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MACHINE FOR DISCHARGING AND CHARGING GAS RETORTS OR COKE OVENS.

APPLICATION FILED AUG. 20, 1910.

974,043. Patented Oct. 25, 1910.

Fig. 1.

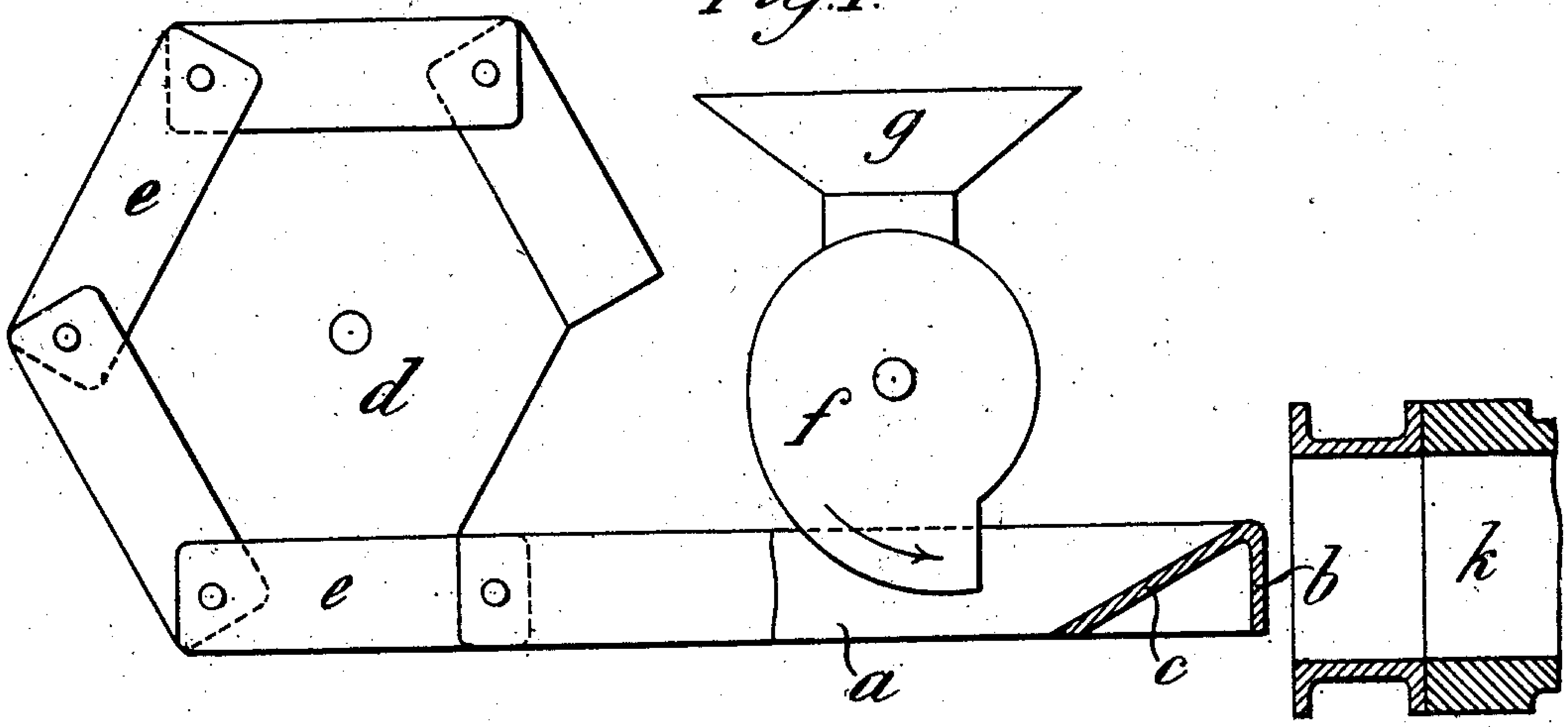


Fig. 2.

