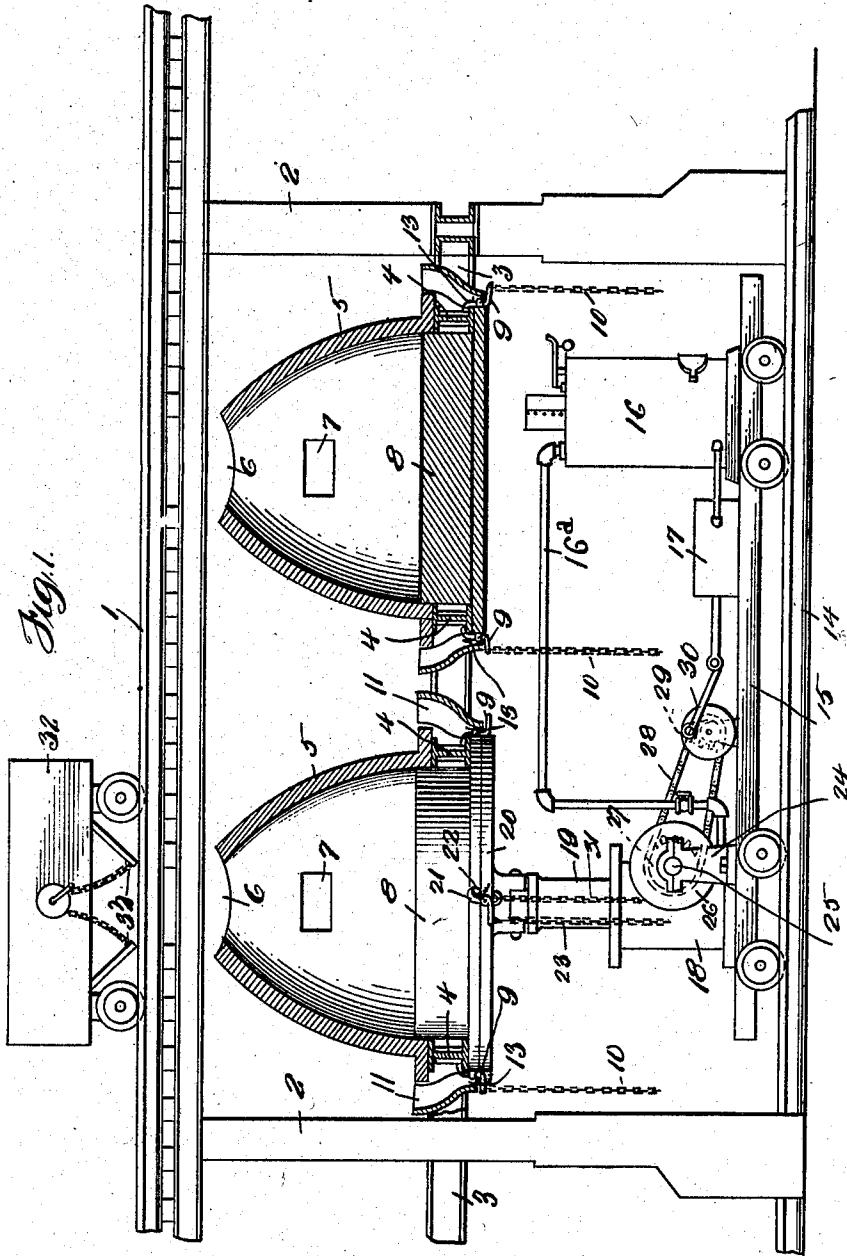


J. REED.
 COKE DRAWING APPARATUS.
 APPLICATION FILED MAY 2, 1907.

900,206.

Patented Oct. 6, 1908.

