

B. MORRISON & G. H. LOSELLE.
 PROCESS OF REPAIRING THE LININGS OF ROTARY CEMENT KILNS.
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986,741.

Patented Mar. 14, 1911.

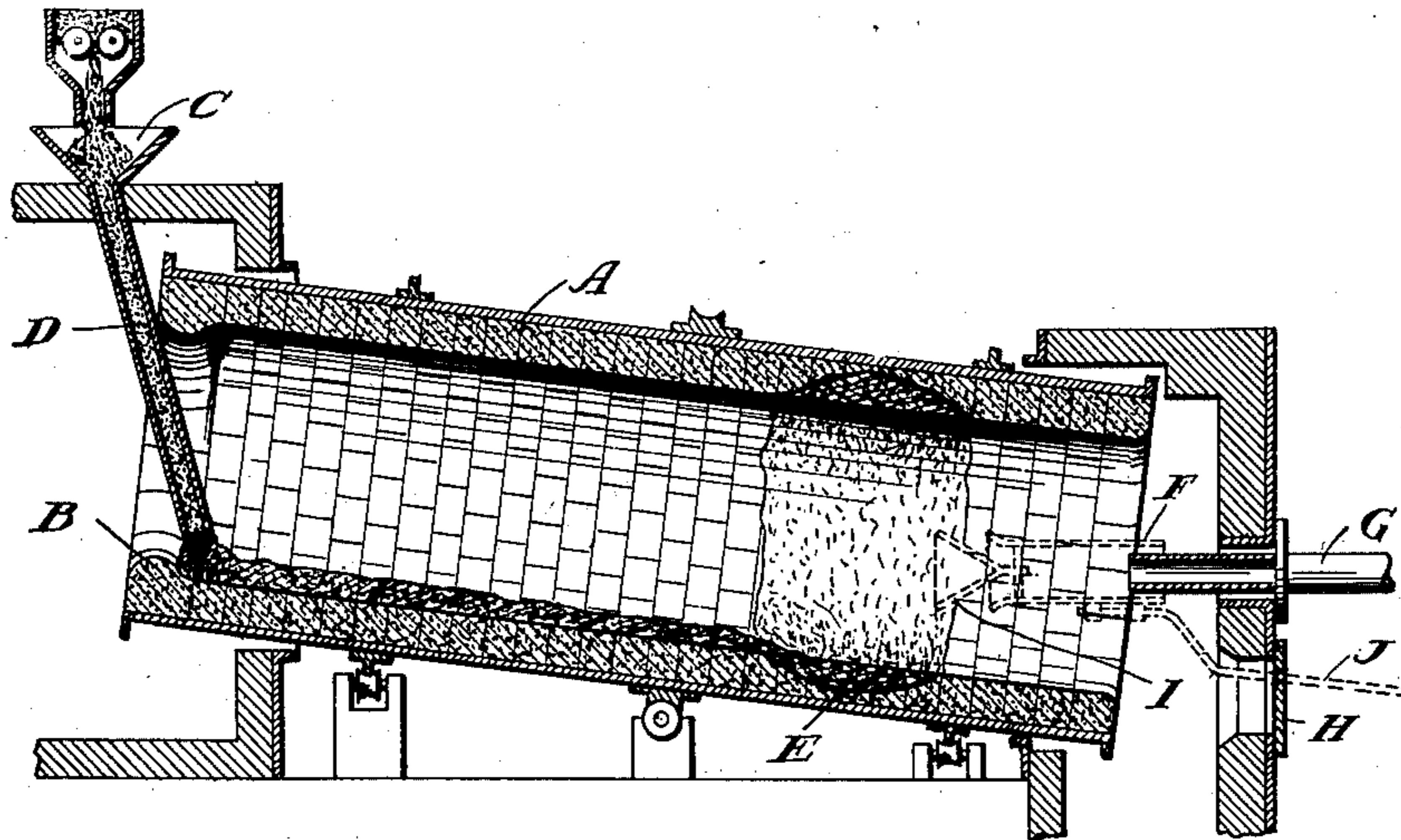


Fig. 1.

