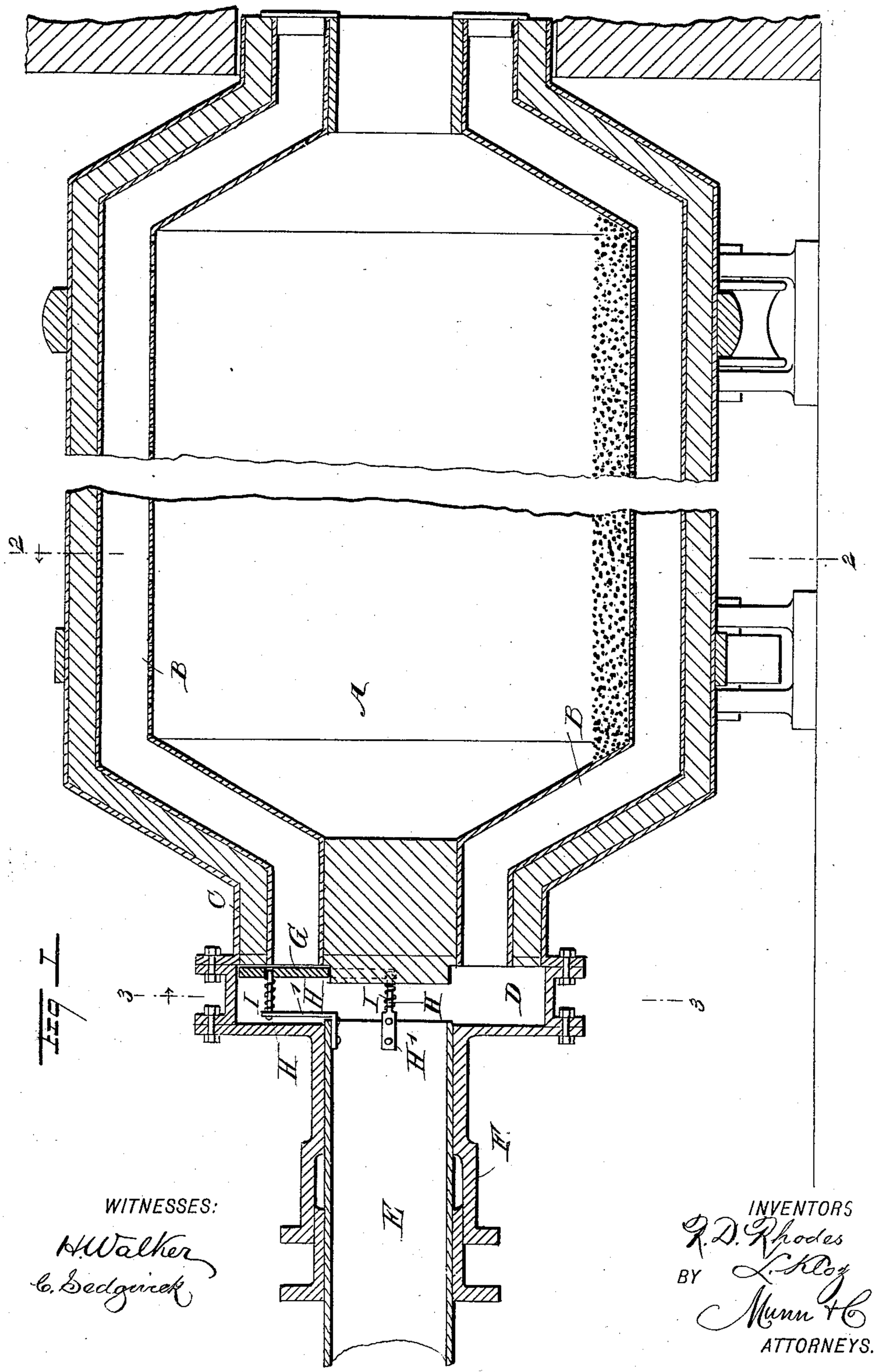
(No Model.) 2 Sheets—Sheet 1.

