

WORTH LOTS OF MONEY.

JOKICHI TAKAMINE'S DISCOVERY OF A PROCESS OF FERMENTATION.

Capital Stock of the Company Increased from \$1,000,000 to \$10,000,000—The Process Discovered While the Jap Was Studying Chemistry — How It Differs from All Previous Methods—Being Introduced in This Country.

At a meeting of the stockholders of the Takamine Ferment company held yesterday in the company's offices, Room 907 Chamber of Commerce Building, the capital stock of the company was increased from \$1,000,000 to \$10,000,000. Among the directors present were:

George T. Burrows, E. V. Hitch, John Waltz, E. Moore, Jokichi Takamine, George D. Hart, C. B. Matthews, William George Gardner, Dr. M. A. Spencer, and T. B. McFarlan of Cincinnati.

The Distillers' and Cattle-Feeders' company of Peoria has closed up a contract with the Takamine company and will use the patent process in all its distilleries.

The new process of fermentation has been invented by Jokichi Takamine of Japan. Mr. Takamine is the eldest son of a distinguished physician of Tokio. He graduated with distinction at the University of Edinburg, Scotland, and afterwards continued his post-graduate course in chemistry applied to the practical arts under Prof. Mills, F. R. S., of London, one of the foremost chemists of the age. It was while pursuing these studies that Mr. Takamine discovered the active principal contained in this new ferment. In connection with Prof. Mills he conducted a series of experiments in the laboratory, extending over several years, and upon his return to Japan three years ago made practical tests on a large scale, which confirmed the results of his laboratory work and established the commercial value of his discovery.

In 1884 Mr. Takamine was sent by his Government as Commissioner to the World's Cotton Exposition, held in New Orleans, and on his return to Japan was appointed Director-General of the Patent Office and Commissioner of the Technical Department of Agriculture and Commerce of Tokio. While at New Orleans he was married to Miss Carrie Hitch, one of the belles of that city.

Introducing the Process.

During the last four years he has traveled all over the United States and Europe, visiting the principal distilleries of those countries with a view to the introduction of his new process of fermentation. Takamine is a Fellow of the Royal Society of Engineers and a member of the Royal Society of Chemists of London.

The salient point in the process Mr. Takamine has discovered is the selection of a microbe or ferment cell of superior power. This microbe of single cell organism is produced from a fungus growth on rice, and is termed en masse "moyashi." Moyashi contains a seed which will grow on any starch substance in air or water. The germs of air growth are called "Koji," and will convert starch into sugar and act as a diastase in place of malt. The same plant raised on starch matter under water acts as yeast, with the exception that the fermentation is three times as strong as yeast. It is able to live in a solution which is from 18 to 20 per cent alcohol as against the usual 4 per cent, making a ferment termed "moto," which completes fermentation within a period of forty-eight hours as against seventy-two by previous methods.

The new ferment, having done away with the use of malt and small grain in the preparation of the mash, proceeds directly to complete the process of fermentation without the use of vinous yeast or any other fermenting agent. It dispenses with the use of malt, substituting corn, which is not only a cheaper material, but contains a greater proportion of starch. This gain by substitution amounts to from 7 to 10 cents. When the starch is converted into sugar by means of this ferment the solution shows by actual test twenty pounds of sugar to a bushel of corn, as against fourteen pounds by the former methods. There is also a resultant production of twenty-one and ninety-six-one hundredths quarts of spirits to the bushel, against nineteen quarts, the maximum quantity obtainable by the old methods.

The new method requires little or no change in the mechanical workings of breweries and distilleries, and is to be introduced in the manufacture of all liquors where the process of fermentation is used. Although eminent scientists have for years past devoted much attention to the processes of fermentation in order to improve the facilities and add to the quantity and value of the fermented product, all the recent advancements made in the process of brewing and distilling have been in the line of perfected mechanical appliances. Takamine has gone further and deeper than the mere question of retorts and runways; he has entirely altered the process in its inception by the introduction of a new ferment cell. A calculation based on the output of maltsters, brewers, distillers, manufacturers of vinegar, and others using ferments makes the yearly value of the Takamine discovery equivalent to \$23,000,000.