

No. 849,429.

PATENTED APR. 9, 1907.

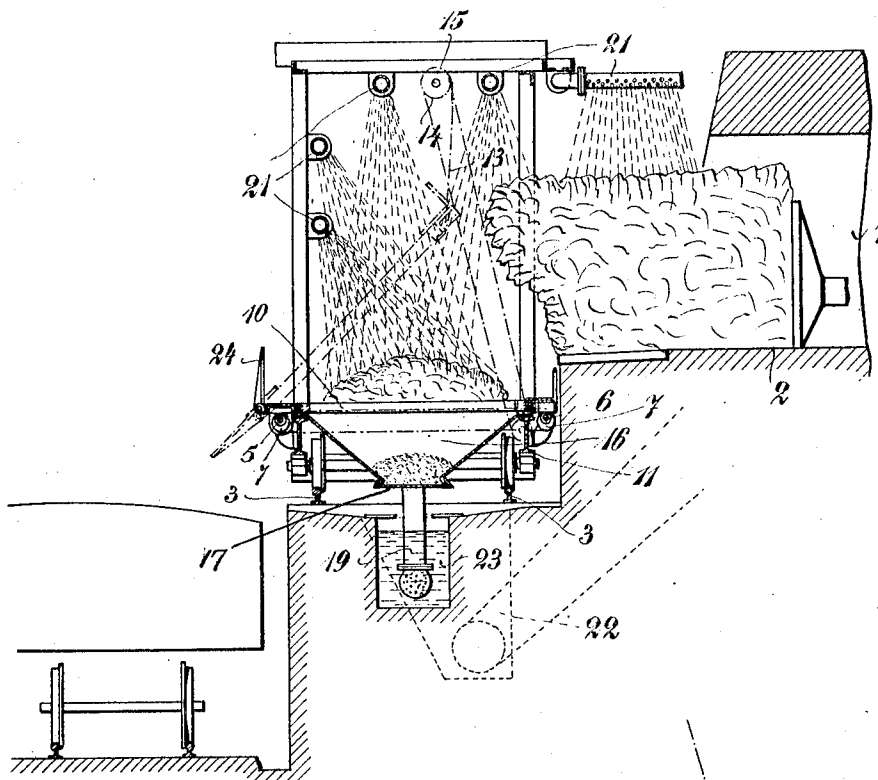
W. SCHUMACHER.

APPARATUS FOR SEPARATING AND DISCHARGING COKE.

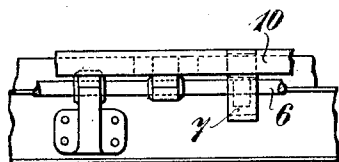
APPLICATION FILED AUG. 31, 1906.

2 SHEETS—SHEET 1.

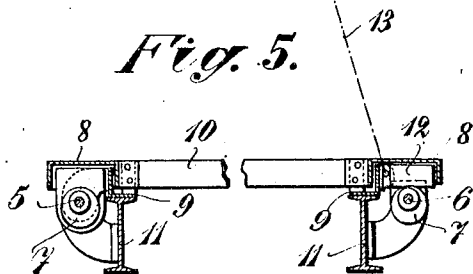
*Fig. 1.*



*Fig. 4.*



*Fig. 5.*



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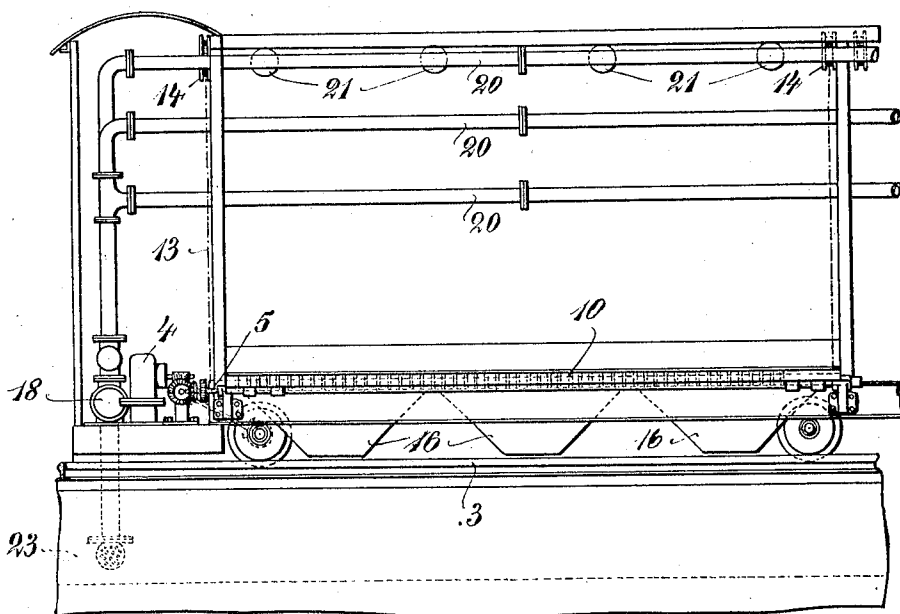
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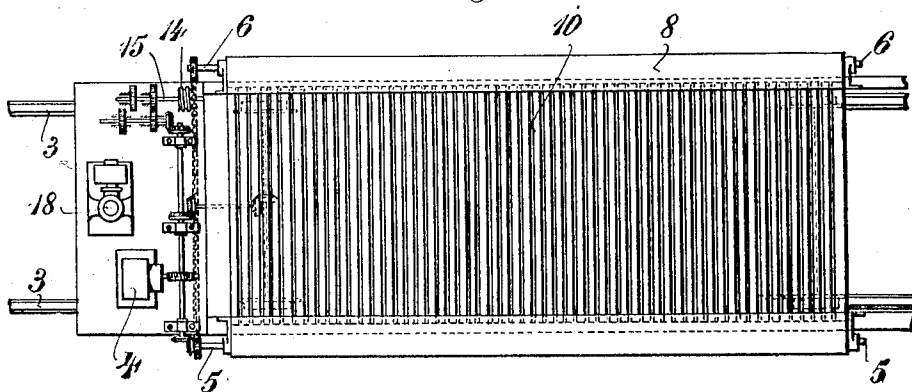
APPLICATION FILED AUG. 31, 1906.

