The Packaging of Lard and Shortenings

Increasing Demand for More Attractive Containers Stimulates Study of Packaging Methods and Problems

By Alan Lee Porter

LARD and other solid fat shortening and cooking products have been used by inhabitants of the temperate climate zones throughout the history of mankind, but it is only within comparatively recent times that problems of distribution have stimulated the development of containers for such products. The earliest primitive man had no domestic animals and was of course entirely dependent upon the chase for what meat he procured. As he gradually acquired knowledge of fire and its value to him, he discovered the process of rendering or "trying out" the fatty portions of the animals he slew and so produced the first clear fats, free of animal tissues and of water. Such fats were undoubtedly the lard of wild boars and the tallow of bears, of deer or of other ruminants.

Among the people of such early periods the family and the nomadic tribe were the only units of population, so that the first containers for rendered fats were doubtless gourds, hollowed logs, or the dried globular tissues of the slain animals. Such fats were used by the nomadic tribes for basting their roasted meats and indeed as a direct item of their diet.

Discovery of Shortening

AS the human race progressed to the discovery of crop planting and harvests the life of mankind changed from one of wandering to one of settled abode, which fostered the development of grain crops and the discovery of metal recovery from ores. It was then inevitable that the value of fats would soon become apparent; as shortening in connection with breadstuffs, as an aid to frying in pans and as a lubricant for man's primitive mechanisms, such as sledge runners and hoisting beams. As various tribes and families developed needs and wants which they were unable to satisfy with their own produce, bartering with other groups, the first form of commerce, appeared, involving the need of containers for the products exchanged.

Decorated shortening pails in popular sizes. By American Can Co.

The wooden barrel, or keg, of various sizes, was one of the earliest packages devised by man for holding many different products and its use for fats and greases dates from the most remote periods of which we have records. Its first form was cylindrical, but this shape was soon almost entirely superseded by the bilged type, which retains all the advantages of the cylindrical, plus greatly added strength and ease of handling.

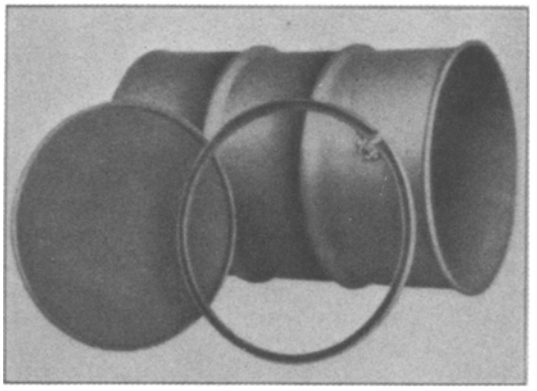
This package has remained for years in a predominant position for the shipment of lard and shortening, as well as for oils and many other liquids. The particular type used for lard and shortening is known as the tierce, with a capacity of between four hundred and five hundred pounds. It is generally built of number one clear white oak. Most shippers and buyers prefer the tierce unpainted, but with a coating of clear varnish on the exterior. The interior is generally given a lining coat of silicate of soda solution, which must be thoroughly dried before filling the package. It is also necessary to exercise care that the lard or shortening is not filled into the package at a temperature high enough to cause softening of the silicate lining.

Shippers of shortening use the wooden barrel in the tierce size described above and there also has been some demand for the keg and

A variety of present types of lard and shortening pails. By Continental Can Co.

half-barrel sizes, which are smaller replicas of the tierce, holding one hundred and two hundred pounds of product, respectively. In recent years the scarcity, particularly in the United States, of good oak suitable for the construction of wooden barrels has encouraged the development of metal packages as substitutes. Most such packages are used only for domestic shipments and are returned to the shipper for refilling, as their cost is too high for inclusion in the price of the lard or shortening and prohibitive ocean freights have restricted them to domestic use.

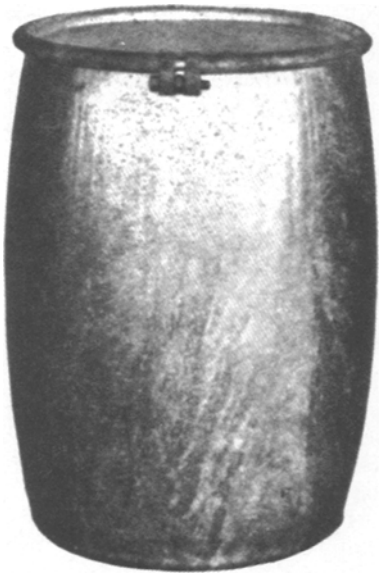
The first type of metal barrel to appear on the market was cylindrical in shape, of fairly heavy gauge metal and equipped with one or two bung-holes. To remove a solid fat from such a package it is necessary first to liquefy the contents with the aid of heat. This, of course, defeats the purposes of the baker and of most other users, who desire to take advantage of the peculiar consistence of lard and shortening in their work.



