

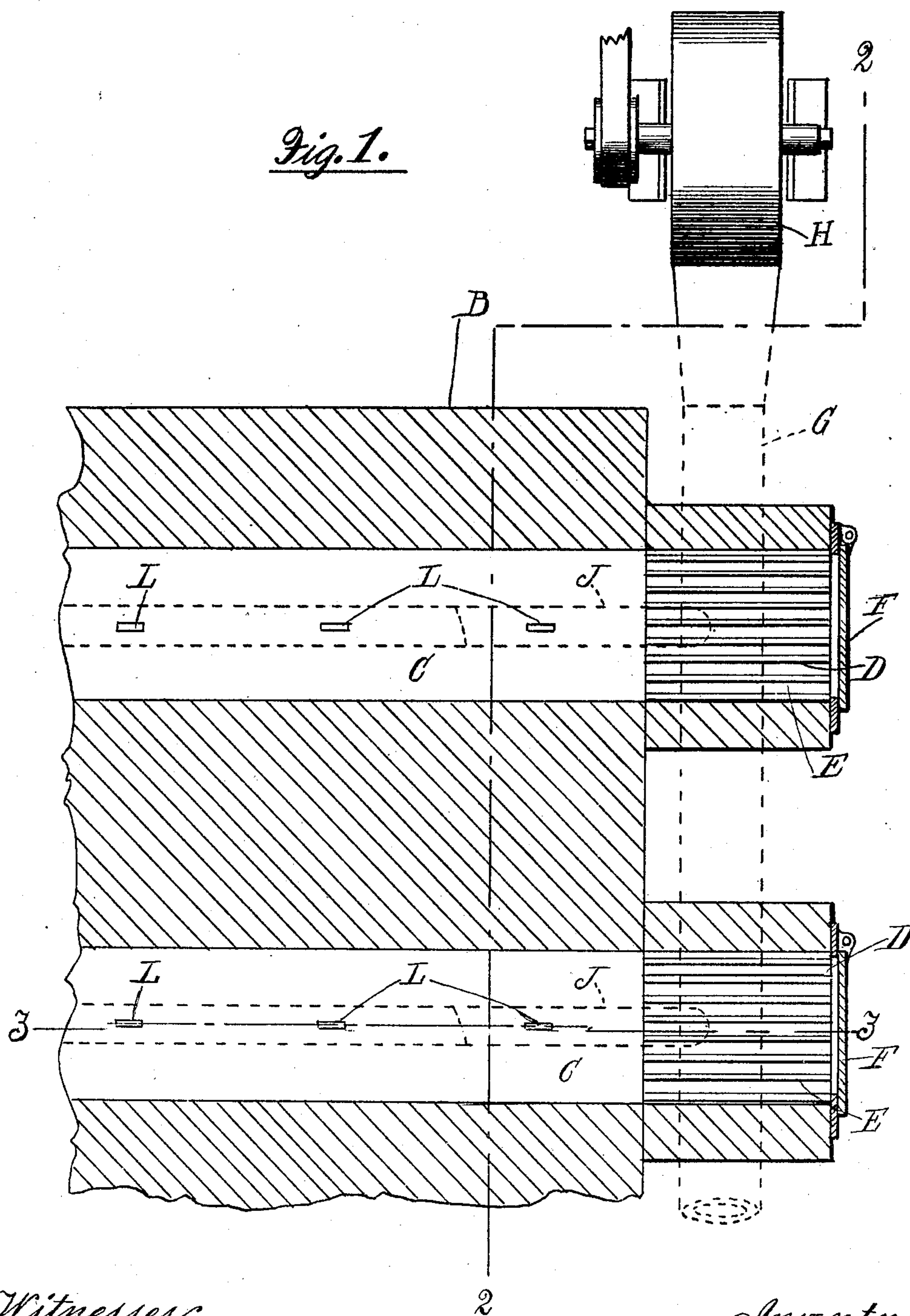
No. 832,432.

PATENTED OCT. 2, 1906.

A. STIEL.
METHOD OF BURNING BRICKS.

APPLICATION FILED APR. 10, 1905.

2 SHEETS—SHEET 1.



Witnesses
R. A. Fischer
C. F. Wilson

Inventor
Anton Stiel
By Rudolph M. Fox, Att'y.

