

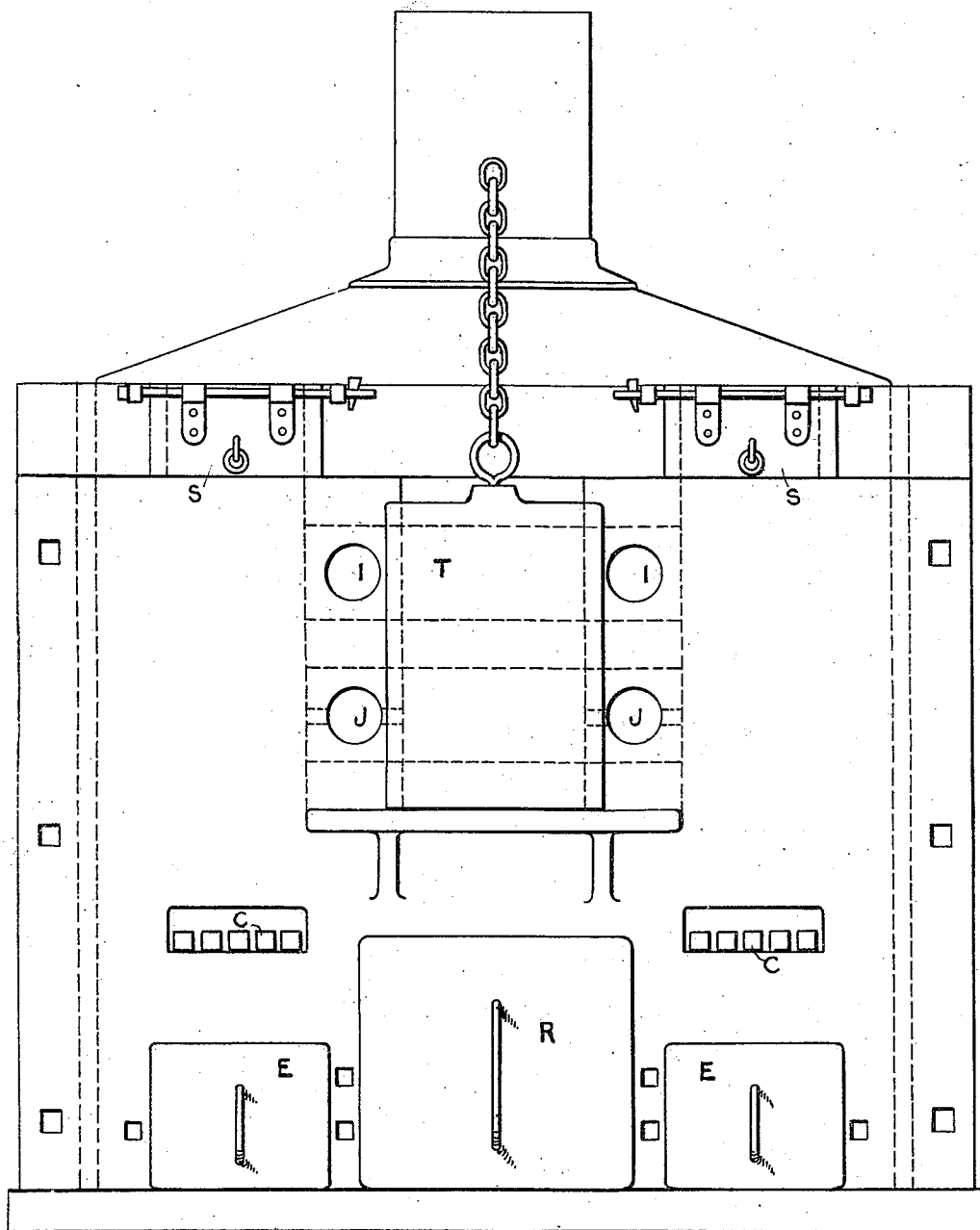
No. 843,574.

PATENTED FEB. 12, 1907.

G. BODSWORTH.
HEATING AND ANNEALING FURNACE.
APPLICATION FILED SEPT. 22, 1906.

4 SHEETS—SHEET 1.

FIG. 1.



