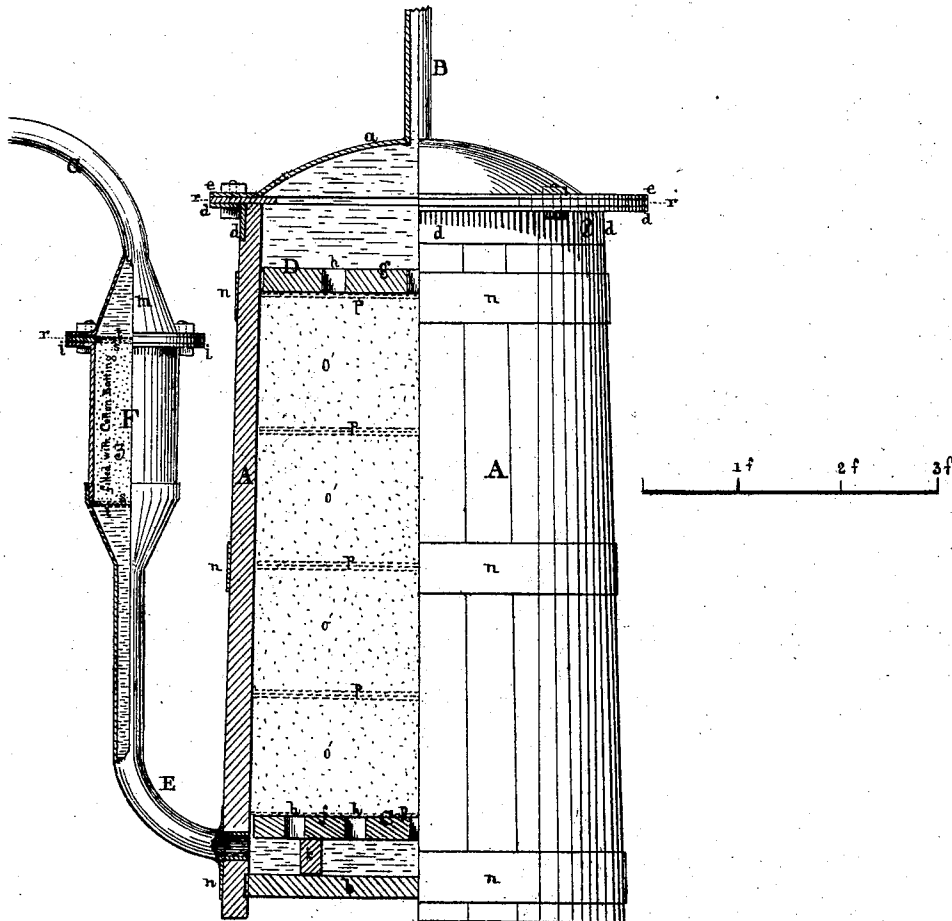


C. W. ACKERMANN.

Apparatus for Filtering and Rectifying Spirits.

No. 135,057.

Patented Jan. 21, 1873.



Witnesses.
Chas. P. Watson
John Orm

Inventor.
Christian W. Ackermann
by E. Hurston, his atty.

UNITED STATES PATENT OFFICE.

CHRISTIAN W. ACKERMANN, OF PEKIN, ILLINOIS.

IMPROVEMENT IN APPARATUS FOR FILTERING AND RECTIFYING SPIRITS.

Specification forming part of Letters Patent No. 135,057, dated January 21, 1873.

To all whom it may concern:

Be it known that I, CHRISTIAN W. ACKERMANN, of the city of Pekin, in the county of Tazewell, in the State of Illinois, have invented an Improved Apparatus and Process for Rectifying Spirits, &c.; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawing 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 one-half, and (simple) elevation of the other half; the two sides of the apparatus being exactly alike.

The object of my invention is, economy of labor and time, and a saving of spirits from usual loss by evaporation, and a more perfect elimination of "fusel-oil," the latter being absorbed by the blankets.