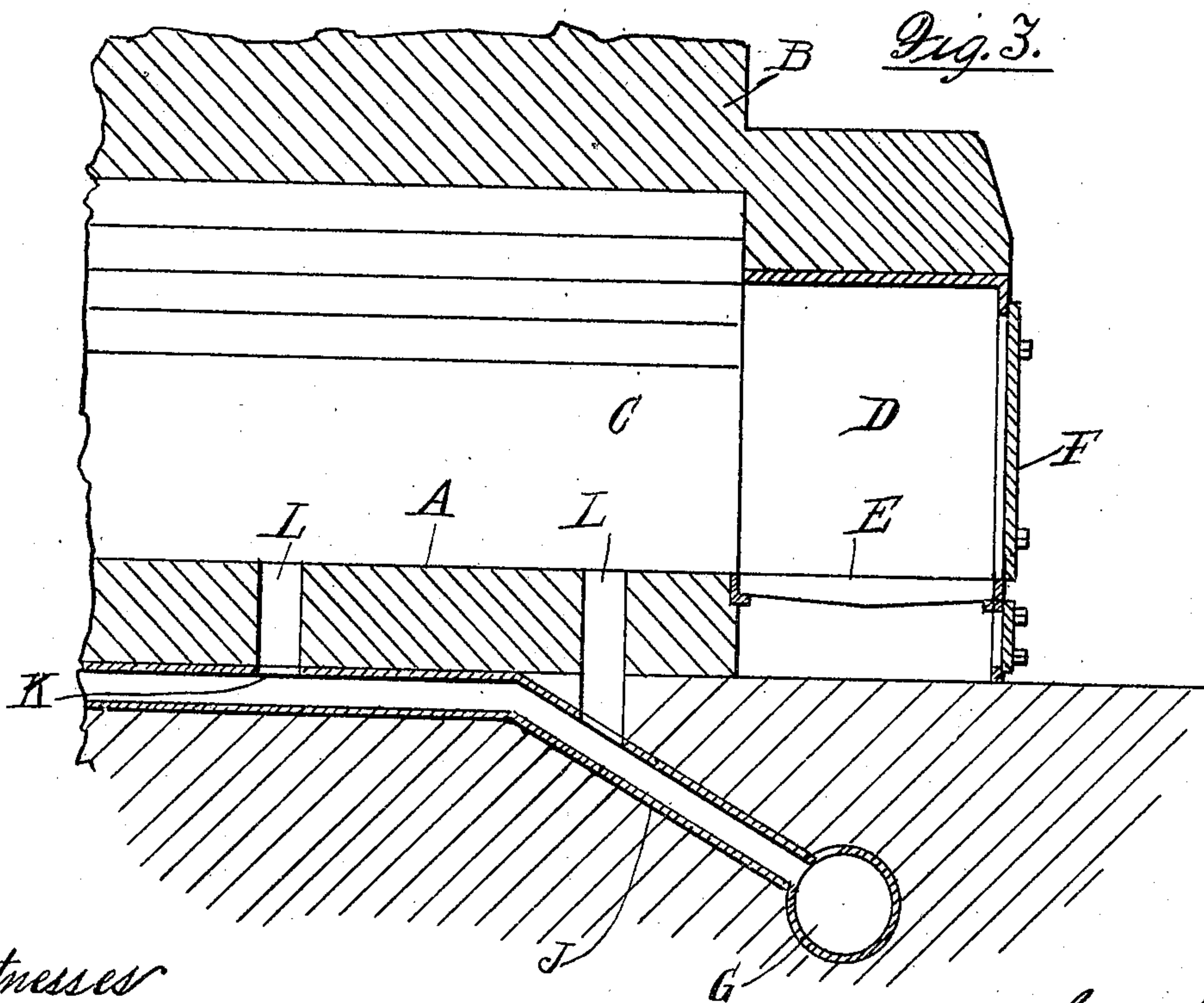
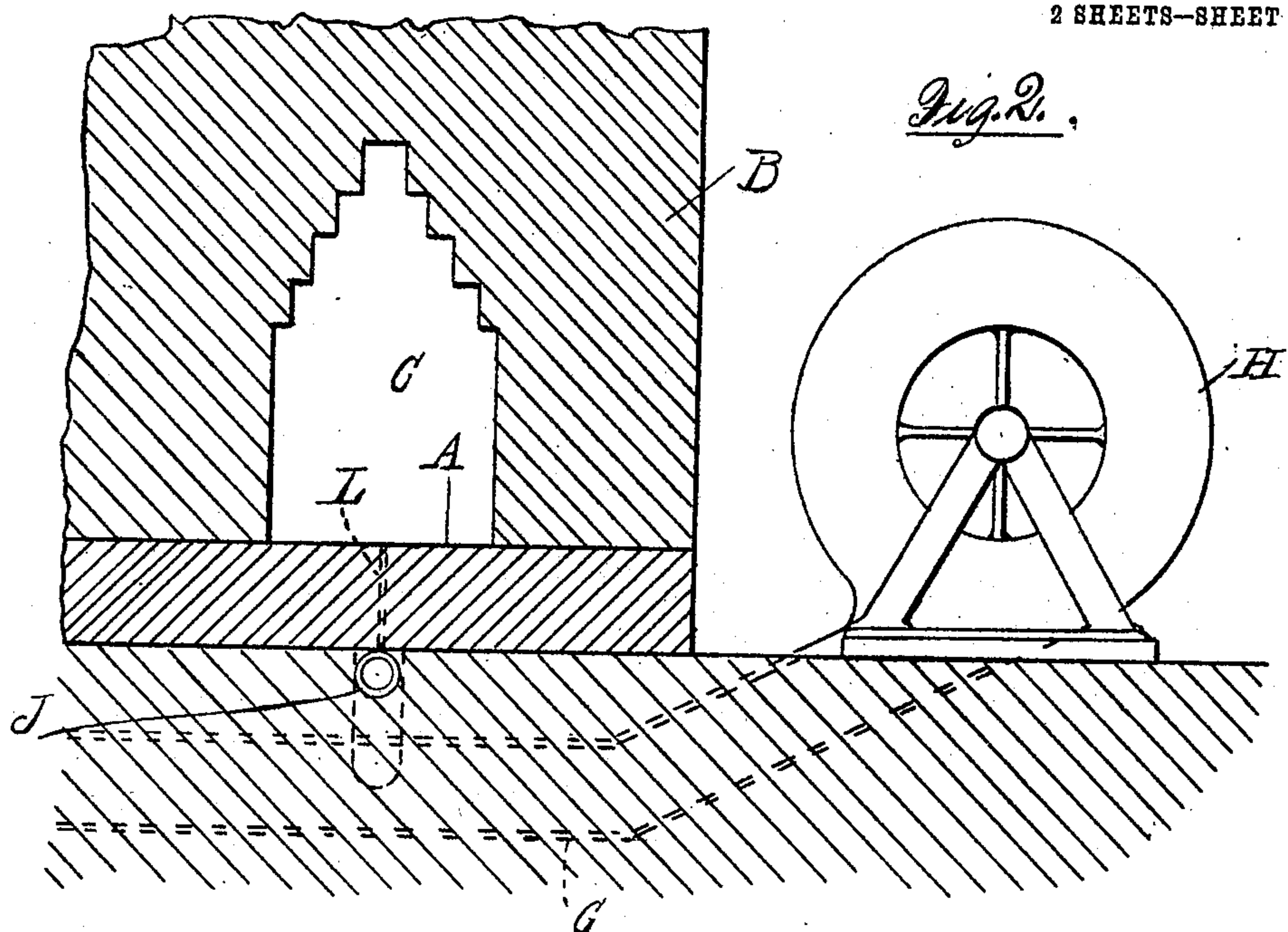
No. 832,432.

