

(No Model.)

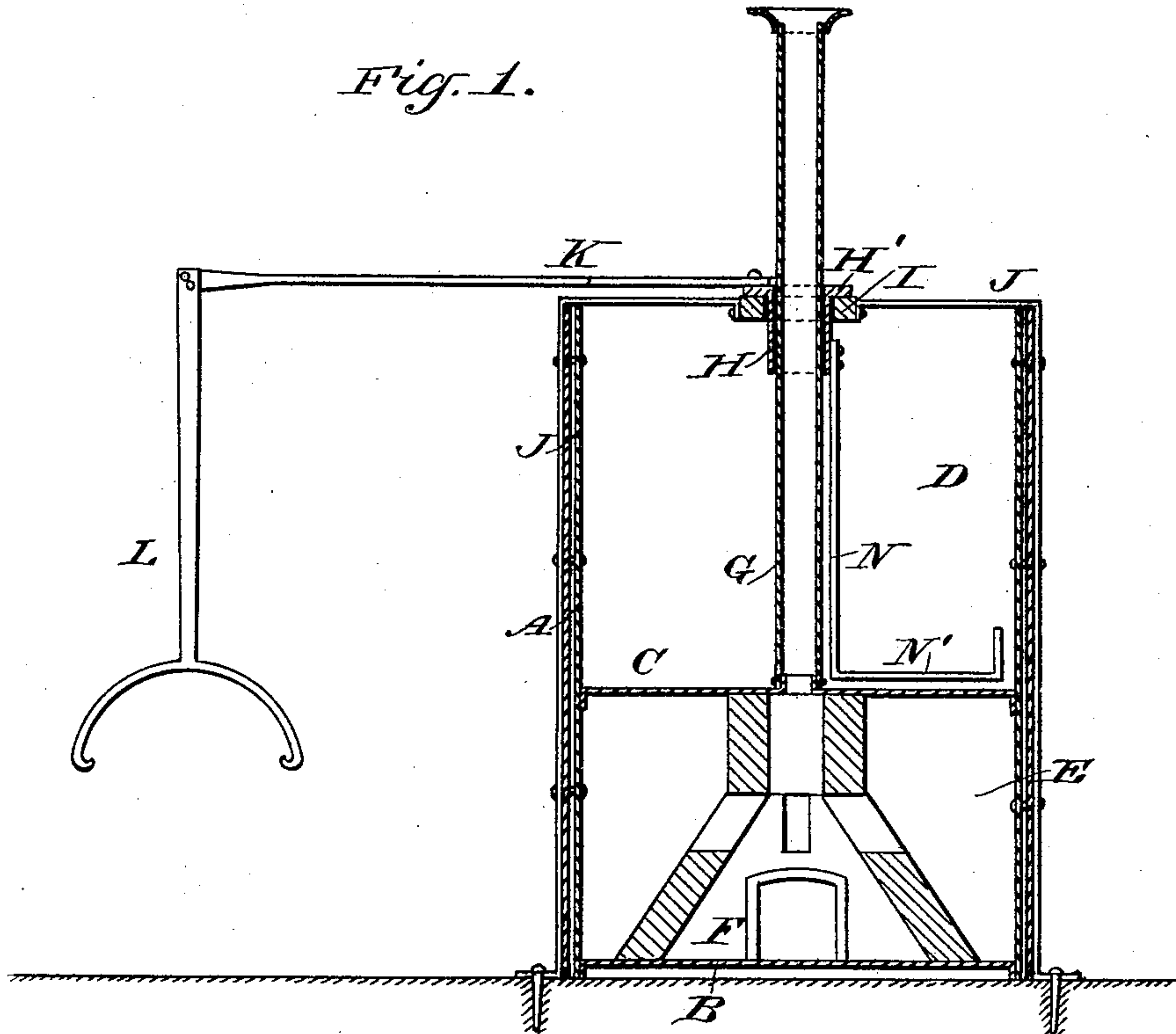
H. H. BOURNE.

COMBINED CEMENT MILL AND FURNACE.