2 SHEETS—SHEET 1.



WITNESSES:
Samuel Payne.
A. H. Putter

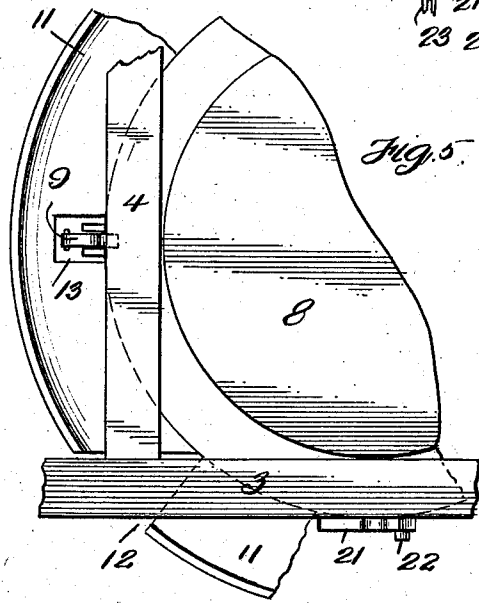
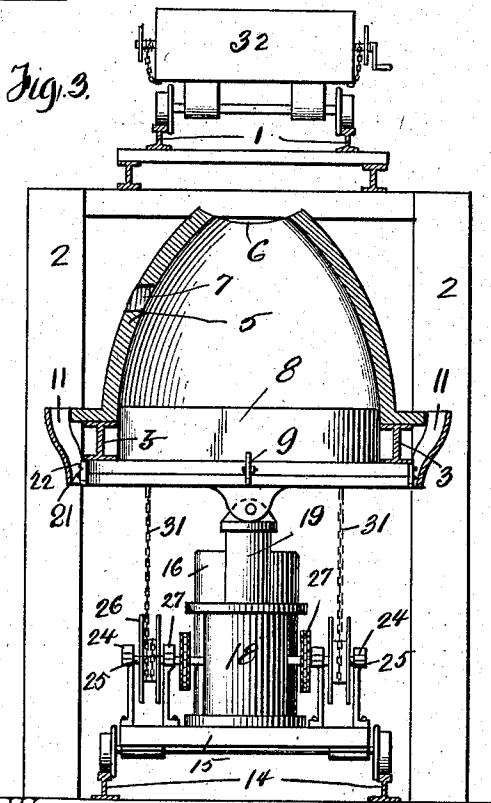
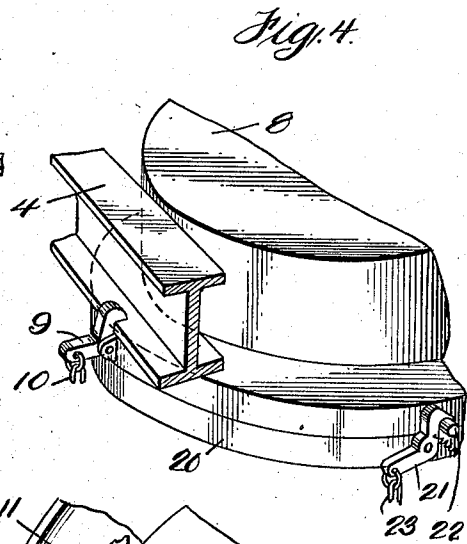
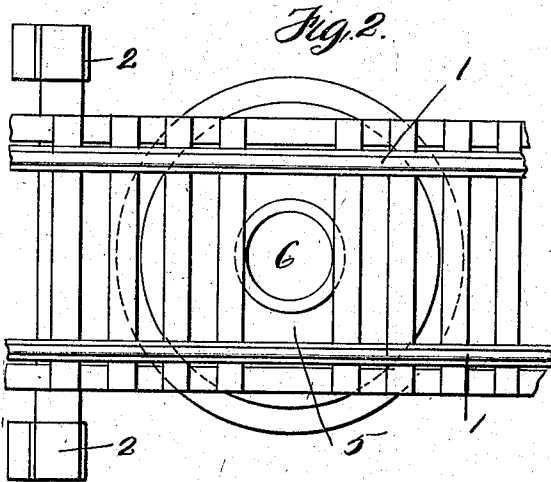
INVENTOR
James Reed.
 BY *H. C. Everett & Co.*
 Attorneys

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WITNESSES:

Samuel Payne

A. N. Butler

INVENTOR
James Reed

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 Attorneys

BEST AVAILABLE COPY
UNITED STATES PATENT OFFICE.

