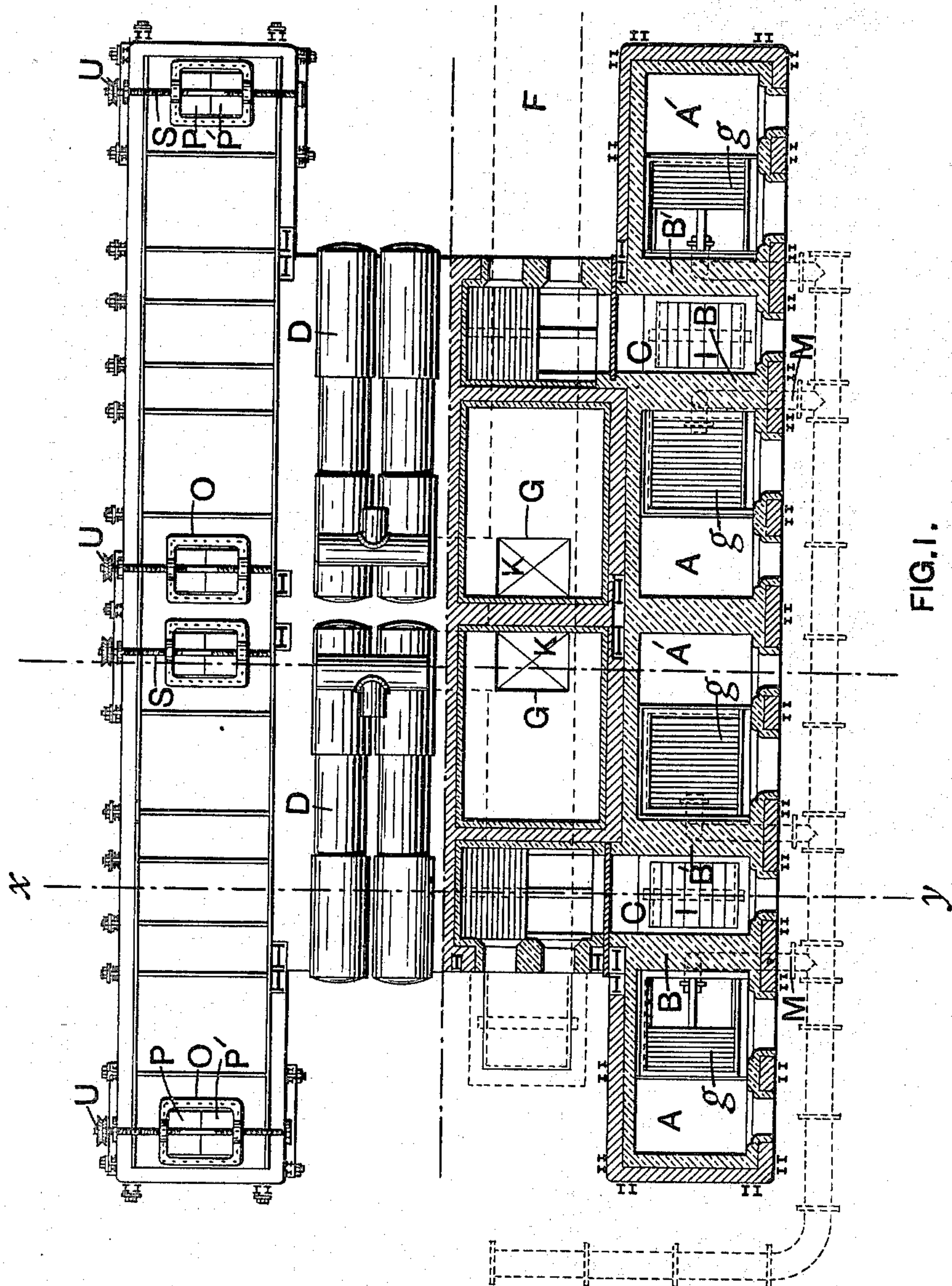


No. 661,463.

Patented Nov. 6, 1900.

