No. 756,225. PATENTED APR. 5, 1904.

W. W. FIDDES.

GAS RETORT CHARGER AND DISCHARGER.

APPLICATION FILED NOV. 24, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 2.

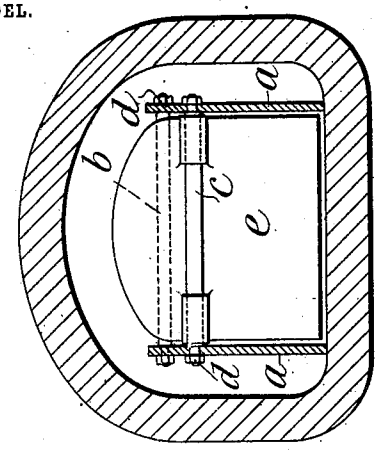


Fig. 1.

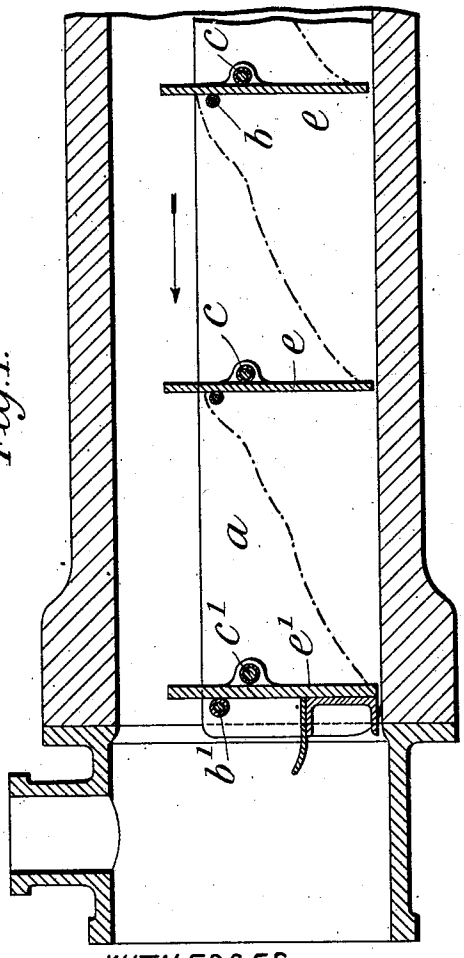
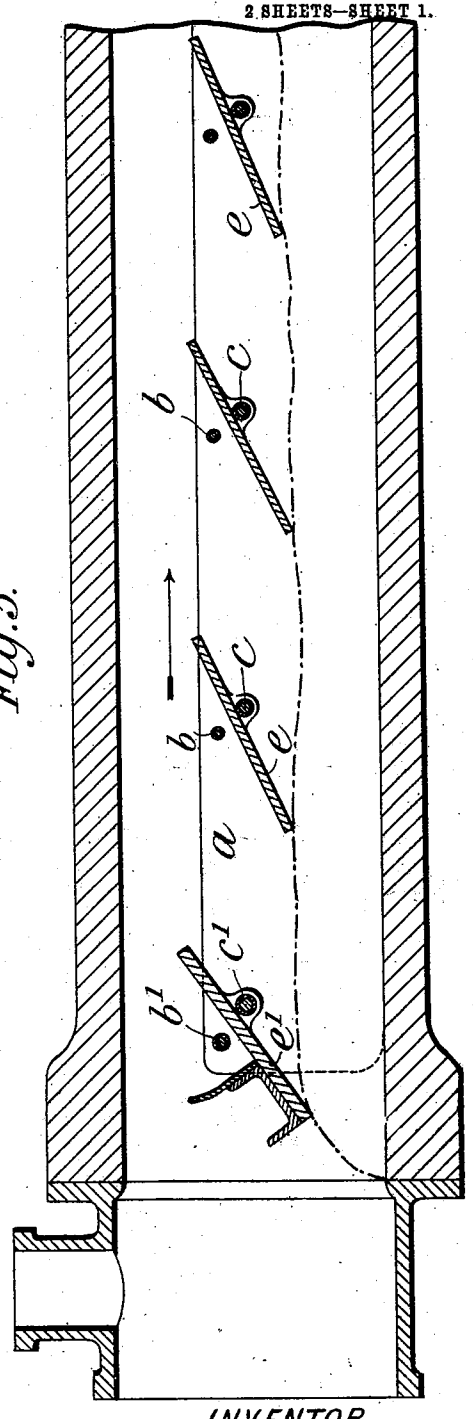


Fig. 3.