R. D. RHODES & L. KLOZ.

AIR CUT-OFF FOR FURNACES.

No. 532,704. Patented Jan. 15, 1895.



WITNESSES:

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(No Model.) 2 Sheets—Sheet 2.

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Fig 2

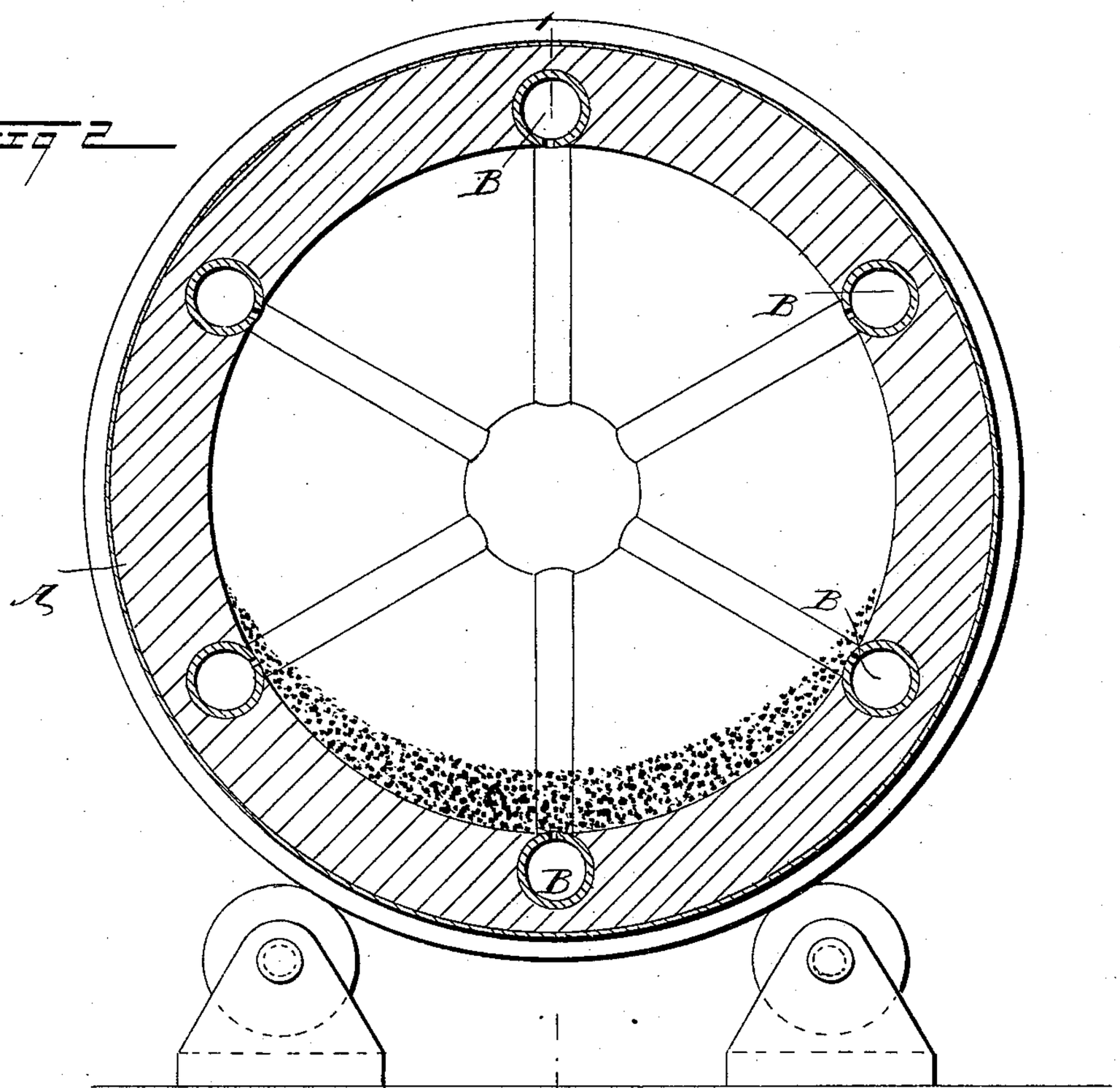
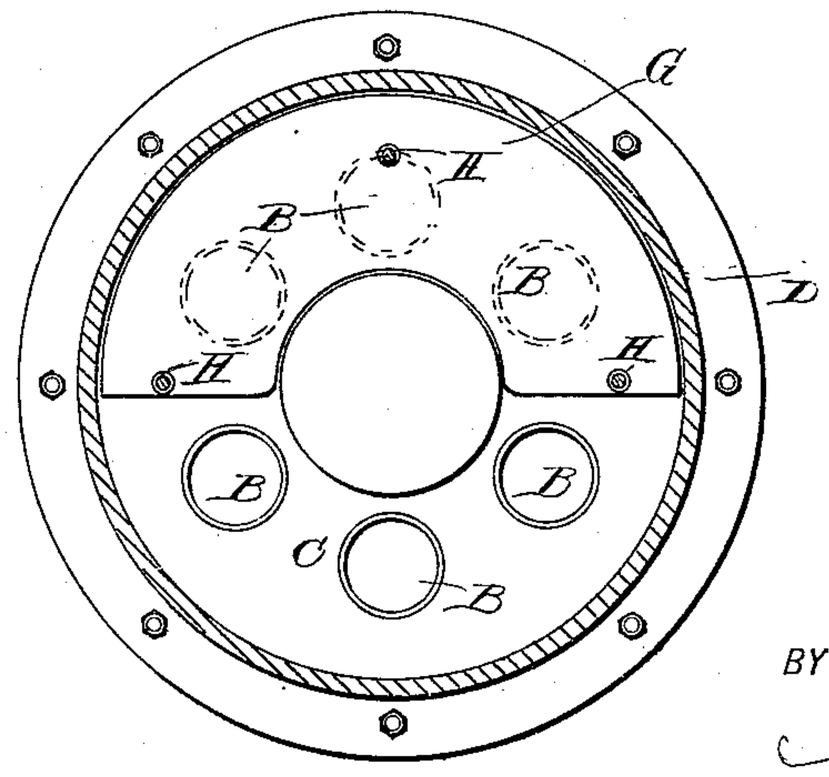


