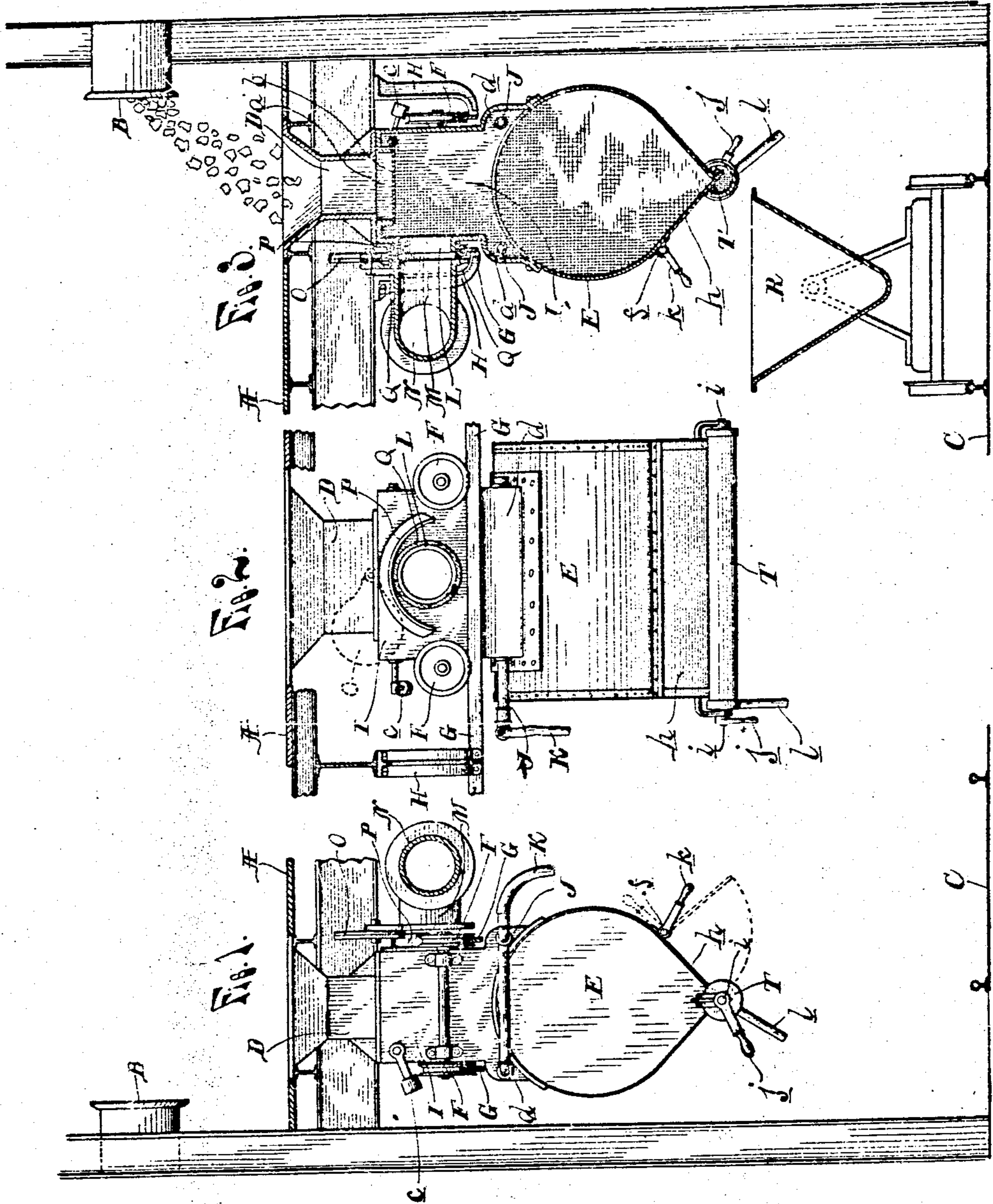


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PATENTED SEPT. 11, 1906.

E. F. LLOYD.
COKE QUENCHING APPARATUS.
APPLICATION FILED NOV. 14, 1904.



WITNESSES.

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ERNEST F. LLOYD, OF DETROIT, MICHIGAN.

COKE-QUENCHING APPARATUS.

No. 830,841.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed November 14, 1904. Serial No. 232,623.

