

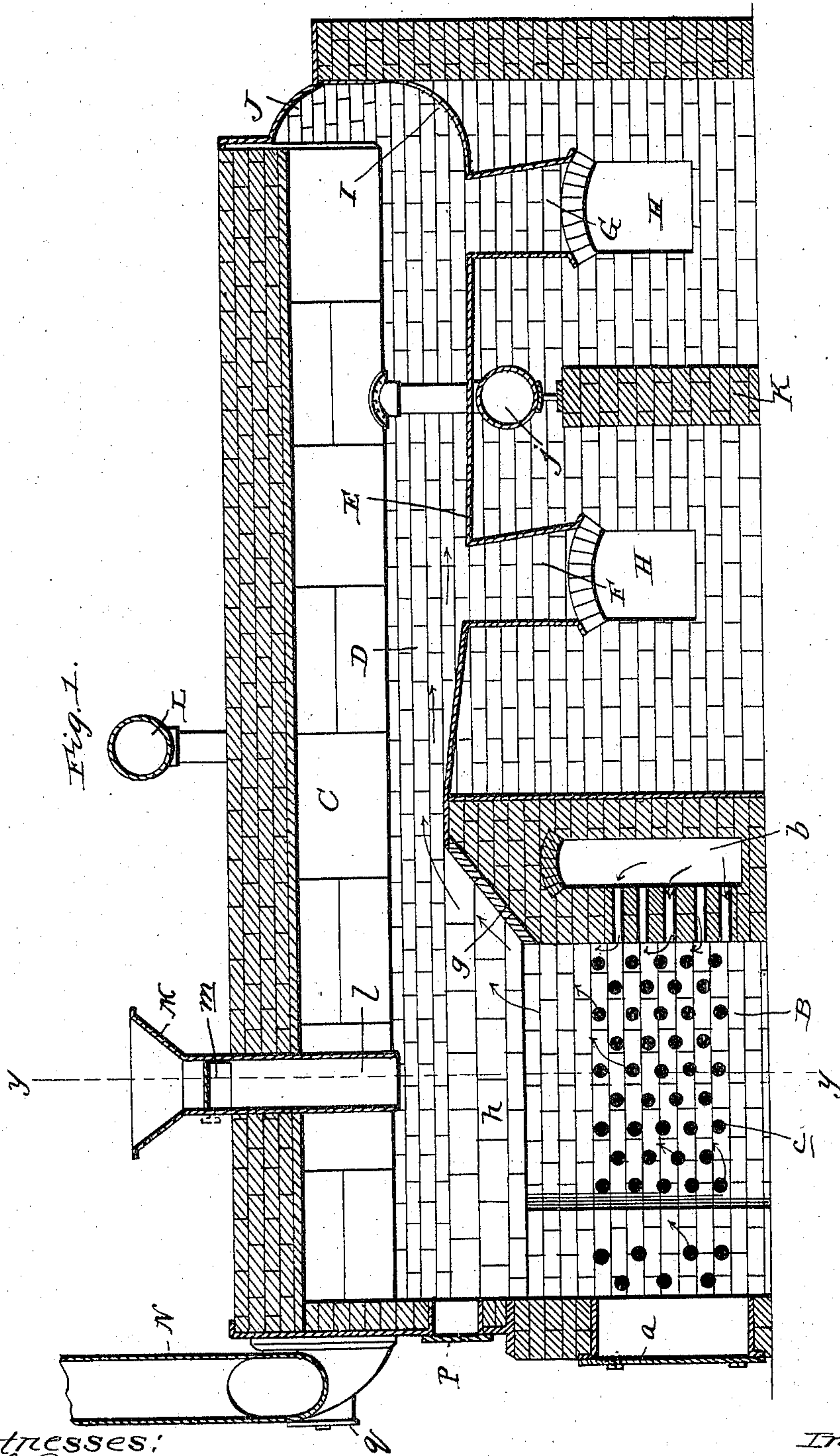
(No Model.)

3 Sheets—Sheet 1.

E. BOUDREAU.
BAGASSE FURNACE.

No. 575,324.

Patented Jan. 19, 1897.



