June 25, 1940. C. T. HIM 2,205,834

PROCESS OF MANUFACTURING VERMICELLI

Filed May 24, 1939

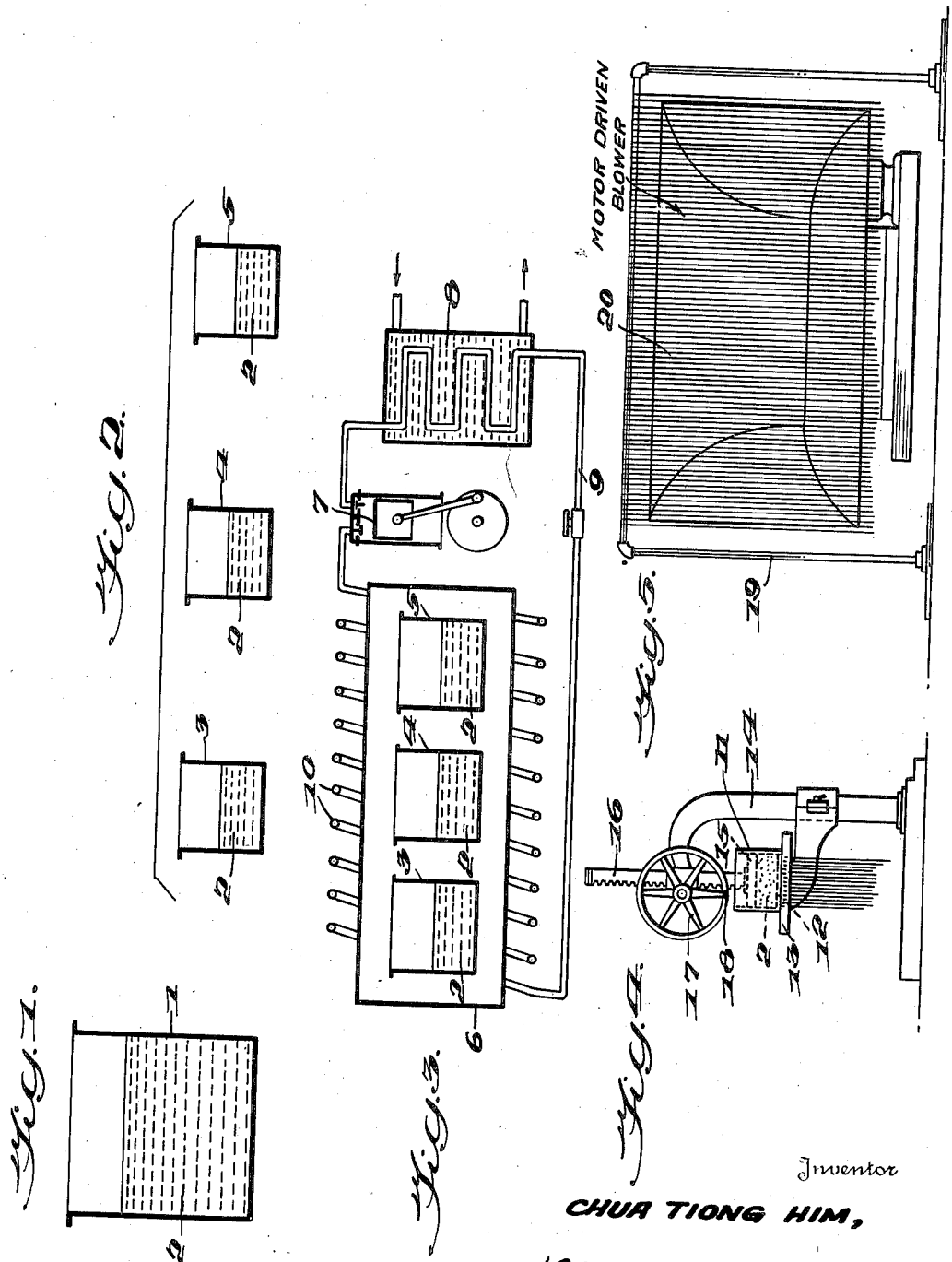


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Inventor

CHUA TIONG HIM,

By Mason & Mason

Attorneys

Patented June 25, 1940 2,205,834

UNITED STATES PATENT OFFICE

2,205,834

PROCESS OF MANUFACTURING VERMICELLI

Chua Tiong Him, Manila, P. I.

Application May 24, 1939, Serial No. 275,471

2 Claims. (Cl. 99—85)

This invention relates to an improved apparatus and process for the manufacture of vermicelli, or "Tanjon."

It has been impossible heretofore to manufacture vermicelli in tropical, or semi-tropical, countries, such as the Philippines, Dutch East Indies, and others, except from extracted mongo starch. The manufacture of vermicelli and kindred products from extracted mongo starch has resulted in the production of vermicelli at a higher cost in tropical countries than the same or a similar article could be produced in more temperate countries. By the present process vermicelli or "Tanjon" may be made from all kinds of extracted starch, instead of using only extracted mongo starch as in processes now practiced in tropical and semi-tropical countires. By the present process vermicelli may be manufactered in larger quantities and in a shorter time than the processes now in use, thus making possible the production of the product on a larger scale and at considerably lower cost.

