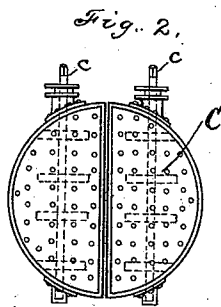
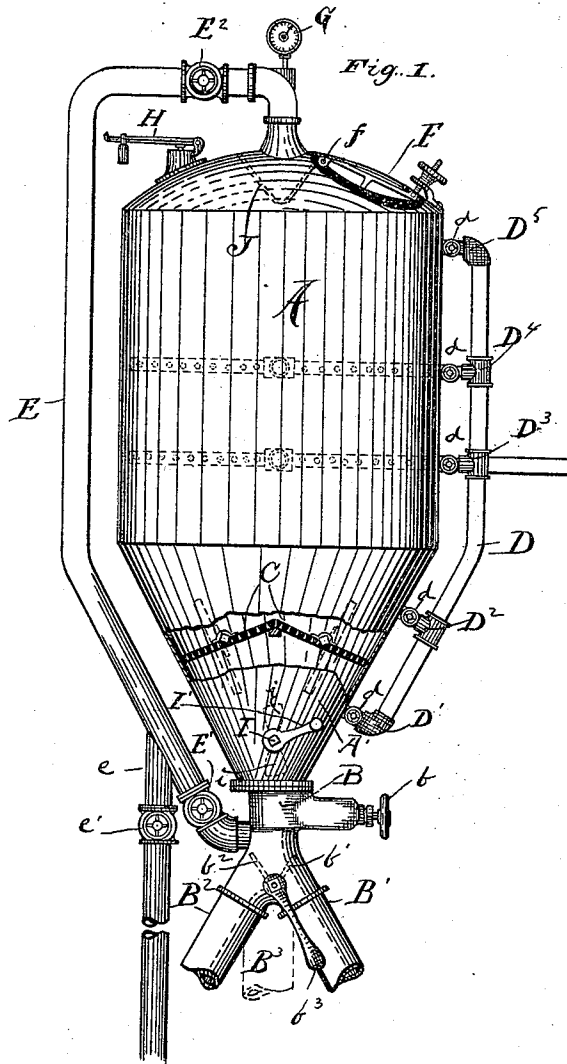


(No Model.)

J. SCHNEIDER.
APPARATUS FOR EXTRACTING HOPS.

No. 450,534.

Patented Apr. 14, 1891.



Witnesses
W. R. Edison.
[Signature]

Inventor
John Schneider
[Signature]

UNITED STATES PATENT OFFICE.

JOHN SCHNEIDER, OF CLEVELAND, OHIO.

APPARATUS FOR EXTRACTING HOPS.

SPECIFICATION forming part of Letters Patent No. 450,534, dated April 14, 1891.

Application filed December 29, 1890. Serial No. 376,046. (No model.)

To all whom it may concern:

Be it known that I, JOHN SCHNEIDER, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Brewing and Hop-Extracting Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in brewing and hop-extracting apparatus; and it consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation. Fig. 2 is a plan of the dumping-bottom detached.

A represents an upright container, usually cylindrical in the main, but having a conical lower section A', the latter having a discharging-nozzle B, provided with a valve *b*. Nozzle B connects with two or more discharging-pipes—for instance, B' B²—these pipes being provided each with valves, respectively, b' b². In case there are but two of these valves, they are preferably of the tilting variety, having axial trunnions in common, so that a single hand-lever b³ may operate both valves, whereby the one valve is closed in opening the other valve. This construction of valve is a mere matter of convenience in manipulation, and of course other valves would answer the purpose.

C is a perforated dumping false bottom, preferably constructed in sections or halves, each section being mounted on a shaft or trunnion *c*, extending out through suitable stuffing-boxes, and the outer end of one of these trunnions for each section being squared or otherwise prepared to receive a wrench, handle, or crank for tilting the sections of the dumping-bottom and discharging the contents above the bottom.

D is a steam-pipe having branches or nozzles D', D², D³, D⁴, and D⁵, all discharging into the container and each branch or nozzle being provided with a valve *d*, nozzle D' being located below the line of the dumping-bottom and the other nozzles D² D³, &c., entering the

container at different elevations above the dumping-bottom.

