

W. FEICKS.
 APPARATUS FOR HANDLING COKE.
 APPLICATION FILED MAR. 31, 1910.

1,055,456.

Patented Mar. 11, 1913.

3 SHEETS—SHEET 1.

Fig. 1.

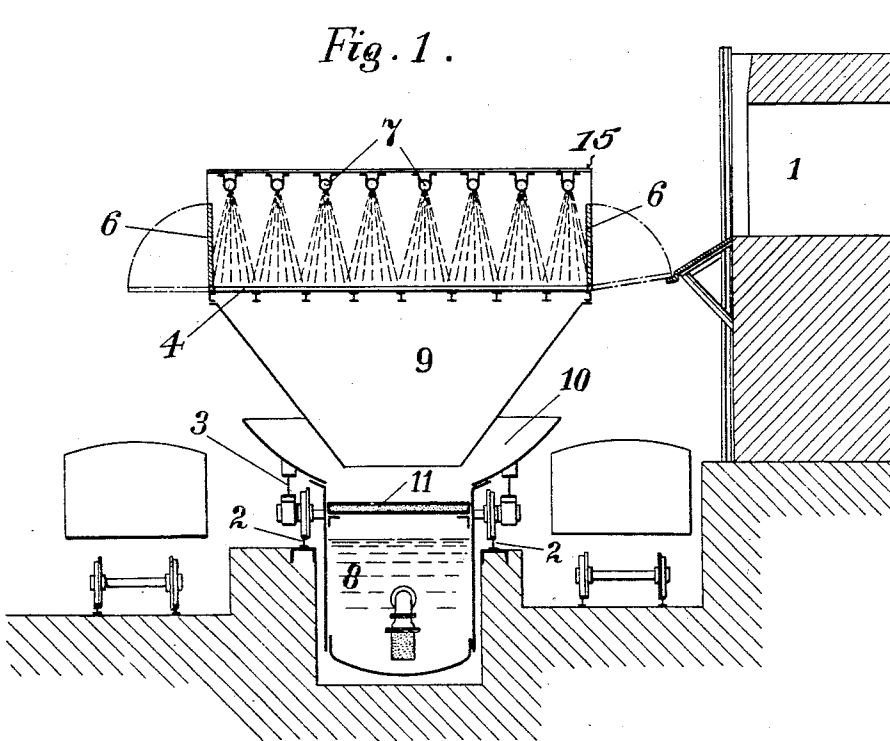
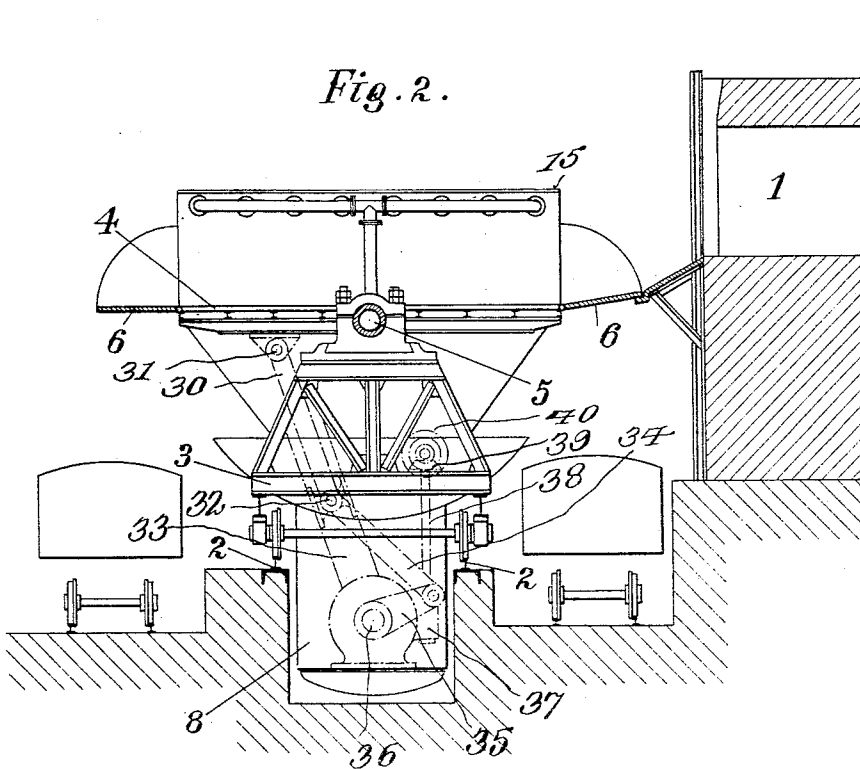


