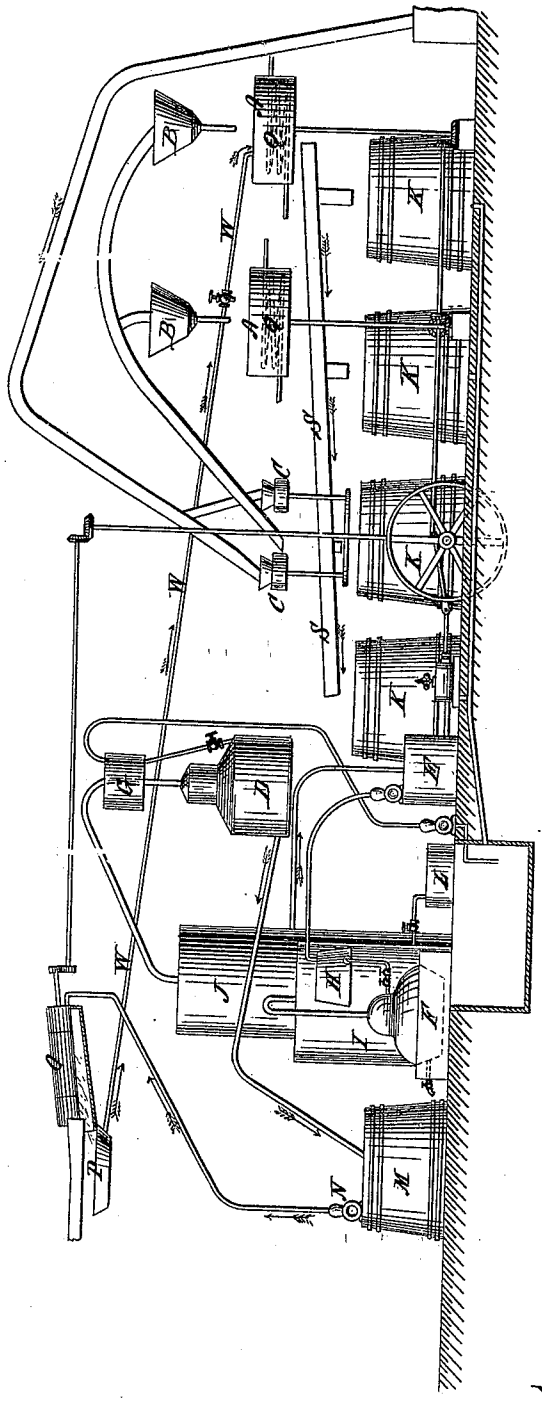
(No Model.)

M. J. ALLEN & W. E. BRADLEY.

PROCESS OF MAKING WHISKY.

No. 335,267. Patented Feb. 2, 1886.



Witnesses:
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UNITED STATES PATENT OFFICE.

MARSHALL J. ALLEN, OF NEW YORK, N. Y., AND WILLIAM E. BRADLEY, OF FRANKFORT, KENTUCKY, ASSIGNORS TO THE FRANKFORT WHISKY PROCESS COMPANY.

PROCESS OF MAKING WHISKY.

SPECIFICATION forming part of Letters Patent No. 335,267, dated February 2, 1886.

Application filed February 20, 1885. Serial No. 156,569. (No model.)

To all whom it may concern:

Be it known that we, MARSHALL J. ALLEN, of the city, county, and State of New York, and WILLIAM E. BRADLEY, of the city of Frankfort, county of Franklin, State of Kentucky, have invented a new and useful Improvement in the Process of Making Whisky, of which the following is a full, true, and exact description, reference being had to the accompanying drawing.

The object of our invention is to increase the yield of whisky from a given amount of grain by utilizing, in subsequent processes, the refuse products of previous processes.

In all those methods of making whisky in which the entire grain introduced passes through the entire process, and is delivered as a refuse product at the end of the operation, it has been generally customary, except in following the processes previously patented to us, to reject the spent beer or slop, which contains very valuable ingredients, at the end of the operation. Among the reasons why this has been done is, first, because, if the slop is returned in subsequent processes, containing all the chaff or coarse particles blown out with it, the process will not be possible of continuous operation, because of the continually-increasing thickness of the beer. On the other hand, if the slop is allowed to stand, as has been at times customary, so as to be cooled by the action of the air, it will be found that at the end of that period it has become contaminated with certain classes of ferments which are injurious to its subsequent use in processes of whisky-making.