To all whom it may concern:

Be it known that I, ERNEST F. LLOYD, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Coke-Quenching Apparatus, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates, broadly, to means for handling hot coke as it is taken from the retorts or coke-ovens, and includes means for quenching and cooling the coke in the process of handling it, and the invention is particularly adapted for use where a large number of retorts are arranged in a bank, as is the case in gas-works, for which my invention forms a labor-saving device, all as more fully hereinafter described, and shown in the accompanying drawings, in which—

Figure 1 is an end elevation of the apparatus. Fig. 2 is a front elevation thereof, and Fig. 3 is a central cross-section of Fig. 2.

A represents the ground-floor of the retort-house. B represents the discharge end of one of a bank of retorts supposed to be arranged along one side thereof, and C represents the floor of the basement below, all as is usually found in the modern construction of gas-works, to which my invention is applied in the following manner:

In front of the discharge ends of the vertical rows of retorts and in suitable relation thereto to receive the hot coke as it is being withdrawn I secure suitable cast-iron spouts D into the floor, through which the hot coke may be directly spouted into a closed quenching vessel E, which is movably suspended below the floor on wheels F, which are adapted to travel upon track-rails G, suspended by means of hangers H from the under side of the floor and provided with suitable means (not shown) for drawing the vessel along the track to any one of the spouts where it may be wanted.

The quenching vessel is preferably constructed of boiler-plate with a cast-iron hood upon it, which reaches with its top into close proximity to the under side of the spouts D and has an inlet-opening e, adapted to register therewith, and which is preferably provided with a cover b, which swings open wardly upon a horizontal pivot and is kept normally closed by a counterweight c. With this hood, upon opposite sides, are fixed

two sprinkler-heads J, formed of perforated pipe or in any other suitable manner and connected on the outside with a suitable source of water-supply, (not shown,) as by means of a flexible hose K, suitably arranged to permit the shifting of the quenching vessel on the track without interfering with its water-supply. The sprinkler-heads are guarded from the falling coke, as by concealing them in niches or offsets d in the hood, and they are adapted to sprinkle water upon the body of hot coke in the quenching vessel under control of a suitable valve. (Not shown.) A separate carriage may be dispensed with by securing the axles of the wheels F directly to the hood. The hood is further provided with an exhaust-outlet L, cooperating with inlets M into an exhaust-pipe N, placed at suitable height alongside the track and parallel therewith in such manner that when the quenching vessel coincides with any one of the spouts D the exhaust-outlet L will coincide with an inlet M into the exhaust-pipe. These inlets are normally closed by covers O, pivotally secured thereto, so that gravity will close them automatically, and the opening is also effected automatically by a curved fixed guide P, secured to the hood over the outlet L in the same path with the cover, so as to turn the cover out of the way as the quenching vessel moves into position. To effect a close joint between the inlet and outlet, the latter is provided with an outwardly-projecting yielding gasket Q, of felt, rubber, or other suitable material.

The quenching vessel has a hopper-shaped bottom suitably arranged for dumping the coke after it is quenched and cooled. Preferably I provide the hopper with a side dumping-door h, which when opened spouts the coke into a cart, as R, which may be drawn into position alongside upon a track. The door h forms one side of the hopper. It is hinged at f, and its lower edge when the door is closed is locked in position by a gutter T, which is supported by suitable trunnions in fixed bearings i in such manner that it can be rocked in its bearings a sufficient amount to release the lower edge of the door and permit it to open. A suitable handle j is attached to one trunnion for operating this gutter, and the door is also rigged with a handle k for operating it conveniently, the two handles being in convenient proximity for an operator to manage both simultaneously.

The gutter T is in position to receive the surplus water and carry it off through a discharge-pipe L.

The operation of my device is self evident from its description. It may be either operated by hand or by mechanical power through the medium of an endless cable or otherwise, as is well known in the management of shop appliances of this character.

The exhaust-pipe is intended to draw off the gases and steam produced in quenching, and it should be connected to an exhaust-fan or with a chimney, which if sufficient suction is produced thereby would render the use of the cover b unnecessary.

My device is calculated to suit the conditions existing in modern gas plants and its advantages for saving labor and insuring safety in the handling of hot coke will be readily recognized.