WITNESSES.

Albert Jones

Samuel Percival

INVENTOR.

Walter William Fiddes

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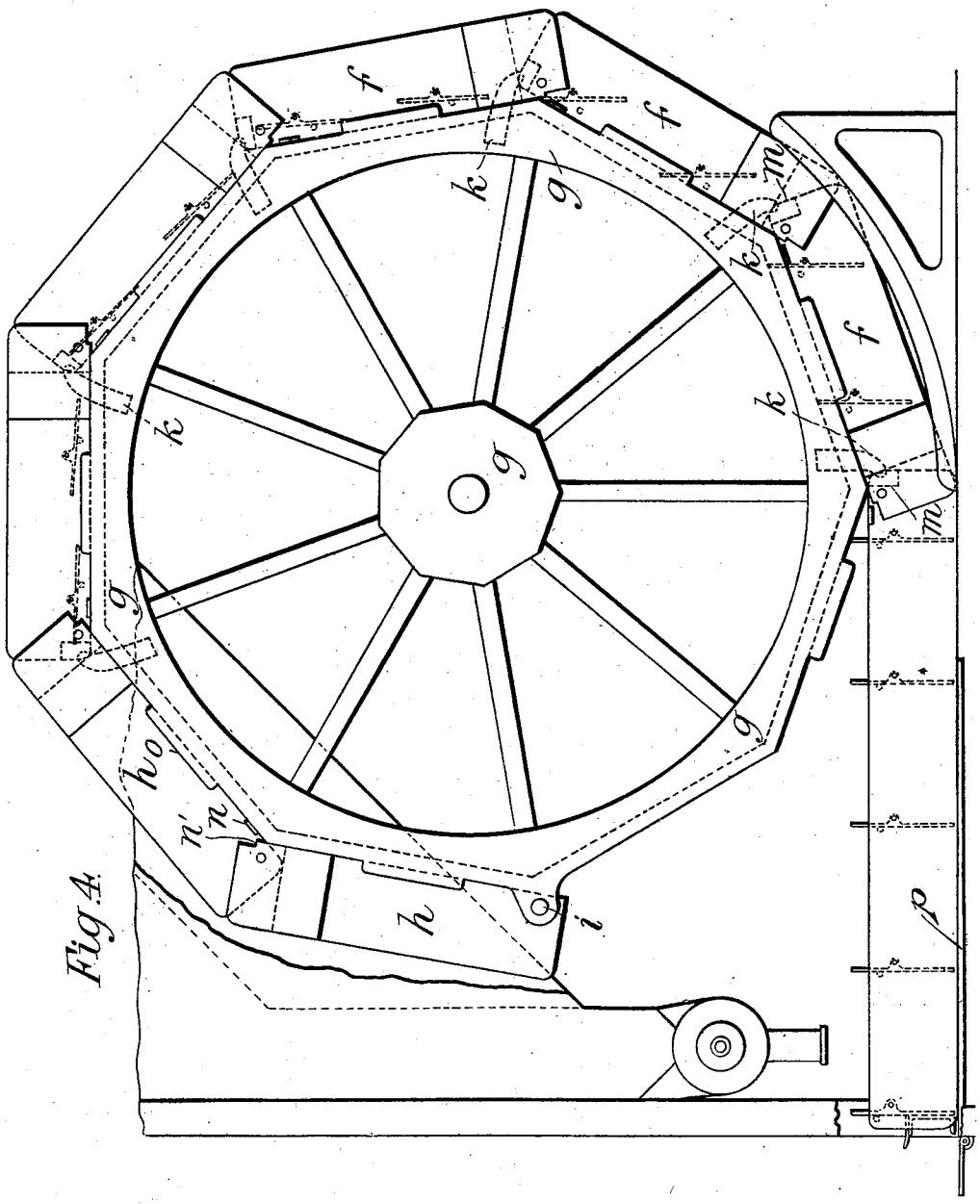


Fig 4.