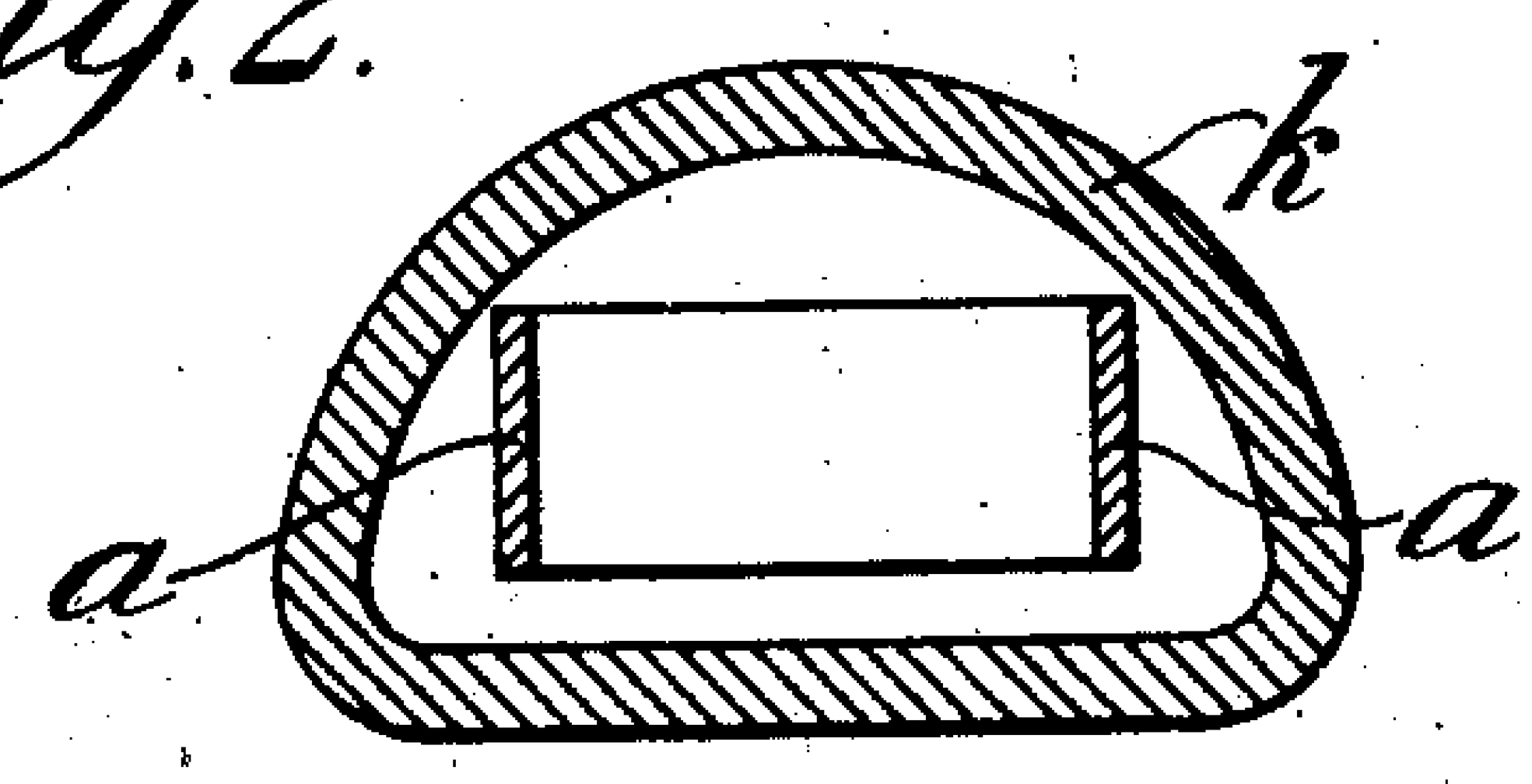


