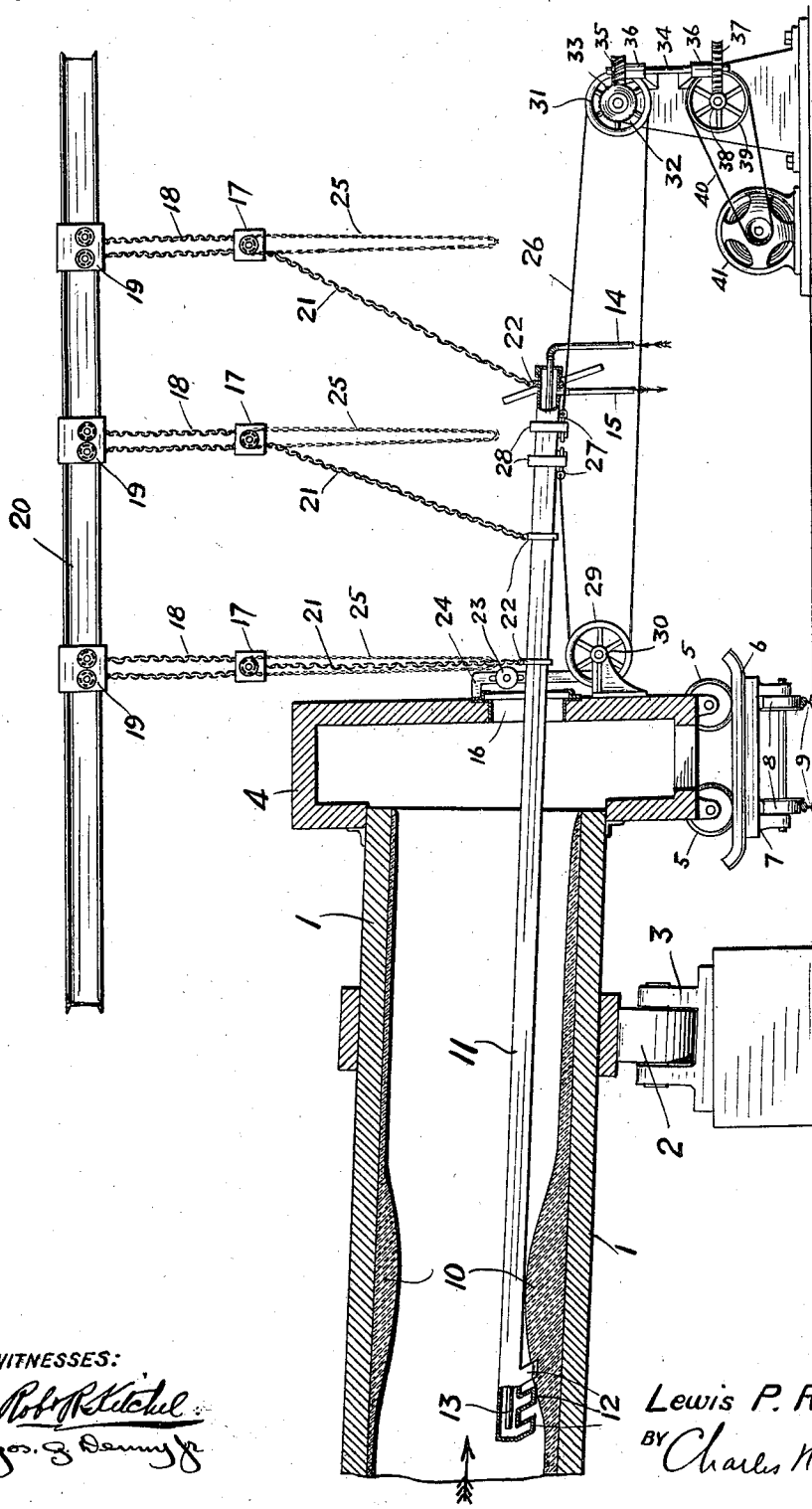


L. P. ROSS.
KILN CLEANER.
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1,014,258.

Patented Jan. 9, 1912.



WITNESSES:
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UNITED STATES PATENT OFFICE.

LEWIS P. ROSS, OF STANDISH, NEW YORK, ASSIGNOR OF ONE-HALF TO NORTHERN IRON COMPANY, A CORPORATION OF NEW YORK.

KILN-CLEANER.

1,014,258.

Specification of Letters Patent.