(Courtesy Republic Steel Package Co.)

New type open head one time shipper for bulk lard, shortenings, etc.

The next development in metal barrels consisted of the removable-head drum. This package is built in giant hydraulic presses, of heavy seamless steel, and is bilged in shape similiarly to the standard wooden barrel. The removable head is fastened in by one of two different methods, either a constricting hoop of steel secured by a threaded bolt or a series of lock nuts on the head, which nuts are secured under a ridge on the barrel by a quick turn. These packages are procurable in black steel, galvanized, or tin-coated. They are of



(Courtesy Pressed Steel Tank Co.)

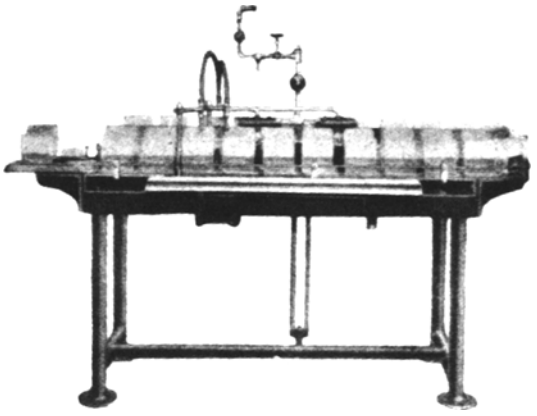
Standard removable head seamless steel barrel

course returned when empty to the shipper for refilling. This removable-head seamless barrel is a very popular package at the present time, chiefly because of the ease with which it is emptied and cleaned.

A recently introduced package which bids fair to enjoy great favor with shippers and consumers of lard and shortening is a light steel removable-head one-time shipper. This newly perfected drum fills a long-felt need, in that it is light and inexpensive, but shares the advantages of the heavy removable-head barrel.

Tubs and Large Pails

THE next class of packages used by the lard and shortening distributors comprises both wooden and metal containers in sizes of forty, fifty and sixty pounds capacity. These types of package are popular with retailers,



(Courtesy Mechanical Mfg. Co.)

Lard carton filling machine

who display them in their refrigerators and dispense the products in bulk to their customers. The wooden tubs are made of several kinds of wood, poplar, ash and oak being popular, with hoops of steel or of wood, the latter type being classified as butter tubs.

The tubs are often lined with vegetable parchment paper before filling, to prevent discoloration of the product by the wood or the absorption of any odor from it. Before application of the cover a circle of the vegetable parchment paper is laid over the lard or shortening in the tub. A large type of standard steel pail is becoming popular in these sizes, because of ease of handling and freedom from odors foreign to the contained product. Such pails are generally tin-coated for use in carrying lards and shortenings.

Retail Packages

WE are living in an age of packaged goods. By continuous and tireless advertising campaigns, manufacturers of all varieties of foodstuffs and other commodities have educated the housewife of today to purchase all her needs for the home in unbroken trademarked packages, so that she may know the grade and quality of her purchases. In the lard and shortening field this tendency has promoted the development of the one to twenty pound size metal pails and the one pound carton.

The metal pails are formed from light steel sheets which are tinned on both sides and generally japanned on the exterior of the can with the manufacturer's characteristic trademark design emblazoned on the front. The containers are often lacquered inside and out and are equipped with tight-fitting slip-covers. Such cans are filled in the one, two, three, four, five, ten and twenty pound sizes and in the fifty pound size for the hotel and restaurant trade. For further protection of the contents in summer or for tropical shipments, these pails are provided with tight-fitting crimped covers of tinned light sheet steel, which fit on top of the pail beneath the slip cover and which are known as summer covers.

In the earlier days of the tinned lard pail, it was always made of a shape which tapers toward the bottom, to facilitate nesting the pails for shipment to the lard manufacturer and this shape is still very popular. In recent years, however, many manufacturers have abandoned the tapering pail for a full cylindrical shape, because of the greater trademark display space of the latter, and many packages of most attractive appearances have been designed.

The demand for a small size retail package of pure lard at an attractive price has resulted in the appearance of the one pound carton, similar in size and shape to the standard pound print of butter. These cartons are made of paraffined cardboard, and printed with the

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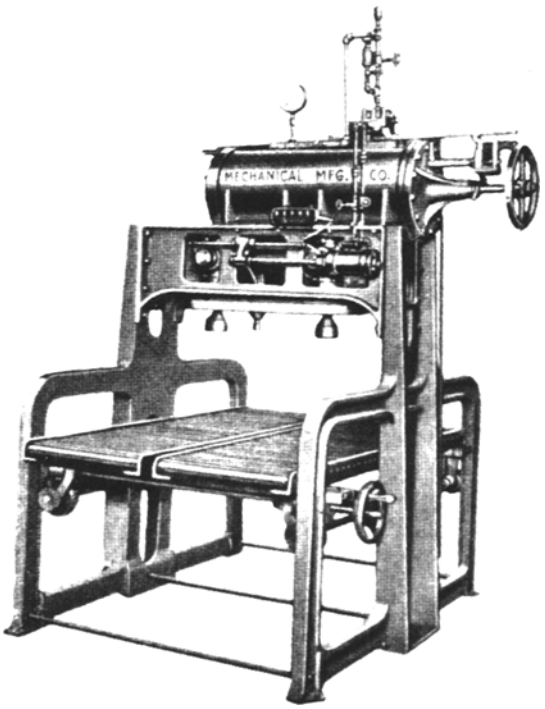


(Courtesy Mechanical Mfg. Co.)