J. WILKIE.
DESTRUCTOR FURNACE.
(Application filed Apr. 10, 1900.)

3 Sheets—Sheet 1.



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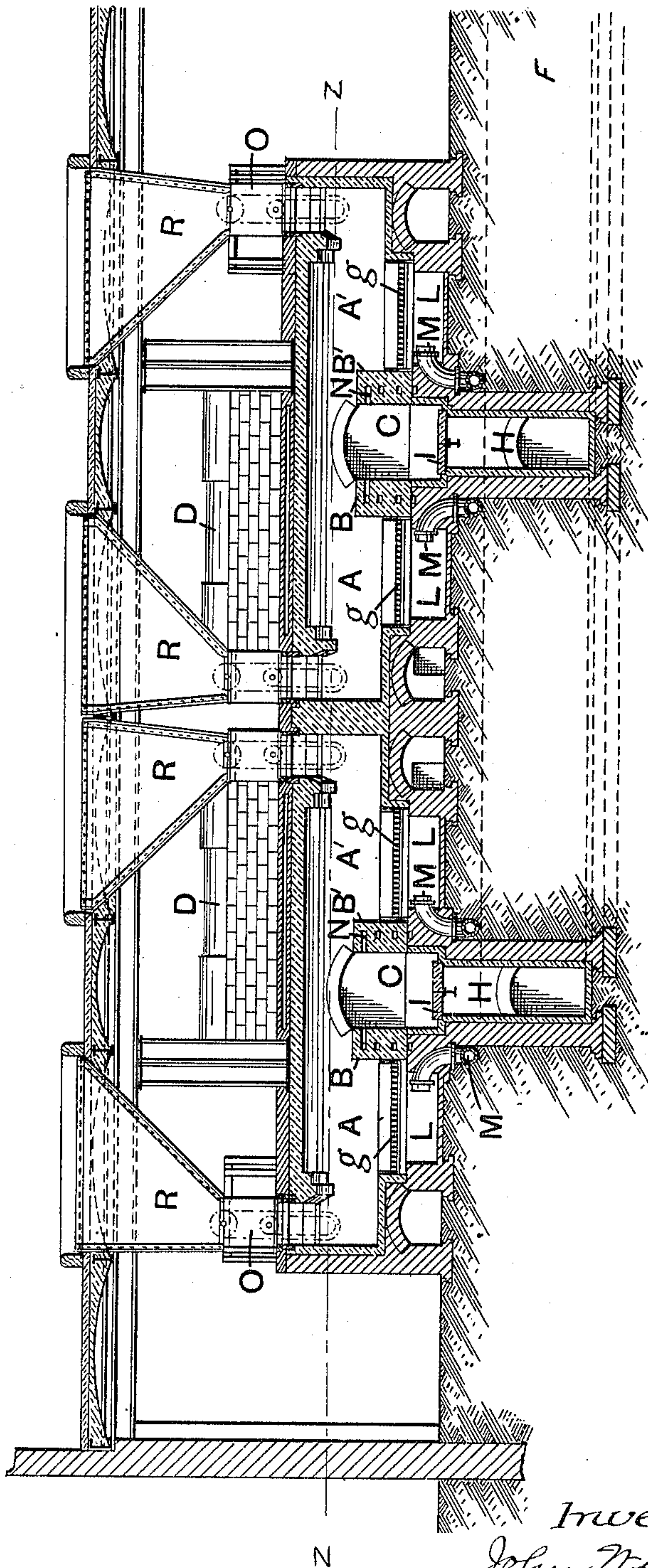
DESTRUCTOR FURNACE.

(Application filed Apr. 10, 1900.)

(No Model.)

3 Sheets—Sheet 2.

FIG. 2.