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No. 756,225. Patented April 5, 1904.

UNITED STATES PATENT OFFICE.

WALTER WILLIAM FIDDES, OF BRISTOL, ENGLAND, ASSIGNOR OF ONE-HALF TO JAMES GEORGE WILLCOX ALDRIDGE, OF WESTMINSTER, LONDON, ENGLAND.

GAS-RETORT CHARGER AND DISCHARGER.

SPECIFICATION forming part of Letters Patent No. 756,225, dated April 5, 1904.

Application filed November 24, 1902. Serial No. 132,670. (No model.)

To all whom it may concern:

Be it known that I, WALTER WILLIAM FIDDES, a subject of the King of Great Britain and Ireland, residing at 49 Cranbrook road, Redland, Bristol, in the county of Gloucester, England, have invented certain new and useful Improvements in Apparatus Used in Gas-Works for Discharging Coke from and Charging Coal into Gas-Retorts; and I 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.

These improvements have for their object to provide improved means for discharging coke from and for charging coal into "through" gas-retorts in one and the same movement of the apparatus, so that the coal may be charged into retorts at the same moment that coke is being pushed out of the opposite ends of them, which will greatly lessen the cost of these operations; and it consists in a discharging-charger adapted to push out the coke before it as it is fed into the retort with its charge of coal and to be withdrawn from the retort, leaving the charge evenly distributed over the bed of the retort.

A discharging-charger according to this invention consists of side plates, distance-pieces between the side plates near their tops, and division-plates pivoted between the two side plates and adapted to swing from their vertical position toward the forward end of the charger, but prevented from swinging beyond the vertical position toward the rear of the charger. The side plates may be in one piece or may be in sections hinged together, so that the discharging-charger can be wound upon or unwound from a drum.

In the accompanying sheets of illustrative drawings, Figure 1 is a sectional side elevation of a rigid discharging-charger shown inside a retort constructed according to this invention, and Fig. 2 is a cross-section of the same. Fig. 3 is a similar view to Fig. 1, showing the discharging-charger being withdrawn. Fig. 4 is a side elevation of a hinged or jointed discharging-charger.

The discharging-charger comprises the two side plates *a*, that are maintained parallel to one another by means of two rows of distance-pieces *b c*. The length of the side plates *a* exceeds the length of the retorts, and the breadth is less than the internal height or depth of the retorts. The distance-pieces *b* are secured in rows of holes at fixed distances apart in lines parallel with the edges of the plates near their tops, the distances apart being regulated in proportion to the size of the retorts. The distance-pieces *c* are secured in rows of holes parallel to but below the other holes and at the same distances from each other as those in the upper rows, these holes in the lower rows being situated obliquely below the holes in the upper rows. These plates *a* are on edge a parallel distance apart from each other proportionate to the width of the retorts, with the aforesaid holes uppermost, and are secured by means of nuts *d* upon the ends of the distance-pieces. The side plates thus form two sides of a channel, with two rows of distance-pieces in pairs near the upper edges. Between the two distance-pieces of each pair of distance-pieces is a rectangular metallic push-plate, which is affixed to the lower distance-piece *c* by means of a hinge secured to the back of the plate. The plates *e* hang loosely between the aforesaid parallel plates, and the tops of the hinged plates when vertical rest against the upper distance-pieces *b* in such a manner that all the hinged plates are free to be moved out of the vertical in which they hang in one direction only. At the end of the apparatus the distance-pieces *b′ c′* and the push-plate *e′* are heavier and stronger than those which follow, as they have to force the whole mass of the coke out of the retort, while the other plates have only to deal with coal between the adjacent pusher-plates. To the lower part of the front face of the end push-plate which is to be forced against the coke are affixed two projecting horizontal plates at a distance apart one above the other, so that the spongy portion of the coke lying near the mouthpiece of the retort, which freely crushes upon contact with this advancing push-plate, may be held together between these horizontal plates.

