

W. HIBY.
CHARGING OF COKE OVENS.
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1,019,642.

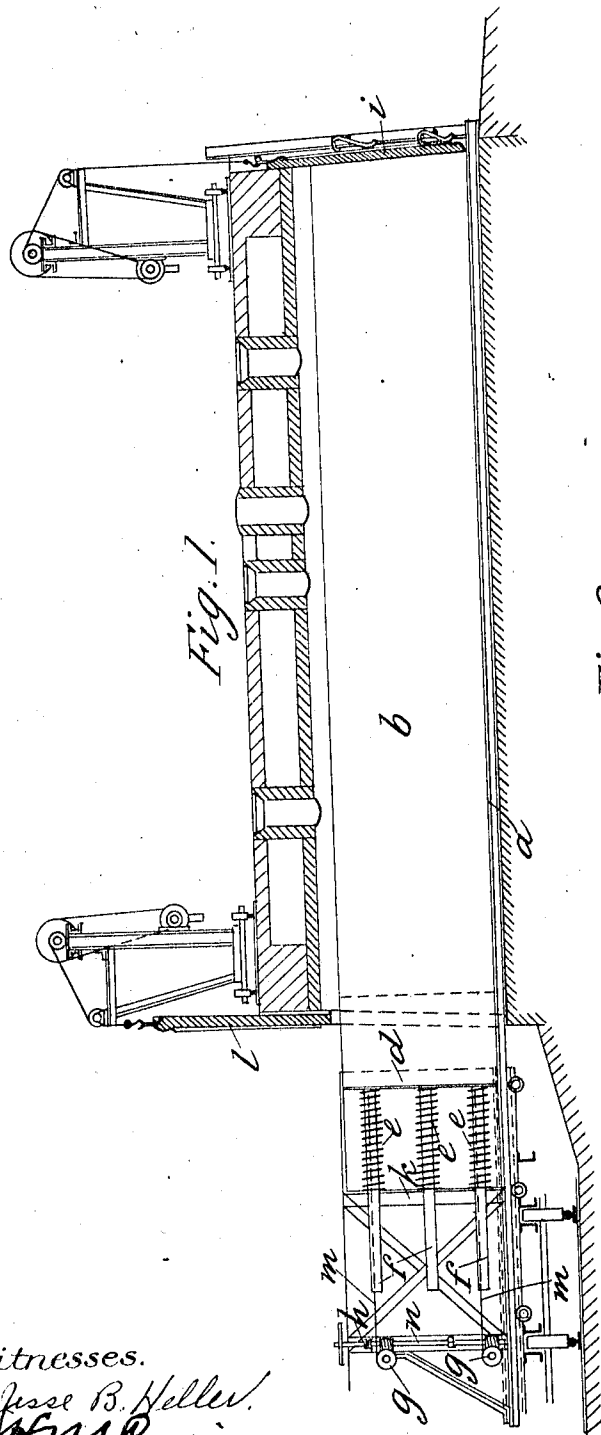


Fig. 1.

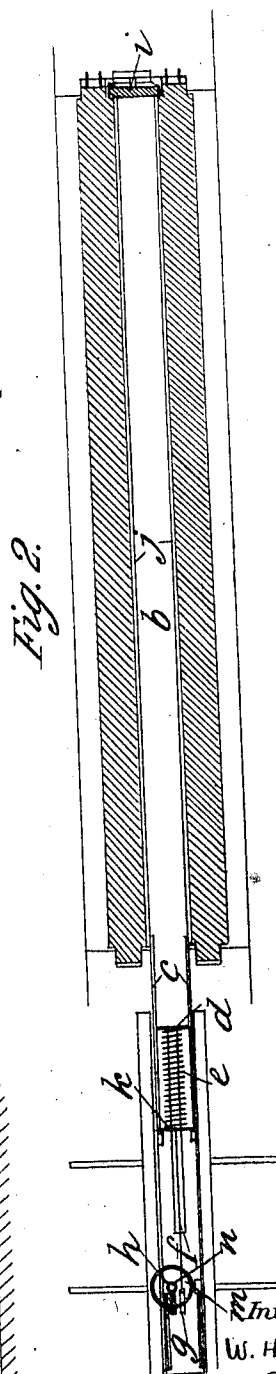


Fig. 2.

Witnesses.

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CHARGING OF COKE-OVENS.

1,019,642.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WALTHER HIBY, Ph. D., a subject of the Emperor of Germany, residing in Sandal, near Wakefield, Yorkshire, England, and whose post-office address is The Cliff, Sandal, near Wakefield, Yorkshire, England, chemist, have invented certain new and useful Improvements Relating to the Charging of Coke-Ovens, of which the following is a specification.