Machine for filling lard in tubs or export boxes

Packaging of Lards

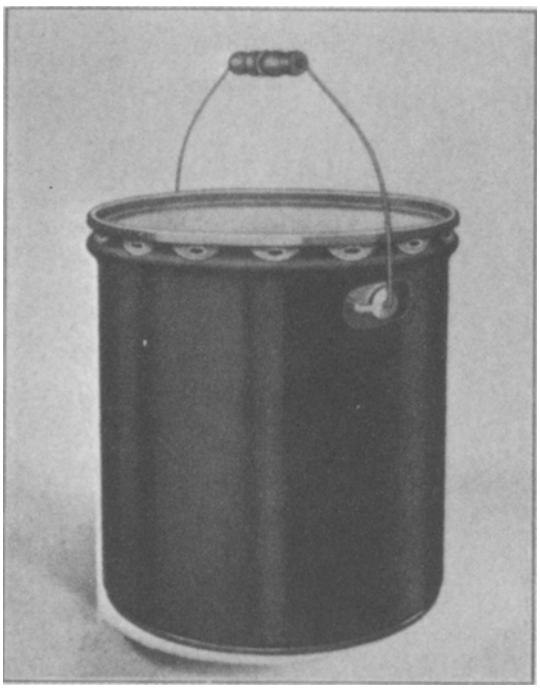
(*From Page 21*)

manufacturer's trademark. The cartons are lined with vegetable parchment paper before being filled.

For export shipment, lard and shortening are packed in all the varieties of packages used for domestic consumption and in addition pure lard is packed in parchment-lined rectangular boxes of wood, each holding forty-four pounds.

Filling Machinery and Methods

THE handling of lard and shortening in the packing departments of manufacturers is a comparatively simple process, involving only rapid cooling of the product to obtain the proper consistency, and pumping of the semi-fluid lard or shortening into the package. Practically all lard and shortening is cooled on machines known as lard rolls, which consist



(Courtesy Ohio Pail Co.)
Standard steel pail increasingly used for lard, shortening, cooking oils, etc.

of horizontal revolving steel drums, cooled by brine or ammonia. The material to be cooled is picked up in a thin film by the surface of the drum, cooled as the drum revolves, and scraped off by adjacent knives after a nearly complete revolution. It is then kneaded and worked in a picker trough or worm conveyor, or both, and pumped by a heavy duty rotary pump direct to the package. There have been numerous machines devised for the automatic filling and weighing of the various type packages used.

Several points are of importance in connection with cooling and packaging the products, in order to obtain uniform quality and consistence. The temperatures of the lard or shortening going to the cooling roll and leaving it must be uniform at all times, as must be the amount of working and pumping after cooling. The moisture content of the atmosphere in the cooling and filling room is most important as the products will absorb moisture rapidly in the chilling operation. There have been many instances where excessive moisture in lard or shortening has caused rusting of the metal containers, even through a tin coating, with consequent discoloration of the product.

Eventually all manufacturers of these products will find it to their advantage to control the temperature and humidity of the air in their cooling and filling rooms. Some years ago the writer was called into consultation for the correction of a compound shortening which developed "vaseliny" spots and streaks in the packages from a week to ten days after filling. Formula, temperatures, mixing, cooling and filling methods were checked without revealing the source of the error, until, almost by accident, a heavy charge of static electricity was discovered in the chilled shortening as it flowed into the packages. The presence of the static charge was due in this case to the particular location of the plant. Simple grounding of the filling pipes corrected the condition and the streaks failed to appear in the product thereafter.

Shortening Exports in January

Exports of cotton oil shortening by the United States in January of this year amounted to 444,022 pounds, at a valuation of $62,668, while exports of compounds containing animal fat amounted to 321,236 pounds, valued at $40,848. Nearly 25 per cent of the cotton oil shortening went to Mexico. Cuba took 83,000 pounds, and the other West India Islands about 75,000 pounds. Chile was the largest importer of our compound, taking 50,000 pounds. Shipments not included above were 132,354 pounds of compound to Hawaii, which also bought 114,683 pounds of cotton oil shortening. Porto Rico got 56,376 pounds of compound, 25,585 pounds of cotton oil shortening and 310,845 pounds of oleomargarine of both animal and vegetable oil content.