Patented Jan. 9, 1912.

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To all whom it may concern:

Be it known that I, LEWIS P. ROSS, a citizen of the United States, residing at Standish, in the county of Clinton and State of New York, have invented certain Improvements in Kiln-Cleaners, of which the following is a specification.

My improvements are designed primarily for the purpose of cleaning the linings of kilns such as are used in modulating or clinkering fine ores, flue dust, cement and the like, and my preferred construction comprises a fluid cooled oscillatable and longitudinally movable bar having cutting means in combination with mechanism for operating it.

The accompanying drawing represents a sectional view of a rotary kiln in combination with my improved mechanism.

The kiln 1 is revolvably supported by rollers 2 journaled in bearings 3 and is provided at its lower end with the hood 4. The hood is carried by wheels 5 having a limited movement on the rails 6, extending in the direction of the kiln, the rails being mounted on a truck 7, having wheels 8 movable on the rails 9, transversely to the kiln. In this usual construction, the material in process of modulation is fed, by the inclination and rotation of the kiln, toward the hood 4, through which a heating agent is introduced, and in the usual operation rings 10, which interfere with and eventually stop the operation, are formed on the kiln linings by the adhesion of the material rendered plastic by the heat. These rings are removed, in accordance with my invention, by a bar 11 provided with teeth 12, which are adapted for cutting through the adhering material; the bar and teeth being hollow for the circulation of water, which is introduced through the pipe 13 connected with the hose 14 and withdrawn through the hose 15. The bar 11, which passes through the port 16 in the hood, has its end exterior to the kiln connected with hoist blocks 17, which are carried by hangers 18 suspended from trolleys 19 movable along the overhead rail 20; the blocks having their chains 21 connected with the collars 22 on the bar. A roller 23, journaled on a bearing 24 carried by the hood, acts as a fulcrum for the bar when its rear end is lifted by operating the hand chains 25 of the

hoists, to effect the desired engagement of the cutting teeth 12 with the ring 10.

A link belt or wire cable 26 is connected by eye bolts 27 with collars 28 on the bar 11 and passes over a wheel 29, journaled in bearings 30 on the hood 4, and a wheel or drum 31, which is journaled in bearings 32. The drum 31 is reciprocated, to reciprocate the members 26 and 11, conveniently by a spiral gear 33 fixed thereto and a revoluble shaft 34 having a spiral gear 35 engaging the gear 33. The shaft is journaled in the bearings 36 and provided with a worm wheel 37 which is engaged by a worm 38 revolved by a wheel 39, the latter being connected by a belt 40 with the reversing motor 41.

In operating the apparatus, the rotation of the kiln is stopped, the bar is inserted, and its rear end is elevated so as to engage its teeth with the ring to be cut, by operating the hand chains. The motor is then operated in reverse direction and acts through the intermediate mechanism on the link belt or cable to reciprocate the bar and cut through the ring which, being severed, is readily broken and removed. It will be understood that when the bar has been drawn back by the motor mechanism to the limit permitted thereby, it can be wholly removed by detaching the eye bolts and adjusting the collars so that it can be carried wholly by the movable blocks.

As the bar can be inserted and withdrawn readily, it need not be in the kiln subject to the heating action during the nodulating operation, as in usual constructions, but it is designed for use after the ring has formed when the latter can be removed by cutting it in several places, upon which the several sections will fall of their own weight, particularly if allowed to slightly cool and contract.

Having described my invention I claim:

1. The combination, with a rotary kiln, of a longitudinally reciprocating bar having one or more projections thereon adapted for cleaning the lining of said kiln.

2. The combination, with a rotary kiln, of a longitudinally movable bar having a laterally projecting cutting member adapted for cleaning the lining of said kiln, and means for reciprocating said bar.

3. The combination, with a rotary kiln,

of a bar adapted for cutting different sections of a ring adhering to the interior of said kiln, means whereby said bar is fulcrumed, and means for moving said bar longitudinally.

5 4. The combination, with a rotary kiln, of a longitudinally movable water cooled bar having one or more cutting teeth thereon adapted for acting upon the various
10 parts of a ring of material adhering within

said kiln, a fulcrum for said bar, and means for reciprocating said bar.

In witness whereof I have hereunto set my name this 10th day of March, 1911, in the presence of the subscribing witnesses. 15

LEWIS P. ROSS.

Witnesses:

L. H. McCLELLAN,

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