

No. 609,920.

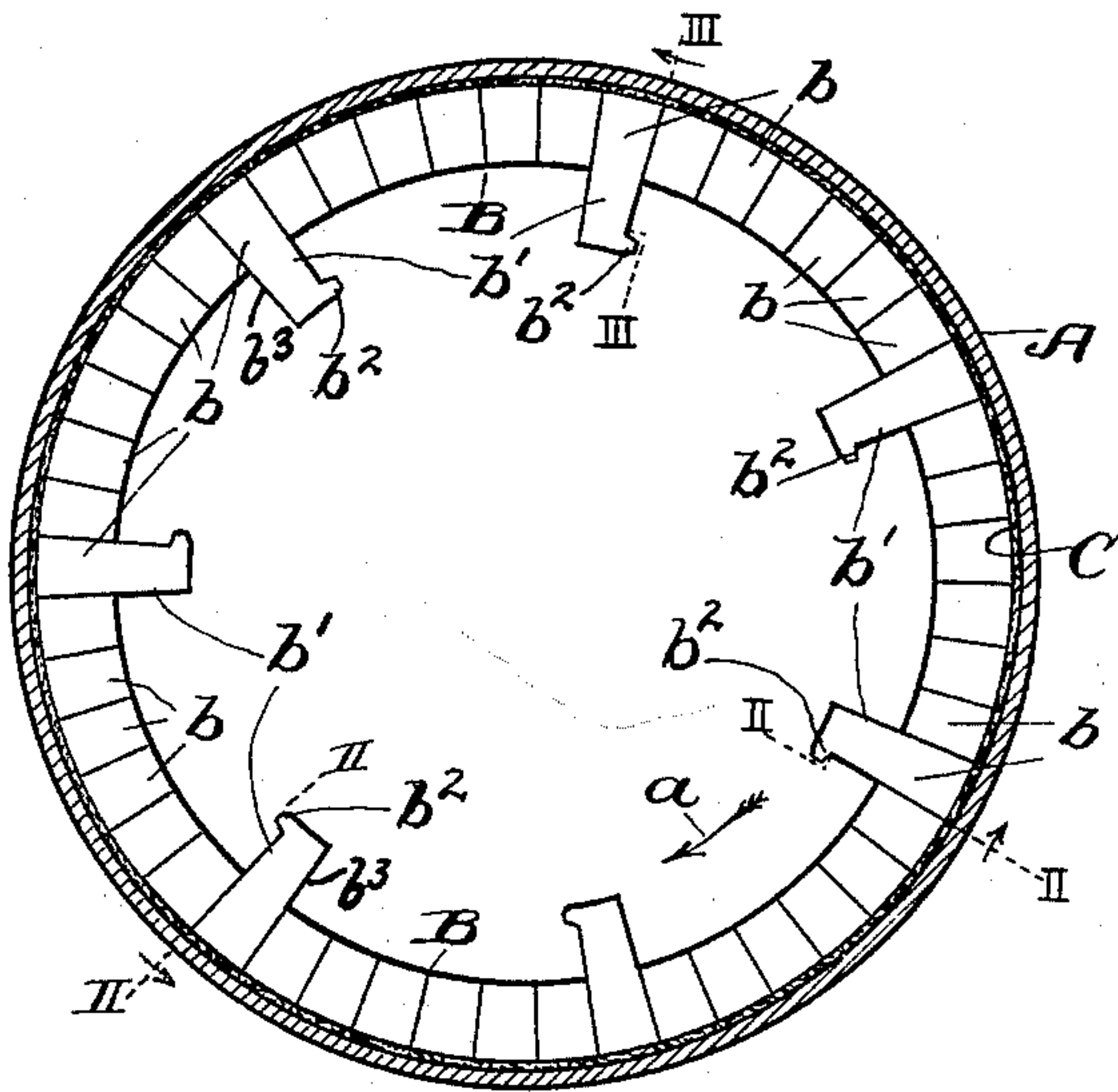
Patented Aug. 30, 1898.