Witnesses.
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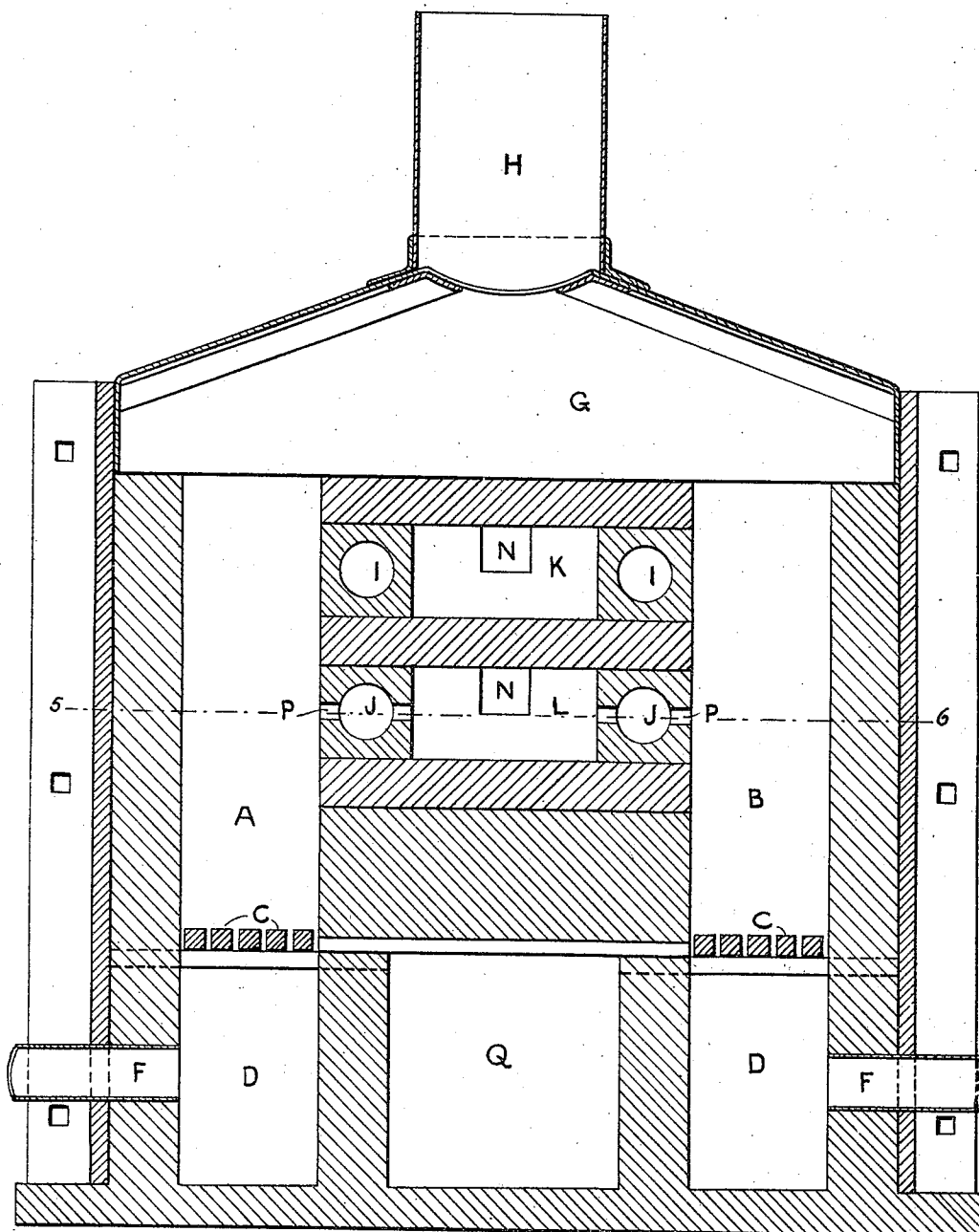
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4 SHEETS—SHEET 2.

FIG. 2.