Witnesses:

C. A. Raeder
J. H. Griffin

Inventor

E. Boudreau
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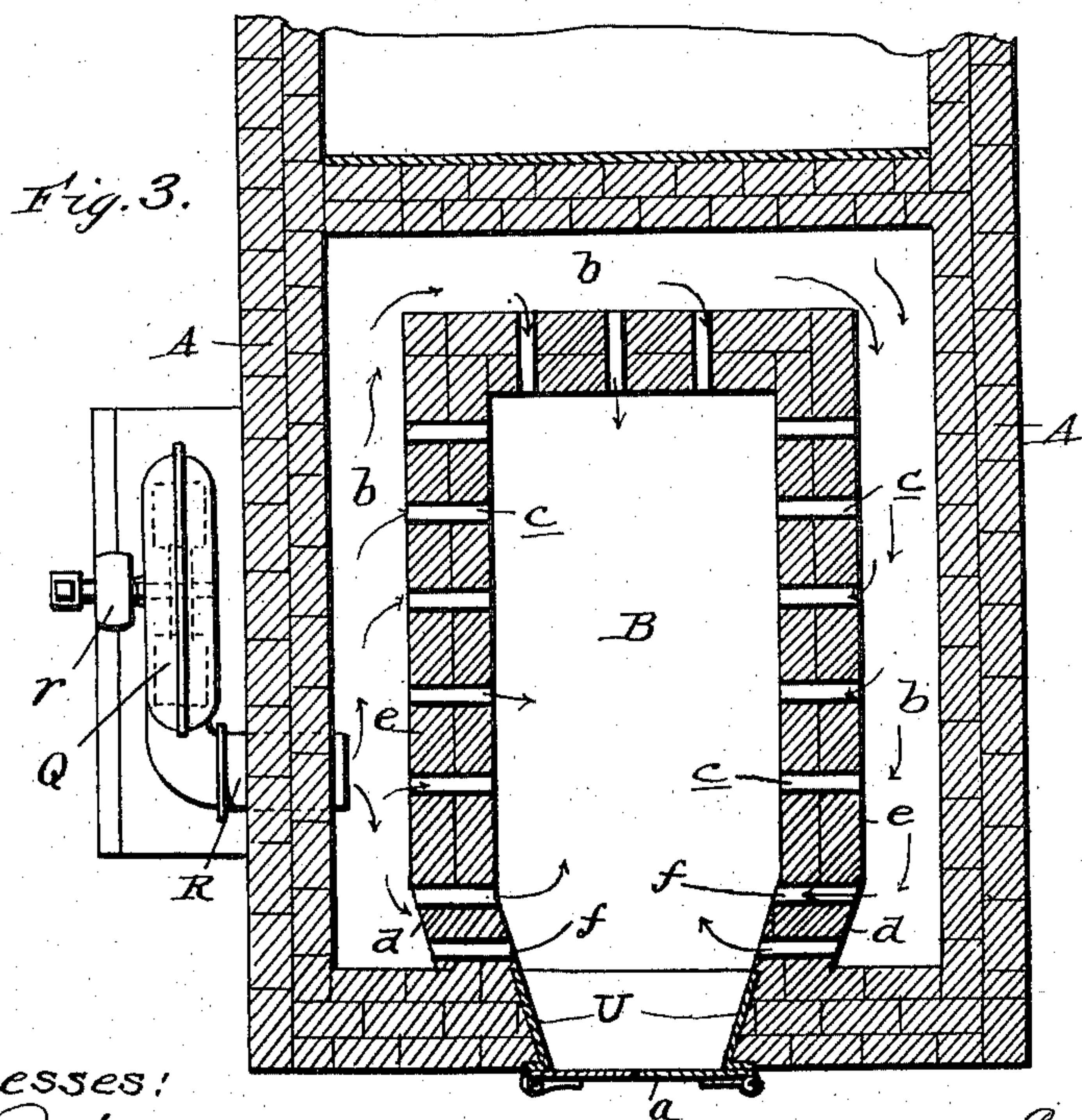
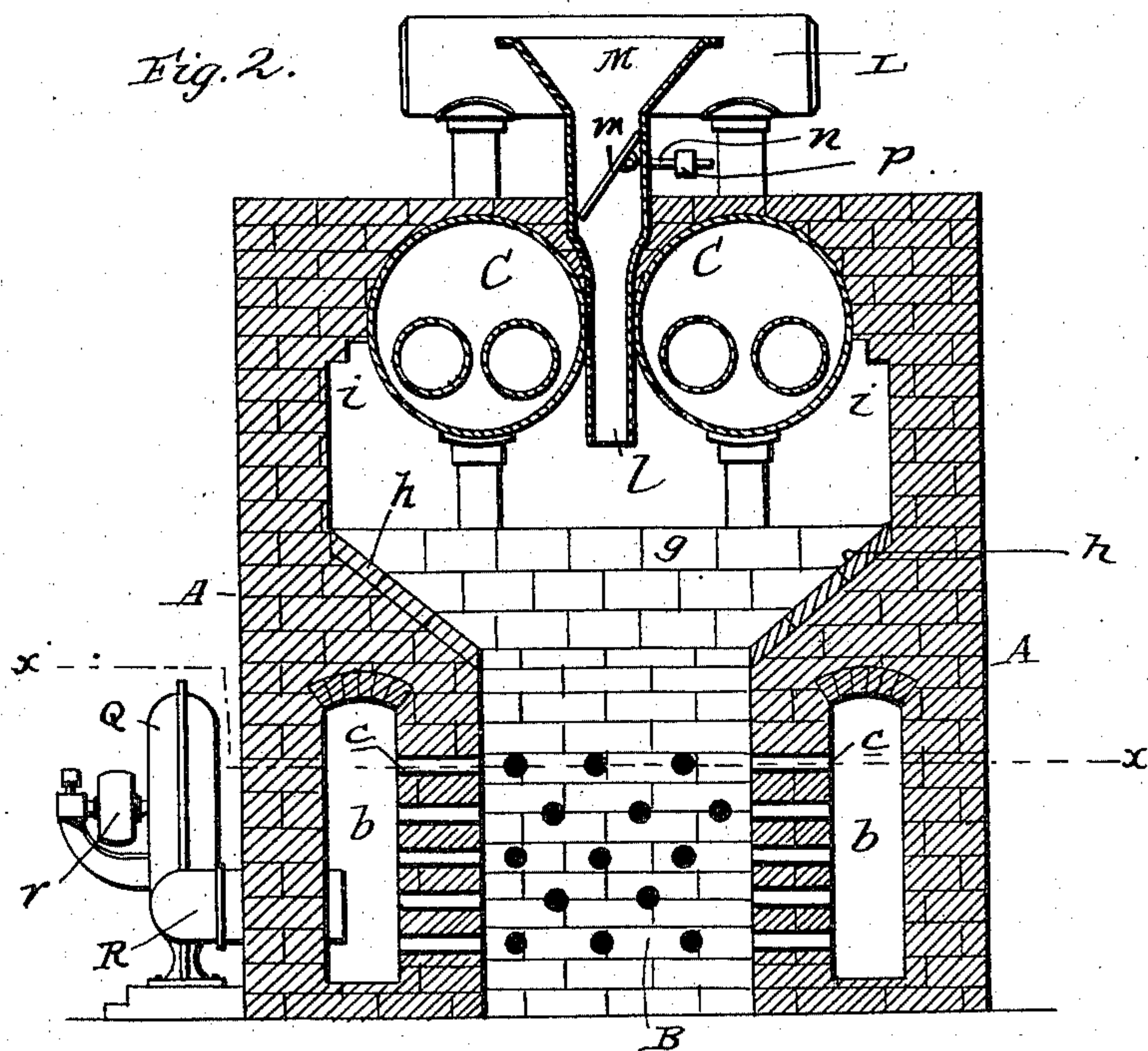