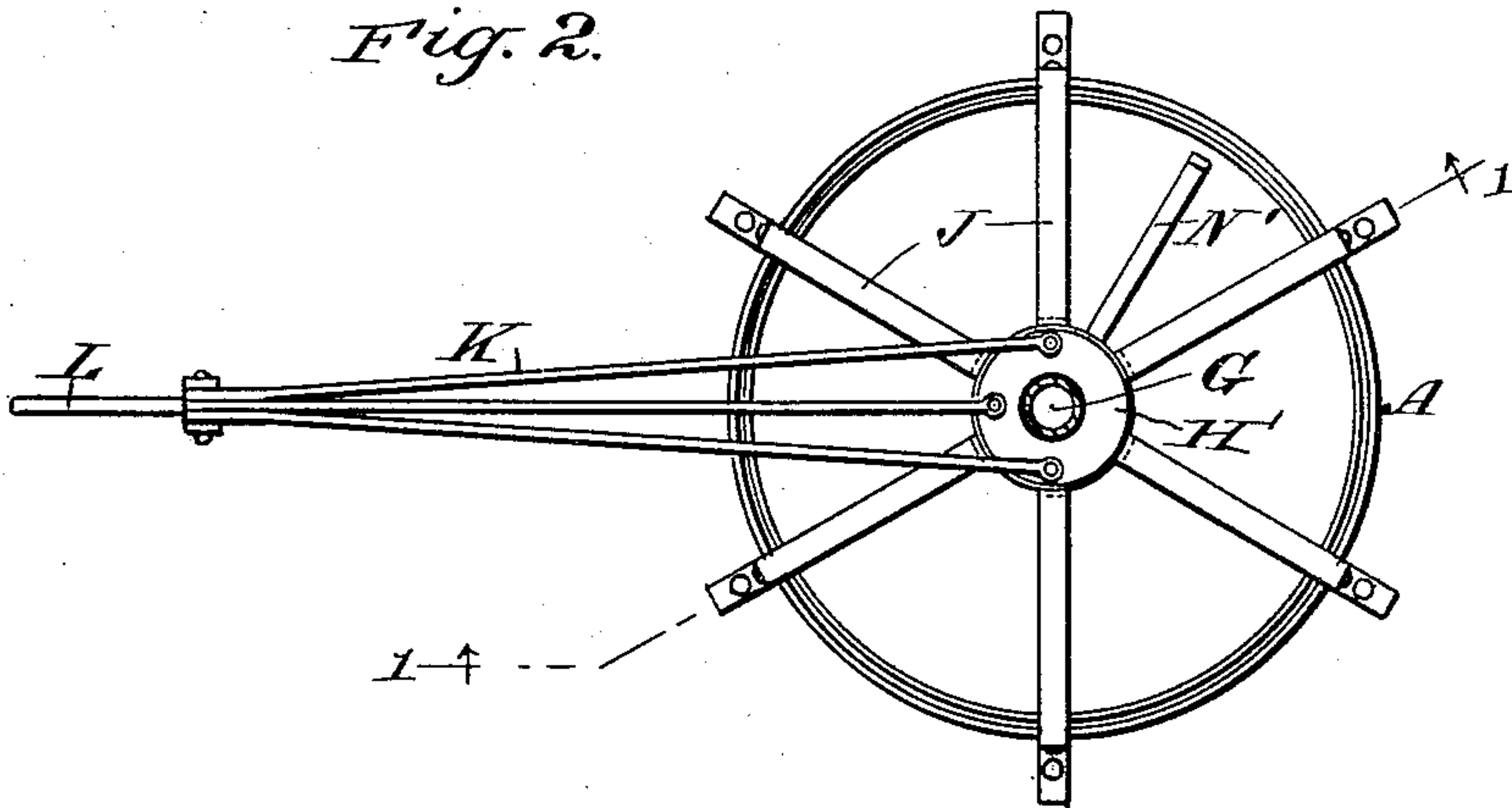
No. 480,381.

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*Fig. 1.*



*Fig. 2.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

HENRY H. BOURNE, OF TRINIDAD, COLORADO.

## COMBINED CEMENT MILL AND FURNACE.

SPECIFICATION forming part of Letters Patent No. 480,381, dated August 9, 1892.

