

June 17, 1952

R. E. HEYL ET AL

2,601,018

BLENDING OF VISCOUS LIQUIDS

Filed May 3, 1950

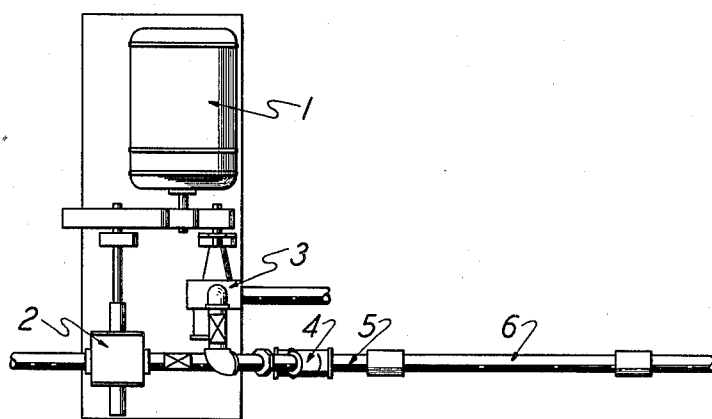


FIG. 1

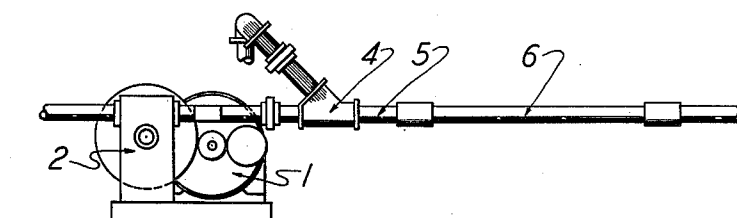


FIG. 2

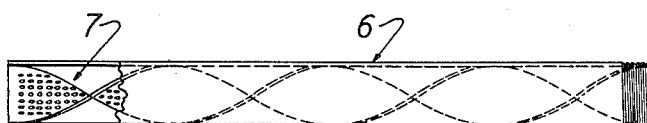


FIG. 3

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2,601,018

BLENDING OF VISCOUS LIQUIDS

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facturing Company, Decatur, Ill., a corporation
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Application May 3, 1950, Serial No. 159,832

2 Claims. (Cl. 259-4)

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This invention relates to the blending of vis-
cous liquids and particularly to the continuous
blending of sugar syrup with corn syrup to pro-
duce a mixture of uniform composition.

A concentrated solution of sucrose in water
has been used for years in the canning of fruit
products. A recent development in this indus-
try has been the introduction of corn syrup
as one component of the liquid used by the pro-
cessors. However, considerable difficulty has de-
veloped in satisfactorily mixing the sucrose solu-
tion (often referred to as liquid sugar) with the
corn syrup, so much so that this difficulty in
blending has actually retarded the introduction
of corn syrup into the fruit canning industry.

It is accordingly the principal object of this
invention to provide a method and apparatus
for continuously, efficiently and thoroughly
blending liquid sugar and corn syrup.

Other objects will be apparent from the follow-
ing detailed description of a preferred embod-
iment of the invention, references being made
to the annexed drawings wherein:

Figure 1 is a top plan view of the blending
device.

Figure 2 is a vertical end view.

Figure 3 is a detailed view, partly broken away,
of the blending pipe containing a perforated
spiral member.

Referring now more specifically to the draw-
ings, the apparatus comprises a conventional
motor 1, provided with gears for driving each
of two pumps. One of these pumps is a con-
stant volume pump 2, which pumps the corn
syrup to the blending device at a constant rate.
The other pump 3 is of the variable volume type,
for pumping the liquid sugar, and is provided
with means for suitably controlling the rate at
which liquid sugar is pumped to the blending
tube 6. Obviously, two variable volume pumps
could be used, but ordinarily there will be no
advantage in this duplication. The pumps dis-
charge by means of a Y-fitting 4 into a common
pipe 5, to which is attached the blending tube 6.

This blending tube 6 contains a strip of per-
forated metal twisted into the form of a spiral
7, the diameter of which is equal to the internal
diameter of the pipe. It is held in place in the
pipe by tack welding at either end. The spiral
is perforated over its entire area with holes of
 $\frac{1}{8}$ " diameter spaced $\frac{1}{4}$ " apart on the center
lines. It has been found that this arrangement
gives the best blending of the viscous liquids.

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If the syrup and liquid sugar are relatively
cold, their viscosity will be proportionately
higher and the difficulty involved in thoroughly
mixing them will be correspondingly greater. It
was found that best results are obtained by
warming these liquids somewhat, a temperature
of about 100° F. sufficing.

It will be obvious that the device may be used
for the blending of other viscous liquids.

Having described the invention, what is
claimed as new is:

1. In an apparatus for the continuous blend-
ing of two viscous liquids wherein said liquids
are pumped into a common discharge line by
means of a constant volume pump and a variable
volume pump respectively, the improvement
comprising: a blending tube connected with said
discharge line and bearing a single, perforated,
sheet metal spiral member substantially through-
out its length, the perforated surface of said
spiral member extending from wall to wall of
said blending tube.

2. In an apparatus for the continuous blending
of corn syrup and liquid sugar wherein these li-
quids are pumped into a common discharge line by
means of a constant volume pump and a variable
volume pump respectively, the improvement
comprising: a blending tube connected with
said discharge line and bearing a single, per-
forated, sheet metal spiral member substantially
throughout its length, the perforated surface
of said spiral member extending from wall to
wall of said blending tube.

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file of this patent:

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