2 SHEETS—SHEET 2.

*Fig. 2.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

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## APPARATUS FOR SEPARATING AND DISCHARGING COKE.

No. 849,429.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed August 31, 1906. Serial No. 332,752.

*To all whom it may concern:*

Be it known that I, WALTER SCHUMACHER, a subject of the German Emperor, and residing at Dusseldorf, Germany, have invented new and useful Improvements in Apparatus for Separating and Discharging Coke, of which the following is a specification.

This invention relates to an apparatus for separating and discharging coke delivered from a coke-oven, so as to render such coke suitable for shipment in an economical and rapid manner.

In the accompanying drawings, Figure 1 is a cross-section of my improved apparatus for separating and discharging coke; Fig. 2, a front view thereof; Fig. 3, a plan. Figs. 4 and 5 are details of the grate-supporting means.

In front of a row of furnaces (on the slack-ing side) there are sunk rails 3, on which the separating and discharging apparatus is adapted to travel. This latter is furnished with a motor 4, which by means of a suitably-arranged gear actuates one of the spring-axles and also the two laterally-arranged shafts 5 and 6. In the bottom of this car or wagon there is a shaking-grate 10. Half of the bars of this grate—i. e., every alternate one—can be moved up and down, the remaining half remaining stationary. The lifting and sinking of these bars is effected by means of the shafts 5 and 6, driven by the motor 4 and furnished with eccentrics 7. The eccentrics may be made to engage directly under the bars or they may, exactly as the stationary frame 8, be united by the frame 9, which is raised and lowered by the eccentrics 7, which always have the same motions on both shafts. The frame 9 can, by a closed bed, be connected with the shaft through suitably wide eccentric-rings. At the back the two frames 8 and 9 rest upon the fixed machine-frame 11 and are independent of the eccentric shaft 6, which causes the rising and falling of the frame 8 only by contact with the tappets 12. As the two frames 8 and 9 are connected neither with the shaft 6 nor with the machine-frame 11 they can be raised with the grate-bars and turned on the shaft 5.

For lifting purposes the cables or chains 13 are provided, which wind upon the rolls 14 of a shaft 15, which is actuated either by hand or by the motor 4. Below grate 10 there are arranged a series of perforated funnels 16, which can be opened and closed by means of

traps or slides 17. The wagon is also supplied with a pump 18, which is provided with a suction-pipe 19, and with delivery-pipes 20, having roses or nozzles 21. Suction-pipe 19 dips into a longitudinal channel 23, arranged intermediate rails 3, so that the lower end of pipe 19 is constantly submerged in the water while the wagon is in motion. At one or the other end of the rails or at any other point there are arranged pits 22, which may be emptied by chain-buckets or otherwise.

The operation of the mechanism described is as follows: When the grate is horizontal or only slightly inclined, the charge of a furnace is pushed upon it, and while the coals are being forced out of the furnace the pump and consequently the sprays are brought into action. During the discharge and slacking the apparatus is moved slowly to and fro and the shafts 5 and 6 started, so that the movable bars are raised and lowered, whereby the material is set in motion, and the fine portions fall through into the funnels 16, from whence from time to time it is allowed to pass, by means of the traps, into the pit of an elevator for the purpose of being further treated. The water requisite for slacking is pumped through the suction-pipe out of the channel 23 and passed into the pipe 18. All the water not vaporized flows through the perforated sides of the funnels 16 back into the channel 23, where it is clarified and may again be used. The hose at present employed and the requisite fastening and unfastening to a water-main is thereby entirely obviated. The system of sprays can also be divided into sections which can be controlled from the operator's stand.

On the outside of the car-frame are pivoted plates 24, which when in their elevated position serve to prevent the material from falling off the grate and when let down cause the material to slide off the grate into the wagon.

I claim—

1. An apparatus for separating and discharging coke, comprising a car adapted to travel along the front of a coke-oven, a grate mounted on the car and having movable bars, and means for shaking some of said bars, substantially as specified.

2. An apparatus for separating and discharging coke, comprising a car adapted to travel along the front of a coke-oven, a grate having movable bars and mounted on the

car, means for shaking some of said bars, a funnel below the grate, and means for closing said funnel, substantially as specified.

5 3. An apparatus for separating and discharging coke, comprising a car adapted to travel along the front of a coke-oven, a grate mounted on the car and having alternating stationary and movable grate-bars, means for shaking the movable grate-bars, and

means for tilting the grate, substantially as specified.

Signed by me at Dusseldorf, Germany, this 3d day of August, 1906.

WALTER SCHUMACHER.

Witnesses:

WILLIAM ESSENWEIN,  
PETER LIEBER.