It is therefore an object of this invention to produce an improved process for making vermicelli from all kinds of extracted starch under climatic conditions found in tropical or semi-tropical countries.

Another object of the invention is to provide an improved apparatus for the manufacture of vermicelli in countries where high temperatures are prevalent. Other objects will appear hereinafter throughout the specification.

In the drawing:

Figure 1 discloses a container which is of such size to accommodate the vermicelli mixture;

Figure 2 discloses a series of containers of suitable size to be accommodated in the freezing chamber;

Figure 3 illustrates diagrammatically the freezing compartment and refrigerating mechanism;

Figure 4 discloses a machine for pressing the mass of solidified starch and forming the same into a plurality of strings, and

Figure 5 illustrates a ventilator and drier for drying the vermicelli.

In the figures the numeral 1 designates a large zinc container for the doughy mixture of starch, such mixture being designated by the numeral 2. After a proper consistency of the mixture has been attained, it is poured into the receptacles designated 3, 4 and 5, which may be of any suitable number. These smaller receptacles which are preferably of zinc, are then placed within the freezing or solidifying chamber 6, illustrated diagrammatically in Figure 2. The refrigerating equipment may be of any approved type, and may include the compressor 7, condenser 8, piping system 9, and refrigerating coils 10.

The doughy mass is subjected to a rapid cooling step whilst in the refrigerating or ice-making chamber, which causes the mass to assume the appearance of a slightly wet, semi-soft, substantially non-viscous crystalline mass.

The resulting compound which has been rapidly cooled or frozen and in which condensation and crystallization of parts of the starchy solution has occurred, is now ready for the pressing operation. This is accomplished by pressing the starchy crystallized mass in a container 11 having a plurality of perforations 12 in its bottom portion. This receptacle is placed on the rectangular support 13 of the pressing machine 14, provided with the usual piston 15 and rack 16. The hand wheel 17 having the handle 18, rotates the usual pinion (not shown), which engages and operates the rack 16, or the piston may be operated by power, such as by an electric motor (not shown). The support 13 is provided with an aperture (not shown), and supports the sides of the receptacle 11 so that when pressure is exerted by the piston upon the partially solidified mass, strings are formed as the material is extruded through the several apertures in the bottom of the receptacle.

Following the pressing operation the strings of slightly wet vermicelli material are hung on a rack 19, where they are dried until the resulting material becomes hardened and somewhat flexible. In order to facilitate the quick drying of the article, the blower 20 is provided, which causes a stream of air to continuously pass through the strings supported on the rack. The dried vermicelli or "Tanjon," after removal from the rack, may be boiled in soup or used in any of the many ways in which vermicelli is used. As distinguished from other vermicelli, the completed article is a hard, transparent article having a crystalline appearance.

The preparation of the doughy mass, prior to the refrigeration step, may be as follows:

To one part of pure extracted white starch ($C_6H_{10}O_5$) add two parts of cold distilled water. The water and starch are slowly but thoroughly mixed in the container 1 in such manner as to prevent the starch from settling and to cause the starch to be thoroughly soaked. While continuing to stir the mixture, additional water of substantially boiling temperature is added in suf-

ficient quantity to cause the starch to dissolve and to form the mixture into a colloidal solution. This solution which has been mixed into the container 1 is now poured into the smaller containers 2, 3 and 4, which are subsequently placed in the freezing chamber 6, as stated above. After the freezing step is completed the frozen or solidified mass is subjected to the pressing and drying steps, as above stated. Because it has only been possible heretofore to manufacture vermicelli from extracted mongo starch, and because I have been able to manufacture a superior vermicelli from any other kind of starch under conditions experienced in tropical countries, I consider that the improvements above described have not only greatly cheapened the production of vermicelli, but actually improved the taste and other qualities of the product.

The use of the term vermicelli in the specification and claims, is intended to include "Tanjon".

I desire to be limited in the practice of my invention only to the extent set out in the appended claims.

What I claim is:

1. The process of making vermicelli which includes the mixing of one part of extracted white starch and two parts of distilled water in a container, stirring the mixture slowly to prevent the starch from setting until it is thoroughly soaked, adding water at substantially boiling temperature in an amount sufficient to cause the starch to dissolve and form a colloidal solution, subjecting the mass to a freezing temperature until the same has become at least partially solidified and is characterized by the formation of crystals, subjecting the mass to pressure to form a plurality of strings, and cooling and drying the formed vermicelli.

2. The process of making vermicelli comprising dissolving starch in hot water to form a doughy mass, subjecting the mass to refrigeration so as to cause the mass to crystallize and solidify, subjecting the mass to pressure whereby strings of vermicelli dough are formed, and subsequently drying the product to form vermicelli.

CHUA TIONG HIM.