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PATENTED OCT. 22, 1907.

W. W. FIDDES & J. G. W. ALDRIDGE.

APPARATUS FOR CHARGING AND DISCHARGING GAS RETORTS.

APPLICATION FILED MAR. 2, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

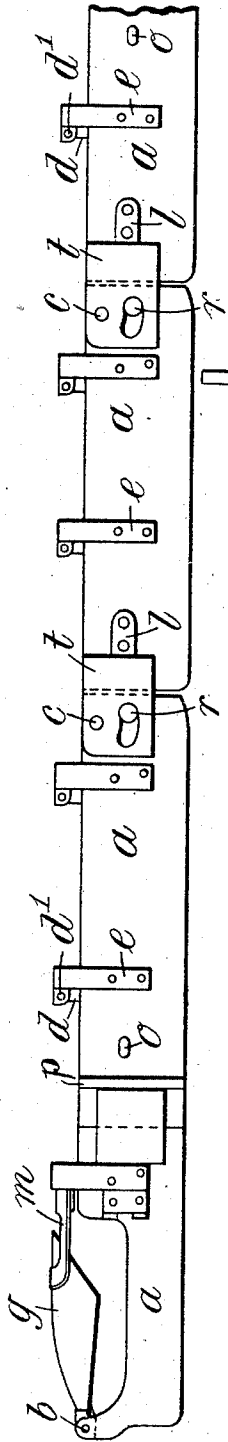


Fig. 2.

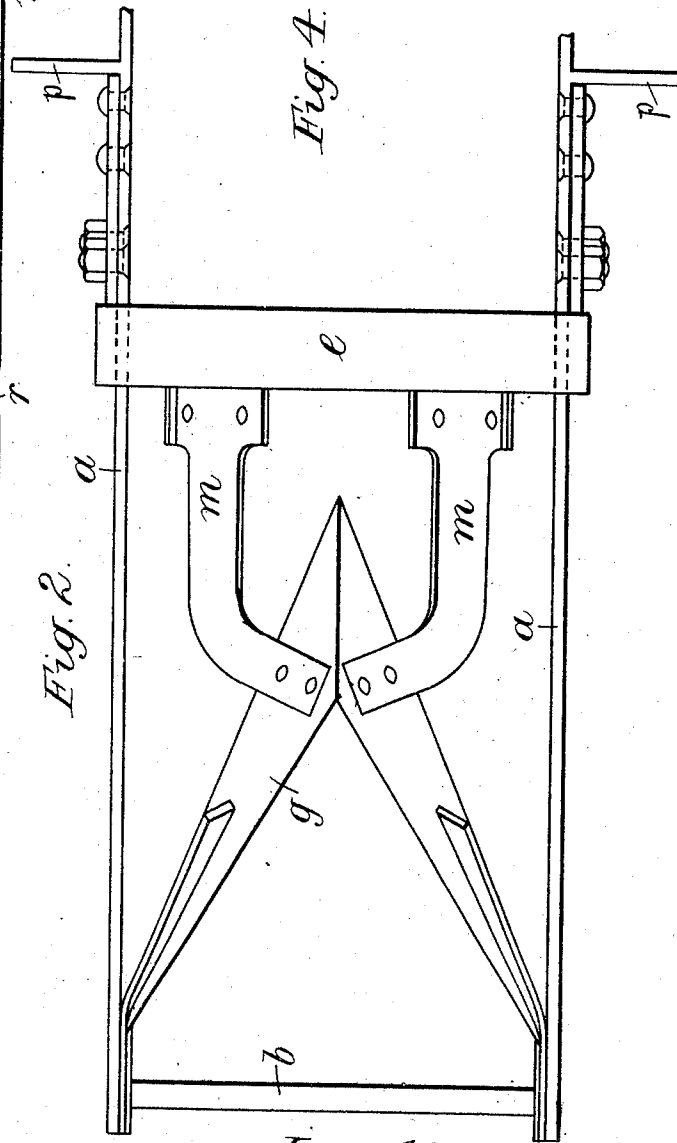
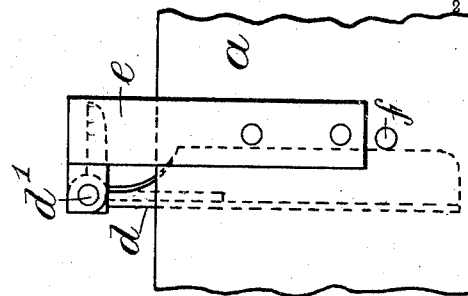


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5.