Application filed September 15, 1891. Serial No. 405,764. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY H. BOURNE, of Trinidad, in the county of Las Animas and State of Colorado, have invented a new and Improved Combined Cement Mill and Furnace, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved combined cement mill and furnace which is simple and durable in construction, very effective in operation, and arranged to be readily transported from place to place.

The invention is embodied in the construction and combination of parts as hereinafter described.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure 1 is a sectional side elevation of the improvement on the line 1 1 of Fig. 2, and Fig. 2 is a plan view of the same.

The combined cement mill and furnace is provided with a casing A, preferably having double walls made of sheet metal in cylindrical shape and formed with a bottom B and a transverse partition C, which divides the casing into an upper or mill compartment D and a furnace-compartment E. In the furnace-compartment E is arranged a furnace F, built of fire-clay or other material, resting on the bottom B and arranged in the shape of a cone with openings permitting the heat to escape into the compartment E to the under side of the partition C. The furnace F is also formed with an inlet-door for introducing the necessary fuel to be burned, and the upper end of the said furnace opens into a smoke-stack G, set on top of the partition C and extending through the compartment D, as is plainly illustrated in Fig. 1.

It is understood that a suitable opening is formed in the center of the compartment C, the opening being surrounded by a flange, to which the lower end of the chimney G is attached. The latter extends centrally through the mill-compartment D and forms a bearing for the sleeve H, mounted to turn on the chimney and formed with an annular flange H', resting on a bearing I, supported on braces J, attached to the outside of the casing A and

extending to the lower end thereof. The lower ends of the braces J are formed with flanges for fastening the entire device to the floor to hold it in position. The flange H' of the sleeve H is connected with arms K, extending to one side, and to the outer ends of which is rigidly attached the draft-beam L, arranged for conveniently attaching the animal to operate the machine. On the sleeve H is secured a downwardly-extending arm N, carrying on its lower end an L-shaped agitator N', extending over the top of the partition C and reaching close to the inner surface of the casing A.

The device is used as follows: The furnace F is charged with suitable fuel, which when ignited produces sufficient heat for heating the compartment E and the material in the compartment D. The heat passes from the furnace F through the openings into the compartment E, so that the flame does not pass directly on the under side of the partition C, thus preventing a quick burning out of the said partition. The clay, stone, cement, and other materials to be mixed are placed in the compartment D, so that the entire mass is heated from the heat generated from the furnace F. At the same time the material is constantly stirred and agitated by the agitator N' and the arm N set in motion by the animal pulling on the draft-beam L. A suitable door is formed in the casing A above the partition C for removing the material when it is properly prepared by mixing and heating in the manner above described. The upper end of the casing A is open, so that the material to be treated can be readily thrown or dumped into the compartment D.

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

1. A combined cement mill and furnace comprising a casing, a transverse partition forming a mill-compartment and a furnace-compartment in the said casing, a furnace located in the said furnace-compartment to heat the latter and also the mill-compartment, a smoke-stack extending centrally from the said partition to connect with the outlet of the said furnace, and an agitator held in the said mill-compartment and mounted to turn on the said smoke-stack, substantially as shown and described.



2. In a combined cement mill and furnace, the combination, with a casing formed with a transverse partition dividing the casing into an upper and lower compartment, of a furnace located in the said lower compartment, 5 a bearing held in the upper end of the uppermost compartment, rods for supporting the said bearing and attached to the said casing, a sleeve held in the said bearing and mounted 10 to turn, an agitator secured to the said sleeve and extending in the uppermost compartment, and a smoke-stack extending from the said furnace through the uppermost compartment and through the said sleeve, substantially as shown and described. 15

3. In a combined cement mill and furnace, the combination, with a casing formed with a transverse partition dividing the casing into

an upper and lower compartment, of a furnace located in the said lower compartment, 20 a bearing held in the upper end of the uppermost compartment, rods for supporting the said bearing and attached to the said casing, a sleeve held in the said bearing and mounted to turn, an agitator secured to the said sleeve 25 and extending in the uppermost compartment, a smoke-stack extending from the said furnace through the uppermost compartment and through the said sleeve, and means, substantially as described, for revolving the said 30 sleeve on the said smoke-stack and the said bearing, as set forth.

HENRY H. BOURNE.

Witnesses:

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