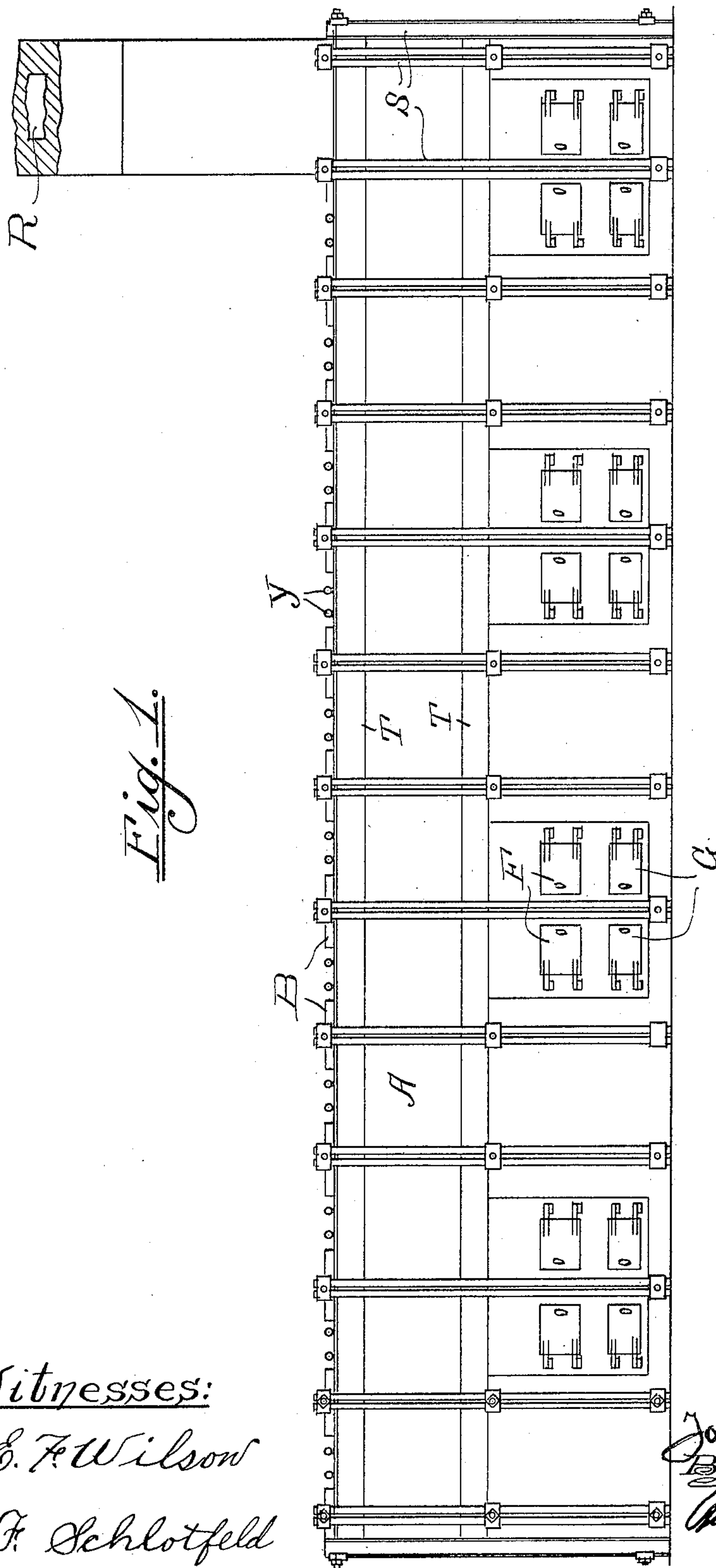


J. F. WARWICK.
WIRE ANNEALING FURNACE.
APPLICATION FILED JUNE 23, 1904.

3 SHEETS—SHEET 1.



Witnesses:

C. F. Wilson

F. Schlotfeld

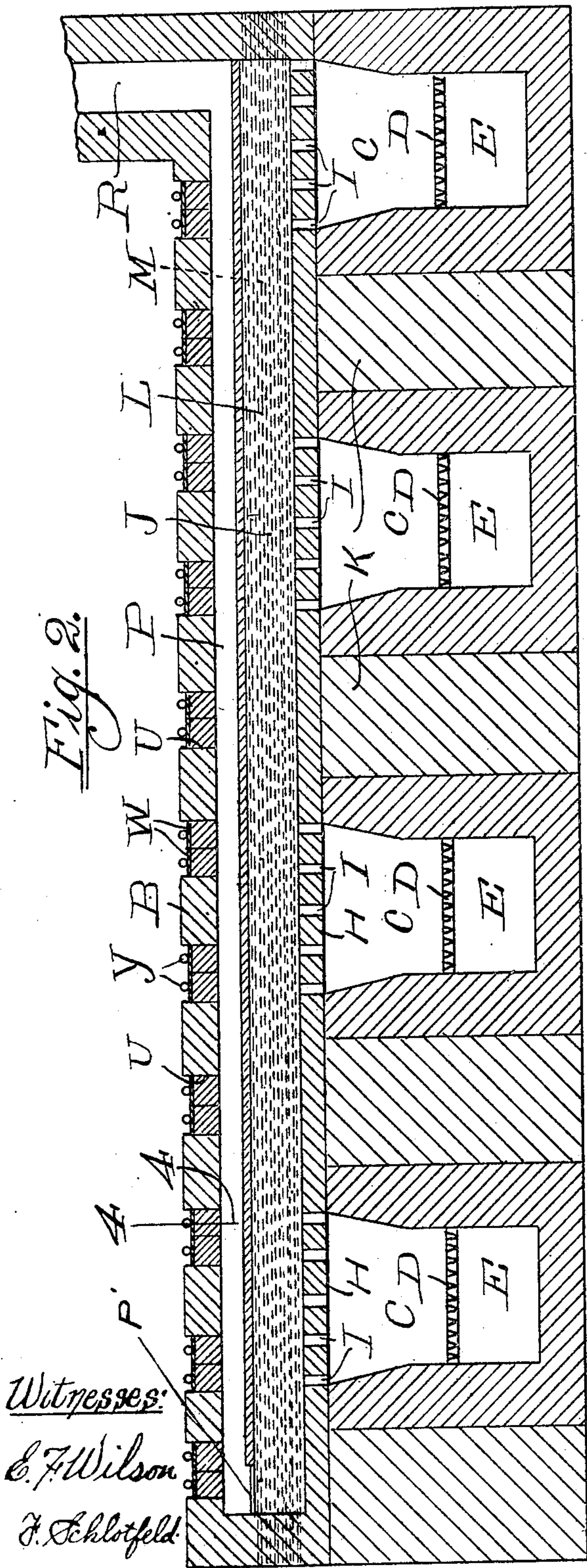
Inventor:

John F. Warwick

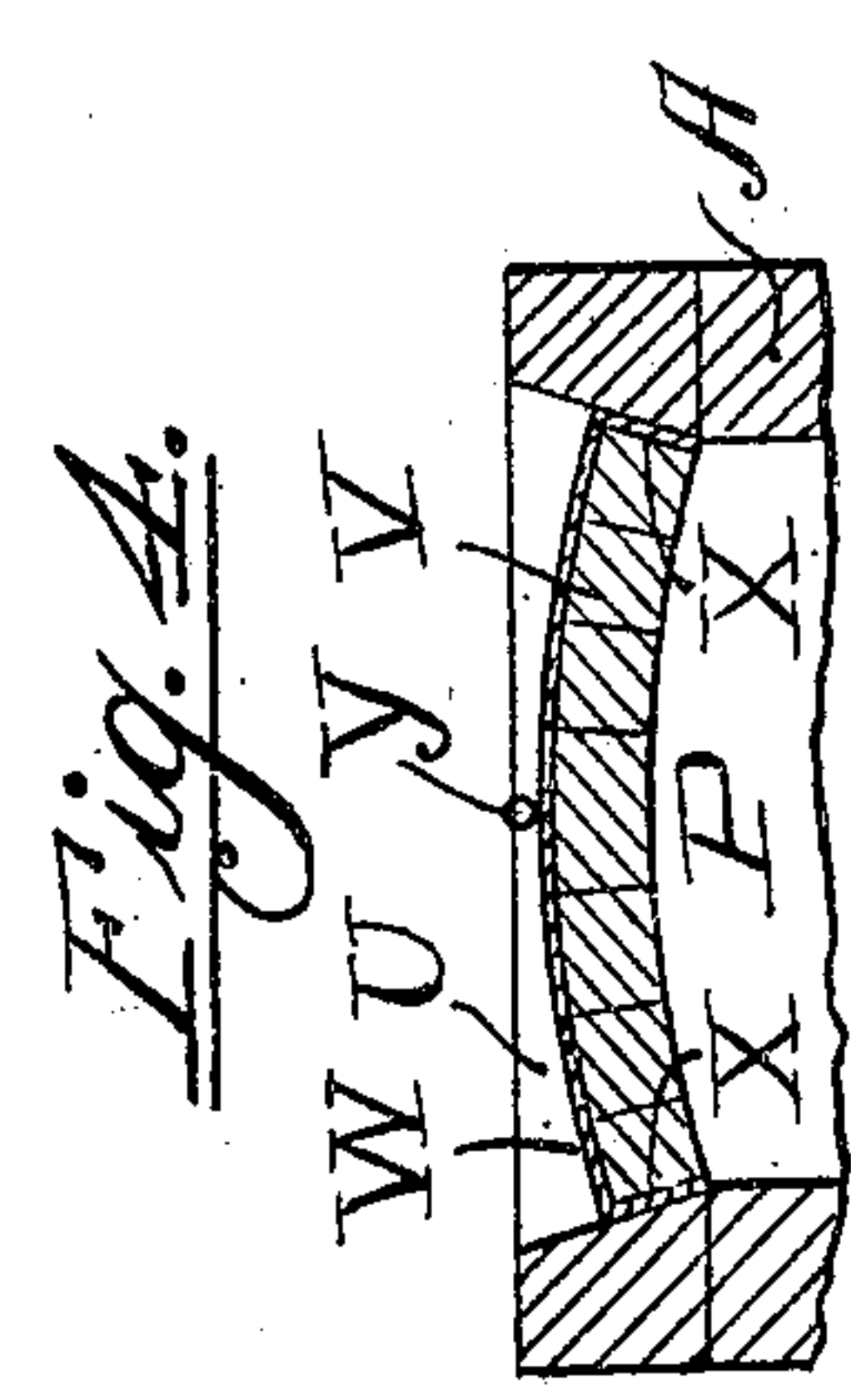