We have heretofore taken patents for improvements in the art of whisky-making on the 6th day of July, 1880, No. 259,653, and on the 22d day of August, 1882, No. 263,087, and on the 23d day of October, 1883, No. 287,213. In these patents we have pointed out the difficulties arising from allowing the spent beer to stand so long as to become contaminated, as above mentioned, and have pointed out a method of preventing these evil results by cooling the spent beer by apparatus independent of the apparatus used in the process of whisky-making.

The present process is an improvement upon the process which is particularly pointed out in Patent No. 263,087, August 22, 1882.

In the process of making whisky or high-wines, after the grain has been mashed at a high temperature it is customary to cool the mash to a temperature between 70° and 80°. We have discovered that this temperature is a suitable one to which to reduce the slop, to prevent the formation of injurious ferments, to which reference has been made.

In carrying out this process practically, we are not compelled to add to the ordinary apparatus of a distillery any especial cooling-coils or any other apparatus, except the necessary means for insuring a separation of the coarse particles from the spent beer or slop.

The sheet of drawings hereto annexed represents a general view of a part of a distillery arranged for the practice of our improved process. We do not limit ourselves, however, to the special apparatus for carrying out the process, but show one form of apparatus by which it may be carried into effect.

We shall not go into detail in the description of this apparatus, as the arrangement will be easily understood by those acquainted in the art.

The drawing represents a side view of the apparatus, in which A represents the mash-tubs. These are provided with cooling-coils Q, through which cold water is passed. These coils may be arranged in any convenient way, or the mash may be cooled in apparatus independent of the mash-tub without changing our invention; B, the mill-hoppers; C, the mill-stones; D, the beer-still; E, low-wines receiver; F, doubler-still; G, beer heater and charger; H, low-wines charger for doubling-still; I, doubling-still, condenser, and flake-stand; J, beer-still; K, fermenting-vats; L, whisky-receiver; M, hot-slop or spent-beer receiver; N, hot-slop pump for forcing slop up to strainer; O, slop-strainer; P, strained-slop receiver; S, trough for conveying mash to fermenters; W, pipe for hot-strained slop for mashing.

The movement of the liquid through the pipes is indicated by the arrows.

It will of course be understood that the present drawing does not represent all the apparatus of a distillery, but only so much of it as

is used in connection with our improved process.

In carrying out our process practically, we proceed as follows: The slop or spent beer, as it is blown from the still, is run through a straining apparatus, similar to the bolting-machine in a flour-mill, provided with a copper-wire straining-cloth of about thirty wires to the inch. The thick portion strained out is rejected, and may be used as feed for cattle. The liquid portion is run by the pipe *w* to the mash-tubs A A, where it is used with or without the addition of hot water in scalding the mash. The mash having been completed, the said mash and the returned slop are cooled by means of a suitable cooling apparatus to a temperature low enough to interfere with the formation of the injurious ferments to which we have referred, and to practically preserve it in a sweet and uncontaminated condition.

The temperature should be reduced to preferably about 76°, but in any event below 85°. The subsequent processes may be of any of the well-known kinds used in the making of whisky or high-wines, the object of our invention being to remove the coarse particles from the slop and to cool the slop before fermenting in the process of whisky-making, so as to interfere with the formation of the injurious ferments to which we have referred.

It is obvious that we are not limited to any particular apparatus in carrying out this process, though we show a strainer as a suitable means for separating the coarse particles, which is the best means known to us. We may employ any other means by which that result can be accomplished. We may, for instance, separate the coarse particles by gravity instead of by a strainer. It is obvious, likewise, that we can omit the separation of the coarse particles altogether without losing all the beneficial results of our process; but we then find the difficulty of the clogging of the process, to which we have previously referred. The cooling of the slop, which we use back, is, however, absolutely essential in our process, and cannot be omitted, and in this process is first artificially done in connection with the mash. "Using back," occuring in this specification, means the return into the subsequent processes of the material which has passed through previous processes.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In the manufacture of whisky, the process described, which consists in using back the slop in the mash-tubs, and in artificially cooling this slop for the first time by mechanical means, together with the mash, before fermentation, substantially as described.

2. In the manufacture of whisky, the process described, which consists in separating the coarse particles from the spent beer, and in using back said slop in the mash-tubs, and in artificially cooling this slop for the first time by mechanical means, together with the mash, before fermentation, substantially as described.

3. In the manufacture of whisky, the process described, which consists in mechanically separating the coarse particles from the spent beer, and in using back said slop in the mash-tubs, and in artificially cooling this slop for the first time by mechanical means, together with the mash, before fermentation, substantially as described.

MARSHALL J. ALLEN.
WILLIAM E. BRADLEY.

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E. H. HALL,
P. M. SAXTON.