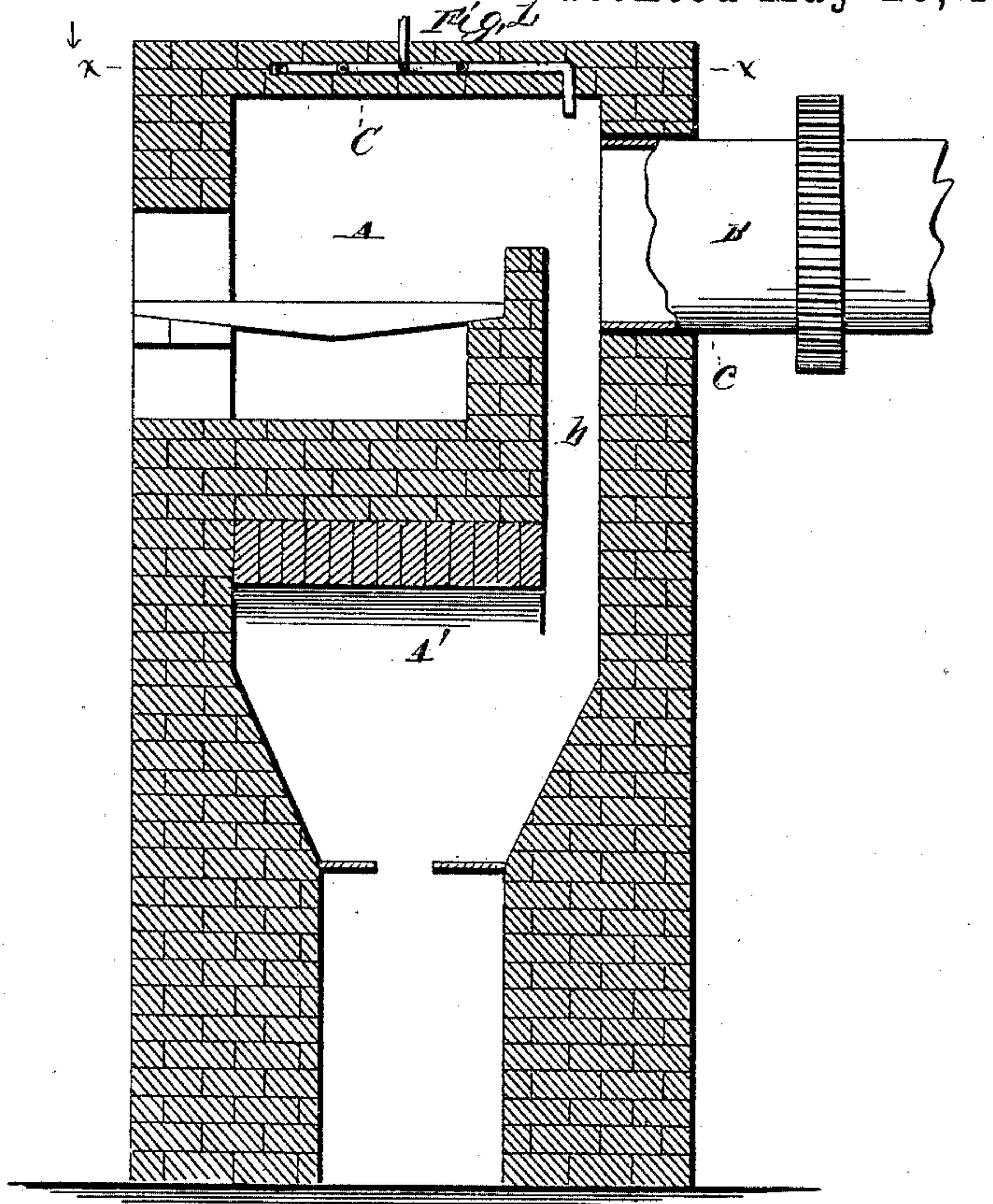


(No Model.)

