

UNITED STATES PATENT OFFICE

2,333,638

PROCESS OF PACKAGING DEHYDRATED
MOLASSES

Lyman Chalkley, Point Pleasant, N. J., assignor to
Government of the United States, as represent-
ed by the Executive Director of the Office of
Economic Warfare

No Drawing. Application May 4, 1943,
Serial No. 485,615

3 Claims. (Cl. 99—171)

(Granted under the act of March 3, 1883, as
amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manu-
factured and used by or for the Government of
the United States for governmental purposes
without the payment to me of any royalty there-
on in accordance with the provisions of the act
of April 30, 1928 (Ch. 460, 45 Stat. L. 467).

My invention relates to the packaging of hy-
droscopic materials for shipment and storage, and
particularly to the packaging of sugar cane mo-
lasses in solid form and to an article of manu-
facture comprising solidified molasses molded in-
side of a moisture-proof bag.

In tropical countries and islands which pro-
duce crude cane sugar for export, large quan-
tities of sugar cane molasses are produced which
heretofore have been transported in ships pro-
vided with tanks for molasses syrup to countries
where it has been used in the manufacture of
cattle feed, alcohol, and so forth. Due to the loss
of tankers in the war and war needs for tankers
for the carrying of gasoline, lubricating oils, and
so forth, such molasses carrying ships are gen-
erally not now available. Drums or barrels for
carrying molasses are probably not available in
sufficient quantities and also involve the return
shipment of empty drums, with a corresponding
waste of limited shipping space on such freight
ships as may be obtained for this service, besides
being inefficient and uncertain, because molasses
in a barrel may work, creating excessive gas pres-
sure within the container.

Attempts have been made to solidify molasses
and to ship and store it as a solid. Reagents have
been proposed to cause molasses to jell. Others
have proposed to spray-dry or drum-dry it for
packing in barrels or the like. Molasses has also
been dried in a cake form, broken up and shipped
in chunks.

The use of jelling agents not only increases the
cost of the product, but adds to it a foreign
material which may injuriously affect the suit-
ability for the end use to which it is to be put.
This molasses jell, as well as the chunks of dried
molasses, are also unsuited for bulk shipment be-
cause each form is extremely hygroscopic, making
the storage and ocean shipment of molasses in
these forms so difficult as to have prevented the
general shipment of molasses in a solid form.
The finely divided state of the spray-dried and
drum-dried molasses presents a very large surface
and because in this form the molasses is also
hygroscopic, it must be packed in a moisture-
proof container, and it has been difficult to find a
container for these products which was suffi-

ciently moisture proof to prevent the absorption
of moisture, at a cost which is not excessive.

Molasses dried in solid blocks and wrapped in
water-proof paper or other water-proof material
may tear the wrapping due to the irregular shapes
of the blocks, during handling, transporting and
storing, thus admitting moist air to soften and
even liquefy the solid cakes.

My invention overcomes these difficulties and
makes possible the packaging of molasses in a
dried form at a moderate cost, which can be
handled and shipped efficiently, which may also
be stored a reasonable time at a dockside, or at
the point of receipt without material deteriora-
tion.

My method comprises the following steps:

Each of one or more molds or forms having a
chamber of a suitable shape and size of a cake
of solid molasses, preferably having no sharp cor-
ners, is lined with a strong moisture-proof bag.

Molasses is then dehydrated, preferably by
heating at a temperature not over 300° F., until
a sample solidifies on cooling below 150° F.

The molten molasses is then poured into the
open bags and allowed to cool and solidify.

The moisture-proof bags are then closed and
sealed in any suitable way to exclude moisture,
as with hot paraffin or like material.

When removed from the molds the solidified
blocks will be of the size or sizes and weights best
adapted for handling, transporting and storing.

The molasses and bag form an integral unit,
thus the paper of the bag adheres to the block
and is supported and strengthened by it. The
block has no sharp corners or edges or other ir-
regularities to tear or rip a paper covering while
being handled or stored, or to press upon the
paper of other packages and tear between blocks
or at the edges of blocks which might be con-
tained therein.

A convenient moisture-proof bag comprises
a double wall kraft paper bag having a water-
proofing coating of asphalt, paraffine or other
suitable material between the two layers of paper
on one or both layers. Another moisture-proof
bag which may be used has bound between the
two layers of kraft paper a third layer of water-
proofing material, such as cellulose acetate, metal
foil, or paper treated with a drying oil. A bag
having a single wall of reinforced moisture-
proof Cellophane may also be used.

After a bag has been filled, the molasses is
allowed to solidify, then the open top is closed by
stitching or by clamps, clips, binding wire or
otherwise, the closure is sealed with a paraffine,

resinous, or other water-proofing composition by any of the several known methods of effecting such water-proof closures. The forms are removed from the finished product.

The mold used may be made of wood or metal, of any convenient geometrical form for handling and stacking. The mold may have a cross-section which is, for example, square, rectangular, hexagonal, octagonal or circular, and may be provided with means for accelerating cooling.

My packaged molasses can be easily liquefied for use by crushing or cutting open with an ax, and immersing it in water in a tank, when, because of its hygroscopicity, the molasses will rapidly dissolve and may be drained off of the bag.

In the operation of this process, I have found it satisfactory to heat the original blackstrap or invert molasses in open pans or kettles, the walls of which are raised to temperatures of from 250° F. to 275° F. The molasses is preferably stirred during the heating and a draft of air may be played over the surface to accelerate evaporation, or the molasses may be lifted into the air to increase the evaporating surface by means of discs, rollers, ladles or the like.

The process of producing my novel product may be varied if desired and is not to be

construed as a limitation on any claim for my novel process and my new article of commerce.

What I claim is:

1. The process of packaging dehydrated molasses which comprises filling a moisture-proof bag within a suitable mold with the molasses while hot, allowing the molasses to solidify while retained in the mold, and closing said bag with a moisture-proof seal.
2. The process of packaging dehydrated molasses which comprises lining a suitable mold with a bag having an inner lining adapted to adhere to hardened molasses, an outer protective layer and a layer of moisture-proof material intermediate said layers, filling said bag with molasses while softened by heating above normal atmospheric temperatures, allowing the molasses to solidify, and closing said bag with a moisture-proof seal.
3. The process of packaging molasses which comprises dehydrating liquid molasses with the aid of heat, lining a mold with a strain-resisting moisture-proof bag, filling said bag with said heat softened molasses, allowing the molasses to solidify and closing said bag with a moisture-proof seal.

LYMAN CHALKLEY.