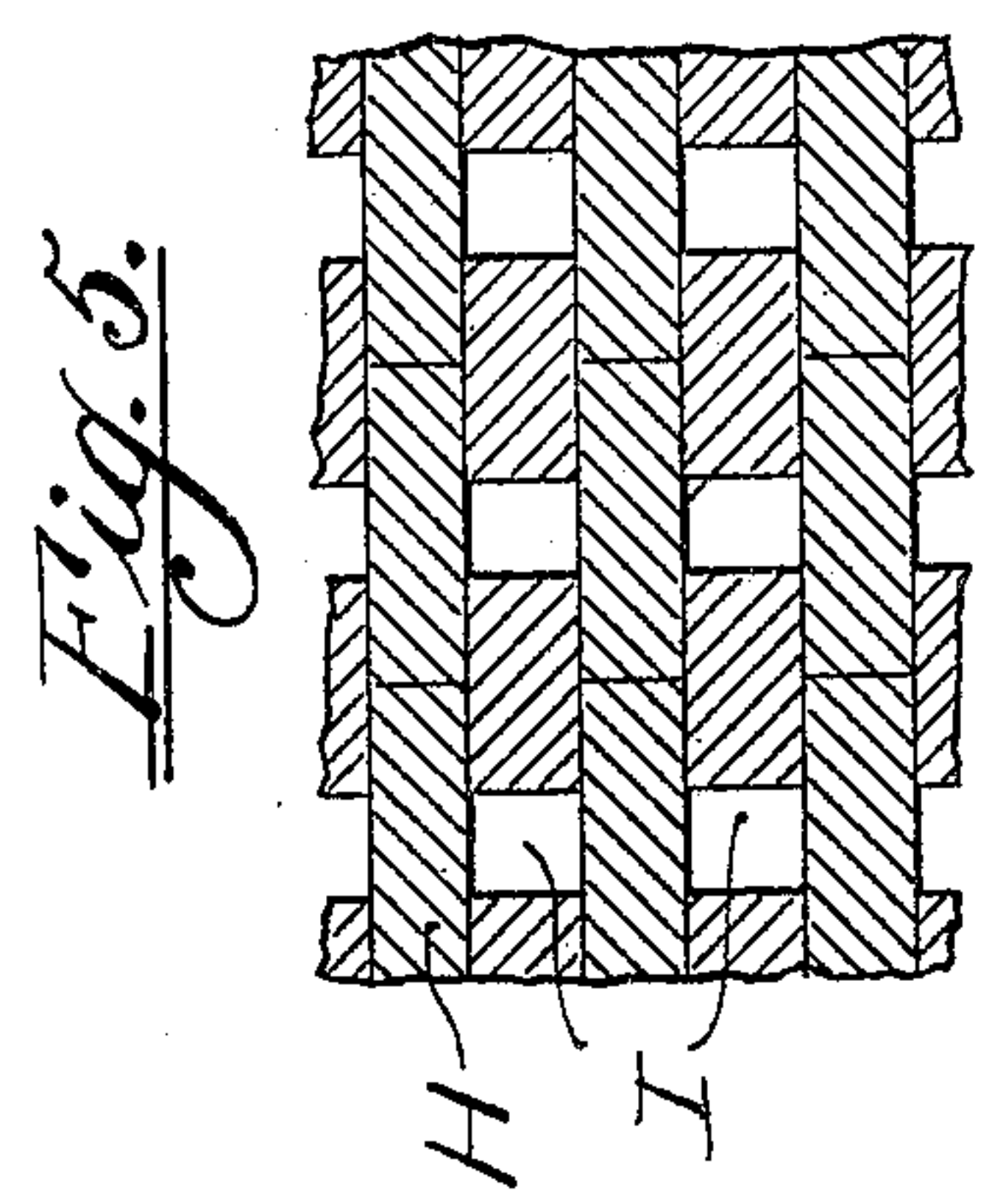
By
Charles H. [Signature]
Attorney.