E is a larger pipe connecting, as shown, with the top or upper section of the container and connecting below, for instance, with nozzle B below valve *b* of the latter. Pipe E has valves E' E², and above valve E' this pipe E may have a branch *e*, provided with a valve or cock—for instance, as at *e'*—for drawing off samples of the product. There is a man-hole closed by plate F, hinged at *f*, this plate serving as a door for giving access to the inside of the container, and through which the latter is charged, this door opening inward, so that the pressure of steam inside the container will help hold the door closed, making a tight joint. There should be a steam-gage, as at G, and a safety-valve, as at H. Pipes B' B² are supposed to connect, respectively, with different brew-kettles, (not shown,) these pipes making tight joints with the kettles and extending down inside the latter to near the bottom.

J is merely a strainer or screen to prevent the hops being blown into pipe E.

In operating the apparatus the dumping-bottom is closed—that is to say, it is in a horizontal position—and the container above the dumping-bottom is charged with hops. Next steam is simultaneously admitted through nozzles D' and D⁵—that is to say, below and above the hops—and after a time steam is also admitted through nozzles D², D³, and D⁴, so that during the latter stages of the steaming process steam is admitted through all of these nozzles at the same time. During the steaming stage valves E' E² remain open and valve *b* remains closed, and the steam admitted to the container extracts more or less of the substance from the hops and carries the extract over in pipe E and discharges it through one or the other of pipes B' B² into the corresponding brewing-kettle. After the extracting has thus been accomplished in the container A, valves E' E² are closed and valve *b* is opened; also are closed the different valves *d*, except the upper one of these valves, the remaining upper valve remaining open or partially open, so that more or less pressure is kept up in the container. Next the dumping-bottom is

opened to discharge the partially-spent hops into the one of the brewing-kettles that has been receiving the extract, where the extract and hops are treated in the usual manner in brewing-kettles.

I is a lateral shaft extending centrally through the lower section of the container some little distance below and out of the way of the dumping-bottom. The one end of this shaft extends outside the container, where it is provided with a crank I' for rotating the shaft. This shaft inside of the container is provided with a series of wings or blades, these wings or blades of the shaft constituting a breaker to break up the mass of hops in case they should clog in discharging, and in practice the breaker is usually rotated while the hops are discharging from the container.

As soon as the charge is dumped into one of the brewing-kettles steam is shut off from the container, the dumping-bottom is closed, and another charge of hops is introduced into the container, and the valves are manipulated so as to discharge into the other brewing-kettle, and by the time the second charge is discharged into the second brewing-kettle the first brewing-kettle should be in readiness to receive the third charge from the container, and so on, thus making the process continuous.

With this apparatus, the brewing being done in closed vessels, all of the aroma of the hops is saved, whereby the flavor of the beer is greatly improved and less hops are required.

I will add that it is not essential that pipe E should discharge through pipes B' B², as pipe E might have branches discharging into the different brewing-kettles; but this would involve extra expense over and above the

construction shown, and hence the latter is preferred.

A third discharge-pipe B³ with suitable valve may be employed, if desired.

What I claim is—

1. In brewing apparatus, a container having a conical lower section containing a false perforated dumping-bottom and having a discharging-nozzle with branch pipes and valves adapted to discharge into different vessels, an induction steam-pipe having different branches, connecting with the container, respectively, below the dumping-bottom and at different elevations above the dumping-bottom, each branch having a stop-valve, and an eduction-pipe connecting with the top or upper section of the container and having or connecting with the different discharge-pipes, substantially as and for the purpose set forth.

2. In brewing or hop-extracting apparatus, a container having a perforated false dumping-bottom and breaker located inside of the container, the breaker being below the dumping-bottom, an induction steam-pipe having branches connecting with the container below and at different elevations above the dumping-bottom, an induction-pipe leading from the top or upper section of the container and joining a system of discharge-pipes below the container, a suitable feed-orifice, and means for hermetically closing the same, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 3d day of November, 1890.

JOHN SCHNEIDER.

Witnesses:

C. H. DORER,
WARD HOOVER.