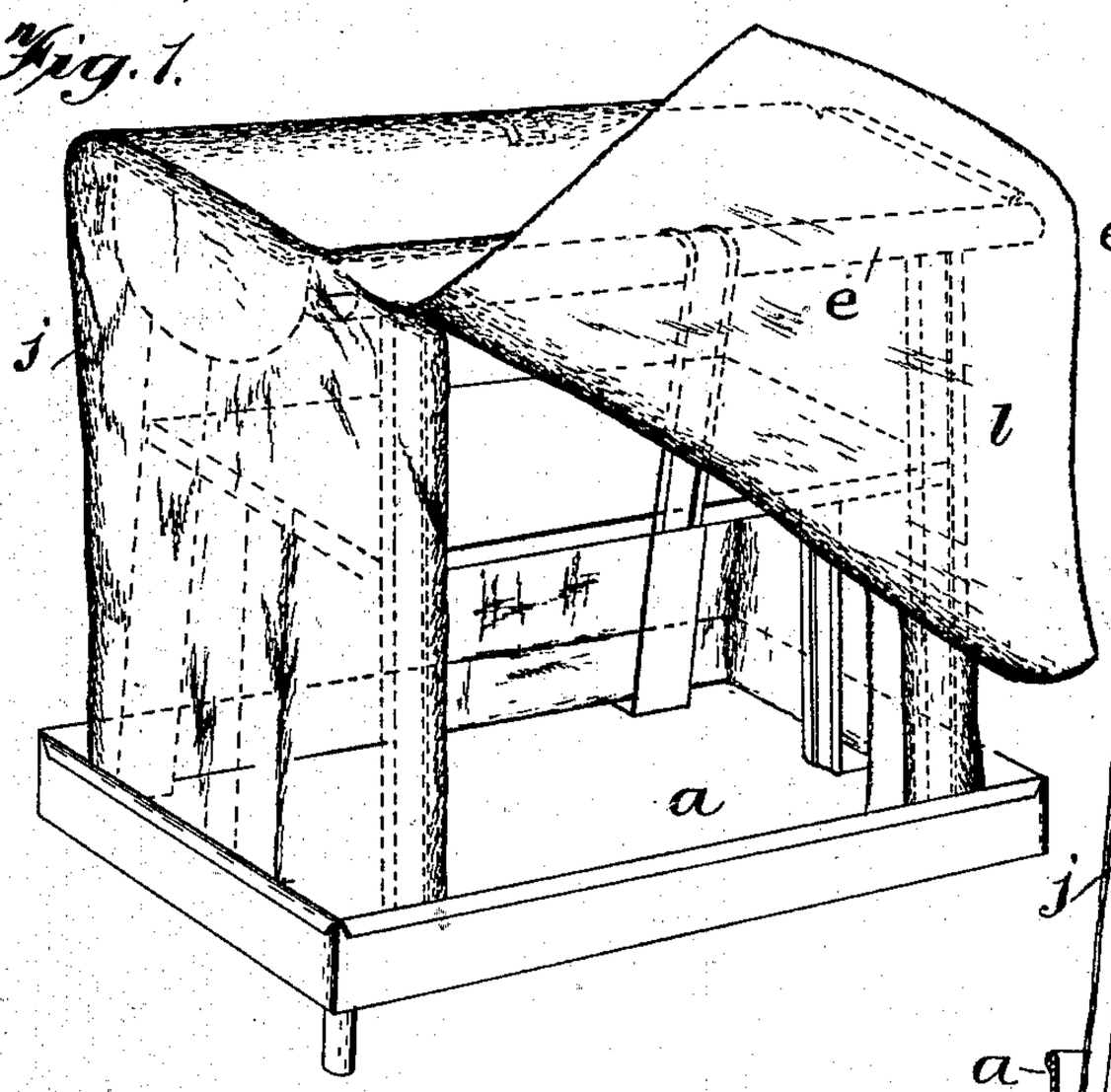


Fig. 2.