Fig. 3

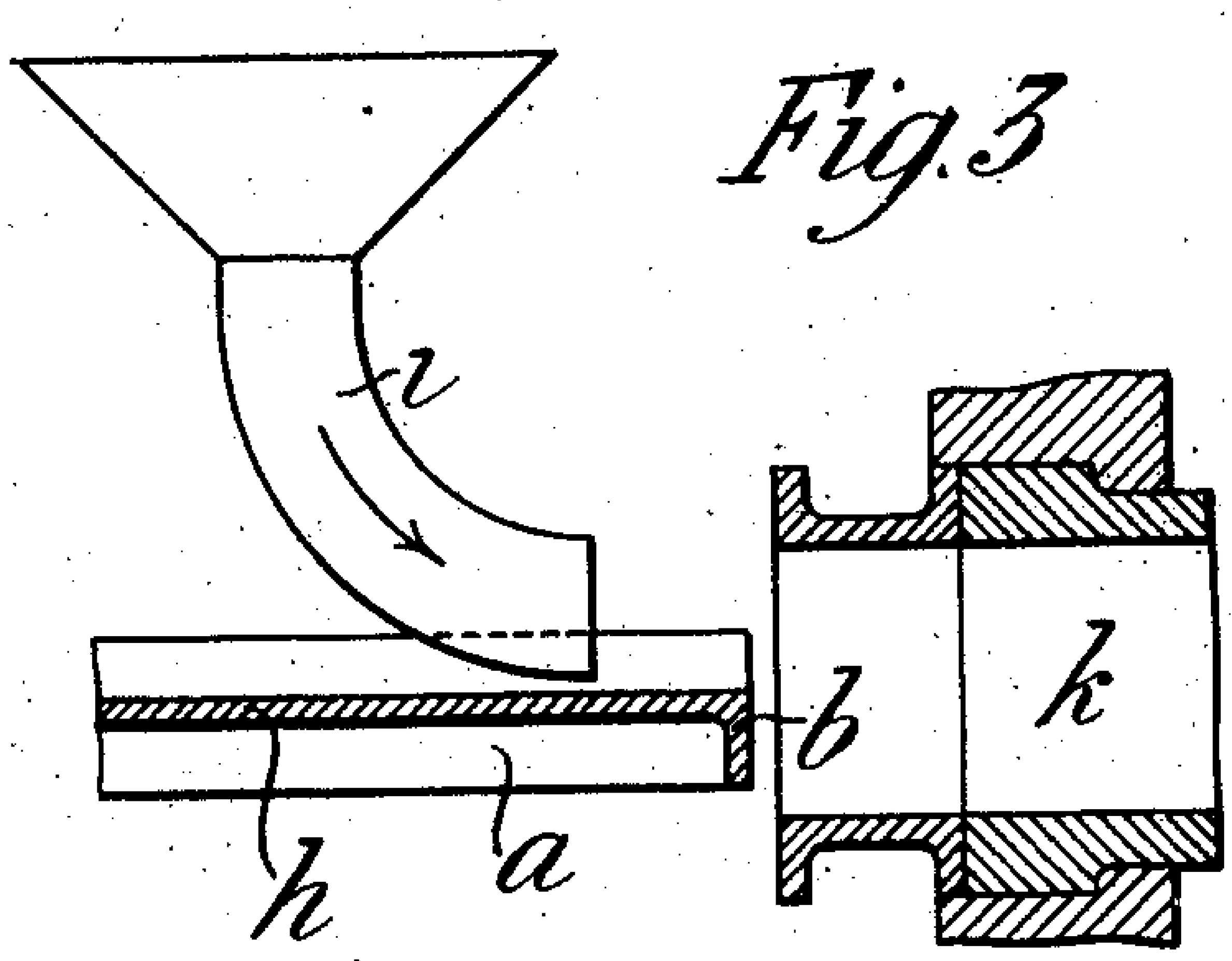