Fig 3



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UNITED STATES PATENT OFFICE.

ROBERT D. RHODES AND LUDWIG KLOZ, OF LEADVILLE, COLORADO, ASSIGNORS TO THE CONSOLIDATED KANSAS CITY SMELTING AND REFINING COMPANY, OF NEW YORK, N. Y.

AIR CUT-OFF FOR FURNACES.

SPECIFICATION forming part of Letters Patent No. 532,704, dated January 15, 1895.

Application filed June 6, 1894. Serial No. 513,655. (No model.)

To all whom it may concern:

Be it known that we, ROBERT D. RHODES and LUDWIG KLOZ, both of Leadville, in the county of Lake and State of Colorado, have invented certain new and useful Improvements in Air Cut-Offs for Furnaces, of which the following is a full, clear, and exact description.

The invention relates to revolving ore roasting furnaces, and its object is to provide a new and improved air cut-off mechanism, which is simple and durable in construction, very effective in operation, and arranged to control the air blast into the interior of the furnace, in such a manner that air for the oxidizing of sulphur in ores or furnace products to be roasted, may be distributed into the mass to be calcined or roasted, from the periphery of the revolving furnace, and in such a manner as to reach only those sections of the revolving furnace, where the air is required or desired.

The invention consists of certain parts and details, and combinations of the same, as will be hereinafter described and claimed.

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 all the views.

Figure 1 is a longitudinal section of the improvement as applied, on the line 1—1 of Fig. 2. Fig. 2 is a transverse section of the same on the line 2—2 of Fig. 1; and Fig. 3 is a similar view of the same on the line 3—3 of Fig. 1.

