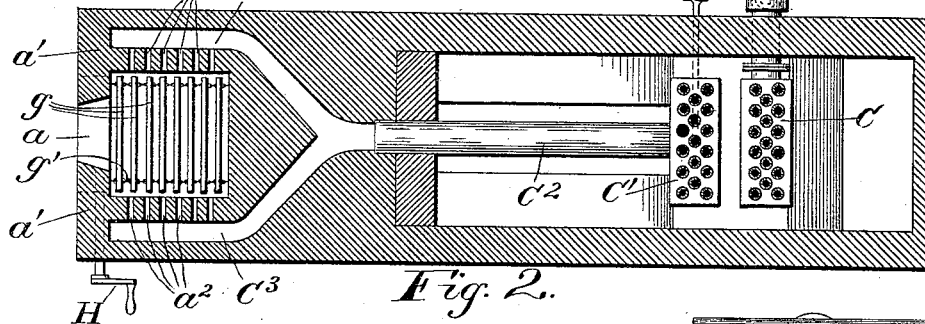
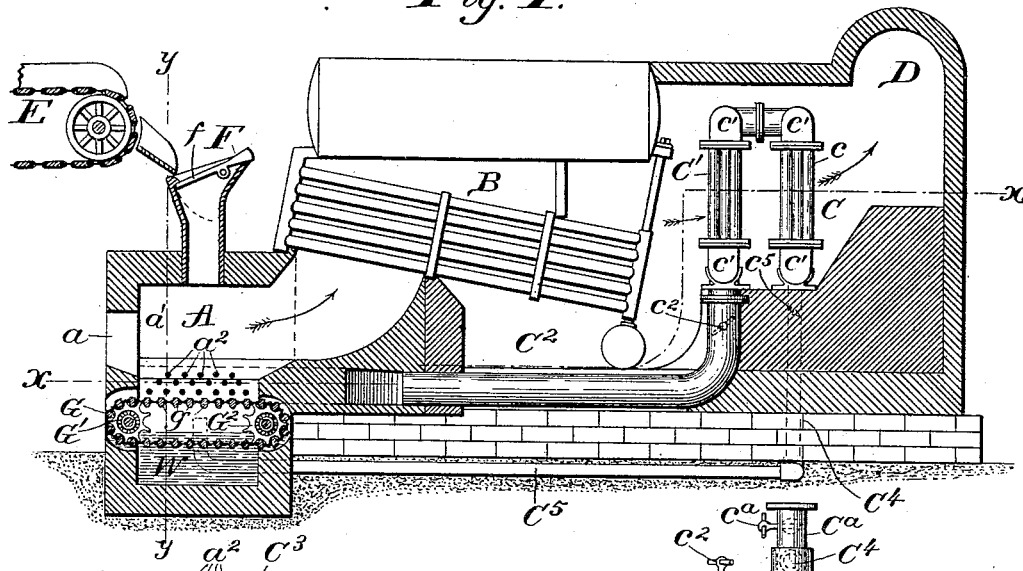


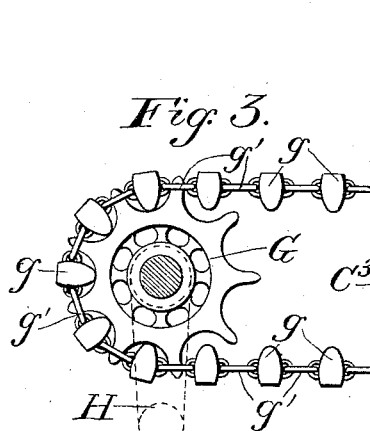
E. H. ROBESON.  
BAGASSE BURNER.

Patented Mar. 14, 1893.

*Fig. 1.*



*Fig. 2.*



*Fig. 3.*

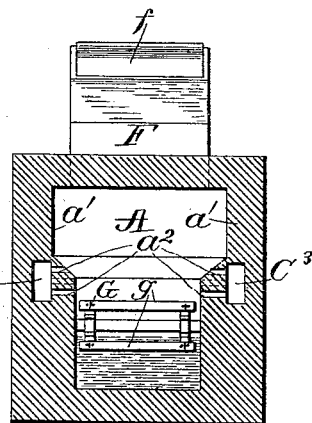
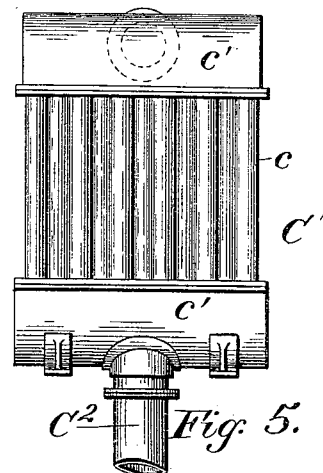


Fig. 4.



*Fig. 5.*

*Inventor;*

Edward H. Robeson.