In the drawing, A represents the rectifier, of the usual construction, closed at bottom by the bottom *b*, and at the top by a head, *a*, through which enters the charge-pipe B for the spirits, &c. This head is provided with a flange, *e*, which is bolted to a flange, *d*, which is secured to the top edge of the rectifier in any secure manner, proper packing, *r r*, being first inserted between the flanges. The flange *d* may be made in two segments, its vertical rims being furnished with proper projections at the corresponding ends, to be securely bolted together. C is a false bottom or platform to sustain the successive layers of packing for rectifying, and may be made in one circular disk, or in two halves, for more ready extraction or insertion into its place. It is perforated with several holes, *h h*, &c., and is supported on joists *k* beneath it, which rest upon the bottom *b* of the rectifier A. D is an upper partition or movable "head," and is nothing more than a repetition of the false bottom C without its joists *k k*. E is the discharge-pipe for spirits, leaving the rectifier A between the false bottom C and the actual bottom *b* of the same, and, passing upward to near half the height of the rectifier A, is fitted with a small vertical hollow cylinder, F, which terminates above in the final discharge-pipe G. One of the modes in which I construct this cylinder is to terminate its upper edge with a flange, *i i*, to which is bolted a head, *m*, proper packing

r being inserted between them, having the discharge-pipe G inserted therein, similar (on the whole) to the head *a*. Like the rectifier A, this cylinder has at its upper and lower extremities false heads, or wire-gauze or perforated screens, *t t*, the lower one lying over the mouth of the pipe E, the upper one resting between the flanges of the cylinder, and held by the uniting-bolts which secure them. The space between these screens is filled with cotton batting, one fold of blanketing being first interposed between the batting and each screen. The rectifier A is filled with packing or filters, as follows: On the false bottom C is laid a circular piece of blanket, *p*, of one thickness; upon this is placed a stratum of powdered charcoal or rectifiers' coal, occupying one-fourth of the vertical height between C and D; upon this rests again a double thickness of blankets, then a second stratum of charcoal of a similar height; this last series is followed by two precisely similar ones, with one blanket (one thickness) at the top between the charcoal and the circular board or movable head D. The number of stratums of alternate coal and blankets may be varied in number to suit requirements.

The operation of this invention is as follows: The "charger" (containing the unrectified spirits) is connected with the pipe B, when the spirits passes downward through the loose partition or head D and holes *h*, and through the successive layers of blanket and charcoal, the fusel-oil being left behind in the blankets, together with other impurities; and the spirits finally passes out beneath the false bottom C, through the pipe E, up into the cylinder F, where it first passes the wire-gauze *t*, or other pervious screen, which sustains the one thickness of blanketing *s* and the packing of cotton batting *z*, and a final thickness of blanket, *s*, next to the fixed gauze screen or false head *t* at the top of the cylinder F; through all of which it (the spirits) passes upward and finally out through the discharge-pipe G, thoroughly cleansed. To obtain sufficient force to drive the liquor through the several stratums of blankets and batting, the charger is placed at the top of the building in which this apparatus is situated, if necessary. By running the spirits downward instead of upward, in the common manner,

through the stratum *o p o p*, &c., the fusel-oil is retained in the upper layer of blankets and charcoal, and proceeds no further toward the discharge-pipe, which is placed as far off the charge-entrance as possible, and the final rectification takes place in the blankets and batting in the cylinder F; the advantages of this process and apparatus being that six times the quantity of spirits can be rectified in the same time than by the old process, with a result of better goods and a great saving of loss by evaporation.

What I claim as my invention is—

The rectifier A A, constructed with the collar *d* and flanged-head *a* bolted thereto, (the latter pierced with the pipe B,) and filled with several stratum of charcoal or rectifiers' coal

nearly to the top, each separated by woolen stuff or cotton batting, the whole confined between perforated heads D C, (to rectify spirits in that process in which the latter is passed downward through the filtering medium,) the eduction-pipe E and terminal rectifier F filled with cotton batting confined between woolen material, which batting is again confined between wire-gauze heads or perforated screens *t t*, substantially as described.

In testimony that I claim the foregoing rectifying apparatus I have hereunto set my hand this 17th day of October, 1872.

CHRISTIAN W. ACKERMANN.

Witnesses:

HERMAN KLOBEL,
JOHN ORNO.