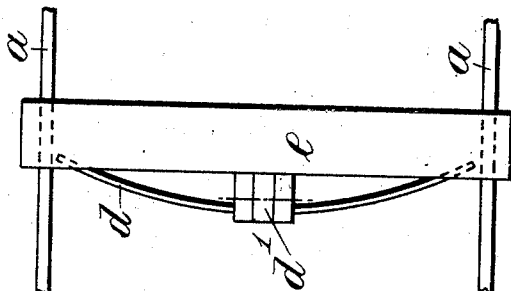
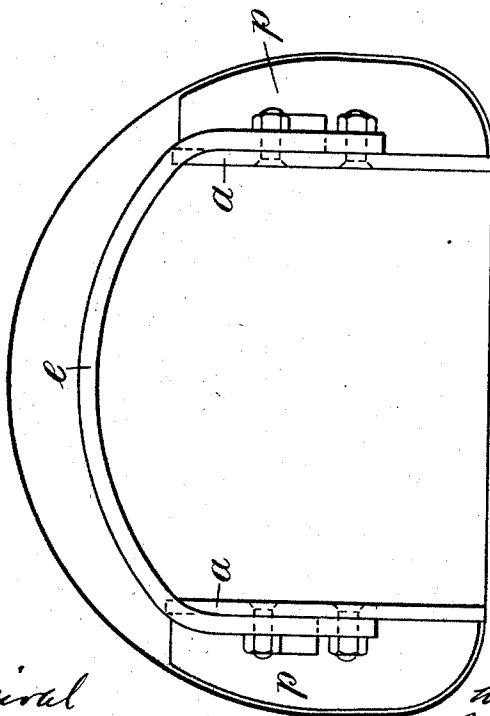


Fig. 3.



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UNITED STATES PATENT OFFICE.

WALTER WILLIAM FIDDES, OF BRISTOL, AND JAMES GEORGE WILLCOX ALDRIDGE, OF LONDON, ENGLAND.

APPARATUS FOR CHARGING AND DISCHARGING GAS-RETORTS.

No. 868,853.

Specification of Letters Patent.

Patented Oct. 22, 1907.

Application filed March 2, 1907. Serial No. 360,298.

To all whom it may concern:

Be it known that WALTER WILLIAM FIDDES and JAMES GEORGE WILLCOX ALDRIDGE, subjects of the King of Great Britain and Ireland, and respectively residents of 2 Elton road, Bishopston, Bristol, and 9 Victoria street, London, both in England, have invented certain new and useful Improvements in Apparatus for Charging and Discharging Gas-Retorts; and they do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention for improvements in apparatus used in gasworks for discharging coke from and charging coal into gas retorts relates more especially to through gas retorts and to apparatus that discharges and charges simultaneously, and consisting of two stiff or jointed side pieces held together by distance pieces and having swinging push plates adapted to push the coal from a movable bed plate outside the retort directly on to and along the bottom of the retort while the front end is pushing out the coke, the coal being automatically supplied to the bed plate in the desired quantity as the charger advances into the retort.

Now this invention has for its object to level the surface of the deposited coal and to prevent coal being withdrawn from the retort during the return stroke of the discharging charger and generally to leave an even surface of fresh coal without any coal being withdrawn, and consists in a reverse plow fixed rearwards on the front push plate at a suitable height; in balancing or hinging the divisional plates so that they bear only lightly on the coal on the return stroke; and in driving the chain or jointed sides of a jointed or articulated discharging charger by means of notches cut in the sides or slight projections on the chain and corresponding projections on the wheel on which the jointed discharging charger is wound, thus reducing as much as possible all internal projections.