PATENTED OCT. 2, 1906.

A. STIEL.
METHOD OF BURNING BRICKS.

APPLICATION FILED APR. 10, 1905.

2 SHEETS—SHEET 2.



Witnesses

R. A. Fischer

C. H. Wilson

By *Anton Stiel* Inventor
Rudolph H. Stiel Atty.

UNITED STATES PATENT OFFICE.

ANTON STIEL, OF JEFFERSON, WISCONSIN.

METHOD OF BURNING BRICKS.

No. 832,432.

Specification of Letters Patent.

Patented Oct. 2, 1906.

Application filed April 10, 1905. Serial No. 254,730.

To all whom it may concern:

Be it known that I, ANTON STIEL, a citizen of the United States, residing at Jefferson, in the county of Jefferson and State of Wisconsin, have invented certain new and useful Improvements in Methods of Burning Bricks; 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 method of firing brick-kilns, the object being to provide an economical and efficient method for burning a kiln uniformly and in a shorter time than is usually required; and it consists in the various steps hereinafter fully described and claimed.

In the accompanying drawings, illustrating apparatus suitable for carrying out my method, Figure 1 is a fragmentary plan section of a kiln. Fig. 2 is a fragmentary vertical longitudinal section on the line 2 2 of Fig. 1. Fig. 3 is a fragmentary vertical transverse section on the line 3 3 of Fig. 1.