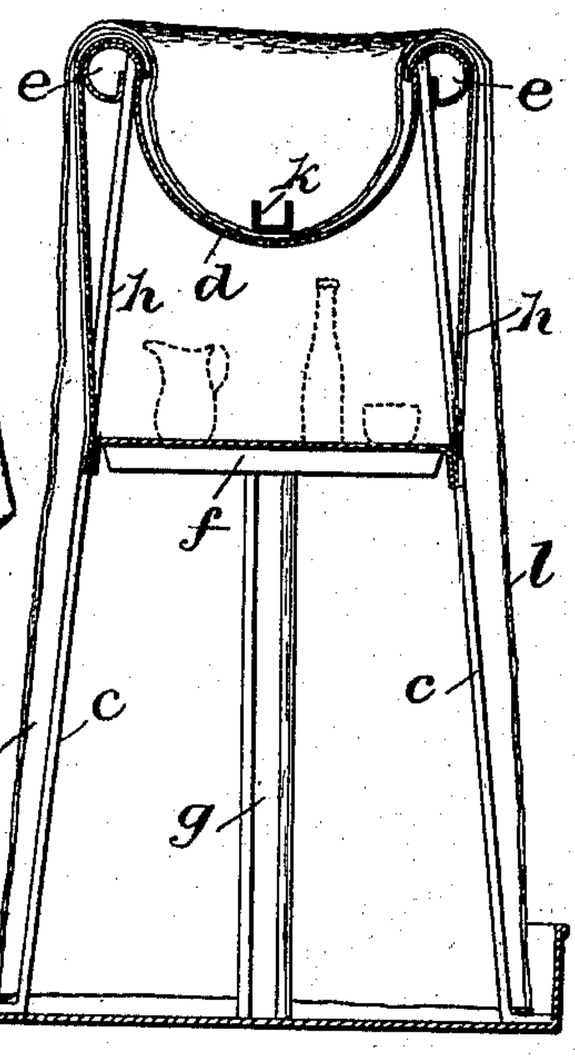


Fig. 3.

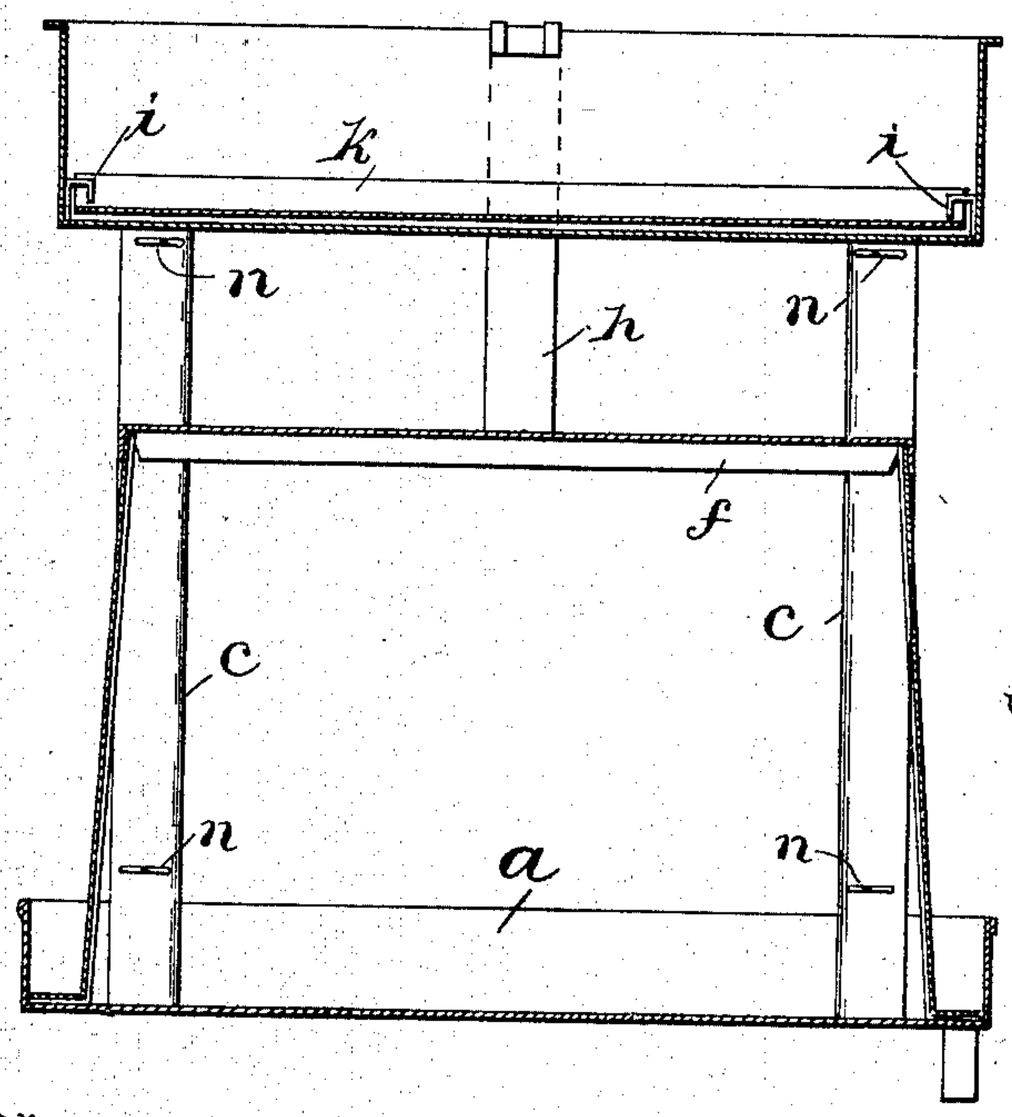


Fig. 4.