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3 SHEETS—SHEET 2.



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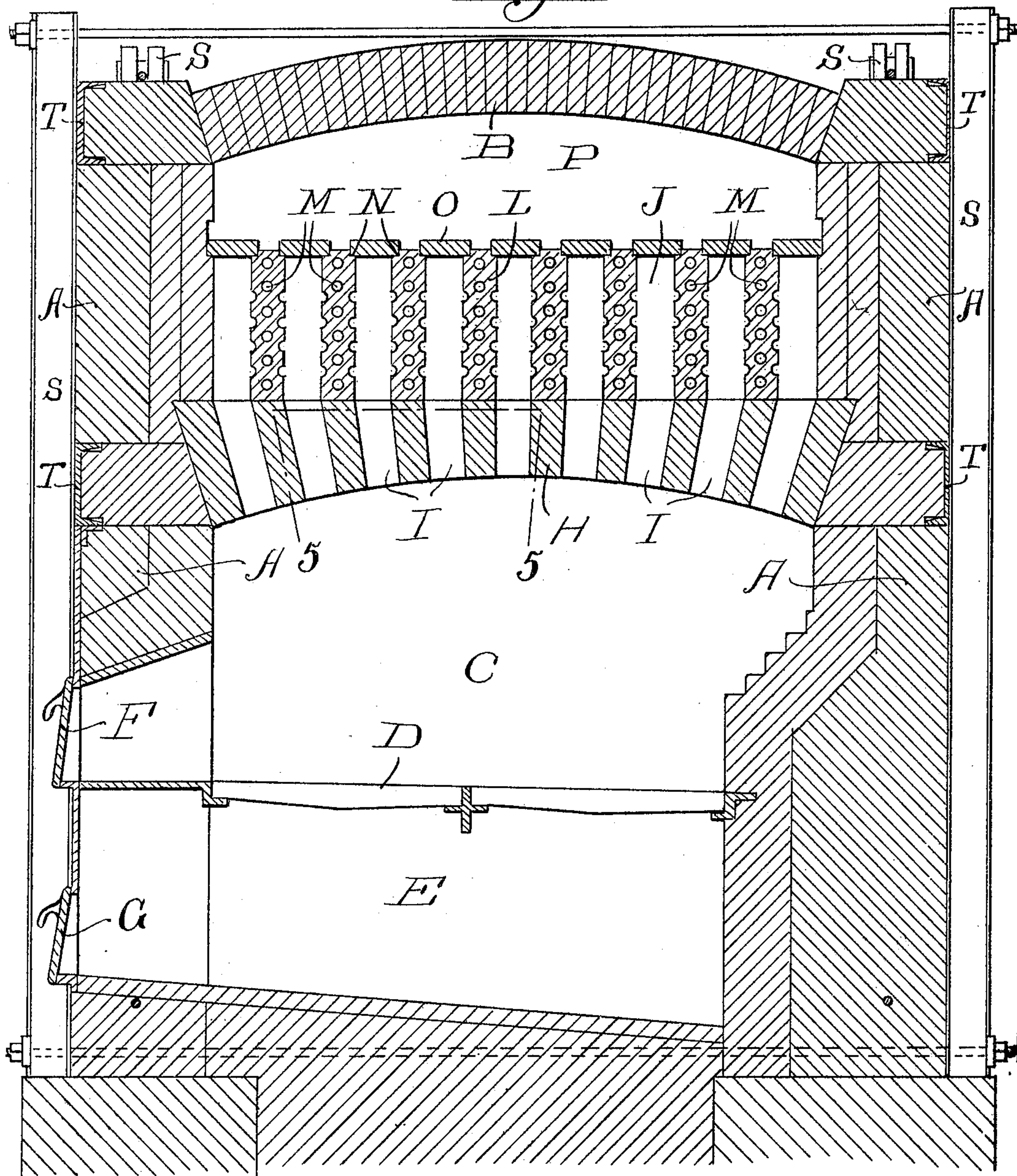
No. 798,242.

PATENTED AUG. 29, 1905.

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WIRE ANNEALING FURNACE.
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3 SHEETS—SHEET 3.

Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN F. WARWICK, OF CHICAGO, ILLINOIS.

WIRE-ANNEALING FURNACE.

No. 798,242

Specification of Letters Patent.

Patented Aug. 29, 1905.

Application filed June 23, 1904. Serial No. 213,889.

To all whom it may concern:

Be it known that I, JOHN F. WARWICK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Wire-Annealing Furnaces; 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 a novel construction in a furnace for annealing wire, the object being to provide a furnace in which a uniform temperature may be easily and constantly maintained at minimum cost and in which the wire to be annealed is not brought into contact with the hot gases in the furnace; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a side elevation of a furnace constructed in accordance with my invention. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a vertical transverse section, on an enlarged scale, on the line 3 3 of Fig. 1. Fig. 4 is a fragmentary detail transverse section on the line 4 4 of Fig. 2. Fig. 5 is a detail fragmentary horizontal section on the line 5 5 of Fig. 3.