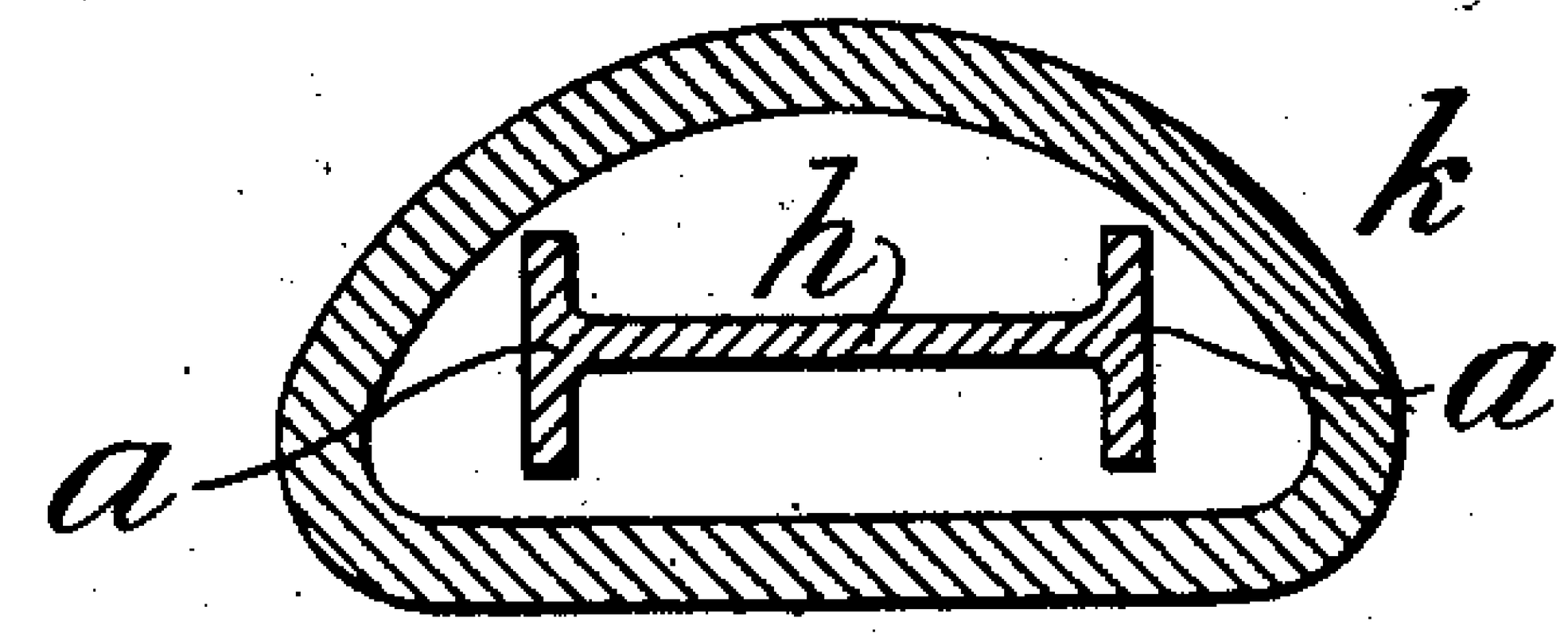