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

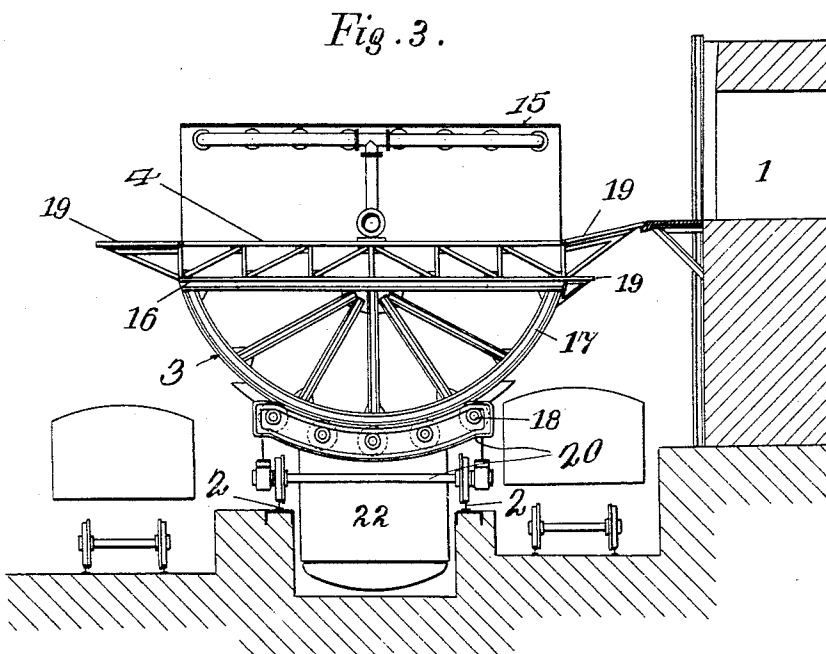


Fig. 4.

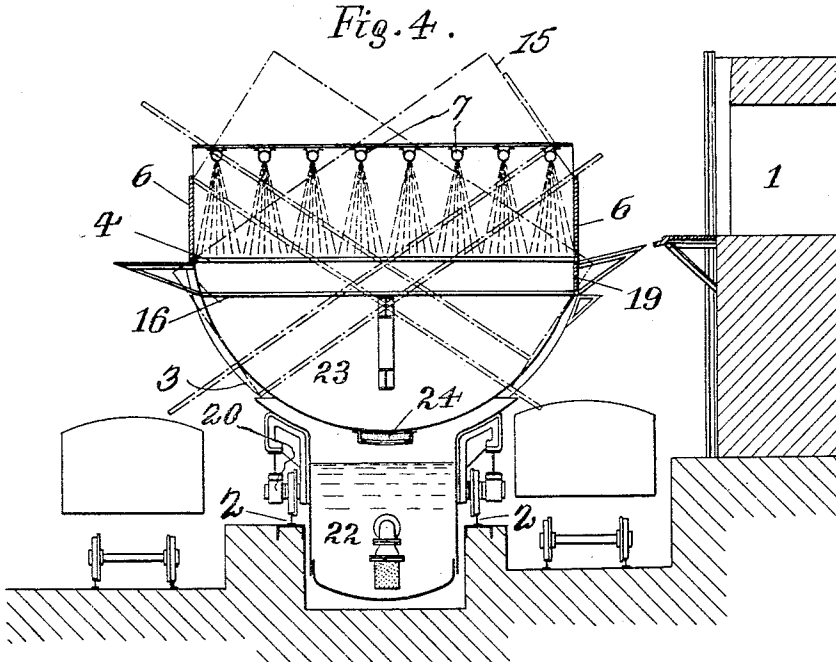
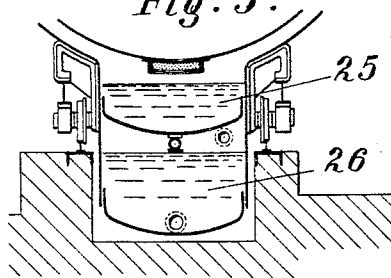


Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 6.