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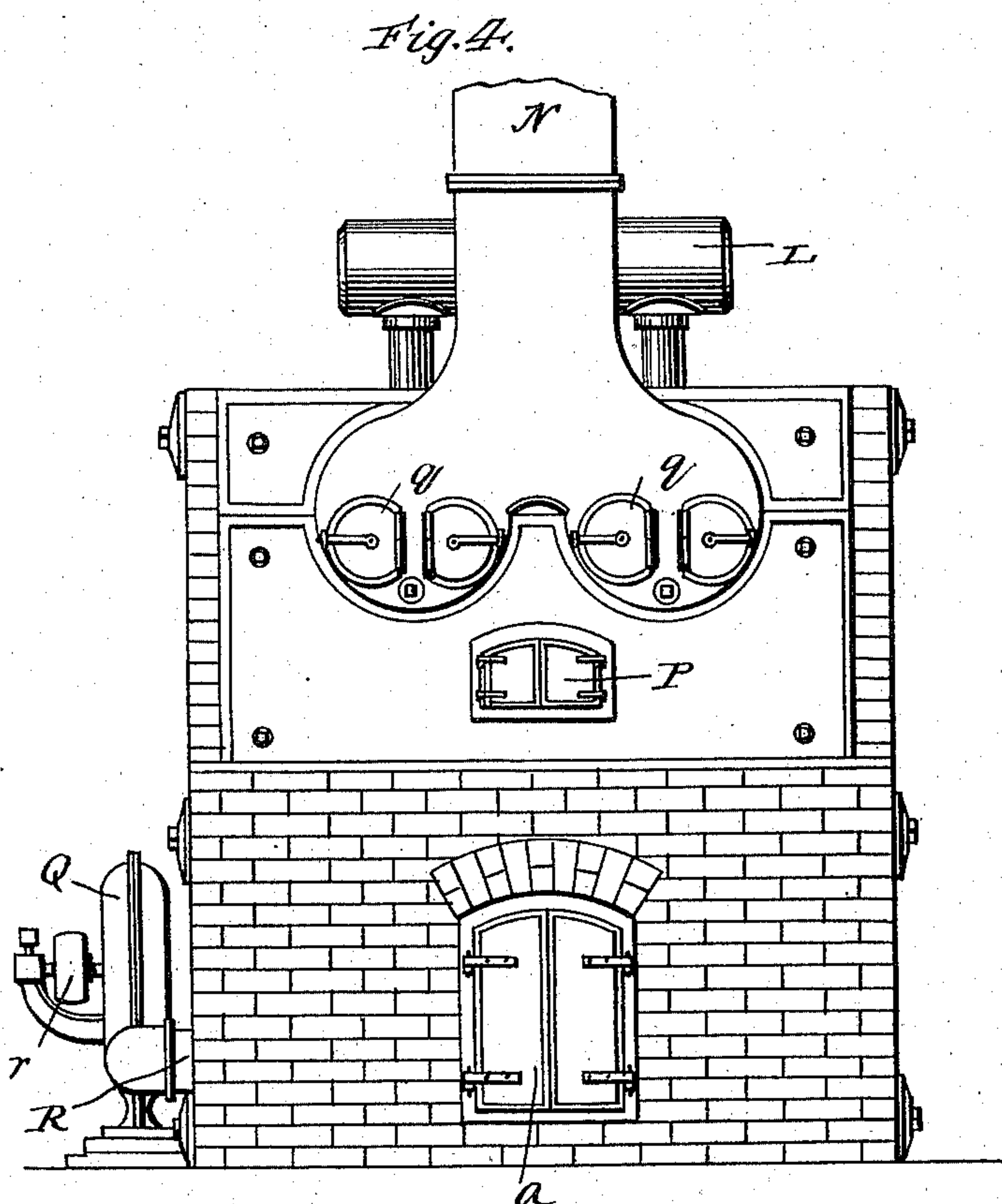
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UNITED STATES PATENT OFFICE.