WITNESSES

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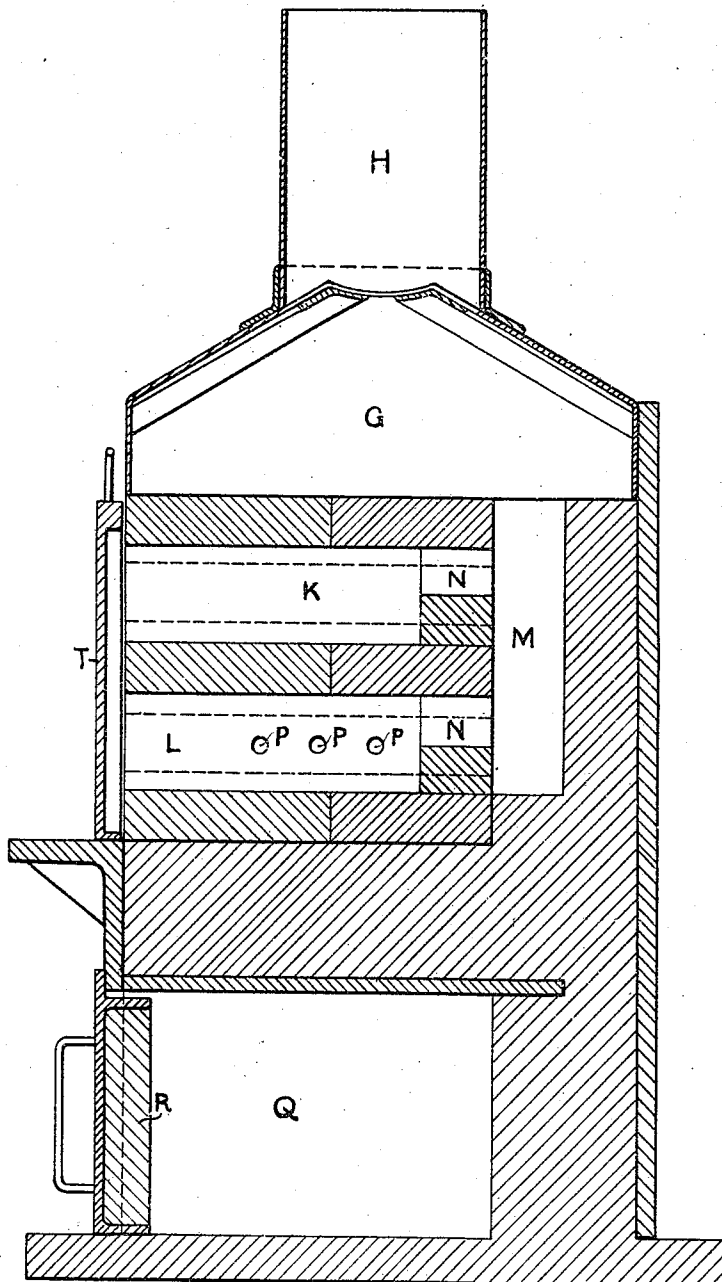
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4 SHEETS—SHEET 3.

FIG. 3.



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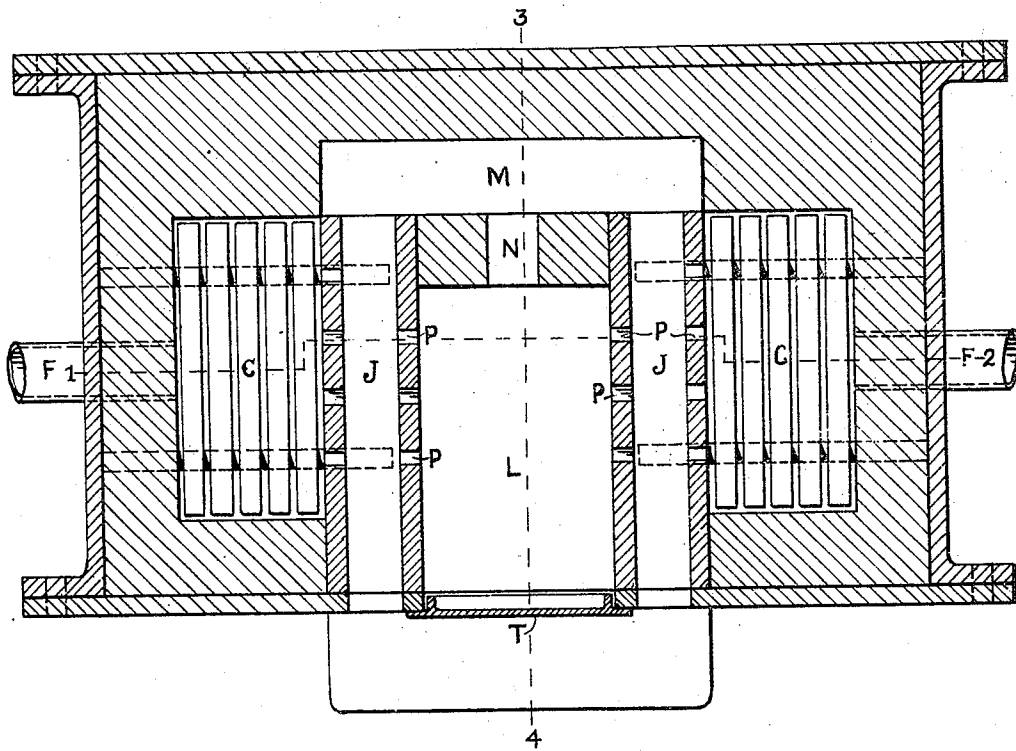
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4 SHEETS—SHEET 4.

