UNITED STATES PATENT OFFICE.

WALLACE APPLETON BEATTY, OF NEW YORK, N. Y.

PROCESS FOR THE MANUFACTURE OF CATSUP.

1,402,136. Specification of Letters Patent. Patented Jan. 3, 1922.

No Drawing. Application filed January 18, 1919. Serial No. 271,903.

To all whom it may concern:

Be it known that I, WALLACE APPLETON BEATTY, a citizen of the United States, and a resident of New York city, borough of Manhattan, in the county and State of New York, have invented certain new and useful Improvements in Processes for the Manufacture of Catsup, of which the following is a specification.

My invention relates to new and useful improvements in processes for the manufacture of catsup, and I will describe the same, by way of example, as applied to the manufacture of tomato catsup. The manufacture of tomato catsup has become a large commercial industry, but so far as I am aware, the generally employed process of manufacture has been objectionable because of the difficulty and almost impossibility of controlling the ultimate composition of the product, and of preventing waste of the various ingredients employed in producing the product, as well as uncertainty in uniformity of the product, due to the varying densities of different batches of the finished product.

So fas as I am aware, there has been one process generally used, which has been first to separate the tomato pulp to be used in the catsup from the skin and seeds of the tomato by means of a centrifugal machine, and then run this pulp into a kettle so many gallons per batch, whereupon, sugar, vinegar, spices, flavoring and catsup producing materials other than said pulp are admixed with the pulp, and the admixture cooked. The number of gallons of pulp used is determined by gauges on the sides of the kettle. This method has the following inherent objections:

First. The volume of different batches of the pulp varies greatly in actual tomato catsup, owing to the fact that a large amount of air is retained in the mass, and varies in amount in different batches, which air greatly increases the volume of the pulp, so that any method of using the pulp depending on volume measurements must necessarily be incorrect.

Second. The tomato solids of the pulp separated by the contrifugal machine vary very much with the tomatoes, and any process depending merely upon the volume of pulp used will introduce varying quantities of tomato solids into the finished catsup product.

According to the prior process, after the pulp has been separated by a centrifugal machine, it is run into a steam jacketed kettle, the pulp being in the same condition as when it leaves said machine the steam is turned on, and the various catsup producing ingredients added to the pulp, and the mixture cooked, which cooking must be attended with great care, owing to the amount of air held in suspension in the mass in order to prevent the material foaming over and causing loss during the initial boiling. Usually 250 gallon kettles are used, and the evaporation or cooking is carried on with ninety pounds of steam approximately in the steam jacket. The kettles are usually filled to half of their capacity.

It is necessary in order to produce a uniform product according to the prior process, to stop the evaporation at a certain definite point, depending upon the density it is desired to obtain which will control the amount of total solids in the final product; but this is impossible because of variations of the tomato solid content of the raw pulp, because of inability to determine density during the cooking process, due to the rapidity of evaporation and consequent rapid change of the density. If, for example, our standard of total solids desired in the finished catsup is 25%, and through lack of proper control there is produced a product containing 30%, there is a loss of approximately 10% in production, which the manufacturer has to stand. It will be understood that the total amount of solids content of the product is readily ascertained by analysis.

Furthermore, this process of cooking is wasteful and uncertain, because of the fact that the spices and other flavoring ingredients added to the pulp have been used necessarily in quantities in excess so as to compensate for losses by evaporation, and give the desired flavor in the final product. This is due to the fact that a portion of the flavoring is lost during the cooking process as carried out at the present time. We thus can readily understand how it is impossible to have a scientific control of the method of manufacturing catsup, if the usually used processes as described above are employed.

The object of my invention is to provide a process which can be carried out with definite proportions of the ingredients, and

be under accurate control from start to finish.

In carrying out my process according to the preferred procedure, the tomato pulp freed from the seeds and skins by centrifugal separator or other suitable means, is concentrated by evaporating in an evaporating apparatus, either open to the atmosphere, or in a vacuum, until the pulp has a determined density. The density produced by evaporation is preferably regulated depending upon the quantity of tomato solids it is desired to have present in the finished pulp, and consequently in the finished catsup. The evaporation may be performed by any apparatus which will serve to drive off the water and liquid from the pulp and reduce the latter to the desired density without injuring its quality, and I do not limit myself to any particular apparatus for this purpose.

