(No Model.)

# H. BREER.

## DESICCATING APPARATUS.

No. 303,915. Patented Aug. 19, 1884.

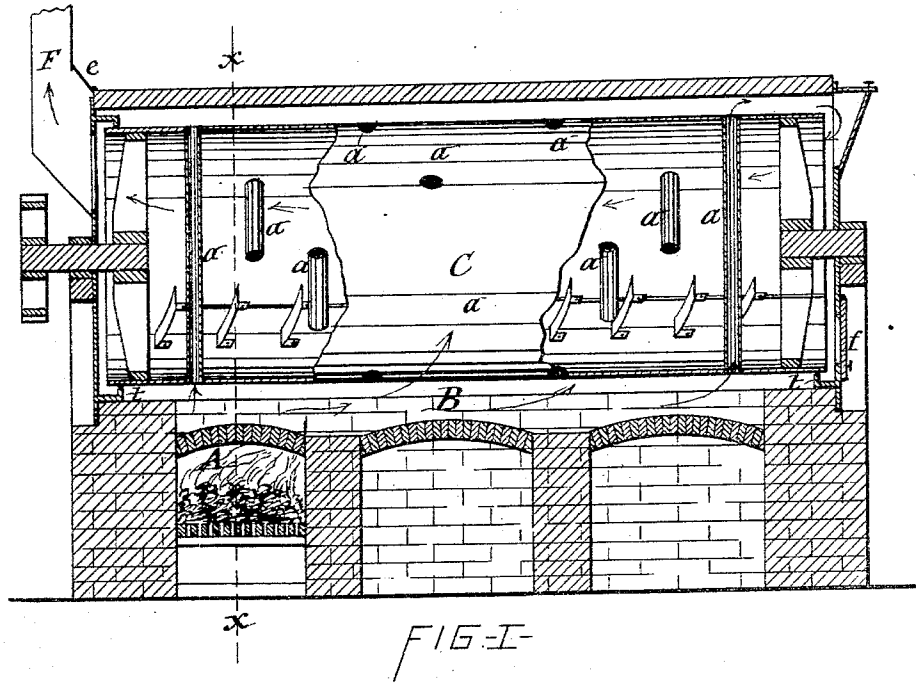



FIG-I-

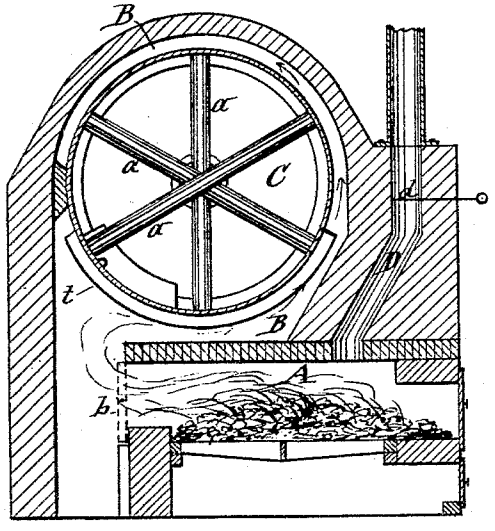



FIG-II-

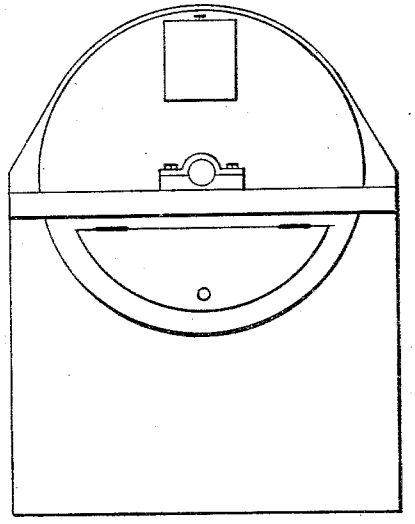


FIG-III-

WITNESSES

C. Bendixson

Wm. C. Raymond

INVENTOR

Henry Breer

per Church, Lassat & Hey

his attys

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

# UNITED STATES PATENT OFFICE.

HENRY BREER, OF DE WITT, NEW YORK, ASSIGNOR TO CAROLINE H. BREER, OF SAME PLACE.

## DESICCATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 303,915, dated August 19, 1884.

Application filed April 14, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY BREER, of De Witt, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Desiccating Apparatus, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to further improvements on the desiccating apparatus for which I have obtained Letters Patent of the United States No. 286,897, dated October 16, 1883.

The object of my present improvement is to more perfectly utilize the heat generated in the furnace or fire-box of the apparatus, and also to more effectually guard against leakage from the ends of the desiccating-cylinder; and to that end my invention consists in the construction and combination of parts, as hereinafter fully described, and specifically set forth in the claims.

Referring to the annexed drawings, Figure I is a longitudinal vertical section of my improved desiccating apparatus; Fig. II, a vertical transverse section on line *x x*, Fig. I, and Fig. III is a rear end view of the apparatus.

Similar letters of reference indicate corresponding parts.

C represents the desiccating-cylinder arranged horizontally in a combustion-chamber, B, which completely surrounds and incloses said cylinder, the latter having open ends, one of which admits the products of combustion to the interior of the cylinder, and the opposite end emits the same from the cylinder to the chimney F.

A denotes the furnace or fire-box extended under that end of the cylinder which communicates with the chimney. The furnace communicates at its inner end with the combustion-chamber B, as shown in Fig. 2 of the drawings, and across the said end of the furnace is arranged a movable damper, *b*, by which to control the passage of the products of combustion to the combustion-chamber. A direct exit-flue, D, is connected with the furnace and provided with a damper, *d*, by the opening of which latter and the closing of the damper *b* the products of combustion can be completely excluded from the combustion-chamber B, whenever it is necessary to cool the desiccating-cylinder C. When the damper *b* is opened and the damper *d* closed, the products of combustion pass from the furnace into the combustion-chamber and circulate around the cylinder C, and thence enter the rear end thereof at the upper part of the combustion-chamber and pass through the cylinder to the chimney F, as aforesaid.

In order to obtain greater heating-surface of the cylinder C, and thus render the same more efficient, I extend transversely through the cylinder a series of flues, *a a*, which communicate at opposite ends with the combustion-chamber, and thus allow the products of combustion to pass through them. Aside from augmenting the heating-surface of the cylinder, the flues *a a* serve to brace the cylinder and to stir and break up the substance under treatment in the cylinder, said substance being introduced through the trap-door *e* at the top of the front end of the combustion-chamber, and in the rotation of said cylinder said substance is moved over the heated inner surface of the cylinder and stirred by the heated flues *a a*.

A door, *f*, is arranged at the rear end of the combustion-chamber to remove the desiccated substance. To prevent leakage around the ends of the cylinder I provide the end plates, B' B', of the combustion-chamber with a segmental trough-shaped projection, *t*, which extends under the end of the cylinder and has its inner wall abutting against the exterior of the cylinder, as shown in Fig. I of the drawings. This trough *t* reaches across the bottom and part way up the sides of the cylinder, so as to prevent the escape from said trough of the substance which may enter it from the cylinder. The accumulation of the substance in the trough forms a packing around the lower portion of the cylinder, and thus effectually prevents leakage from the same. The troughs shown in my prior patent and in the application now on file in the Patent Office were arranged to discharge their contents, and consequently failed to prevent the leakage from the cylinder.

Having described my invention, what I claim as new is—

1. In combination with the rotary cylinder C and combustion-chamber B, surround-

ing said cylinder and communicating with one end of the interior thereof, the furnace A, extended under the opposite end of the cylinder and communicating with the combustion-chamber, the damper *b*, interposed between the furnace and combustion-chamber, and the direct flue D, provided with the damper *d*, all constructed and combined substantially as described and shown.

2. In combination with the combustion-chamber, the rotary cylinder C, inclosed in said chamber, and flues *a a*, extending transversely through the cylinder, as shown and set forth.

3. In combination with the rotary horizontal cylinder C, having open ends, and the combustion-chamber inclosing said cylinder, the segmental trough *t*, extended around the exterior of the lower portion and part way up the sides of the end of the cylinder, substantially as described and shown, for the purpose set forth.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 27th day of March, 1884.

HENRY BREER. [L. S.]

Witnesses:
FREDERICK H. GIBBS,
C. H. DUELL.