Fig. 4.



Witnesses.
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ARTHUR McDOUGALL DUCKHAM, OF WALDEN, LITTLE BOOKHAM, ENGLAND.

MACHINE FOR DISCHARGING AND CHARGING GAS-RETORTS OR COKE-OVENS.

974,043. Specification of Letters Patent. Patented Oct. 25, 1910.

Application filed August 20, 1910. Serial No. 578,187.

To all whom it may concern:

Be it known that I, ARTHUR McDOUGALL DUCKHAM, a subject of the King of Great Britain, residing at Walden, Little Bookham, in the county of Surrey, England, engineer, have invented certain new and useful Improvements in Machines for Discharging and Charging Gas-Retorts or Coke-Ovens, of which the following is a specification.

The most approved method of charging horizontal gas retorts or coke ovens consists in projecting the coal into the retort or oven, but hitherto the method has been defective in that the discharging ram has had to be withdrawn from the retort and removed before the projector could be brought into position and set to work.

My invention relates to a machine which is adapted to discharge and charge the retort in the one cycle of entering and leaving the retort.

The discharging device is constructed in such a manner that while it is being withdrawn from the retort or oven, the projector can operate to fill the retort. Thus time is saved and, to a certain extent, power, because the projector and discharging device can be moved together into position as parts of a single apparatus.

The machine comprises a plate or plates of suitable dimensions for entering the retort and provided with a head to serve as a ram for discharging the coke. The projector may be of any known form involving a rotary mechanism, or simply a vertical tube curved at the bottom, down which tube the coal falls, being projected into the retort owing to its momentum.

In the accompanying drawings Figure 1 is a diagrammatic longitudinal section through the end of a retort and a discharging device combined with a projector in accordance with the invention. Fig. 2 is a cross section through the retort showing the discharging device within the retort; Fig. 3 is a part longitudinal section showing a modification, and Fig. 4 is a cross section through the retort showing the discharging device of Fig. 3 in position in the retort.

Referring to Figs. 1 and 2, the discharging ram consists of two side plates *a* joined together at their forward end *b* and having between them at this end an inclined plate, which may be a web *c*, adapted to cause the projected coal to ride over the said end. This ram is driven into the retort *k* by a polygonal drum *d* which drives links *e* connected with the ram. The ram and projector *f*, which is in this case of the kind having rotary blades which project coal fed into a hopper *g* as indicated by the arrows, may be carried by the same framework, and when they have been brought into proper position relative to the retort to be discharged and charged, the ram is first pushed into the retort to discharge the coke. A stop having then been arranged at or near the end of the retort from which the coke has been discharged, the ram is withdrawn a little way and the projector is started in operation while the withdrawal of the ram is continued. The coal issuing from the projector runs along the bottom of the retort between plates *a* and shoots up the incline *c* over the end of the ram, and the retort is duly charged. It will be seen that the projector may occupy permanently its charging position relatively to the whole apparatus, since the end of the ram never has to pass the projector.

In Figs. 3 and 4 the ram is slightly varied in that a horizontal plate *h* is situated between the side plates *a*, and the end plate *b* is only half the height of the side plates. In this case the coal runs along the plate *h* instead of along the bottom of the retort and no incline is required. The chute *i* is assumed to be the lower end of a tube attached to a hopper; the coal descends the tube and acquires sufficient momentum to carry it into the retort. Where space is limited, the ram may be formed of jointed plates or telescoping pieces and the pushing end of the ram may be hinged or otherwise arranged in such a manner that its position may easily be altered if it unduly retards the coal passing over it.

Having thus described the nature of the said invention and the best means I know of carrying the same into practical effect, I claim:—

1. In combination with a device for projecting coal into a horizontal gas retort, a discharging device comprising a ram adapted to enter the retort and to allow the coal to be projected into the retort while within the retort, and a head to the said ram adapted to discharge coke from the retort while the ram is entering the retort and to allow coal to pass over it as the ram is withdrawn from the retort.

2. In combination with a device for projecting coal into a horizontal gas retort, plates adapted to enter the retort and to allow the coal to be projected into the retort and a head to the said plates adapted to discharge coke from the retort while the plates are entering the retort and to allow coal to pass over it as the plates are withdrawn from the retort.

3. In combination, a ram adapted to enter a horizontal retort, a framework, means carried by the said framework for pushing the said ram into and withdrawing the said ram from the retort, means carried by the said framework for projecting coal into the retort and adapted to retain permanently its charging position relatively to the means for operating the ram, and a head to the said ram adapted to discharge coke from the retort as it enters the retort and to allow coal to pass over it as it is withdrawn from the retort.

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

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Witnesses:
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