Preferably, I produce a pulp by this evaporation step of such a gravity that no further evaporation will be necessary in order to make a pulp of the desired density and consistency, and having the desired amount of tomato solids necessary to produce a catsup with a desired amount of tomato solids in a definite volume without further evaporation. A pulp of greater density, than the desired density may be used in this process, since by determining the amount of total solids in the pulp, it will be possible to make a pulp of the desired density by reducing the same by the addition of water. This pulp made as above described, is then placed in a closed cooking vessel, preferably in a definite amount by weight. The amount of pulp used is dependent upon the amount of total tomato solids that have been determined as being desirable in the finished catsup product. I have found that it is desirable to have a pulp more concentrated, preferably, than the usual standard pulp which is usually of specific gravity 1.035, for example, I may use a pulp concentrated by this evaporation step to a density of 1.05 specific gravity, if desired. The other amounts of material used by those skilled in the art of making catsup are added to the pulp, the quantities being all so adjusted that the different amounts added to the pulp after cooking in the closed vessel without evaporation, will be present in the finished product in the desired amounts to produce the flavor and consistency decided upon. The catsup producing materials added to the pulp may be vinegar, sugar, spices, vegetable and other flavoring and seasoning ingredients. The cooking of the mixture is carried out in such a way that the temperature of the material in the closed kettle, as determined by a recording thermometer placed therein, will be preferably approximately 212 degrees Fahrenheit, although it has been found that a temperature of 190 to 200 degrees Fahrenheit is advantageous. It do not limit myself to any particular temperature other than that necessary to produce a satisfactory product.

The closed kettle should preferably be provided with a stirrer having arms shaped to the side walls so that the material will be continually removed from the side walls to prevent contact cooking. The vessel is preferably heated by steam. By cooking the materials in a closed vessel none of the ingredients are lost by evaporation or otherwise, and I am therefore able to treat a mixture having a definite formula with the assurance that the finished product will have a definite condition as to consistency and as to flavor, which is of great advantage over the old method wherein a large amount of flavoring and other ingredients was lost by evaporation. My process is of such a nature that a definite density will be necessarily produced in the final product, because owing to the process of manufacture no evaporation takes place during the cooking step, and the process is not dependent upon the skill of the operator to stop the evaporation at a desired point, as in the processes previously used. I am thus able to have an absolute control over the production from the time the materials enter the kettle until they leave. The time necessary to complete the process is dependent upon the temperature used, and also upon the operator obtaining the desired flavor, which is easily determined by anyone skilled in the art.

What I claim and desire to secure by Letters Patent of the United States is:—

1. A process of producing tomato catsup which consists in first reducing tomato pulp to a definte density and of a total solids content desired in the finished catsup, and then cooking the same with added catsup producing material while maintaining the density to which the tomato pulp is first reduced.

2. A process of producing tomato catsup which consists in first producing tomato pulp of a definite density and of a total tomato solid content desirable in the finished catsup, and then cooking the same with added catsup producing material under conditions precluding losses by evaporation substantially reducing the density to which the pulp is first reduced.

3. A process of producing tomato catsup which consists in using a definite amount of tomato pulp of a total tomato solid content desirable in the finished catsup, and then cooking the same with a definite amount of added catsup producing material under conditions precluding loss of the ingredients by evaporation, and without substantial reduction of the density of said pulp in order to produce a tomato catsup having a definite solid content.

4. A process for the manufacture of catsup which consists in concentrating tomato pulp free from skin and seeds by evaporation until said pulp has the density desired in the finished catsup, and contains a definite amount of tomato solids, mixing flavoring and seasoning with the concentrated pulp, and cooking the mixture under conditions preventing loss by evaporation whereby a catsup is produced of approximately the same density and solids content as the previously prepared tomato pulp.

5. A process of producing tomato catsup which consists in evaporating tomato pulp freed from skin and seeds to produce a pulp having a total tomato solids content desirable in the finished catsup, and then cooking said pulp with a definite amount of added catsup-producing material under conditions precluding loss of the ingredients by evaporation and without substantial reduction of the density of said pulp, thereby producing a catsup having a definite tomato solids content corresponding to the tomato solids content of said pulp.

6. A process of producing tomato catsup which consists in freeing tomato pulp from skin and seeds, concentrating the pulp by evaporation to a predetermined density regulated by the quantity of solids desired in the finished catsup, placing a definite amount of such pulp in a closed vessel, mixing catsup-producing materials with said pulp, and cooking the mixture under conditions precluding further substantial reduction of the density of the pulp.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WALLACE APPLETON BEATTY.

Witnesses:
ADELE S. EBERHARDT,
C. G. HEYLMUN.

Corrections in Letters Patent No. 1,402,136.

It is hereby certified that in Letters Patent No. 1,402,136, granted January 3, 1922, upon the application of Wallace Appleton Beatty, of New York, N. Y., for an improvement in "Processes for the Manufacture of Catsup," errors appear in the printed specification requiring correction as follows: Page 1, line 43, for the word "catsup" read *content;* page 2, line 67, for the word "It" read *I;* and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 31st day of January, A. D., 1922.

[SEAL.]

WM. A. KINNAN,

Acting Commissioner of Patents.