

**No. 649,567.**

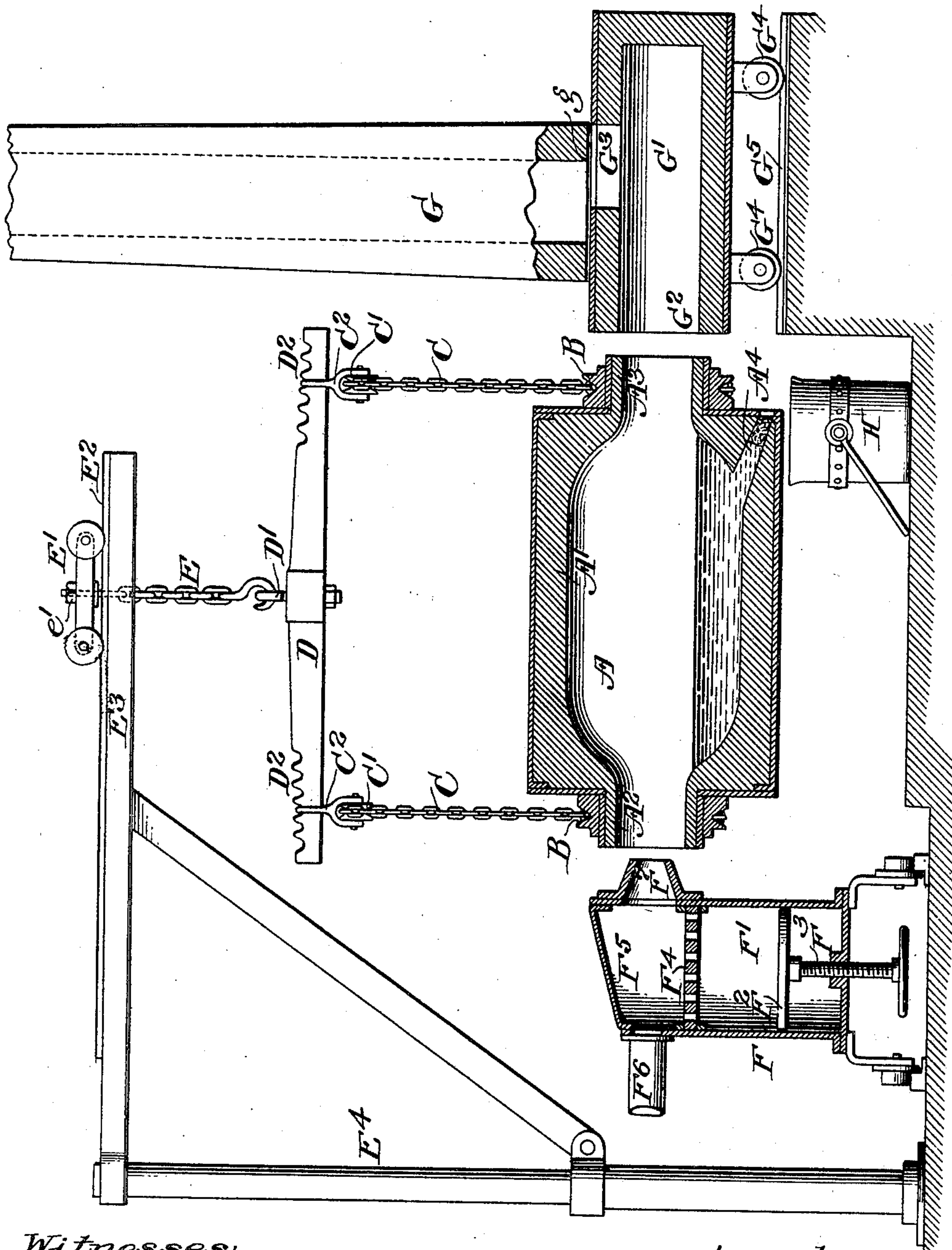
**Patented May 15, 1900.**

**H. J. J. CHARLIER.**

**FURNACE.**

(Application filed Feb. 19, 1900.)

(No Model.)



Witnesses:

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# UNITED STATES PATENT OFFICE.

HENRI J. J. CHARLIER, OF PHILADELPHIA, PENNSYLVANIA.

## FURNACE.

SPECIFICATION forming part of Letters Patent No. 649,567, dated May 15, 1900.

Application filed February 19, 1900. Serial No. 5,697. (No model.)

*To all whom it may concern:*

Be it known that I, HENRI J. J. CHARLIER, a citizen of the Republic of France, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Furnaces, of which the following is a true and exact description, reference being had to the accompanying drawing, which forms a part thereof.

My invention relates to the construction and manipulation of furnaces especially intended and adapted for melting metals, the object of my invention being to provide a furnace of great simplicity of construction, one which can be rotated so as to bring different parts of its walls under the influence of the heating-gases and which may be readily moved in other ways and other directions.

