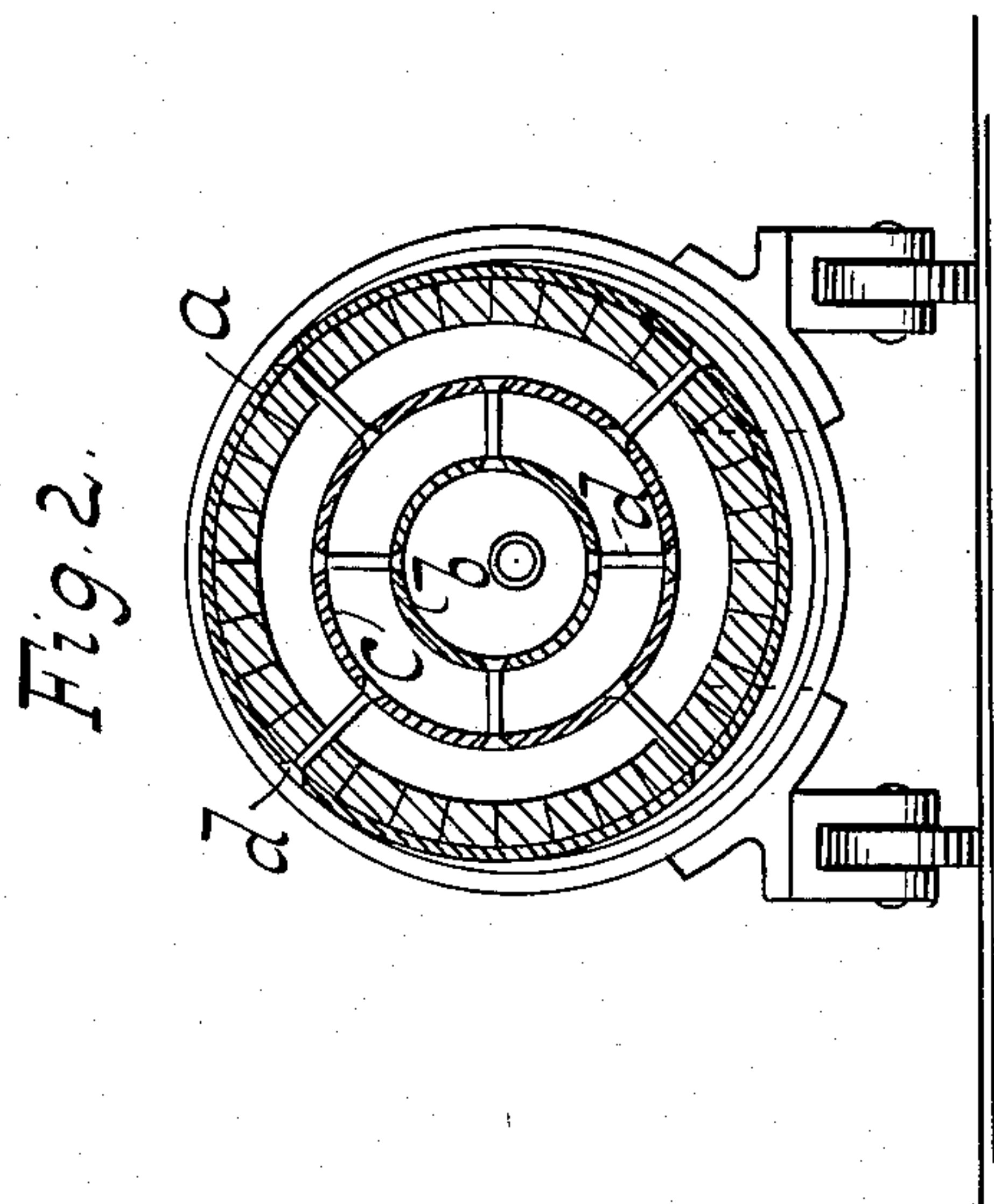
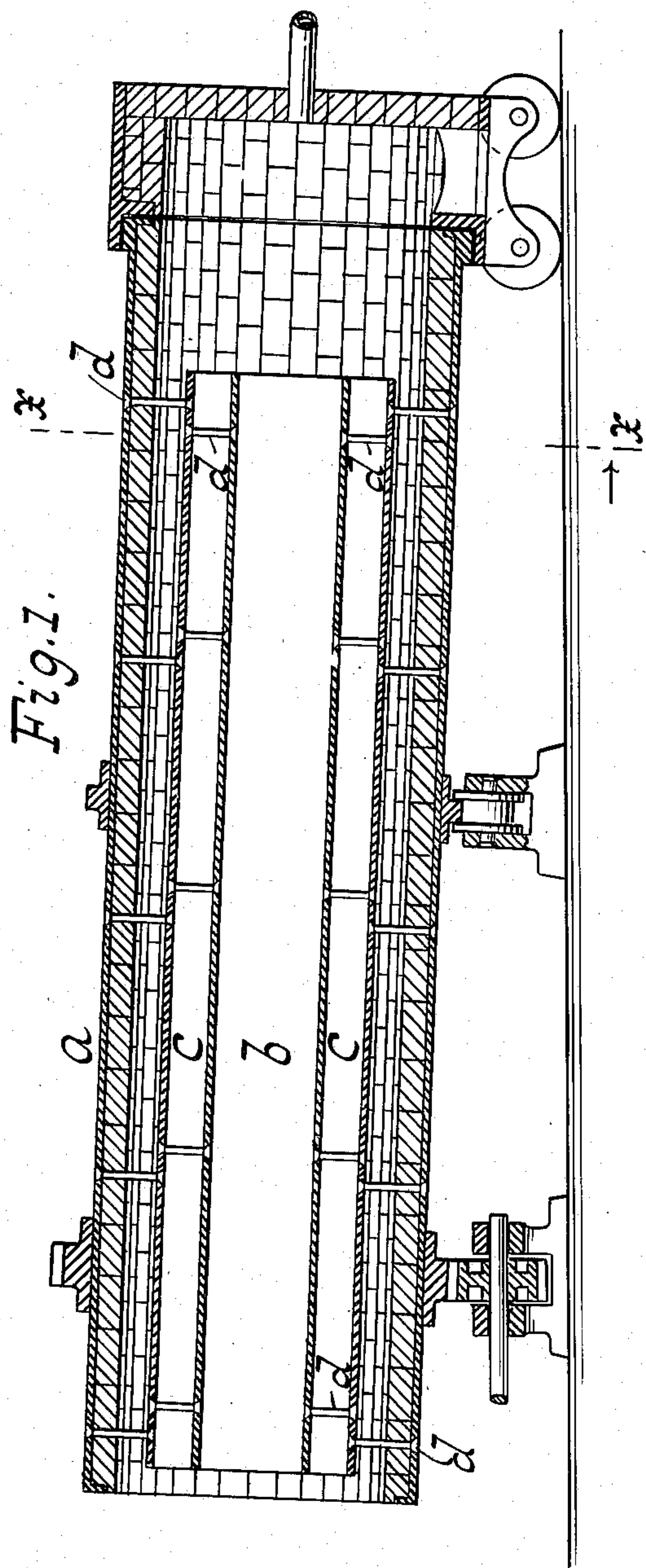