C. B. STOWE.  
HEATING OR BURNING CYLINDER.

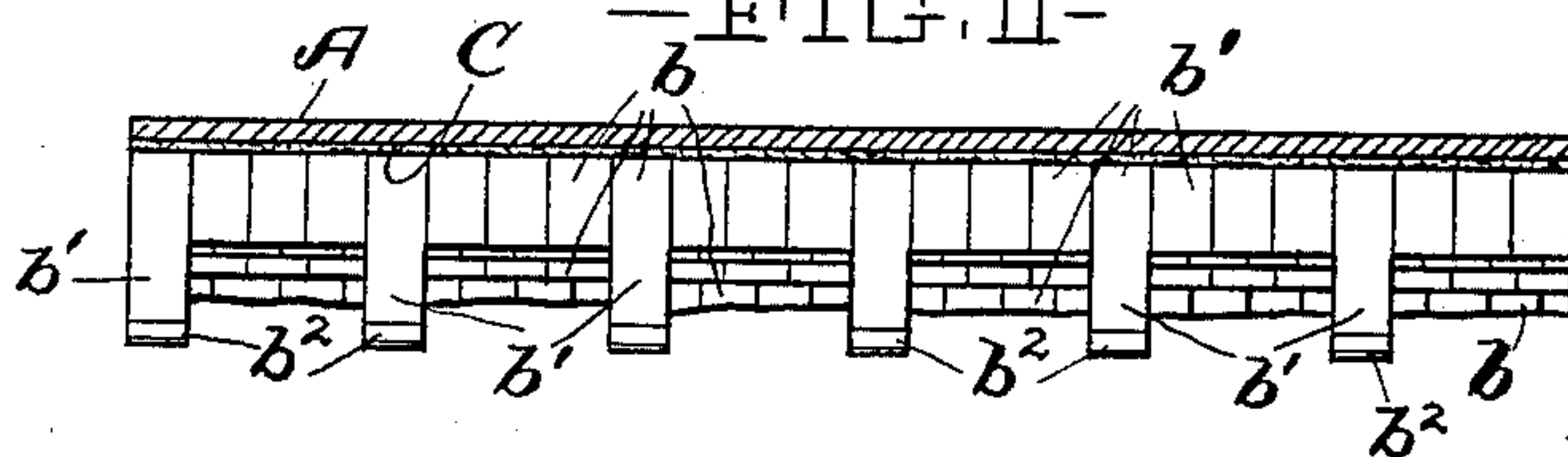
(Application filed Mar. 12, 1897.)

(No Model.)

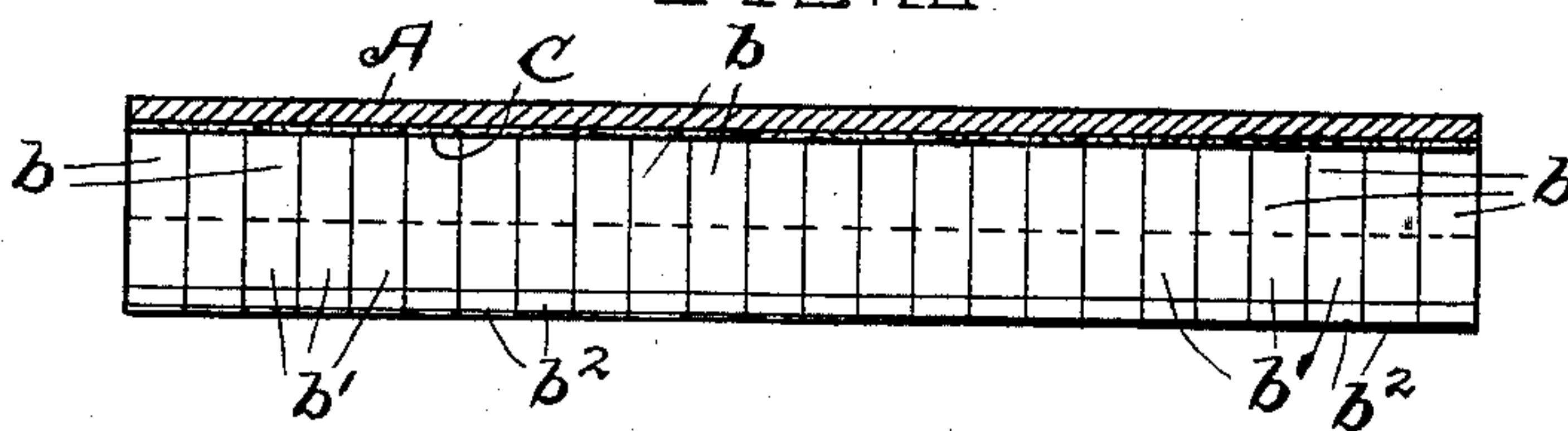
-FIG. I-



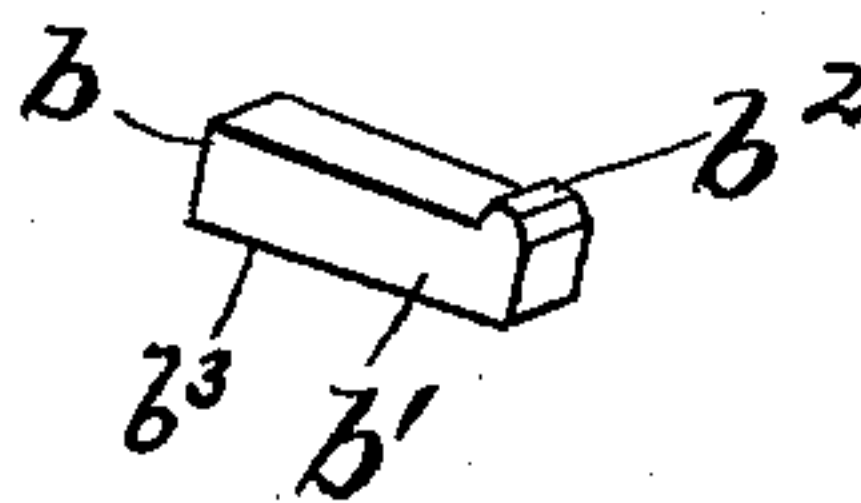
-FIG. II-



-FIG. III-



-FIG. IV-



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES B. STOWE, OF CLEVELAND, OHIO.