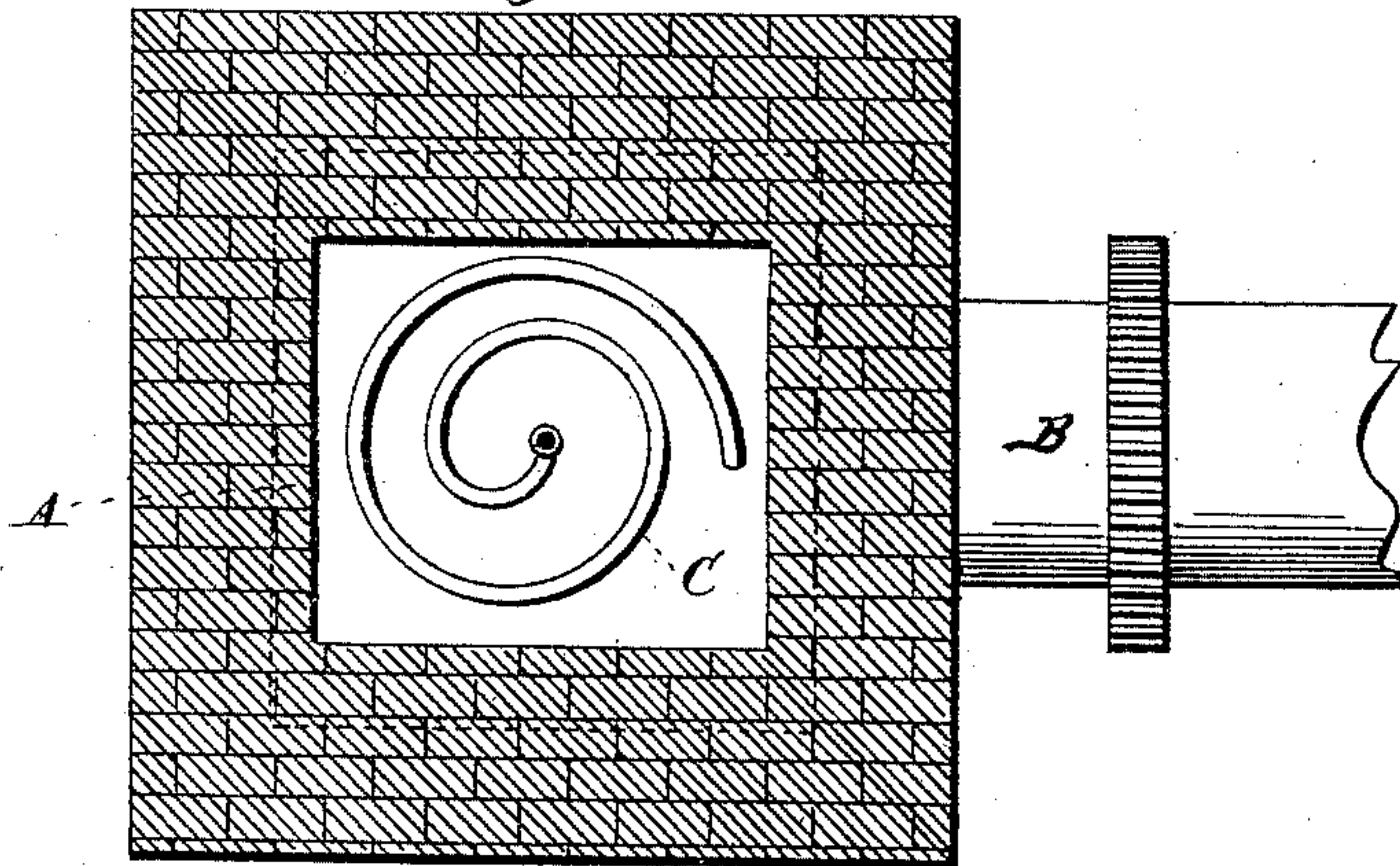
J. & B. C. LEYSON.  
FURNACE FOR ROASTING ORES.

No. 453,120.

Patented May 26, 1891.



*Fig. 2,*



WITNESSES

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# UNITED STATES PATENT OFFICE.

JOSEPH LEYSON AND BASSETT C. LEYSON, OF WALKERVILLE, MONTANA.

## FURNACE FOR ROASTING ORES.

SPECIFICATION forming part of Letters Patent No. 453,120, dated May 26, 1891.

Application filed May 24, 1890. Serial No. 353,077. (No model.)

*To all whom it may concern:*

Be it known that we, JOSEPH LEYSON and BASSETT C. LEYSON, citizens of the United States, and residents of Walkerville, in the county of Silver Bow and State of Montana, have invented certain new and useful Improvements in Furnaces for Roasting Ores; and we 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a vertical section, and Fig. 2 is a horizontal section.

This invention relates to certain improvements in ore-roasting furnaces; and it consists in the novel arrangement and combination of parts, as will appear from the following description and claim and accompanying drawings.

In the drawings, A refers to the furnace, which is provided with the ordinary grate-bars.

In practice the furnace is arranged over the hopper A', which receives the roasted or incinerated ore as it passes from the cylinder B through a passage *b* at the rear or closed end of the ash-pit, as more fully hereinafter seen. Therefore in order to protect the grate-bars from the sulphur fumes and heat arising from the freshly-roasted ore in the hopper, we form the ash-pit with a bottom of arched brick-work directly over the hopper, thus preventing the contact of said fumes and heat with said grate-bars.

In the rear end of the furnace A, and communicating with the passage *b*, is a circular opening *c*, which receives the discharge end of the revolving ore-feeding cylinder B. The draft passes up through the grates into the furnace A and from thence into the revolving ore-cylinder B. The flame from the said fur-

nace is thus carried into said cylinder and licks the ore therein through the discharge-opening, where it falls through the passage *b* into the hopper A below. This hopper being located directly under the furnace A, a great amount of fuel may be saved.

C is a superheating steam-pipe which is secured in the top or other suitable part of the furnace between the courses of brick and disposed in numerous coils in order to secure a greater heating-surface for the steam passing through said pipe, in order that said steam shall be thoroughly superheated. One end of the pipe C may connect with the steam-chamber of a boiler or the exhaust-chamber of an engine, while the other end of said pipe projects through the wall of the furnace A, so as to discharge or eject the dry or superheated steam into the ore during calcination, thus providing for reducing the ore.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

In an ore-roasting furnace, the combination, with the hopper, of the furnace located over said hopper and the fire-proof wall between, the vertical passage *b*, connecting the furnace and hopper between the side wall of the fire-pit and fire-proof wall and the rear wall of the furnace, the ore-feeding cylinder opening into the upper end of said passage, and the superheating steam-pipe arranged in coils between the courses of brick forming the wall of the furnace and discharging into said furnace directly over the vertical passage and above the mouth of the feeding-cylinder, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH LEYSON.  
BASSETT C. LEYSON.

Witnesses:

CHARLES O'DONNELL,  
GEO. D. LEYSON.