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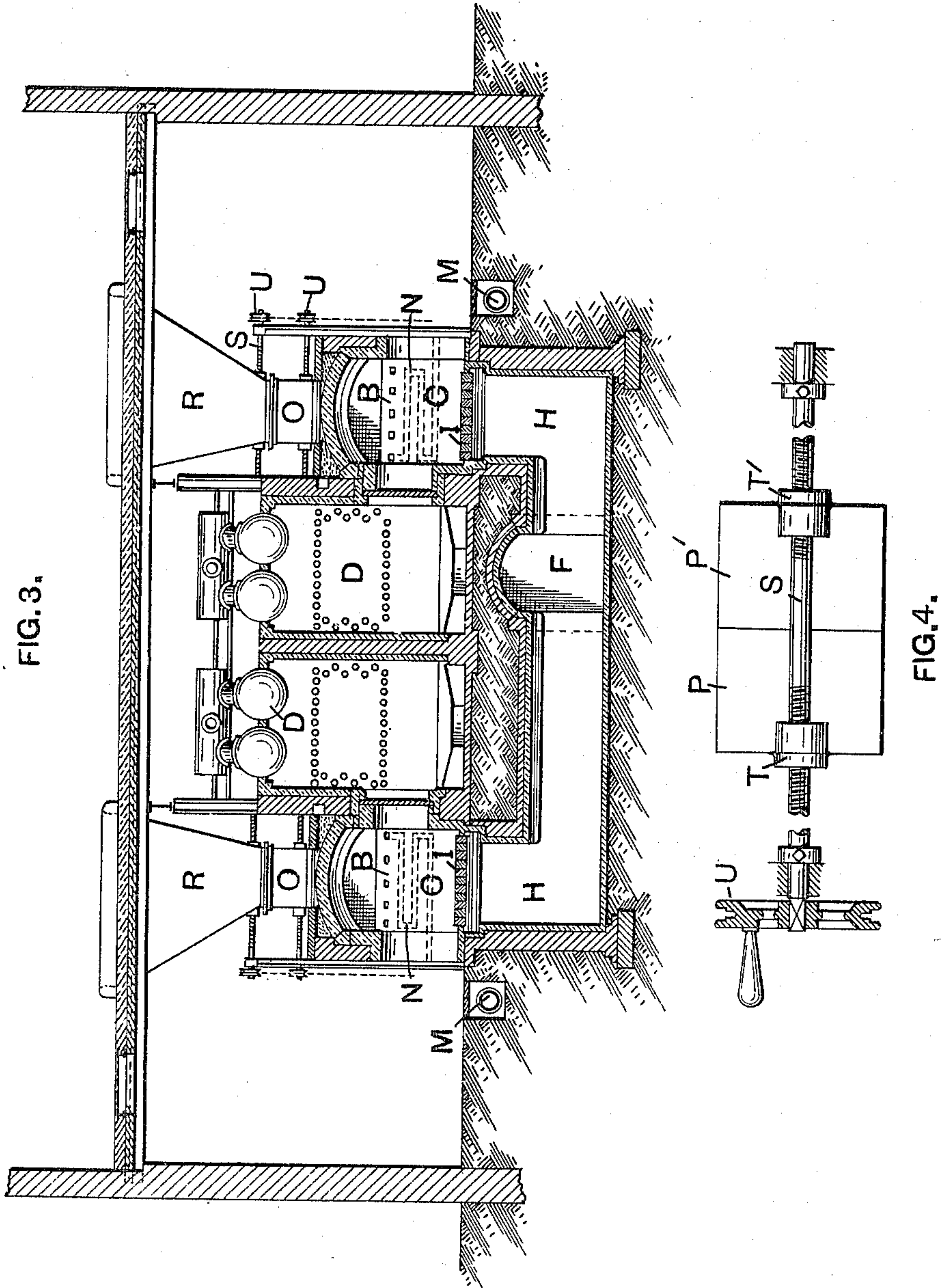
Patented Nov. 6, 1900.

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DESTRUCTOR FURNACE.

(Application filed Apr. 10, 1900.)

(No Model.)

3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

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DESTRUCTOR-FURNACE.

SPECIFICATION forming part of Letters Patent No. 661,463, dated November 6, 1900.

Application filed April 10, 1900. Serial No. 12,308. (No model.)

To all whom it may concern:

Be it known that I, JOHN WILKIE, a citizen of the British Empire, residing at Manchester, in the county of Lancaster, England, have invented certain new and useful Improvements in Destructor-Furnaces, of which the following is a full, clear, and exact description.

This invention relates to destructor-furnaces, such as may be employed for the destruction of towns' refuse. Its chief objects are to obtain a more complete combustion of the articles or material treated, to economize space and thereby reduce cost, to more fully utilize the heat produced in such furnaces, and to provide means for charging the fuel or refuse upon the hearths without the necessity for handling.

In carrying these improvements into effect two of the furnaces or cells are arranged end to end at their fire-bridge ends, sufficient space being left between their respective fire-bridges to form a secondary combustion-chamber, which is provided with a lateral or other opening through which the flame, gases, and other products of combustion may be led to a steam-generator or to be otherwise utilized. One steam-generator may, if desired, be employed in conjunction with each pair of cells, several pairs of such cells may be arranged in series and a plurality of such series may be arranged parallel with each other. Any pair of cells arranged as above described may be furnished with means by which they may be isolated from the steam-generator or other heat-utilizer. To enable this to be done, the bottom of the chamber may be provided with a by-pass to the main flue, which is ordinarily closed. When it is desired to cut out the steam-generator or heat-utilizer, the flue leading to it is closed and the by-pass is opened.