## HEATING OR BURNING CYLINDER.

SPECIFICATION forming part of Letters Patent No. 609,920, dated August 30, 1898.

Application filed March 12, 1897. Serial No. 627,102. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES B. STOWE, of Cleveland, Cuyahoga county, Ohio, have invented certain new and useful Improvements in Heating or Burning Cylinders; 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 pertains to make and use the same.

10 My invention relates to improvements in roasting or burning cylinders employed in and rotated during the process of treating substances or materials that have to be subjected to a heat that would be destructive to  
15 fire-clay brick.

The primary object of my invention is therefore to provide a metallic cylinder having an internal lining capable of withstanding the intense heat to which it is subjected in the  
20 operation of the cylinder; and with this object in view and to the end of realizing certain other advantages hereinafter stated the invention consists in certain features of construction hereinafter described, and pointed  
25 out in the claim.

In the accompanying drawings, Figure I is a transverse section of a cylinder embodying my invention. Fig. II is a longitudinal section of the cylinder on either one of lines II  
30 II, Fig. I, and shows in elevation a row of lifting and stirring arms. One side  $b^3$  of each of said arms  $b'$  is inclined or beveled to adapt it to fit the next adjacent block  $b$  and also to form the lug  $b^2$ , and while said arms  $b'$  project to form lifting-shelves they also constitute portions of the lining with which the cylinder's lining is provided. Fig. III is a longitudinal section of the cylinder on line III  
40 III, Fig. I, and shows in elevation the lifting-shelf with which the cylinder's lining is provided. Fig. IV shows one of the lifting and stirring lining-blocks detached.

Referring to the drawings, A designates a metallic cylinder that is constructed in any  
45 approved manner. This cylinder is rotated during its operation; but as mechanisms or apparatus for rotating heating-cylinders are well understood by those skilled in the art no illustration or description of rotating machinery is disclosed in this application. Furthermore, my present invention has to do only

with the construction of the internal lining and internal lifting and stirring devices of the cylinder.

My improved cylinder is lined internally 55 with two round or semicircular arches B B, that are oppositely and contiguously arranged so as to form a circular lining. Said arches are built up of blocks  $b$ , that are composed of magnesite or other suitable magnesian or  
60 basic material capable of resisting or withstanding and non-destructible in a temperature of from 2,500° to 4,000° Fahrenheit. The blocks composing the arches are suitably cemented together and are arranged in rows  
65 longitudinally of the cylinder. Some of the blocks of several of the rows of blocks are enlarged inwardly to form arms  $b'$ , designed to stir and lift the material within the cylinder during the rotation of the latter, and said  
70 arms terminate at their inner ends in members  $b^2$ , projecting in the direction in which the cylinder is designed to rotate and are instrumental in increasing the lifting capacity of the arms. The arrow  $a$  in Fig. I indicates  
75 the direction in which the cylinder is turned during its operation. All of the blocks of one of the rows of blocks, as shown in Fig. III, have lifting-arms arranged contiguous to each other or close together, and thereby  
80 forming a continuous lifting-shelf extending longitudinally of the lining.

The stirring and lifting devices in my improved cylinder are integral with and composed of the same heat-withstanding material as the lining-blocks that support them, and consequently are indestructible by the heat to which the material that is treated in the cylinder is subjected.

A layer C of fireproof or heat-non-conducting material is interposed, preferably, between the basic lining and the metallic shell or case.

I am aware that magnesian or basic linings are used in steel-making, and I would therefore have it understood that I do not claim, broadly, a basic lining.

I claim, however, the following:

The combination with a metallic heating or burning cylinder, of a lining comprising rows  
100 of magnesian blocks, a portion of said blocks being extended inwardly beyond the faces of

the adjacent rows, and beveled and recessed to form lugs, which are longitudinally alined, and a layer of fireproof material resting against the inner surface of the metallic cylinder and against the outer faces of the magnesian blocks, to constitute a peripheral support for the latter, substantially as described.

In testimony whereof I sign this specification, in the presence of two witnesses, this 1st day of March, 1897.

CHARLES B. STOWE.

Witnesses:

C. H. DORER,  
ELLA E. TILDEN.