My said furnace consists of an elongated structure having side walls A and covered by an arch B, the said side walls and arch being preferably built of a material which is capable of withstanding a high temperature. At regular intervals in said furnace are firing-chambers C, each of which is provided with a grate D and ash-pit E, said chambers C and ash-pits E having doors F and G, through which fuel is introduced and ashes removed. Each of said firing-chambers C is covered by an arch H, of fire-brick or similar material, which is so constructed as to provide a plurality of openings I therein, through which the said firing-chambers communicate with a horizontal flue J. Extending longitudinally through said flue J and resting upon the said arches H and upon the lateral walls K between the firing-chambers are partition-walls L, composed of blocks of fire-clay or similar material provided with a plurality of longitudinal openings M, said openings being continuous throughout said partition-walls and registering with similar openings in the end walls of the structure. The said partition-walls L

are preferably corrugated on their outer faces to increase the heating-surfaces thereof and are provided in their upper edges with recesses N to receive covering-tiles O, forming partitions between said flues J and a second horizontal flue P, immediately below the arch B, said flue P communicating at one end with the flue J through the opening P' and at its other end with the chimney-flue R.

The side and end walls of the structure are reinforced by the buckstays S, and to further prevent said side walls from yielding at points between the points at which the buckstays bear thereon to the lateral pressure exerted by the arches channel-beams T are disposed in the outer faces of said side walls opposite the ends of said arches. The said arches H being exposed to the most intense heat will at intervals give way and require repairs. Such repairs are usually difficult to make, by reason of the fact that the mason is generally required to crawl into the firing-chamber and do his work in the cramped space, which is exceedingly disadvantageous and renders the work very tedious and expensive. To obviate this and enable such repairs to be easily and quickly made, I provide lateral openings U in the arch B at regular intervals, such openings being closed by arched gates V, each of which consists of a metal plate W, bent to a curve conforming with the curvature of the arch and provided at its ends with flanges X, between which an arch of fire-brick or the like is held, such plates being provided with eyes Y, by means of which they are raised. The said plates are not exposed to the heat, and hence cannot warp or burn out. By removing such gates and also removing the tiles O and such parts of the partition-walls L as may be necessary the arches H are made easily accessible for purposes of repair.

The operation of my furnace is as follows: Fires are started in all of the chambers C and maintained to heat the partition-walls L to the desired temperature. The wire to be annealed is then passed through the openings M in said partition-walls and the end walls of the furnace and during their passage are annealed. After the said partition-walls have attained the desired temperature the fire is banked in one or more of said firing-chambers, it being usually necessary to maintain a live fire in only two thereof to maintain the temperature. By reason of the fact that the said partition-walls are composed of fire-brick

or similar material, which is not a good conductor of heat, any change in the temperature thereof must necessarily be comparatively slow, and consequently readily detected, so
5 that the fireman can easily regulate his fires accordingly. As a result it will be obvious that the temperature can be easily maintained uniform and the best results in annealing thus attained. The wires passed
10 through are also maintained clean and in their passage are not subjected to great variation in temperature.

I claim as my invention—

1. A wire - annealing furnace, provided
15 with a plurality of laterally-disposed firing-chambers at intervals between its ends, a plurality of longitudinal flues above said firing-chambers and communicating with the latter at and between their ends, the partition-walls separating said flues being provided with openings for the passage of the
20 wire to be annealed, a longitudinal passage above said flues communicating at one end with all of the latter at one end thereof and
25 at its other end with a chimney.

2. A wire-annealing furnace, having a plu-

rality of firing-chambers disposed at intervals between its ends, a plurality of longitudinally-disposed parallel walls above said firing-chamber, said walls being corrugated
30 on their faces and provided with longitudinal openings for the passage of the wire to be annealed, longitudinally-disposed flues between said walls communicating at and between their ends with said firing-chambers,
35 removable covers supported on said walls continuously from one end of the furnace to a point adjacent its other end, a longitudinal flue above said parallel flues and communicating at one end with one end of each of the
40 latter and at its other end with a chimney, an arch covering said upper flue, and provided at intervals with openings, and removable covers for said openings.

In testimony whereof I have signed my
45 name in presence of two subscribing witnesses.

JOHN F. WARWICK.

Witnesses:

RUDOLPH WM. LOTZ,
F. SCHLOTFELD.