Referring now to said drawings, A indicates the floor or foundation upon which the kiln proper, B, is built up of the bricks to be burned, said floor A being generally built up of burned brick to a height of about six inches above the ground-level. The kiln B is provided at regular intervals with lateral passages or firing-chambers C, the green brick forming the kiln being laid so as to provide passages or flues between each two thereof, or, in other words, four are checkered in the usual manner. At each end of each of said passages or firing-chambers C is a furnace D, having a grate E substantially flush with the floor A and having a fire-door F. Extending parallel with the kiln is an underground duct G, which is connected at one end with a blower H and between its ends with lateral pipes J, disposed centrally with relation to and underneath said passages or firing-chambers C throughout the entire length thereof, said pipes J being laid in troughs in the ground immediately below the floor A and provided at regular intervals with longitudinal slots K, communicating with vertical openings or ducts L in the floor A and establishing communication between said pipes J and firing-chambers C. By means of said connections of said passages or firing-chambers C with said blower H a forced draft can be obviously introduced into said chambers C.

My present invention has for its object to reduce the time required for firing a kiln, decrease the quantity of fuel required, and to uniformly burn the entire kiln so that all the bricks will be relatively uniformly hard, the percentage of soft bricks being greatly reduced.

To these and other ends my method consists in first starting fires in the furnaces D with wood and coal, the latter being preferable, but not essential. After such fires are well started a piece of cord-wood is introduced in each of said furnaces, and when this is half burned it is shoved into the passages or firing-chambers C partly over the first openings or ducts L. The light forced draft entering through the latter promotes combustion, so that such wood will continue to burn without diminishing the fires in the furnaces D, and the hot products of combustion will obviously be forced through the checker-work and distributed widely. The fires are then rapidly advanced from both sides to the middle of the passages or firing-chambers C, the total time required being from four to five hours. The forced draft is maintained constantly, and by reason of the fact that the air-jets impinge against the logs disposed over the openings the flames are spread and deflected, so that the hot gases are forced through the checker-work in all directions, and therefore the heat is equally distributed, this being due largely to the fact that after the bricks are once uniformly heated a uniform natural draft is created, which in itself promotes distribution of the heat. Thus every part of the kiln is burned relatively equally. When the kiln has attained a relatively high temperature, water-smoking begins—that is, the evaporation of moisture contained in the bricks proceeds so rapidly as to form clouds of vapor, and this vapor is generally particularly deleterious to burning when natural draft is relied upon and hinders the process to a great extent, it being generally a matter of great difficulty to maintain the fires in the middle portions of the chambers C until the water-smoking process has been mainly completed. This difficulty I readily overcome, and therefore am enabled to water-smoke the brick in much shorter time than is ordinarily required. In fact, I begin to water-smoke within four or five hours after starting the kiln and complete this process in from two and three-quarters to three days. After water-smoking has been completed the actual

burning process begins, and to this end fuel is continuously introduced into the passages C to maintain a very hot fire throughout, the burning being completed in nine to ten days as compared with twelve to fourteen days by the old method generally in vogue in kilns of this class.

The fuel required to burn a kiln by my method is about nine full charges in the chambers C during the first twenty-four hours, and thereafter six full charges during each twenty-four hours until burning is completed. The mouth-fires are replenished only twice daily, whereas the old method required two full charges during the first twenty-four hours and thereafter six full charges daily. The old method requires far more frequent replenishment of the mouth-fires, so that the total economy of fuel by my method is about twenty to twenty-five per cent. Inasmuch as the product is more uniform and there is less loss than when the old method is employed, I effect a very considerable saving in the cost of production of the brick. My said method is very economical and advantageous.

I claim as my invention—

The herein-described method of burning brick in kilns which consists in setting up the brick to be burned to form a checker-work and providing lateral passages constituting firing-chambers at regular intervals in the lower portion of the mass of set-up bricks, providing furnaces at each end of each of the firing-chambers and starting fires in said furnaces and after said fires have been started gradually advancing burning fuel from the furnaces at the ends of the firing-chambers into said firing-chambers until burning fuel exists in the chambers from end to end thereof, and continuously introducing air under relatively low pressure into said firing-chambers from the bottoms thereof at regular intervals throughout the length thereof.

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

ANTON STIEL.

Witnesses:

M. J. KERSCHENSTEINER,
KATHARINE BETZOLD.