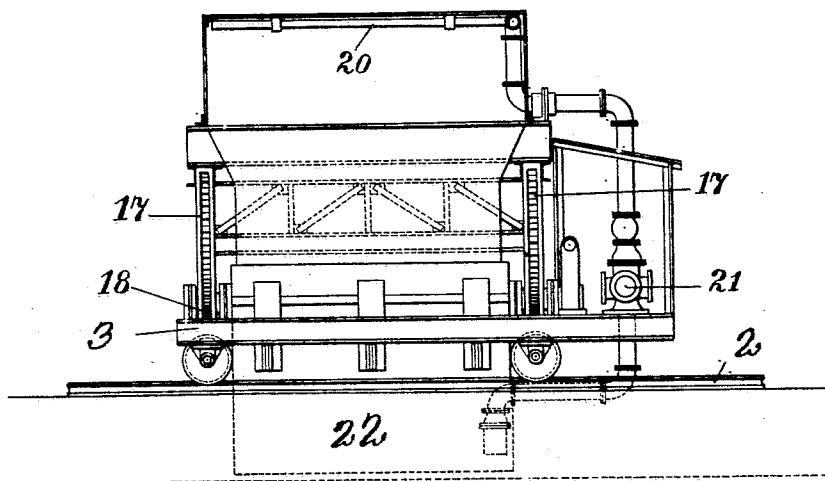
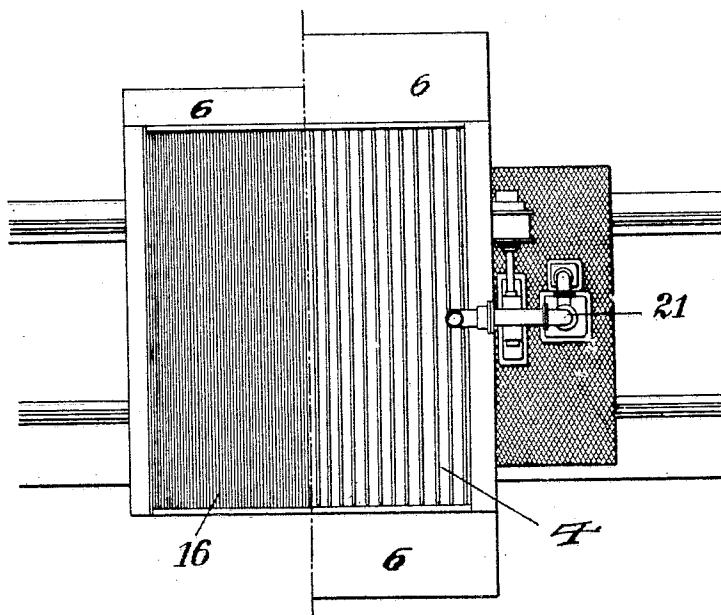


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM FEICKS, OF BETHLEHEM, PENNSYLVANIA.

APPARATUS FOR HANDLING COKE.

1,055,456.

Specification of Letters Patent.

Patented Mar. 11, 1913.

Application filed March 31, 1910. Serial No. 552,667.

To all whom it may concern:

Be it known that I, WILLIAM FEICKS, a subject of the German Emperor, residing in the city of Bethlehem, in the county of Northampton and State of Pennsylvania, have invented certain new and useful improvements in Apparatus for Handling Coke, of which the following is a specification.

My invention relates to apparatus employed for quenching, screening and conveying coke from coke ovens or retorts.

It consists principally of a wagon or car, on which is mounted a grating or screen in such manner, that by means of suitably adapted mechanism it can be given a tilting motion in at least two opposite directions.

It further consists of novel features, as will hereinafter be fully set forth.