JAMES REED, OF PITTSBURG, PENNSYLVANIA.

COKE-DRAWING APPARATUS.

No. 900,206.

Specification of Letters Patent.

Patented Oct. 6, 1908.

Application filed May 2, 1907. Serial No. 371,392.

To all whom it may concern:

Be it known that I, JAMES REED, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Coke-Drawing Apparatus, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in coke drawing apparatus, and the invention has for its object to provide novel coke ovens and an apparatus for drawing coke from the bottom of said ovens.

My invention aims to provide coke ovens of novel construction, which can be easily and quickly filled, and the coke removed from the bottom of the ovens. In this connection, I have devised a novel apparatus adapted to travel beneath the ovens and lower the bottom or base of each of the ovens, the apparatus being constructed to tilt the base of each of the ovens and discharge the coke therefrom. To this end, I provide a steel structure adapted to support ovens in an elevated position, the track-way being arranged above the ovens for discharging coal into the same. Each oven is provided with a detachable bottom or base and adapted to travel beneath the ovens is an apparatus, consisting principally of a hydraulic cylinder having a tilting head, which is temporarily secured to the base of each of the ovens, when it is desired to lower the base and discharge the coke carried thereby.

The detail construction entering into my invention will be hereinafter more fully described and then specifically pointed out in the appended claims.

Referring to the drawings forming a part of this specification, like numerals designate corresponding parts throughout the several views, in which:

Figure 1 is an elevation of my improved apparatus, illustrating coke ovens in section, Fig. 2 is a plan of a coke oven constructed in accordance with my invention, Fig. 3 is an end view of the apparatus illustrating a coke oven in section, Fig. 4 is a perspective view of a portion of a detachable base of an oven, Fig. 5 is a plan of the same.

To put my invention into practice, I construct an elevated trackway 1 supported upon columns or standards 2. The columns or standards 2 are provided with longitudinal girders 3 and transverse beams 4, the

girders and beams being arranged approximately midway of the base of the standards or columns 2 and the elevated track-way 1. The girders 3 and the beams 4 support conical-shaped ovens 5 constructed of any suitable material and having coal inlet openings 6 and door-ways 7, said door-ways being normally closed.

Each oven is provided with a detachable circular base 8 of any suitable material but preferably the base 8 is formed of boiler steel with interlocking fire brick, the brick is interlocked so that when the base is tilted it will not become disengaged from the frame which constitutes an element of the base. The base is normally held in the oven by clamps 9 engaging the beams 4 of the coke oven supporting structure. The clamps are provided with depending chains or cables 10, whereby said clamps can be swung out of engagement with the beams at any time it is desired to remove the base from the oven. The base of each oven is provided with upwardly extending sides or flanges 11, which are cutaway as at 12 to clear the beams 4 and the girders 3, and as at 13 to clear the clamps 9. The flanges 11 are employed to prevent the coke from falling from the base 8, when the same is lowered, as will be presently described.

Beneath the coke ovens 5 is arranged a track 14, upon which is movably mounted a truck 15, said truck carrying a conventional form of boiler 16, an engine 17, and a ram comprising the cylinder 18 and a piston 19. A pipe 16^a leads from the boiler 16 to the cylinder 18 for conveying steam to the ram. The piston 19 of said ram is provided with a trunnioned head 20, said head carrying the hook-shaped levers 21 for engaging pins 22 carried by the base 8 of each oven. The hook-shaped levers 21 are provided with depending chains or cables 23 whereby the levers can be easily and quickly manipulated from the truck 15.