The mode of using the apparatus is as follows: The apparatus is brought into position

in front of a retort-mouthpiece on a suitable bed-plate, such as *p*, Fig. 4, and a forward movement is imparted to the discharging-charger, when at the same time coal is caused to be delivered from the hopper into the discharging-charger by means of any of the usual well-known devices. As the discharging-charger is moved forward the coal in the spaces between the push-plates is pushed along the bed-plate into and along the bottom of the retort. The delivery of coal is maintained until the last space between the push-plates has received its complement, when the delivery of coal is stopped. The forward movement of the discharging-charger is still maintained until the coals therein contained are in their proper position in the retort. At an early stage in the forward movement before referred to the first push-plate encounters the coke which is lying in the retorts and imparts the forward movement to the whole mass of the coke, which as the forward movement of the discharging-charger progresses falls from the furthermost end of the retort. A backward movement is now imparted to the discharging-charger, and by this movement the push-plates take an inclined position and pass over the top of the coals now lying upon the bottom of the retort and in so doing spread the coal evenly upon the bottom of the retort.

The means for operating the discharging-charger form no part of this invention and are only described so that the functions of the discharging-charger may be readily understood.

In cases where there is not sufficient distance between the retort-mouthpieces and the walls of the retort-house to work the discharging-charger as hereinbefore described the discharging-charger is made in sections, as shown in Fig. 4. The sections *f* are hinged together in such a manner that each section in succession may be wound upon a polygonally-constructed drum *g* or the like, placed vertically above the bed-plate. The ends of the sections *f* have notches *n'*, which engage lugs *n* on the adjoining sections *f* and prevent "hog-backing" as the discharger is driven forward. Hinged plates *h* are affixed to the rear end of the discharging-charger corresponding in length and depth with the sections of the discharging-charger, which also wind upon the drum before referred to. These plates serve to connect the discharging-charger to the drum and when the discharging-charger is fully in the retort lie between the retort-mouthpiece and the drum. The rear end of these plates hinged to the discharging-charger is affixed to the drum at *i* in order to impart a forward or backward motion to the discharging-charger as the drum is driven, respectively, in an unwinding or winding direction by means of suitable gearing attached to the bed-plate. The drum is provided with projecting teeth *k*, which act on the projections *m*, affixed to the inner sides of the discharging-charger, and so push it forward. The elongated projections *o* on the periphery of the drum *g* between the sections *f* serve to keep the discharging-charger in its proper position on the winding-drum *g*. The forward end of the discharging-charger when it is out of the retort rests on the bed-plate *p*.

What I claim, and desire to secure by Letters Patent, is—

1. A discharging-charger for drawing and charging gas-retorts, consisting of the two side plates, distance-pieces between the two side plates near their tops, and division-plates pivoted between the two side plates and free to swing forward toward the front of the charger, and a bed-plate on which the parts rest.

2. A discharging-charger for drawing and charging gas-retorts, consisting of the two side plates, distance-pieces between the two side plates near their tops, and division-plates hinged upon a lower rear distance-piece and adapted to bear at their tops on the adjacent upper forward distance-piece, and a bed-plate on which the parts rest.

3. A discharging-charger for drawing and charging gas-retorts, consisting of the parallel side plates, distance-pieces between the two side plates near their tops, division-plates pivoted between the two side plates and free to swing forward toward the forward end of the charger, and parallel horizontal plates projecting forward from the forward push-plate, and a bed-plate on which the parts rest.

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

WALTER WILLIAM FIDDES.

Witnesses:
ALBERT JONES,
WALTER J. SKERTEN.