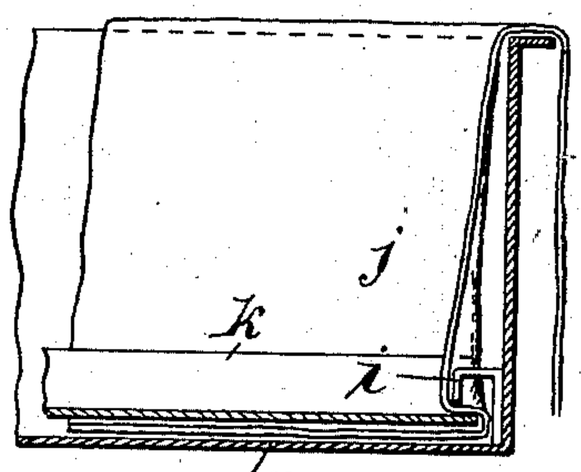
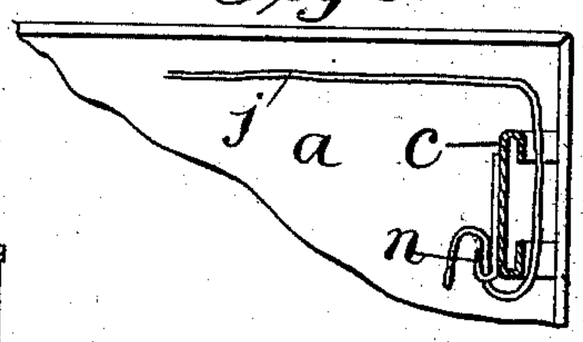


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM S. DANIEL AND WILLIAM O. SHACKELFORD, OF ABILENE, TEXAS.

MILK-COOLER.

SPECIFICATION forming part of Letters Patent No. 714,459, dated November 25, 1902.

Application filed August 13, 1902. Serial No. 119,558. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM S. DANIEL and WILLIAM O. SHACKELFORD, citizens of the United States, residing at Abilene, Taylor county, State of Texas, have invented certain new and useful Improvements in Milk-Coolers; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain improvements in milk-coolers, and more particularly to improvements in that type of milk-cooler wherein the temperature within the cooler is reduced by the evaporation of moisture from an inclosing canopy of fabric or cloth.

The object of the invention is to provide an exceedingly simple, strong, and durable milk-cooler of an improved construction formed throughout of sheet metal and combined with a peculiarly-arranged inclosing fabric canopy acting as a wick to draw water from a top trough into a bottom milk-vessel-receiving pan, which forms the main floor or base of the cooler.

The invention consists in certain novel features of construction and in combinations and arrangements of parts, as more fully and particularly described and pointed out hereinafter.

Referring to the accompanying drawings, Figure 1 is a perspective view of the cooler, showing the closing flap of the canopy elevated, dotted lines indicating parts hidden by the canopy. Fig. 2 is a vertical transverse section. Fig. 3 is a longitudinal vertical section. Figs. 4 and 5 are detail views.

In the drawings, *a* is a horizontally-disposed milk-vessel-receiving pan provided with suitable supporting-legs or other supporting means and having a flat bottom and vertical side walls and open at the top. This pan is provided with the discharge-tube normally closed and through which the water can be drawn from the pan to replenish the top trough when desired, as hereinafter described.

c represents four vertical standards or uprights arranged about at the four corners of the pan and extending upwardly therefrom and preferably arranged in pairs, the standard of each pair converging upwardly. Each standard is preferably composed of sheet metal suitably angled to stiffen the standards and having its lower end bent at an angle to rest on the top surface of the bottom of the pan, to which it is rigidly secured.

d is a horizontally-disposed trough arranged centrally and longitudinally above the pan and in length about equal to the length of the pan. This trough is provided with flat ends and a curved or concave bottom extended up to form the curved sides at their upper edges bent or rounded into approximately tubular form, thereby forming the longitudinal top projecting rolls or sides *e*. The standards extend up on opposite sides of the trough, usually beneath said projected sides or rolls, and are rigidly secured to the trough.

f is a horizontally-disposed shelf arranged between the trough and pan and usually composed of one or more sheet-metal plates having the depending edge flanges fitting the inner faces of and rigidly secured to said standards.

g represents vertical flat metal braces, at their upper ends rigidly secured to the end edge flanges of said shelf and at their lower ends rigidly secured to the floor or bottom of the pan.

h represents centrally-arranged braces formed of flat sheet metal, at their lower ends rigidly secured to the side vertical edges of the shelf and from thence extending upwardly at the exterior of the projecting sides or rolls of the trough and lapping over and rigidly secured thereto.

i represents rigid angular stops or catches, secured at the inner faces of the trough ends and projecting inwardly therefrom, with their ends turned downwardly.