To tilt the heads 20, when lowered, I provide the truck 15 with bearings 24 on which are journaled shafts 25 carrying drums 26, and sprocket wheels 27, said sprocket wheels being connected by chains 28 with sprocket wheels 29, the latter being journaled upon the truck 15 and driven through the medium of a crank disk 30 operated from the engine 17. The drums 26 are connected by chains or cables 31 to the diametrically opposed sides of the head 20, whereby when the

drums 26 are rotated, the head 20 can be tilted in any desired direction to and including sufficient distance to discharge the coke from the base 8; held in engagement with the head 20 by the hook-shaped levers 21. Suitable mechanism (not shown) can be employed for controlling the direction of rotation of the drums 26, and the engine 17 can be of a reversible type.

Upon the track-way 1 is adapted to travel cars 32 having drop doors 33 for discharging coal into the opening 6 of the ovens 5.

Operation. The truck 15 is moved upon the track 14 to position the cylinder 18 beneath the oven from which coke is to be drawn. The head 20 carried by the piston 19 of the cylinder is moved into engagement with the base 8 of the oven 5 and clamped thereto by the hook-shaped levers 21. The clamps 9 are then released, whereby when the piston 19 is lowered, the base 8 will be carried downwardly and with it the coke contained within the ovens 5. After the head has been lowered a sufficient distance, the engine 17 is placed in operation to rotate the drums 26 and tilt the head and the base carried thereby, to discharge the coke from said base. After the coke has been discharged, the head 20 can be placed upon a horizontal plane, and elevated, and the base 8 again clamped to the beams 4, and the head 20 released from engagement with said base. The truck 15 can then be moved to the next oven and the same operation repeated.

It will be apparent from the illustration of my invention that I have devised a novel coke oven supporting structure and an apparatus for easily and quickly drawing coke from the ovens.

I do not care to confine myself to the structural details illustrated, but such modifications of my invention as are permissible by the appended claims may be resorted to without departing from the spirit and scope of the invention.

Having fully described my invention what I claim and desire to secure by Letters Patent, is:—

1. In a coke drawing apparatus, the combination of elevated coke ovens, cars adapted to travel above said ovens for discharging coal therein, detachable bases connected to said ovens, upwardly extended flanges carried by said base, a truck adapted to travel beneath said ovens, a ram carried by said truck, a head trunnioned upon the piston of the ram, hook-shaped levers connecting said head to the base of an oven, drums located

upon said truck, chains connecting said drums with said head, and means for operating said drums to tilt said head and the base attached thereto.

2. In a coke drawing apparatus, the combination of elevated coke ovens, detachable bases connected to said ovens, upwardly extended flanges carried by said base, a truck adapted to travel beneath said ovens, a ram carried by said truck, a head trunnioned upon the piston of the ram, hook-shaped levers connecting said head to the base of an oven, drums located upon said truck, chains connecting said drums with said head, and means for operating said drums to tilt said head and the base attached thereto.

3. In a coke drawing apparatus, the combination of elevated coke ovens, a detachable base carried by each oven, a truck movable beneath said ovens, a ram carried by said truck, a head trunnioned upon the piston of the ram, drums carried by said truck and connecting with the diametrically opposed sides of said head, means to clamp said head to the base of an oven, and means carried by said truck for operating said drums to tilt said head.

4. In a coke drawing apparatus, the combination of elevated coke ovens, a base detachably connected to each oven, a truck adapted to travel beneath said ovens, a head supported from said truck and adapted to be detachably connected to the base of an oven, means carried by said truck for raising and lowering said head, and means for tilting said head.

5. The combination with a coke oven, of a base detachably connected to said oven, a head adapted to be detachably connected to said base, means movable beneath said oven for raising and lowering said head, and means for tilting said head.

6. The combination with a coke oven having a removable bottom, of a reciprocatory member provided with a pivoted head detachably connected with the bottom.

7. The combination with a coke oven having a removable bottom, of a reciprocatory member provided with a pivoted head detachably connected with the bottom, and means whereby said bottom can be tilted when lowered.

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

JAMES REED.

Witnesses:

H. T. WERDBERGER,
GEO. T. OSBORNE.