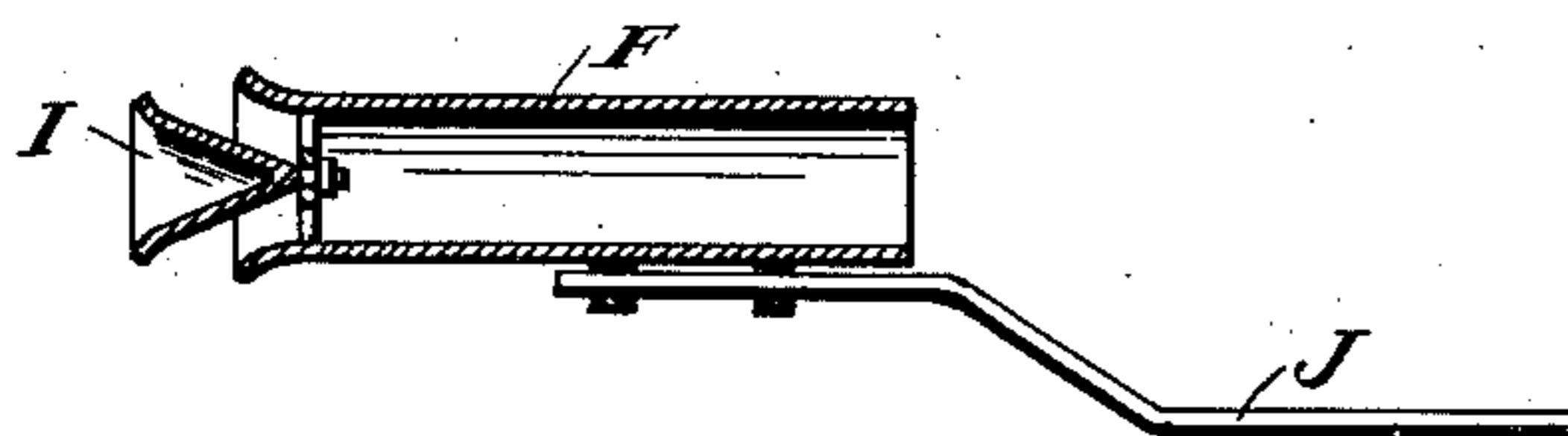


Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

BENJAMIN MORRISON AND GEORGE H. LOSELLE, OF WYANDOTTE, MICHIGAN.

PROCESS OF REPAIRING THE LININGS OF ROTARY CEMENT-KILNS.

986,741.

Specification of Letters Patent.

Patented Mar. 14, 1911.

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To all whom it may concern:

Be it known that we, BENJAMIN MORRISON and GEORGE H. LOSELLE, citizens of the United States of America, residing at Wyandotte, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Processes for Repairing, Patching of Linings, or Coating of Linings of Rotary Cement-Kilns, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention refers to cement or lime kilns of the type in which the material is burned or calcined in an inclined rotary furnace cylinder by means of a flame from fuel gas, pulverized coal or oil introduced into one end of the cylinder and the object of the invention is to line or reline the furnace cylinder or to patch or coat the inside lining without being obliged to shut down the kiln, and to this end the invention consists in a process involving the introduction into the furnace while in operation, of material adapted to become fusible and in its application in the manner more fully described hereinafter and shown in connection with the accompanying drawing in which,

Figure 1 is a vertical central longitudinal section of the rotary furnace cylinder of a cement or lime kiln; and Fig. 2 is a detached sectional elevation of an appliance which may be used in connection with carrying out our process.

In the drawings which illustrate the manner in which our invention is to be practiced when it is desired to repair a portion of the inner lining, A represents the inclined rotary furnace cylinder of a cement or lime kiln of conventional type. B is the inner lining thereof, C the hopper through which the material is fed into the furnace chamber and D is the supply pipe through which the fuel is introduced into the furnace chamber.

At the point E of the inner lining of the cylinder the lining is supposed to have worn away forming an annular depression which interferes with the further operation.

In applying our process we introduce fusible material into the cylinder either alone or in admixture with the raw material as introduced in the usual operation of the kiln. Fusible material of various kind may be used for the purpose such as, slag from furnaces or smelters, but as the easiest material to be had and which is commonly at

hand we use coal cinders of which we have made satisfactory use. In connection with introducing the fusible material we also concentrate the heat of the flame used to burn the cement in such manner and place that it will melt the fusible material in advance of the break in the lining and at the same time keep the temperature at the break below that of the molten material thereby allowing it to cool while filling the depression and collect and harden therein. This concentration of the heat may be readily produced by extending the pipe G the necessary length to carry the flame beyond the break in the lining and this may be easily accomplished without interrupting the operation by introducing a pipe extension as F carried on a suitable support J through the sight or other opening H at the front end of the kiln and slipping it over the mouth of the fuel pipe. By providing this pipe extension at its forward end with suitable means such as a deflecting cone I the heat may be readily concentrated at the particular place required. In this manner a large break at any place in the furnace may be repaired in a few hours' time without shutting down and losing a large output, as the repairing with masonry work, necessitating the shutting down, would involve. The whole inner lining of masonry may thus be gradually replaced by a new lining of the character described or with a coat covering the defective spots and breaks in the original lining, all of which will readily appear from the above described application of our process.

What we claim as our invention is:—

1. The herein described process of lining, relining or repairing, patching or coating the lining of the inclined rotary furnace cylinder of cement or lime kilns, which consists in the introduction while in operation of fusible material, and in fusing such material and allowing it to collect and harden at the point where it is wanted by concentrating the heat or flame used for burning or calcining upon such material at a point in advance thereof.

2. The herein described process of lining, relining or repairing, patching or coating the lining of the inclined rotary furnace cylinder of cement or lime kilns, which consists in the introduction while in operation of coal cinders, and in fusing such material and allowing it to collect and harden at the

point where it is wanted by concentrating the heat or flame used for burning or calcining upon such material at a point in advance thereof.

- 5 3. The herein described process of lining or repairing, patching or coating the lining of the inclined rotary furnace cylinder of cement or lime kilns, which consists in the introduction while in operation of coal cin-
10 ders in admixture with the raw material, and in fusing such mixture and allowing it

to collect and harden at the point where it is wanted by concentrating the heat or flame used for lining or calcining upon such mixture at a point in advance thereof. 15

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

BENJAMIN MORRISON.
GEORGE H. LOSELLE.

Witnesses:

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