The outsides of the side pieces of the discharging charger are provided with fixed or butt jointed projections to conform more nearly to the shape of the retort and assure a clean discharge.

In the accompanying sheet of illustrative drawings:— Figure 1 is a side elevation of a hinged or jointed discharging charger constructed according to this invention. Fig. 2 is an enlarged plan of the plow. Fig. 3 is an end elevation of a supporting stay; and Figs. 4 and 5 are side elevations and plan respectively of one of the swinging push plates.

The discharging charger comprises the two parallel side plates *a* held together by means of transverse distance pieces or stays *e* and hinged together at *c* in the form of a chain. A stud *r* working in a curved slot in a hinge plate *t* is provided to take the thrust off the

center pins or pivots *c* when the charger is operated. Suitable push plates *d* pivoted at *d'* are suspended between the side plates *a* from the brackets or arched stays *e* placed at suitable distances apart in the entire length of the chain. The plates *d* are adapted to come against stops *f* when the charger is entering the retort, and are constructed as light as possible and curved to give increased strength so as to pass lightly over the surface of the coal on the return stroke without withdrawing any coal from the retort. A reverse plow *g* is supported rearwards on the front push plate and is firmly held at one end by suitable stays *m* attached to the arched stay *e* and at the other by the stay *b* to even on the return movement the coal that has been deposited on the bed of the retort by the forward movement of the charger. The sides *a* of the front chain link are cut away to allow the plow *g* not only to level the coal between the chain but to spread it evenly to both sides of the retort. In the case of the front stay or bolt *b* this does not affect the coal as it is distributed evenly by the plow *g* before the stay passes over it and consequently it cannot withdraw any coal from the retort.

Projections *l* are provided on the chain or sides of the charger which engage with recesses or corresponding projections provided on the wheel on which the chain is wound.

Side guide rollers *o* are attached in any convenient manner to the outside of the chain.

In order to assure a clean discharge of the coke the side pieces *a* of the discharging charger are provided with butt jointed projections *p* conforming to the shape of the retort.

In operation the discharging charger *a* is brought in front of the retort mouth-piece on a suitable bed plate and a forward movement is imparted to it while at the same time coal is fed from a suitable hopper or chute into the spaces between the push plates. As the charger is moved forward the coal is pushed along the bed plate and carried by means of the push plates *d* into the retort. On the entry of the charger into the retort the front push plate serves to impart a forward movement to the coke in the retort, discharging it from the furthest end. On the return movement of the charger the push plates take up an inclined position and are balanced or hinged so as to bear only lightly on the surface of the coal, the leveling being finally completed by means of the reverse plow *g* which distributes the coal evenly to both sides of the retort. By this means it is possible to insert a full charge and distribute it evenly over the whole surface of the retort.

What they claim and desire to claim by Letters Patent is:—

1. In a discharging charger the combination of means for cleaning out a retort and leveling the charge therein, comprising an articulated supporting frame composed of

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side members having depending push plates pivotally mounted above the top of said side members, and means on said frame for engaging said plates to hold them rigid during the forward movement of the frame and permitting them to swing forward on its return movement.

5 2. In a discharging charger the combination of means for leveling the charge comprising a traveling supporting frame having spaced arched members extending across the top thereof, push plates hinged at their upper ends to
10 said arched members, and means for holding said plates rigid during the forward movement of the frame and permitting them to swing forward on the backward movement thereof.

15 3. In a discharging charger, the combination of a supporting frame, butt-jointed projections carried thereby, push plates mounted on said frame, and means for evenly distributing the charge in the retort.

4. In a discharging charger, the combination with means for cleaning out the retort, of means for leveling the charge therein comprising an articulated supporting frame having depending push plates hinged at the upper ends thereof
20 above the normal level of the coal, means on said frame for engaging said plates and holding them rigid during the forward movement of the frame and permitting them to swing forward on its return movement, and a reverse plow
25 fixed on the front push plate to evenly distribute the coal.

In testimony whereof they have affixed their signatures, in presence of two witnesses.

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Witnesses:

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