(No Model.)

# D. S. BROWN & L. SIPF.

## COMBINED BEER AND SPIRIT STILL.

No. 320,535. Patented June 23, 1885.

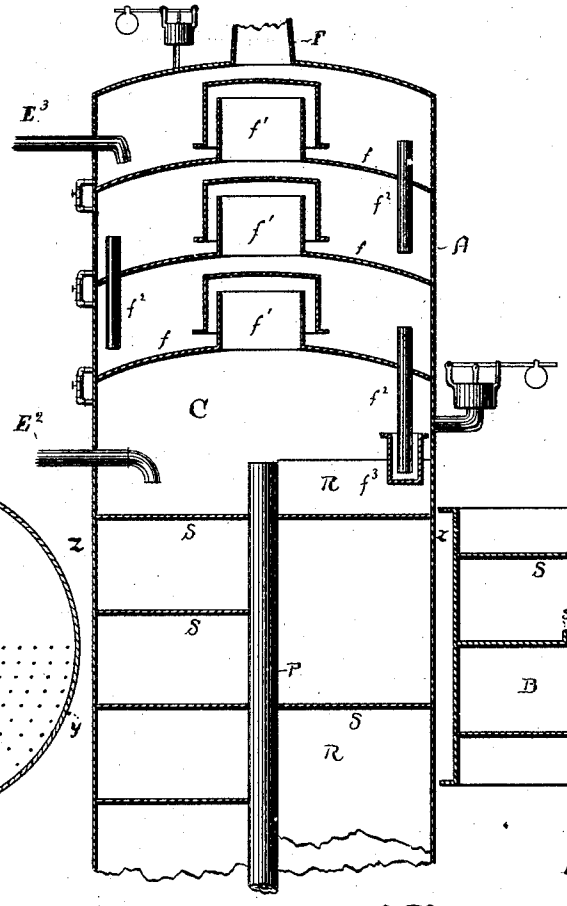



Fig. 1.

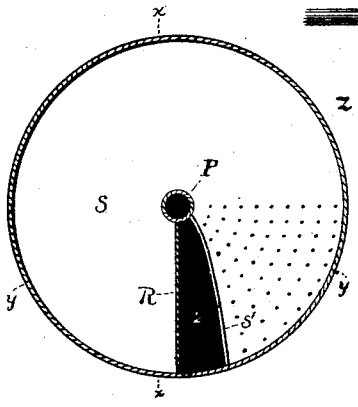



Fig. 2.

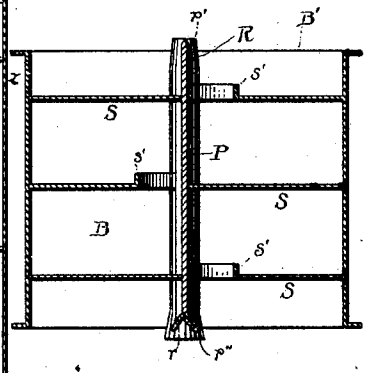



Fig. 3.

Witnesses;

H. Wells

A. Keithley

Inventors,

Deloss S. Brown,

Louis Sipf;

per A. B. Upham,
Their Attorney.

N. PETERS, Photo-Lithographer, Washington, D. C.

# UNITED STATES PATENT OFFICE.

DELOSS S. BROWN AND LOUIS SIPF, OF PEORIA, ILLINOIS.

## COMBINED BEER AND SPIRIT STILL.

SPECIFICATION forming part of Letters Patent No. 320,535, dated June 23, 1885.

Application filed November 3, 1884. (No model.)

*To all whom it may concern:*

Be it known that we, DELOSS S. BROWN and LOUIS SIPF, of Peoria, in the county of Peoria, in the State of Illinois, have invented an Improved Combined Beer and Spirit Still; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, making a part of this specification, in which like letters of reference refer to like parts, and in which—

Figure 1 represents a vertical section of the still through *x x* in Fig. 2. Fig. 2 is a horizontal section of the same through *z z* in Fig. 1; and Fig. 3 is a vertical section through *y y* in Fig. 2 of a single section of the still.

The objects of this invention are the construction of a metallic beer-still capable of being disjointed for the sake of cleaning and repairs, the combining of a beer and spirit still in a single column, the arrangement of shelves in the beer-still in such a way that the flow of beer thereadown shall be oppositely oscillatory, and thereby enable the alcohol to be more thoroughly removed from the beer.

In the drawings, C is the column, the lower portion, B, of which is for the beer-still and the upper part, A, for the spirit-still. The column C is formed of cylindrical flanged copper sections *c'*. Through the axial center of the beer-still extends a cylindrical or tubular pillar or pipe, P. Horizontal or approximately horizontal shelves S are secured about said pipe P to it and to the sides of the column. Said shelves are circular in form, to fit the interior of the column C, and have a narrow sector cut from each, as in Fig. 2. Through these cuts passes a vertical partition, R, one lateral edge of which is affixed to the pipe P, and the other lateral edge to the side of the cylinder. One radial edge of each of the sector-cuts is turned up to form a flange, *s'*, of from one to two inches in height. These flanges *s'* are on alternate sides of said sector-cuts—that is, the flange of one shelf S, being at the right-hand side of its sector-cut, the flange of the shelf next above or below is at the left-hand side of its sector-cut. The plain or unflanged edges of said sector-cuts are joined to the partition R, making, therefore, said sector-cuts or openings to be on alternate sides of said partition. The object of said flanges is that the beer as it flows down from shelf to shelf may be detained somewhat thereon, and thereby be more perfectly acted upon by the steam which is ascending the column from its inle-tpipe E.