FIG. 4.



WITNESSES.

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UNITED STATES PATENT OFFICE.

GEORGE BODSWORTH, OF SHEFFIELD, ENGLAND.

HEATING AND ANNEALING FURNACE.

No. 843,574.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed September 22, 1906. Serial No. 335,749.

To all whom it may concern:

Be it known that I, GEORGE BODSWORTH, a subject of the King of Great Britain and Ireland, and a resident of No. 14 Pass House Lane, city of Sheffield, county of York, England, have invented a certain new and useful Improvement in the Construction of Heating and Annealing Furnaces, (for which I have obtained a patent in Great Britain, No. 19,306, bearing date September 25, 1905,) of which the following is a specification.

The invention relates particularly to furnaces for heating and annealing such articles as twist drills and like tools made of high-speed steel requiring great care in bringing to the desired degree of heat.

Such a furnace is shown in the annexed drawings, Figure 1, front elevation of furnace; Fig. 2, sectional elevation on line 1 2 of Fig. 4; Fig. 3, sectional elevation on line 3 4 of Fig. 4; Fig. 4, sectional plan on line 5 6 of Fig. 2.

A furnace built according to the drawings, but not restricted to the proportions shown, consists of two firing-chambers A and B, located on opposite sides, each having fire-bars C, ash-pit D, and close-fitting doors E, air for combustion being admitted through pipes F to the under side of the fires, provided with means for regulating the draft. Between the said firing-chambers, which open upward into a common chamber G, leading to the exit-flue H, are the heating-chambers I J K L, which consist of two similar series of chambers, one series built over the other, the outside ones being those next to the firing-chambers, (marked I and J,) having interiors of tubular configuration, preferably, and opening into a flue M at the back. Sufficient space is left between these outside chambers to form the two heating or annealing ovens K and L, having outlets N into the flue M and closed in front by a counterbalanced door T. (Shown in Fig. 1.)

Passages P are made through the opposite sides of the chambers J to permit heated gases only to enter from the firing-chambers.

The space Q, below the line of the furnace-bars C, may also be utilized as an annealing-chamber and is provided with close-fitting

door R. Doors S S are for admitting fuel, preferably coke.

The degree of heat can be regulated or can be maintained at any degree below 2,000° Fahrenheit.

The outside chambers I and J being those next to the firing-chambers have their interiors preferably of tubular configuration, because being chiefly intended for heating twist-drills and like round tools such a shape is advantageous.

In the working of the furnace a number of drills would be put in the chambers K and L, and a smaller quantity taken from those would be placed in I, from which one or two would be removed by tongs and held by them in the lower chamber J, where they would rapidly become of the desired heat and from which they may be then removed.

The chambers K and L are the lowest gradation of heat, those marked I the next above, and those marked J are the hottest.

A furnace so constructed is used by two men—a two-man furnace.

Having now particularly described a furnace constructed according to my invention, what I wish to claim is—

1. A furnace having a central group of chambers located between two firing-chambers, the outside chambers I and J, being tubular with open ends, and the inner chambers K and L, being oblong, and provided with a door T, and openings N, as hereinbefore described and shown.

2. The combination within the walls of a furnace of a central group of heating and annealing chambers, built in series of three, one series above another, the outside ones being open tubes, and the inner ones being oblong, all opening at the back into a vertical flue, and located between two side firing-chambers, with an annealing or cooling oven below the said group, as hereinbefore described and illustrated.

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

GEORGE BODSWORTH.

Witnesses:

ROBERT F. DRURY,
BERNARD E. DRURY.