The standards and braces located within and secured to the bottom of the pan have their vertical portions arranged inwardly a suitable distance from the vertical wall of the pan, so that the fabric or cloth canopy can inclose the framework extending up from the bottom of the pan and so the lower ends or edges of said canopy can hang or depend within the pan and rest on the bottom thereof.

The cloth or fabric canopy *j* is formed in one piece or of sections or pieces of cloth sewed or united together to, in effect, form

the canopy in one piece. This canopy is formed to completely cover the trough and inclose the vertical framework extending up from the bottom of the pan. The top portion of the canopy is formed to dip into the top trough, throughout the length and width thereof, so as to fit the inner faces of the ends of the trough and to conform to the rounded bottom of the trough.

k is an angled or U-shaped locking-bar arranged to rest on and hold the cloth down to the floor of the trough throughout the length thereof. This bar rests removably under the catches, preferably with the depending ends of the catches extending down into the channel of the bar to hold the bar in position. The sides of the canopy pass up over and hang from the wide side rolls of the trough and are thereby held away from the upper portion of the standard and the capillary action is not interfered with, as is the case where a canopy is stretched over a sharp edge.

The braces from the shelf to the exterior of the side rolls of the trough also hold the canopy from sagging inwardly and, furthermore, brace the said rolls and the trough and increase the strength and rigidity of the structure.

The front side of the canopy is formed with a flap *l*, hanging loosely and freely from the front side roll of the trough into the pan. This flap is free or unsecured at its vertical and lower edges, so that it can be raised and thereby expose the interior of the canopy, allowing free access to the shelf and to the interior of the pan.

The vertical edges of the canopy at the front side of the milk-cooler are lapped around the two front standards and are suitably secured, preferably, to the inner faces or edges thereof. We preferably provide the inner faces of said standards with inwardly-projecting rigid hooks or projections *n*, by which the said vertical edges of the canopy can be detachably caught and held. It will thus be noticed that the flap hangs freely from the front side roll of the trough, and that it is in width approximately equal to the length of the trough, and that when in its normal position it overlaps the front vertical portions of the canopy which lap around the front standards.

We attain peculiar advantages by combining the top trough with the bottom milk-vessel-receiving pan, which has a greater water-containing capacity than that of the trough.

In operation the trough is filled with water, and by capillary action the water constantly passes through the canopy into the bottom pan, so that the canopy is maintained constantly and thoroughly saturated, and by the evaporation therefrom the temperature within the pan and the canopy is lowered and also the temperature of the water within the pan is considerably lowered. The vessels containing the milk are placed within the pan and are kept cool by the cool water in the pan, as well as by the cooled air within the canopy. As the water is exhausted from the trough the cool water can be drawn from the pan and again placed in the trough.

We usually construct the trough of such a size as to hold sufficient water to supply the canopy for twelve hours. The pan, trough, and other parts of the device are preferably constructed of galvanized sheet metal, which will not rust or corrode and is not subject to deleterious action by the water and other substances within the cooler, and we thereby avoid the disadvantages attending the use of wood where brought into continuous contact with water and in close proximity with the milk.

The intermediate shelf can receive various articles which it is desired to keep at a cool temperature, although said shelf is primarily designed to brace and strengthen the structure by reason of the peculiar arrangement and construction employed.

We do not wish to limit ourselves to the employment of a single shelf.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. A milk-cooler consisting of the pan, the converging uprights at their lower ends rigidly secured in the pan, the elongated horizontal trough having the curved floor with its side edges terminating in the projecting rolls, the upper ends of the uprights rigidly secured to the trough, beneath said rolls, the intermediate shelf rigidly secured to the uprights, the braces secured to the sides of the shelf and lapping over and secured to said rolls of the trough, the inclosing fabric canopy passing over and held down within the trough and at its lower edges resting within the pan and means holding the canopy down in the trough.

2. The milk-cooler comprising the horizontal water and milk vessel receiving pan, rigid uprights secured to and extending up from said pan, the horizontal elongated trough above said pan and rigidly secured to said uprights, said trough formed with the outwardly and downwardly extended curved longitudinal side edges, the inclosing canopy completely covering and passing into and over said trough and held away from the sides thereof by said extended edges, the lower edges of the canopy depending loosely into said pan, said canopy formed with an opening flap hanging from one of said extended side edges, and a bar pressing the intermediate portion of the canopy down into said trough, as described.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM S. DANIEL.
WILLIAM O. SHACKELFORD.

Witnesses:
W. A. SCOTT,
T. A. MILNER.