The coking capacity of a horizontal coke oven charged with compressed or stamped coal is generally less than that of an oven filled from the top; the coking period is considerably longer although the weight of the stamped charge is not correspondingly greater. The main reasons for these defects in working a stamped charge are that when the peel of the charging machine is withdrawn the charge moves back with it and is jammed into the ram end of the oven chamber, and that inasmuch as the charge is introduced into the oven at the narrower, ram end, it is not wide enough to fill the wider bench end and therefore is not in contact with the walls at this end.

According to my invention the stamped or compressed charge of coal is made of greater length than the length of the oven chamber. Owing to this, the compressed charge is stopped by the other end of the chamber before the charging operation is completed and is broken up so that it is made to fill the empty spaces on each side and is brought into contact with the oven chamber walls. A space is left beneath the door at the bench end to permit passage of as much of the peel of the charging machine as is necessary. When the whole charge is within the chamber the peel can be withdrawn without jamming the charge into the narrower, ram end of the chamber.

When the front end of the stamped charge has come against the oven door at the bench end there is a tendency for the part of the charge which has not yet entered the chamber, to break up before it is forced into the chamber. It may therefore be advisable to employ side protectors or attach plates to the back of the charging machine. Such plates may enter the chamber with the charge. The back of the charging machine to which the side plates may be attached must be strong enough to sustain the pressure of the coal against it when the peel is withdrawn. Afterward the back and the

side plates are themselves withdrawn and the oven doors lowered and luted.

In some cases the stamped charge is not so easily broken up as in other cases. It may be advisable therefore as the charge is being introduced to break it up by tools inserted through the top of the oven chamber.

In the accompanying drawings I have illustrated one form of apparatus, in which—

Figure 1 is a longitudinal vertical section through an oven chamber in a bench of ovens and Fig. 2 a sectional plan thereof.

a is the peel carrying the compressed charge *b* which in the position shown has just been brought to rest against the door *i* at the bench end of the chamber, this door having been incompletely lowered so as to allow of passage of the end of the peel beneath it. The charge being longer than the chamber protrudes from the latter at the ram end and the protruding portion is protected by side plates *c* fixed to the peel, and by the end plate *d* adapted to slide between the side plates. This end plate is fixed to tubes *f* which are guided in a plate *k* carried by a framework fixed to the peel. The tubes are surrounded by helical springs *e* the ends of which abut against the plates *d* and *k* respectively. The object of these springs is to maintain the plate *d* against the end of the charge while the side plates *c* are being withdrawn together with the peel after the completion of the charging operation. Since the length of plate *c* to be withdrawn varies with the length of the protruding portion of the charge, which may not always be the same, provision is made to adjust the compression of these springs. For this purpose ropes *m* extending through the tubes *f* are attached at one end to the plate *d*. At the other end the ropes are wound up on pulleys adapted to be turned by worm gears on a shaft *n* which is locked from rotation in the opposite direction by a pawl *h*. During the introduction of the charge the springs are held in the desired degree of compression by pawl *h*.

When the front end of the charge has come against the door *i*, the peel *a* is moved forward until the protruding portion at the ram end of the charge has been forced into the chamber, whereupon the peel is withdrawn. During this backward movement springs *e*, after the pawl *h* has been released, expand and maintain plate *d* against the end

of the charge until the side plates *c* have been withdrawn from the chamber. The plate *d* is now moved back, if necessary by exerting tension on ropes *m*, sufficiently to permit of the oven door being lowered, before the peel is completely withdrawn and the doors *i* and *l* are finally closed.

I claim:

1. The method of charging a horizontal coke oven, which consists in compressing coal to form a mass of greater length than that of the oven chamber, then introducing the compressed mass into the chamber and causing the compressed mass to expand laterally to fill the chamber; substantially as described.

2. The method of charging a horizontal coke oven, which consists in compressing coal to form a mass of greater length than that of the oven chamber, then introducing the compressed charge through one end of the chamber, moving the charge by applying force to one end thereof until its other end is forced against the other end of the chamber, and

continuing the application of the force until the whole of the mass is within the chamber; substantially as described.

3. The method of charging a horizontal coke oven, which consists in compressing coal to form a mass of greater length than that of the oven chamber, then introducing the compressed charge through one end of the chamber, moving the charge by applying force to one end thereof until its other end is forced against the other end of the chamber, breaking up the mass within the chamber, and continuing the application of the force until the whole of the mass is within the chamber; substantially as described.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

WALTHER HIBY.

Witnesses:

JOSEPH MILLARD,
W. I. SKERTEN: