

W. WIEGAND.
PROCESS OF MAKING EXTRACTS.
APPLICATION FILED FEB. 17, 1908.

930,909.

Patented Aug. 10, 1909.

Fig. 1.

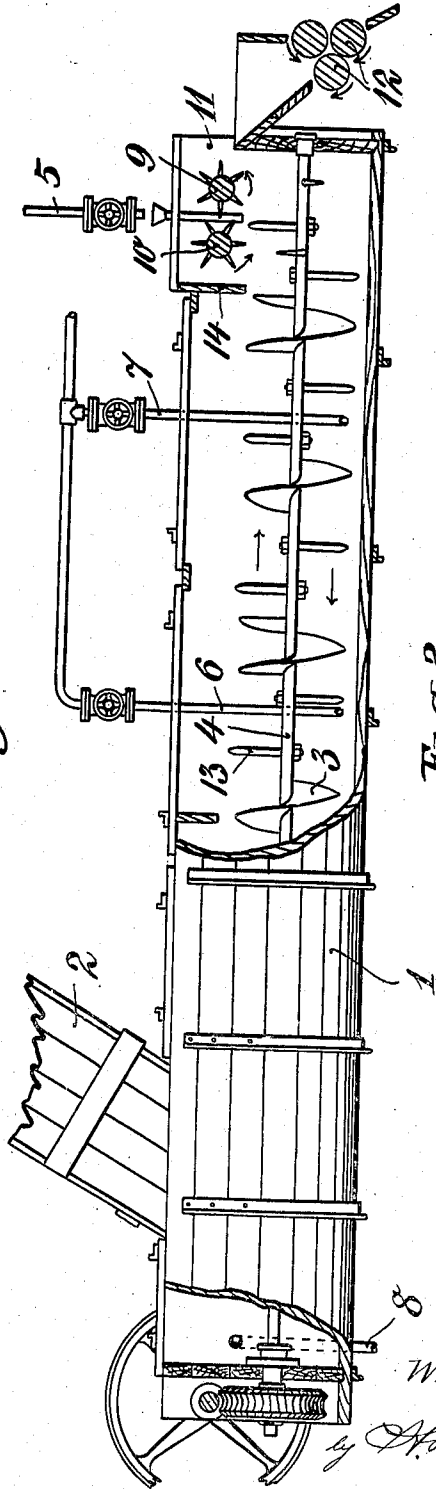
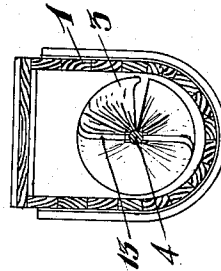


Fig. 2.



Witnesses:-
C. H. Grieshaber
C. H. Grieshaber

Inventor:-
Wilhelm Wiegand

by A. B. Willson & Co.
Attorneys

UNITED STATES PATENT OFFICE.

WILHELM WIEGAND, OF MERSEBURG, GERMANY, ASSIGNOR OF ONE-HALF TO RICHARD RIEDER, OF FRANKFORT-ON-THE-MAIN, GERMANY.

PROCESS OF MAKING EXTRACTS.

No. 930,909.

Specification of Letters Patent.

Patented Aug. 10, 1909.

Application filed February 17, 1908. Serial No. 416,399.

To all whom it may concern:

Be it known that I, WILHELM WIEGAND, engineer, citizen of Germany, subject of the King of Prussia and Emperor of Germany, residing at Merseburg, in the Kingdom of Prussia and Empire of Germany, have invented new and useful Improvements in Processes of Making Extracts, of which the following is a specification.

10 The invention refers to a process for the drawing of extractive matter out from tannic materials, dye-wood, beet, and the like by the employment of the principle of counter-current in a horizontally arranged oblong receptacle and also to a device especially suited to the carrying out of the process.

The chief feature of the invention is the prevention of the mixing together of the fresh liquor just entering into the receptacle and the enriched extractive liquor and of extractive liquor of different strengths without constructing in accordance with known methods chambers or the like in the vat for this purpose. In order to effect this in the process of the present invention only so much extraction liquor is employed as will enable the solid vegetable material to be treated even when "stirred" always to stand at a higher level than the liquor so that the formation of a layer of liquor enabling an equalization of concentration to take place is avoided, and the vegetable material quite as much as the dividing walls of the chambers according to the known methods, prevent the mixing together of liquor of different strengths. For carrying out the process a special stirring and conveying device is preferably used, which is characterized by the alternate arrangement of helical segments and "stirring" arms on the horizontal shaft of the oblong receptacle. Through the action of this stirring and forwarding device the formation of large stagnant areas of liquor both in the upper and lower portions of the receiver is avoided.

15 In comparison with the known extraction receptacles of the horizontal type working according to the counter-current principle which are provided with particular chambers in order to prevent the mixing together of liquor of different strengths, the present invention has especially the great advantage that an essentially simpler and therefore cheaper me-

chanical arrangement can be used, and especially that the whole apparatus in its essential parts may be constructed of wood which is of importance in view of the liability of iron and the like to be acted upon by tanning-liquor.

When receptacles of the known vertical or slanting type are used the application of this process would be technically impossible because the oblong receptacle would have to be completely filled with solid goods throughout its whole diameter in order to prevent the mixing of liquor of different strengths and this would prevent the thorough working together of the liquor and the vegetable matter, and the forwarding of the latter vertically or obliquely upward would be extremely difficult. In this case also a closed tube thoroughly watertight everywhere would have to be used and the employment of a wooden receptacle or trough would be impossible.

A method of constructing the device used for carrying the process into execution is illustrated in Figure 1 of the drawing in side elevation and partial section; Fig. 2 is a vertical section thereof.

The material from which the extract is to be drawn out is poured through the entrance chute 2 into the closed trough shaped wooden receptacle 1. In this horizontally arranged long receptacle helical segments 3 and between these vertical stirring arms 13 are attached to the shaft 4 which is rotated by gear wheels. The continuous introduction of liquor is effected through the pipe 5 while through the pipes 6 and 7, if desired, steam may be blown into the vat. The enriched liquor is also continuously discharged through the pipe 8 which opens at a fixed height in the receptacle 1 near the chute 2.

For the removal of the material from which the tanning, dyeing etc. principle has been extracted a discharging contrivance is affixed to the opposite end of the trough which in the instance illustrated consists of rollers 9 and 10 provided with spikes or pins. Three rolls or cylinders 12 are shown which may be turned in opposite directions as described by the arrows. The material discharged from the vat by the rolls 9 and 10 falls between these revolving cylinders or rolls 12 and is thereby freed from the extract adhering thereto.

If, for example, it is desired to extract the tanning principle from tanniferous material, a purpose for which this device is eminently adapted, the procedure is about as follows:—

5 The fresh vegetable material is introduced through the chute 2 while water is admitted through the pipe 5 and steam through the pipes 6 and 7 and the forwarding helix 3, 4 is made to revolve. By this means the tanniferous material is quite gradually passed
10 along toward the discharging end of the trough and through the action of the stirring arms 13 and the helical segments 3 is at the same time thoroughly worked up and mixed
15 with the liquor. The ingress and outlet of the liquor are so regulated that the level of the surface of the liquor is always below that of the goods from which the tannin is being extracted. The liquor consequently can advance
20 only quite gently from its inlet through the vegetable material to the outlet opening 8 by thoroughly penetrating step by step the material which lies in front of it and is forced against it. In this way experiments have
25 proved that, without employing costly apparatus, extracts of very high concentration can be continuously produced.

The solid material which is slowly moved without a great expenditure of power owing
30 to the horizontal arrangement of the oblong receptacle by means of the helical segments toward the discharge end and is deprived of its extractible material in a corresponding rate becomes heaped up at the discharge end
35 and by the help of the partition 14 in front of the rollers 10 makes then a steam tight closure for the receptacle and when it has become heaped up sufficiently high, is discharged through the opening 11 by the help of
40 the rollers 9 and 10.

Having now described my invention what

I claim and desire to secure by Letters Patent of the United States is:

1. A process for drawing extractive matter from different materials such as tannic material, dye-wood, beet and the like which consists in advancing the solid material in horizontal direction from one end of a horizontal elongated receptacle and the liquor from the other end, permitting the liquor to enter said
45 receptacle in such a manner that the solid material will always stand at a higher level than the liquor, and stirring the material in a vertical direction while feeding it in a horizontal direction, whereby those parts which
50 first lie beyond the level of the liquor are dipped into it, and other parts are raised out, no mixing of the strata of liquor of different degrees of concentration being effected thereby.
60

2. A process for extracting matter from solid material which consists in advancing the material to be acted upon in one direction and continuously feeding a small quantity of water in the other direction to enable the
65 solid material to stand at a higher level than the liquor, continuously drawing off the extracted liquor in one direction and discharging the solid material in the other and stirring the material while feeding it in such a manner
70 that the parts which lie beyond the level of the liquor are dipped into it and other parts raised out of it whereby mixing of the strata of liquor of different degrees of concentration is prevented.
75

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILHELM WIEGAND.

Witnesses:

RUDOLPH FRICKE,
SOUTHARD P. WARNER.