In the drawings, Figure 1 represents a vertical section of an apparatus embodying my invention. Fig. 2 is an end view of same. Fig. 3 is an end view of a modification, and Fig. 4 a vertical section of an apparatus according to my invention, but of different construction from that shown in Fig. 1. Fig. 5 illustrates a special construction of the lower part of the apparatus, while Fig. 6 is a front elevation, and Fig. 7 a top plan view according to Figs. 3 and 4.

In front of a battery of ovens 1 are rails 2, on which runs a car 3. The car may be power- or hand driven. The car truck or frame 20 carries pivotally mounted thereon a car body comprising a bin 15 which in turn carries a grating or screen 4; and by means of suitably adapted mechanism the car body and the grating can be tilted as a whole to right and left on trunnions 5. The tilting mechanism here employed is shown in chain lines in Fig. 2. This mechanism comprises a reciprocating rod 30, pivoted off-center at one end 31 to the bottom of the grating 4, and attached at the other end to the slide 32. This slide is adapted to ride in guide 33, and motion is imparted thereto through the link 34 and arm 35 driven from shaft 36. This shaft may be driven by worm 37 in mesh with a gear (not shown) on shaft 36, which worm in turn is driven by shaft 38, through beveled gear and pinion 39 and motor 40. On the outside of the grating or screen 4, hinged plates 6 are arranged, which can be raised and lowered. Mounted on the car body and above said

grating are spraying pipes 7, which are in communication with a storage water tank 8 at the lower part of the car. By suitable means, provided on the car, the water can be lifted from the tank 8 and pressed through the spraying pipes 7, even when the grating or screen is being tilted by rocking the car body and bin. At the lower side of the grating 4 is a funnel or the like 9, which serves to conduct the small coke and excess water, etc., falling through from the grating into a hopper 10. The hopper is provided at the bottom with a filter 11.

Referring to Figs. 3, 4, 6 and 7, the apparatus here illustrated differs from the one before described with reference to Figs. 1 and 2 in several details. In front of the ovens 1 are rails 2, on which the car 3 can be propelled. In this construction there are two gratings or screens 4 and 16 with different meshes, arranged one below the other, grating or screen 4 having the greater meshes being arranged on the top, and grating or screen 16 having the smaller meshes arranged below. Both gratings or screens are rigidly connected to rockers 17, which rest on rollers 18 supported by the car frame or truck 20. One or more of these rollers are power operated and equipped with teeth, which engage with similar teeth on the rockers 17. Grating 4 is provided on right and left, and grating 16 on the right hand side only with hinged plates 6, which can be raised and lowered. Above the gratings, spraying pipes 7 are arranged, which are supplied with water by a pump 21, communicating with a storage water tank 22. The spraying pipes 7, may as in this case be so arranged, that they take part in the rocking or tilting of the car body and the screen mounted thereon, the connection with the water supply pipe being effected by means of a swivel joint, a flexible tube or the like, or they may be fixed to the car frame, independent of the gratings. Below the gratings a hopper 23 is arranged, at the bottom of which is a filter 24.

Referring to Fig. 5, with the construction as illustrated in Fig. 5, the excess water filtering through from the hopper first passes into a tank 25, from which it is let off from time to time into the lower tank 26. The tank 26 during the quenching operation is kept under pressure by compressed air, which is supplied by an air compressor, carried on the car.

In the specific embodiments of the invention here illustrated, the car body and its attached parts swing or rock about a central longitudinal axis, thus reducing to a minimum the amount of power necessary to operate the apparatus. With a load of coke in position, the center of gravity of the moving parts and load taken together is not far from the gratings, and the force necessary for tilting the car body is thus relatively small. Such an arrangement has obvious advantages for the purposes described, especially in large scale operations.

The action of the apparatus is as follows:—The grating is brought into horizontal or slightly inclined position by rocking the car body and bin, and one of the hinged plates nearest to the ovens is lowered, to form a connection with the oven platform. The charge of one or more ovens is now pushed on to the grating, and the pump or air compressor and thereby the spraying pipes are operated. As soon as the whole charge is on the grating, the lowered hinge plate is raised, the tilting mechanism started and the grating brought into a continuous tilting motion to right and left, during which period the quenching device is kept in operation. The material on the grating or screen is thus shuffled to and fro and held in the body of the car by the walls of the bin. The quenching will be very effective and expeditious. The fine coke and the excess water fall through the grating into the hopper below, from which the water flows through the filter back to the storage water tank and is again used. The fine coke is removed from the filter from time to time. After quenching and screening the coke, either of the hinge plates of the bin is lowered and the grating tilted to that side, thus discharging the coke to either side as desired.