To these ends my invention consists, generally speaking, in constructing my furnace of cylindrical shape and with openings in its ends for the entrance of heating-gases and exit of products of combustion and in supporting and providing for the rotation of the furnace by suspending it on flexible loops passing over its ends by overhead pulleys or similar devices. Preferably the upper ends of the flexible loops are supported on opposite ends of a central pivotally-supported beam, whereby the furnace can be made to tilt in either direction, and preferably, also, I support the pulleys for the flexible loops from an overhead crane, so as to provide for the shifting of the furnace in horizontal or other directions in accordance with the usual capacities of cranes.

Reference being now had to the drawing in which my invention is illustrated, A is the cylindrical furnace, lined with fire-brick, as shown at A', and having at the ends openings A<sup>2</sup> and A<sup>3</sup> for the entrance of fuel-gas and the exit of products of combustion.

A<sup>4</sup> indicates a tap-hole through which the melted metal can be drawn off into a receptacle H or other convenient receptacle.

B B indicate chain-wheels surrounding the ends of the cylinder.

C C are flexible loops, preferably chains, as shown, which pass around the chain-wheels B and also around pulleys, as indicated at

C' C', said pulleys being journaled in supports C<sup>2</sup>, which, as shown, are supported in turn on the notched ends D<sup>2</sup> D<sup>2</sup> of the beam D, centrally and pivotally supported at D' on a chain E, the upper end of which is secured to a trolley E' by an adjusting-nut e', said trolley running on a track E<sup>2</sup>, supported on the arm E<sup>3</sup> of a crane E<sup>3</sup> E<sup>4</sup>.

F indicates a device whereby combustible material, gaseous or otherwise, can be thrown into the end A<sup>2</sup> of the cylindrical furnace. As shown, it consists of a cylinder F', having a movable bottom F<sup>2</sup>, supported on an adjusting-screw F<sup>3</sup>, and a perforated top F<sup>4</sup>, above which is the chamber F<sup>5</sup>, having an air-blast pipe F<sup>6</sup> leading into one end of an exit-nozzle F<sup>7</sup>, lying opposite to the blast-pipe. In practice the cylinder F is charged with coal-dust, which is forced up through the perforated bottom F<sup>4</sup> by means of the movable bottom F<sup>2</sup>, the coal-dust being caught up by the air entering through the blast-pipe F<sup>6</sup> and blown through the nozzle F<sup>7</sup> into the furnace.

G is a stack, and, as shown, a recess g is formed in the stack, in which is placed the horizontally-movable chamber G', having a lateral port G<sup>3</sup>, which can be made to register with the stack, and an end port or opening G<sup>2</sup>, which can be made to register with exit-opening A<sup>3</sup> of the furnace. This device G' is supported by wheels G<sup>4</sup> on a track, (indicated at G<sup>5</sup>.)

In practice the furnace A is gradually heated up—as, for instance, by first burning wood in it and then forcing a gradually-increasing amount of mixed air and coal-dust into it until it is at a white heat. It is then charged with metal, most conveniently through its open end A<sup>3</sup>, and this end is then brought into registry with the movable flue device G' and further fuel blown in to keep the furnace at the necessary heat. From time to time during the heating of the metal the furnace is partially revolved by means of the flexible chain C, so as to bring heated portions of the walls beneath the metal and subject the portions of the wall which have served as the hearth to the heating action of the flames. When the metal is melted, it is tapped off through the tap-hole A<sup>4</sup>; but prior thereto it can be, if desired, moved to any



position within the range of the crane. It will be obvious that, if desired, the furnace can be discharged through either of its ends  $A^2$  or  $A^3$  by tilting the beam D and that the  
 5 furnace is capable of assuming almost any desired position, owing to the character of its described connections.

Having now described my invention, what I claim as new, and desire to secure by Letters  
 10 Patent, is—

1. A cylindrical furnace, as A, having openings, as  $A^2$   $A^3$ , at its ends for the entrance of fuel and exit of products of combustion in combination with rotatable flexible loops, as  
 15 C C, supported on overhead pulleys and passing around and supporting the ends of the furnace and means for supporting and shifting in a horizontal plane said supporting-pulleys and the furnace supported thereon.

20 2. A cylindrical furnace, as A, having openings, as  $A^2$   $A^3$ , at its ends for the entrance of fuel and exit of products of combustion in combination with a pivotally-supported beam, as D, pulleys C' C' supported on the ends of  
 25 said beam and rotatable flexible loops sup-

ported on said pulleys and passing under and supporting the ends of the furnace.

3. A cylindrical furnace, as A, having openings  $A^2$  and  $A^3$  in its ends for the entrance of  
 30 fuel and exit of products of combustion in combination with a crane and means including flexible loops C C whereby the furnace is suspended from the crane and rotated by means of said flexible loops passing around  
 35 the ends of the furnace.

4. A cylindrical furnace, as A, having openings  $A^2$  and  $A^3$  in its ends for the entrance of  
 40 fuel and exit of products of combustion in combination with a crane, a beam D pivotally suspended at its center from said crane, pulleys as C' C' supported on the ends of said beam and flexible loops C C, passing around  
 45 said pulleys and around the ends of the furnace said chains supporting the furnace and serving to rotate it at will.

HENRI J. J. CHARLIER.

Witnesses:

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