No. 847,860.

PATENTED MAR. 19, 1907.

W. R. WARREN.
ROTARY KILN.

APPLICATION FILED OCT. 31, 1905.



WITNESSES:

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WILLIAM R. WARREN, OF NEW YORK, N. Y.

ROTARY KILN.

No. 847,860.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed October 31, 1905. Serial No. 285,308.

To all whom it may concern:

Be it known that I, WILLIAM R. WARREN, a citizen of the United States, residing at Manhattan borough, in the county of New York and State of New York, have invented new and useful Improvements in Rotary Kilns, of which the following is a specification.

This invention relates to a rotary kiln consisting of an outer shell with one or more inner shells placed concentrically or eccentrically in relation to the outer shell of relative size, to be determined as may best suit the particular material to be treated, such inner shell or shells extending through a part or the whole of the length of the outer shell, the object being to divide the material which enters the kiln, and thus producing a larger heating-surface than is possible in a single outer shell, as at present in use, said shells being all made to receive the material to be treated.

This invention is set forth in the following specification and claims and illustrated in the annexed drawing, in which—

Figure 1 is a sectional side view of a kiln embodying this invention. Fig. 2 is a section along xx Fig. 1.

In the drawing is shown a kiln comprising a shell or outer cylinder a . One or more inner cylinders are located in the outer shell. Inner cylinders are shown at b and c .

Supports are shown at d in form of radial ribs or struts. One or more linings of fire-brick can be provided. The inner cylinders are made of metal or some suitable refractory material.

The inner cylinders can extend the whole or only part of the length of the outer cylinder.

The material to be treated, such as ce-

ment, is divided or scatters itself through the various cylinders or shells, and increased heating-surface or division of material under treatment results with quick and thorough operation.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A rotary kiln comprising outer and inner shells, all said shells being adapted to receive material to be treated so as to allow the same to be subdivided and rapidly heated said shells being made to feed the material in one direction while the heat or flame is made to travel in the opposite direction

2. A rotary kiln comprising outer and inner shells, the latter being extended part of the length of the outer shell and all the shells being made to receive material so as to subdivide the same said shells being made to feed the material in one direction while the heat or flame is made to travel in the opposite direction.

3. A rotary kiln comprising outer and inner shells placed concentrically to one another and all made to receive material for subdividing and rapidly heating the same said shells being made to feed the material in one direction while the heat or flame is made to travel in the opposite direction.

4. A rotary kiln comprising an outer shell of imperforate material and shells concentrically arranged within said outer shell and all made to receive material for subdividing and rapidly heating the same.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM R. WARREN.

Witnesses:

C. L. FURBUSH,
F. W. WHITE.