All operations of the apparatus can be started by the simple actuation of levers or the like, arranged on the operator's platform, so that the apparatus can be handled by a single man.

It will be evident that various changes may be made by those skilled in the art which may come within the scope of my invention, and I do not, therefore, desire to be limited in every instance to the exact constructions herein shown and described.

I claim:—

1. An apparatus for screening or loading coke comprising a car adapted to travel along the discharge ends of coke ovens and having a truck, and a body comprising a bin pivotally mounted upon said truck and carrying screening means, and mechanism for rocking said body and bin and thus said screening means.

2. An apparatus for screening or loading coke comprising a car adapted to travel

along the discharge ends of coke ovens and having a truck, and a body comprising a bin pivotally mounted upon said truck and carrying screening means, and mechanism for rocking said body and bin and thus said screening means, said mechanism being carried by said truck.

3. An apparatus for screening or loading coke comprising a car adapted to travel along the discharge ends of coke ovens and provided with a body and a truck, the body being pivotally mounted on the truck and carrying a screen, said truck carrying additional screening means below said screen and mechanism for rocking said body.

4. An apparatus for screening or loading coke comprising a car adapted to travel along the discharge ends of coke ovens and provided with a truck, and a body comprising a bin and being tiltably mounted on said truck and carrying screening means, doors for said bin at either side of said screening means for holding the coke thereon, and mechanism for rocking said body and bin.

5. An apparatus for screening or loading coke comprising a car adapted to travel along the discharge ends of coke ovens and provided with a truck, a body comprising a bin and screening means connections between the body and the truck whereby said body is adapted to rock thereon, and means carried by the car for rocking said body upon said bin and connections, and thus said screening means.

6. An apparatus for screening or loading coke comprising a car adapted to travel along the discharge ends of coke ovens and provided with a truck, a body comprising a bin and screening means pivotal connections between the body and truck whereby said body is adapted to rock thereon, and means carried by the car for rocking said body upon said bin and pivotal connections, and thus said screening means.

7. An apparatus for screening or loading coke comprising a car adapted to travel along the discharge ends of coke ovens and provided with screening means and a truck, said screening means connected to said truck in such a manner as to be rocked from side to side and mechanism carried by the car for rocking said screening means.

8. An apparatus for screening or loading coke comprising a car adapted to travel along the discharge ends of coke ovens and provided with a plurality of screening means, and a truck, said screening means being connected to said truck in such a manner as to be rocked thereon from side to side and differing in mesh from each other, and means for rocking said screening means simultaneously.

9. An apparatus for screening or loading coke comprising a car adapted to travel

along the discharge ends of coke ovens and provided with a truck and screening means, connections between the truck and screening means whereby the said screening means are adapted to rock thereon, a receptacle attached to the lower side of said screening means and having an outlet at its lower end, and mechanism for rocking said screening means and receptacle simultaneously.

10 10. An apparatus for screening and loading coke, comprising a car adapted to travel along the discharge ends of coke ovens and provided with a plurality of superimposed screening means and a truck, said screening means being connected to said truck in such a manner as to be rocked thereon from side to side and differing in mesh from each other, the lowermost screening means being of finer mesh than the upper screening

means, and mechanism for rocking said screening means simultaneously and for tilting the said screening means on the truck to either side to discharge coke from different screens into separate receptacles.

11. Apparatus for screening and loading coke comprising a movable truck, a car body comprising a bin pivotally mounted on said truck and capable of being rocked about a substantially central longitudinal axis of said body, screening means mounted on said body, and means for rocking the same.

Signed at Bethlehem, Pennsylvania, this 29th day of March, 1910, in the presence of the subscribing witnesses.

WILLIAM FEICKS.

Witnesses:

WESTON H. MEASE,
FRANK A. SULLIVAN.