Having thus fully described my invention, what I claim is—

1. The combination of a quenching vessel mounted on wheels and having an opening on top for receiving the hot coke, a door at the bottom for the discharge of the quenched coke, means for producing a water-spray within the vessel and a track from which said vessel is freely suspended below the discharge ends of a bank of retorts.

2. The combination of a wheeled quenching vessel having an opening in its top for receiving the hot coke, a door at the bottom for the discharge of the quenched coke, means carried by the vessel for admitting water upon the hot coke in the vessel and a track from which said vessel is freely suspended below the discharge end of a bank of retorts.

3. The combination of a wheeled quenching vessel having an opening on top for receiving the hot coke, an inwardly-opening door below said opening adapted to close automatically, a door at the bottom for the discharge of the quenched coke, means carried by the vessel for spraying the hot coke in the vessel with water, and a track from which said vessel is freely suspended below the discharge end of a bank of retorts.

4. The combination with a bank of retorts having their discharge ends located above a main floor, of openings in the main floor below the discharge ends of the retorts, a track suspended from the main floor below said openings, an exhaust-pipe extending parallel with the track and provided with inlet-openings corresponding to the openings in the floor, and a self-contained quenching vessel freely suspended on wheels from said track and provided with openings adapted to register with the openings in the floor and with the openings in the exhaust-pipe.

5. The combination with a bank of retorts having their discharge ends located above a main floor provided with openings therein into which the hot coke may be directly dis-

charged from the retorts, of a quenching vessel freely supported upon a track below said openings and adapted to be registered with any one of said openings to receive the hot coke therefrom through an opening in its top, means carried by the quenching vessel for spraying the hot coke in the vessel and a door at the bottom of the quenching vessel for discharging the coke.

6. The combination with a bank of retorts having their discharge ends located above a main floor, of a quenching vessel freely suspended from a track below a series of openings in said floor with any one of which it is adapted to register and receive the hot coke therethrough, means carried within the vessel for quenching the hot coke, means for dumping the quenched coke from said vessel, an exhaust-outlet from the quenching vessel and an exhaust-pipe extending along the path of the quenching vessel and provided with inlets in position to register with the exhaust-outlet of the quenching vessel in its different operative positions.

7. A quenching vessel comprising a body portion adapted to contain a charge of hot coke, and provided with means for dumping the coke therefrom, a hood extending above said body portion and provided with an inlet-opening in its top and carrying wheels for suspending the vessel from rails, an exhaust-outlet on one side of the hood and sprinkler-heads secured in recesses within the hood.

8. A quenching vessel comprising a body portion adapted to receive a charge of hot coke and provided with means at the bottom for dumping out the quenched coke, a gutter below the bottom, adapted to collect the waste water from quenching the coke, a waste-pipe leading therefrom, a hood superposed upon the body portion and provided with an opening on top for the entrance of the hot coke, a gravity-closing door below said opening, a lateral exhaust-outlet from the hood for the door, sprinkling-heads in recesses within the hood, and wheels mounted on the hood and adapted to suspend the vessel from suitable track-rails.

9. The herein-described coke-quenching vessel, composed of the body portion having a hopper-shaped bottom, one side of which is hinged and forms a door for dumping the coke therefrom, a gutter supported in trunnions below the hopper and adapted to cooperate with the door to lock and unlock the same, a hood extending above the body portion and forming an inlet for the hot coke, a self-opening and closing door in said hood, means in said hood for discharging water upon the hot coke, connections between said means and a distant source of water-supply, wheels adapted to freely suspend said vessel from track-rails and an exhaust-outlet from the hood adapted to connect the same with an exhaust-pipe.

10. The combination with a bank of retorts
having their discharge ends located above a
main floor of a quenching vessel freely sus-
pended from a track below said floor and
5 adapted to register with a series of openings
in the floor, pipes leading from a source of
water-supply into said vessel, means for
dumping the quenched coke from the vessel,
an exhaust-pipe extending along the track
10 and provided with inlet-openings extending
toward the vessel in the different operative

positions into which it may be moved, and an
exhaust-outlet on the vessel adapted to reg-
ister with said inlets, said inlets provided with
covers adapted to be opened and closed in 15
the travel of the vessel.

In testimony whereof I affix my signature
in presence of two witnesses.

ERNEST F. LLOYD.

Witnesses:

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