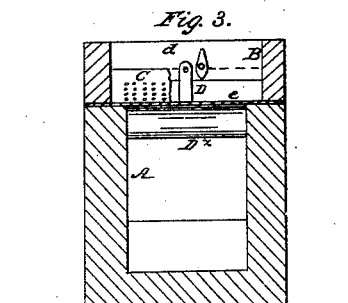
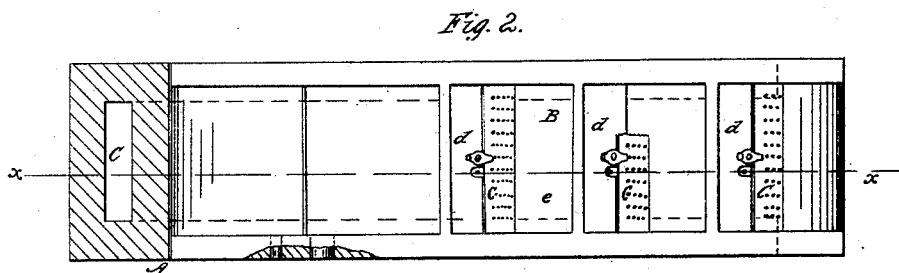
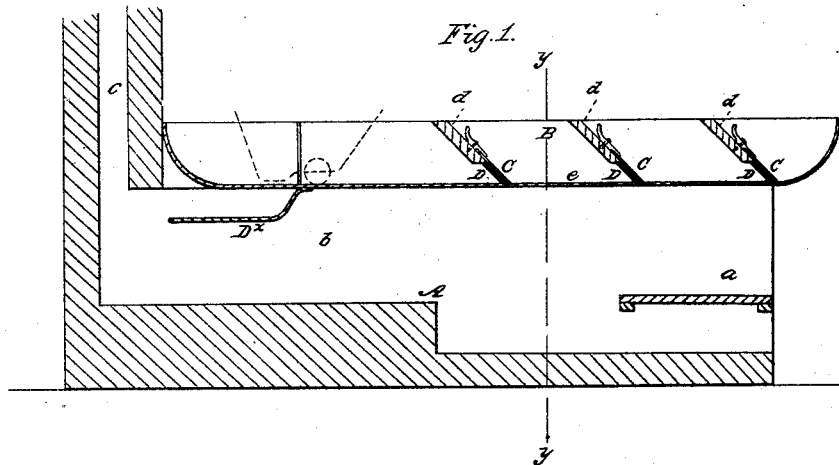


D. B. NEAL.  
Sorghum Evaporator.

No. 45,624.

Patented Dec. 27, 1864.



Witnesses:  
Thos Tusch  
C. L. Topliff

Inventor:  
D. B. Neal  
per Munn & Co  
Attorneys.

# UNITED STATES PATENT OFFICE.

DANIEL B. NEAL, OF INDIANAPOLIS, INDIANA.

## IMPROVED SORGHUM-EVAPORATOR.

Specification forming part of Letters Patent No. 45,624, dated December 27, 1864.

### *To all whom it may concern:*

Be it known that I, D. B. NEAL, of Indianapolis, in the county of Marion and State of Indiana, have invented a new and Improved Sugar-Pan or Sorghum-Evaporator; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a longitudinal vertical section of my invention, taken in the line *x x*, Fig. 2. Fig. 2 is a plan or top view of the same. Fig. 3 is a transverse vertical section of the same, taken in the line *y y*, Fig. 1.

Similar letters of reference indicate like parts.

This invention consists in providing a sugar or evaporating pan with inclined partitions and strainers, as hereinafter shown and described, whereby the strainers are prevented from filling up or choking during the process of the boiling of the juice, and a free flow of the juice between the several compartments of the pan allowed at all times.

The invention also consists in a means employed for holding the bottom of the pan in proper position, preventing it from springing or warping, so that it will always fit snugly to the strainers.

The invention further consists in the employment or use of a deflecting-plate, attached to or arranged below the pan in such a manner as to exclude the fire from the rear and finishing compartment of the pan, as hereinafter set forth.

A represents a furnace, which may be constructed of masonry or metal, or of both of said materials combined. The furnace is of rectangular form, *a* indicating the fire-chamber, *b* the flue, and *c* the smoke-stack.

B is the sugar pan or evaporator, which is placed on the top of the furnace A, and extends its whole length. The pan is divided into a series of compartments by transverse partitions *d*, which are inclined in their transverse section, as shown clearly in Fig. 1. These partitions *d* do not extend down to the bottom *e* of the pan. A space is allowed between to admit of the application of strainers C, which

extend down to the bottom *e* and fit snugly against it. These strainers have the same inclination as the partitions *d*, and the object in having them inclined is to prevent choking or clogging. The juice in boiling has a tendency to clean the strainers, as the latter are, in consequence of being inclined, exposed to the ebullition of the juice. If the strainers were in a vertical position, the scum and foreign substances contained in the juice would soon adhere to and gum up and choke the strainers—a contingency which is effectually obviated by my improvement.

The bottom *e* of the pan is constructed of sheet metal, and in order to prevent said bottom from springing or warping I have metal straps D attached to the partitions *d* and the bottom *e*, as shown clearly in Fig. 3. By this means the bottom is always kept snugly against the lower ends of the strainers, and the juice prevented from escaping from one compartment to another underneath the strainers.

To the under side of the pan B, near its rear end, there is secured a plate, D<sup>x</sup>. This plate covers or is directly under the rear compartment of the pan, and serves to shield said compartment from contact with the fire, and at the same time not obstruct the draft in flue *b*. This rear compartment of the pan is where the process of evaporation is completed, and it should be subjected to less heat than the others in order to insure the best results. By this arrangement I attain that end without the use of a damper.

I claim as new and desire to secure by Letters Patent—

1. The inclined partitions *d* and inclined strainers C, placed within the pan B, substantially as and for the purpose herein set forth.

2. The straps D, attached to the partitions *d* and the bottom *e* of the pan, substantially as and for the purpose specified.

3. The deflector or plate D<sup>x</sup>, attached to the under side of the bottom *e* of the pan at the rear part of the same, for the purpose described.

DANIEL B. NEAL.

Witnesses:

J. B. ROOT,  
NELSON KINGMAN.