ERNEST BOUDREAUX, OF ALBEMARLE, LOUISIANA.

BAGASSE-FURNACE.

SPECIFICATION forming part of Letters Patent No. 575,324, dated January 19, 1897.

Application filed April 18, 1896. Serial No. 588,120. (No model.)

To all whom it may concern:

Be it known that I, ERNEST BOUDREAUX, a citizen of the United States, residing at Albemarle, in the parish of Assumption and State of Louisiana, have invented certain new and useful Improvements in Bagasse-Furnaces; and I do 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.

This invention relates to improvements in furnaces for burning bagasse, sawdust, and the like.

Owing to the present very low price of sugar the cheap construction of a furnace which will effectively burn bagasse, sawdust, and like fuel has become an important desideratum. The grate-bars of furnaces, which are first to become impaired and burned out, have been known to be an expensive element in such devices, and to obviate the employment of a grate many attempts have been made, but up to the present time such furnaces as have been constructed without grate-bars are equally as expensive as the ones which heretofore employed grates.

The prime object of my invention is to reduce the cost of the furnace by dispensing with the grate-bars, using a less amount of brickwork than at present employed, and to so construct the furnace that it will give off the greatest amount of heat from the smallest amount of cheap fuel, such as bagasse, which is always found in abundance in sugar-producing localities.

My invention will be fully understood from the following description and claims when taken in conjunction with the accompanying drawings, in which—

Figure 1 is a longitudinal central sectional view of my improved furnace. Fig. 2 is a vertical sectional view taken on the line *y y* on Fig. 1. Fig. 3 is a sectional plan view taken on the line *x x* of Fig. 2 with parts broken away, and Fig. 4 is a front elevation with a part of the smoke-stack broken away.

Referring by letter to said drawings, A indicates the side walls of my improved furnace. These walls of the casing are of a sufficient thickness and height and are composed of brick or other material, such as employed in the building of furnaces.

B indicates the furnace, which is arranged in the bottom at the forward end of the masonry. This furnace is without a grate of any kind and is provided with a door or doors *a* for obtaining access to the interior of the furnace or fire-chamber for removing ashes or for other purposes. At the sides and rear of the fire-chamber is a blast-chamber *b*, and the side and rear walls of said furnace are provided with a suitable number of twyers *c*, which are preferably arranged in a staggering manner.