By Whitman & Wilkinson,  
Attorneys.

# UNITED STATES PATENT OFFICE.

EDWARD H. ROBESON, OF NEW ORLEANS, LOUISIANA.

## BAGASSE-BURNER.

SPECIFICATION forming part of Letters Patent No. 493,522, dated March 14, 1893.

Application filed March 28, 1892. Serial No. 426,810. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD H. ROBESON, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Bagasse-Burners; 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 appertains to make and use the same.

My invention relates to furnaces and especially to such furnaces as are used with a hot blast as in the combustion of the bagasse from sugar cane.

Reference is had to the accompanying drawings, wherein the same parts are indicated by the same letters.

Figure 1 represents a longitudinal sectional view of the bagasse burner. Fig. 2 represents a section of the burner along the line  $xx$  in Fig. 1. Fig. 3 represents a side view of the sprocket wheel for moving the grate bars and of the grate bars and sprocket chain connecting them together. Fig. 4 represents a vertical section along the line  $yy$  of Fig. 1; and Fig. 5 represents a view of one of the air heaters for the hot blast.

A represents the furnace.

B represents a boiler, preferably one of the Babcock and Wilcox type.

C represents the air heaters for the hot blast, and D the back connection for carrying the products of combustion to the smoke stack.

The fuel may be fed in by the furnace door  $a$ ; or if bagasse is being burned it drops from the bagasse carrier E through the funnel F into furnace A. This funnel is provided with a suitable trap door  $f$  adapted to let the bagasse fall into the furnace and then speedily close itself.

The furnace A has side walls  $a'$  perforated at  $a^2$  with tuyeres for admitting hot air from the passages  $C^3$  connected to the pipes  $C^2$  leading from the air heaters C and  $C'$ . The bottom of the hearth is made water-tight and is kept constantly partly filled with water W.

The grate consists of an endless carrier G having the grate bars  $g$  connected together by links of chains  $g'$  the teeth on the sprocket wheels  $G'$  and  $G^2$  engage these links, and the

grate bars may be moved forward or backward by turning either of these sprocket wheels. For this purpose a hand crank H may be provided to fit on the shaft of one of the sprocket wheels  $G'$ , for instance, or the motion may be given to the grate bars by any suitable mechanical gearing. The object of having the grate bars movable is to facilitate cleaning and repairing the grate; the clinker being readily removed at the front of the furnace, and the slag &c. being also dumped out in front. The part of the grate not supporting the burning material is immersed in the water W. This not only prevents the bars from burning out but the vapor from the water will rise up in the furnace and aid combustion. The fire is started with a little kindling put in through the door  $a$ ; but after it has gotten to burning well the door  $a$  remains closed and the fuel is fed in through the funnel F.

The air to support combustion is forced through the pipe  $C^1$ . This connects with the cold air blast pipes  $C^4$  and  $C^5$  which latter has an orifice underneath the grate bars either above or below the surface of the water W. The pipe  $C^1$  also connects with the air heater C which opens into the heater  $C'$ ; and by means of the hot air pipe  $C^2$  and the passages  $C^3$ , hot air is forced into the sides of the furnace above the grate bars through the tuyeres  $a^2$ . The hot air pipe  $C^2$  has a damper  $c^2$  and the cold air pipe  $C^5$  has a damper  $c^5$  to regulate the flow of air through them.

The air heaters consist of two rectangular chambers  $c'$  connected together by the vertical flues  $c$ ; and between these vertical flues the products of combustion pass, thus heating up the air in said flues. The hot air pipes  $C^2$  and passages  $C^3$  also pass through hot portions of the furnace and act as air heaters. A damper  $c^1$  limits the amount of air forced into the heaters. The fan or other device for forcing in the air is not shown.

I do not wish to limit myself to the exact details of construction herein described, as many modifications and variations would readily suggest themselves to one skilled in the art, which could be used without departing from the spirit of my invention; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. In a burner of the character described, the combination with a hearth having a water-tight base extending the full length of the furnace and partly filled with water, of an endless grate passing over two drums or rollers one at each end of said furnace, said grate moving toward the front of said hearth and having its upper portion above said water and supporting the fuel, and its lower portion passing beneath said water, with means for feeding said fuel from the top of the furnace on said grate, as and for the purposes described.

2. In a burner of the character described, the combination with a hearth having a water-tight base extending the full length of the furnace and partly filled with water, and

tuyeres in the side thereof for admitting air, of an endless grate passing over two drums or rollers one at each end of said furnace, said grate moving toward the front of said hearth and having its upper portion above said water and supporting the fuel, and its lower portion passing beneath said water, with means for feeding said fuel from the top of the furnace on said grate, as and for the purposes described.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD H. ROBESON.

Witnesses:

FRED J. MAYER,

CHAS. W. HILTON.