The improved air cut-off device is more especially designed for use on revolving roasting furnaces, provided with a series of perforated pipes or flues in their interior to force blasts of air into the ore or furnace products undergoing treatment.

The revolving roasting furnace A, of any approved construction, is provided in its wall with a series of air supply pipes B or with flues having perforations or slots to discharge air into the interior of the furnace.

The outer ends of the pipes or flues B, are arranged in a circle in the neck C, of the furnace and terminate in a head D, secured in any suitable manner on the neck C, so as to revolve with the furnace. Into this head D, discharges the end of the fixed air blast pipe E, connected with a suitable air supply so that the air can pass from the pipe E, into the head D, and from the latter into the several pipes or flues B, discharging the air into the interior of the furnace A.

The head D, is provided with a stuffing box F, engaging the discharge end of the pipe E, to render the joint between the revolving head D and the blast pipe E, air tight to prevent loss or escape of air.

As the air discharged by the pipes or flues B, should directly pass into the ore or furnace products contained in the furnace, it is desirable to cut off the air entirely or in part from those pipes or flues B, not covered at the time by the ore or furnace products; it being understood that as the ore or furnace products only covers the bottom portion of the furnace as shown in Fig. 2, only a few pipes or flues B, are covered for the time being by the ore or furnace products, while the upper pipes are uncovered and open directly into the non-filled interior portion of the furnace, and as the latter revolves, the pipes or flues B, are alternately covered and uncovered by the ore or furnace products. Now in order to shut the air out from the uncovered pipes or flues B, a segmental plate or valve G, is provided and fitted on the face of the neck C, as plainly shown in Figs. 1 and 3, the said valve closing the ends of the uppermost pipes or flues B, not covered at the time by the ore or furnace products, to prevent the air in the head D, from passing into the said upper pipes or flues B. Said plate or valve G, can be so constructed that when the flues or pipes B, are not covered with ore or furnace products, a less amount of air for cooling purposes may be allowed to pass through the uncovered pipes or flues B. The valve G, is yieldingly mounted and is for this purpose fitted to slide longitudinally on rods H, supported by arms H′, from the discharge end of the air blast pipe E. Springs I, coiled on the said rods H, press the plate or valve G, firmly against the face of the neck C, to make a tight joint and to compensate for any unevenness in the neck

C, due to expansion and contraction from the heat of the furnace. Now it will be seen that the inlet ends of those pipes or flues B, not covered for the time being by the ore or furnace products in the revolving furnace, are closed by the valve G, so that the air passing from the blast pipe E, into the head D, can only pass from the latter into the lowermost pipes or flues B, which have their inner perforated parts covered by the ore or furnace products, so that the air is directly discharged into the ore or furnace products only.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination of the rotatable furnace, the air pipes carried thereby, the fixed blast pipe, a valve supported by the said pipe and capable of movement longitudinally of the blast pipe to close a number of the said air pipes, and means for pressing the valve toward the ends of the pipes on the revolving furnace, as and for the purpose set forth.

2. The combination of the rotatable furnace provided with air pipes and a neck containing the ends of the said pipes, a stationary blast pipe, a valve supported by the said pipe, and means for pressing the valve toward the ends of a number of the air pipes to successively close the same as the furnace revolves, substantially as described.

3. The combination of the rotatable furnace carrying air pipes, a blast pipe connected to the said air pipes, a valve constructed to close a number of the said air pipes at a time, said valve being held against rotation, but capable of longitudinal movement toward the ends of the air pipes, and means whereby the said valve is constantly pressed toward the ends of the air pipes, substantially as described.

4. A device of the class described, comprising a fixed air blast pipe, a valve supported by the said pipe, a head secured on the revolving furnace and into which discharges the said air blast pipe, and a series of pipes or flues leading from the said head and adapted to be successively closed by the said valve as the furnace revolves, and springs pressing on the said valve to hold the latter in firm contact with the neck of the revolving furnace carrying the said pipes, substantially as described.

ROBERT D. RHODES.
LUDWIG KLOZ.

Witnesses:
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ALBERT TREGA.