In order to obtain the best results and more effectively direct the blast into the fuel or fire bed, I would form recesses *d* in the side walls *e* of the brickwork or masonry forming the furnace, and in this recessed portion are twyers *f*, so that the blast may be directed not only from both sides and rear, but will also be directed from the front into the fire or fuel. The interior of the chamber has the jambs flared, as shown at *U*, so as to facilitate the removal of ashes and the like from the chamber.

C indicates the flue-boilers, there being two shown in the present illustration, but it is obvious that more may be employed. These boilers are disposed longitudinally and are supported at front and rear on the brickwork or masonry in a substantial manner. The brickwork or masonry at the rear of the furnace or fire-chamber is slanted or pitched throughout its length, as shown at *g*, and the side walls of the furnace are also pitched or inclined on their tops, as shown at *h*, so as to present a flaring exit for the flame and particles of combustion and direct the same well upwardly under and around the front parts of the boiler.

In order that the heat and particles of combustion may be directed under the boilers, I arrange the masonry or side walls, as better shown in Fig. 2 of the drawings, with a space *i*. I attach importance to this construction of the furnace and the employment of the blast-chamber at the sides and rear of the same, as I have found such construction to be very effective.

In order to dispense with as much brickwork as possible, I form the base of the passage D of sheet metal E or other suitable material, and at suitable points in the base of

this passage I form depending recesses or chambers F and G for the reception of ashes, dust, and other matter that may be carried by the draft. Doors H are provided for obtaining access to the chambers F and G, so that the ashes or such deposit as is received therein may be conveniently removed. This flame-passage D is curved at the rear end, as shown at I, and is also curved, as shown at J, so that there may be no angles presented and consequently no interruption to the gases and particles of combustion.

K indicates the bridge-wall, upon which the mud-drum *j* is arranged, and L indicates the steam-drum, which may be of the usual construction.

M indicates a hopper, to which the bagasse or other fuel may be fed by an endless carrier or other suitable means. This hopper is arranged directly above the furnace or fire-chamber and has a spout *l*, which extends between the boilers, so as to discharge the contents into the furnace at a point beneath and at the forward portions of said boilers. In the base of the hopper is a valve *m*, which is suitably hinged therein and carries a laterally-projecting arm *n*, which in turn carries a slidable weight *p*. By this means the weight can be adjusted on the arm so as to normally hold the valve closed, the valve being opened by the weight of the fuel fed therein, and will automatically close when the feeding ceases.

N indicates the chimney or smoke-stack, which may be of the construction usually employed and is adapted to connect with the flues of any number of boilers, a door *q* being provided for each flue, and a door or pair of doors P should be provided at a suitable altitude in the front wall of the furnace for the introduction of a poker or bar to manipulate the fire. These doors may also serve as a means for feeding hard fuel should it be desirable to use the same.

Q indicates a fan-chamber, which carries a rotary fan or blower, and this chamber is connected with the draft-chamber by a pipe R, which passes through one of the side walls of the masonry. The fan-shaft may have a pulley *r* to receive a drive-belt, or any suitable

means may be employed for driving the fan and operating the blast.

Having described my invention, what I claim is—

1. The bagasse-furnace comprising the casing of masonry having the openings H, at intervals in one of its side walls, a furnace or combustion-chamber at the forward end of the casing, the horizontal flue-boilers arranged in the casing above the furnace or combustion-chamber, the transversely-disposed metallic plates serving in conjunction with the boilers, and the top and side walls of the casing to form the passage D, below the boilers and having the depending portions forming, in conjunction with the side walls of the casing, the chambers F, G, in communication with the door-openings H; the rear plate being curved so as to guide the smoke and particles of combustion into the rear ends of the boiler-flues, and the smoke-stack communicating with the opposite ends of the boiler-flues, all substantially as and for the purpose specified.

2. The bagasse-furnace described comprising the fire-chamber formed by the side walls of the casing and the transverse wall and having the door-opening in the front wall of the casing and also having the jambs U, of said door-opening flared, the blast-chamber formed in the side walls of the casing and the transverse wall and having the transversely-enlarged portions or recesses *d*, at the forward ends of its longitudinal portions, twyers connecting the transverse and longitudinal portions of the blast-chamber and the interior of the fire-chamber and also connecting the enlarged portions or recesses *d*, at the forward ends of the longitudinal portions so as to feed air to the front of the fire, and a suitable blast-creating device connected with the blast-chamber, substantially as and for the purpose specified.

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

ERNEST BOUDREAUX.

Witnesses:

R. H. DOSSAT,
A. CHARLET.