The hopper by means of which the fuel or refuse is supplied to the hearth may be constructed in two parts or of two superimposed hoppers. The upper hopper or part is adapted to have the contents of the collecting-carts tipped directly into it. A door is arranged between the upper and the lower parts, the opening and closing of which controls the passage of the material to the lower hopper. Similarly the lower end of the lower hopper

is provided with a door, the opening and closing of which controls the supply of the material to the hearth. The upper hopper may be provided with a screen or grid to prevent bulky articles passing to the lower hopper.

In the accompanying drawings, to which reference is hereinafter made, Figure 1 shows a plan, partly in section, along line $z z$; Fig. 2, a longitudinal section; Fig. 3, a section along the line $x y$, Fig. 1; and Fig. 4, a plan view of the hopper-slides.

The individual cells or furnaces constituting each pair are respectively indicated at A and A'. They are arranged in line one with the other, so that their fire-bridges B B' are opposed, and the space between the fire-bridges is inclosed, so as to constitute a secondary combustion-chamber C. There is thus only one single secondary combustion-chamber in communication with two otherwise separate cells or furnaces. In small installations one such pair of cells and a single secondary combustion-chamber may be used alone as an elementary unit. The products of combustion from the secondary combustion-chamber can be led direct to the furnace of the steam-generator D or to any other suitable apparatus, such as a refuse-drier, in connection with which their heat may be utilized. From the steam-generator or heat-utilizer the gases may pass into the main flue F through openings G, and thence to the chimney. In larger installations various combinations and arrangements of the cells may be employed. For example, as shown by Figs. 1 and 2, two pairs of cells are arranged in series and there are two parallel series, including eight cells. In Fig. 1 one of the series is shown in full plan and the other in horizontal section, taken just above the grate-level. By means of dampers controlling the openings G any of the heat-utilizers can be cut out for repairs and other purposes. When this is done, it is arranged that the products of combustion shall be diverted through a by-pass flue, such as H, the entrance to which is normally closed—as, for example, by the false bottom I in the chamber C. When the passage to the heat-utilizer is closed, this false bottom or its equivalent is temporarily removed, so

as to open the by-pass. In the contrary case the false bottom or its equivalent is replaced, whereupon the damper K, controlling the opening G, is opened.

5 In the construction of the furnaces illustrated by the drawings the air necessary for the combustion of the refuse is supplied through the grates *g g* and closed ash-pits L L from the pipe M, which is connected with a
 10 blower or other source of air under pressure. The supply of air for secondary combustion is also derived from the pipe M through passages N, formed in the fire-bridges, as is already commonly practiced in similar cases. A con-
 15 venient form of hopper through which the refuse may be fed to the furnace or cell without permitting the escape of the hot gases under pressure of the forced blast has below it an extension O, the upper and lower ends of which
 20 are respectively fitted with sliding plates P P', Fig. 4. When the upper plates are withdrawn or opened, refuse falls upon and is arrested by the closed lower plates and fills the extension O. The upper plates are then
 25 closed and the lower ones opened, whereupon the refuse thereto contained in the extension falls into the cell. The lower plates are then closed and the operation may be repeated. The refuse is tipped from the carts direct into
 30 the hoppers R, and to prevent the entrance of articles too large to pass their upper ends may be fitted with coarse or open screens or grids. To open and close the slides P P', I may employ a rod S, having one part threaded with
 35 a right-hand and the other part with a left-hand screw - thread. These two threaded

parts work in correspondingly threaded nuts T T', fixed upon the slides P P', so that by rotating the rod S in the required direction the necessary motion of the plates is insured. 40
 The rod may be rotated by hand or by power through the sprocket wheel or pulley U.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a refuse-destroyer, two cells in line 45 with each other and having a feed-hopper at each of their outer ends, a secondary chamber in line between the cells, a furnace in each cell between the said chamber and the feed area, two fire-bridges constituting parts 50 of opposed walls of the secondary chamber, a flue connecting the said chamber with a heat-utilizing apparatus, and a by-pass through which the chamber may be placed in direct communication with the chimney, substan- 55 tially as set forth.

2. In a refuse-destroyer, two cells in line with each other and having a feed-hopper at each of their outer ends, a secondary chamber in line between the cells, a furnace in 60 each cell between the said chamber and the feed area, two fire-bridges constituting parts of opposed walls of the secondary chamber, and an outlet for the gases passing from the furnaces through the chamber, substantially 65 as set forth.

In witness whereof I have subscribed my signature in presence of two witnesses.

JOHN WILKIE.

Witnesses:

WILLIAM G. HEYS,
 ARTHUR MILLWARD.