To enable the steam to get at the beer with greater facility, a part of each shelf S, usually the portion lying near the flange *s'*, is perforated, as in Fig. 2. For the same reason we often radially corrugate the shelves, and thereby cause the beer to be retained somewhat longer upon the shelves.

The object of the partition R is evidently to cause the beer, when it falls upon the part of the shelf next thereto, to flow around on the shelf to the flanged edge over which it falls to the shelf next below. The pipe P not only helps to support the shelves but it serves to give more of a circular motion to the beer flowing on the shelves, to send it toward the circumference, and hence give it a longer path.

To enable the beer-still B to be separated into several sections for the purpose of cleansing or repairs, the column is made of flanged sections B', bolted together through such flanges. The pipe P is also formed in sections secured together by having the upper end, *p'*, of each section of pipe slightly conical, and the lower end, *p''*, of the same somewhat flaring, that the upper end of one section of pipe may fit into the lower end of the section above. The partition R is also made in sections, the lower edge, *r*, of each of which is doubly aduncous, as shown in Fig. 3, so that it shall clasp the edge of the partition below.

The pipe E terminates in the column in a perforated circular bend, *e*, by which the steam is admitted to the base of the still.

E' is the slop-discharge pipe, and $E^2$ the pipe for admitting beer to the upper chamber of the beer-still B.

The upper portion of the column C is divided by curved floors *f* into several chambers, steam and vapor access through which is permitted by the hooded central openings, *f'*.

The large vapor-pipe F conducts the alcoholic vapor to the goose or condenser, and the pipe $e^3$ returns the low-wines back therefrom to the spirit-still.

The overflow-pipes $f^2$ permit the escape of the condensed water and low-wines from each shelf $f$ to the one below, and thence to the beer-still. The last pipe, $f^2$, terminates in a flanged bowl $f^3$, which, becoming filled with the down-passing liquid, prevents the steam from going up through it.

We also combine with the beer-still two gages for indicating the pressure of the steam within the still, one being an ordinary pressure-gage and the other a mercury-gage. Should the pressure-gage become clogged with the slop and therefore inoperative, the mercury-gage still indicates the pressure. The latter gage consists of a glass tube, $g'$, and the U-bend $g$. Both gages connect with the same pipe opening into the lower chamber of the beer-still.

What we claim as our invention, and for which we desire Letters Patent, is as follows, to wit:

1. The combination, in a beer-still, of a cylindrical metallic column, a radial partition extending vertically therein, and approximately-horizontal sector-mutilated shelves so secured in said column that said sector-cuts shall in the different shelves be on alternate sides of said partition, as and for the purpose specified.

2. The combination, in a beer-still, of a cylindrical metallic column, a radial vertical partition therein, a central supporting and separating pipe, and approximately-horizontal sector-mutilated shelves so secured in said column that said sector-cuts shall be on alternate sides of said partition, as and for the purpose specified.

3. In a beer-still, the combination, with the cylindrical column, the central pipe, and the vertical partition extending from said pipe to the circumference of said column, of the shelves S, having a narrow sector cut from each and flanged at one edge of each of said cuts, as and for the purpose specified.

4. In a beer-still, the combination, with the cylindrical column, the central pipe, and the vertical partition extending from said pipe to the circumference of said column, of the shelves S, arranged as shown, and having a flanged sector-cut in each, and perforations, substantially as and for the purpose described.

5. In a beer-still, the flanged cylindrical section B′, the tapering and flaring section of pipe P, the partition R, extending from said pipe to the circumference of said cylindrical section and bent at its lower edge, and the shelves S, all constructed and arranged substantially as set forth, and for the purpose described.

6. In a beer-still, the combination of the column B, pipe P, centrally located therein, the shelves S, arranged as shown, steam-inlet pipe E, beer-inlet pipe $E^2$, slop-discharge E′, and the combined pressure-gage G, and mercury-gage consisting of glass tube $g'$, and U-bend $g$, as set forth.

7. The herein-described combined beer and spirit still consisting of a cylindrical metallic column, in combination with a radial partition extending vertically in the lower portion of said column, approximately-horizontal sector-mutilated shelves secured in the lower part of said column to said vertical partition, a pipe for admitting beer upon the upper of said shelves, steam-inlet and slop-outlet pipes below the lowest of said shelves, and a second series of shelves occupying the upper portion of said column and adapted to more highly distill the alcoholic vapor separated from the beer on the lower series of shelves, as set forth.

In testimony that we claim the foregoing invention we have hereunto set our hands and seals this 30th day of October, 1884.

DELOSS S. BROWN. [L. S.]
LOUIS SIPF. [L. S.]

Witnesses:
A. B. UPHAM,
A. KEITHLEY.