S. GLOVER & J. WEST.

DRIVING GEAR OF APPARATUS FOR DISCHARGING COKE FROM CONTINUOUSLY OPERATED VERTICAL RETORTS.

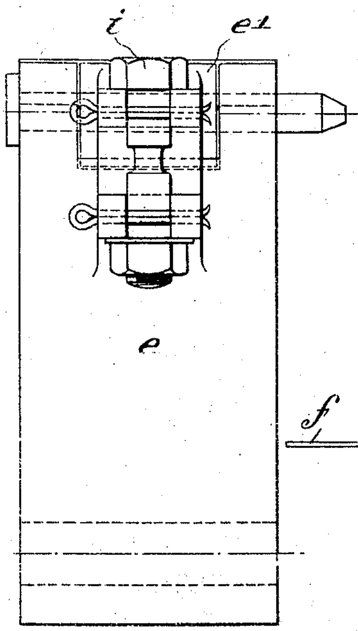
APPLICATION FILED JAN. 10, 1911.

1,011,425.

Patented Dec. 12, 1911

2 SHEETS—SHEET 1.

Fig. 4.



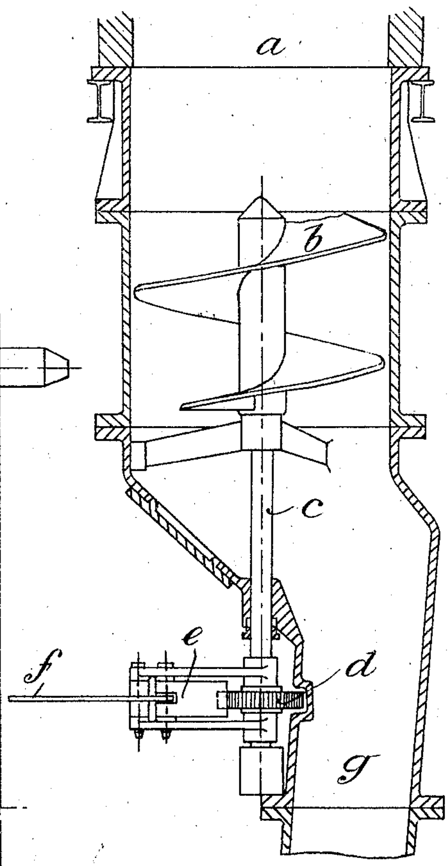


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

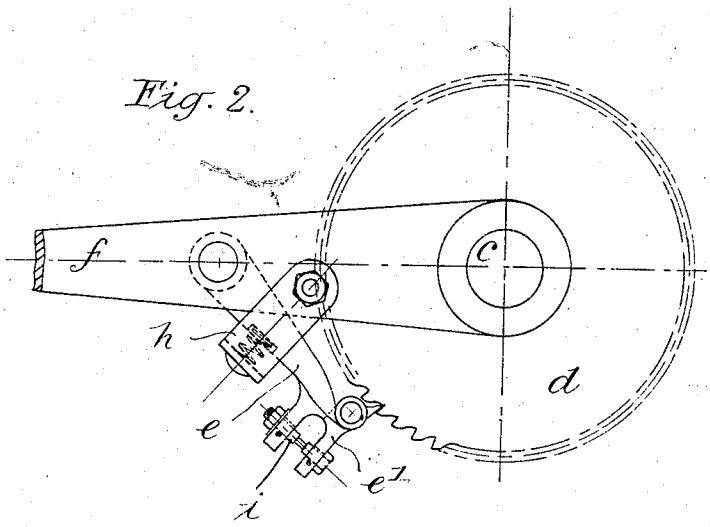
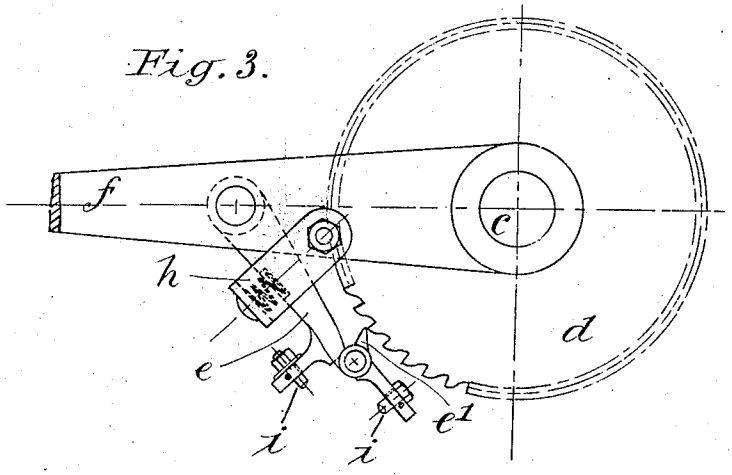


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

SAMUEL GLOVER, OF ST. HELENS, AND JOHN WEST, OF SOUTHPORT, ENGLAND.

DRIVING-GEAR OF APPARATUS FOR DISCHARGING COKE FROM CONTINUOUSLY-OPERATED VERTICAL RETORTS.

1,011,425. Specification of Letters Patent. Patented Dec. 12, 1911.

Application filed January 10, 1911. Serial No. 601,916.

To all whom it may concern:

Be it known that we, SAMUEL GLOVER and JOHN WEST, subjects of the King of Great Britain and Ireland, residing at "Olive-mount," St. Annes, St. Helens, Lancaster, England, and "The Firs," Park Road, Southport, Lancaster, England, respectively, have invented certain new and useful Improvements in the Driving-Gear of Apparatus for Discharging Coke from Continuously-Operated Vertical Retorts, of which the following is a specification.

This invention relates to improvements in the driving gear of apparatus for mechanically discharging the coke from vertical retorts used in the continuous system of the distillation of coal, shale and the like in which system the materials after distillation or carbonization are withdrawn from the retort by a mechanically driven extractor the speed of which determines the rate of discharge of the material to a receiving chamber which is periodically emptied of its contents.

This invention provides a safety appliance in connection with the driving gear so that in the event of the receiving chamber not being emptied of its contents at the proper time and consequently becoming overloaded the risk of breakage to the essential parts of the driving gear is prevented.

In order that our invention may be readily understood we shall proceed to describe the same in reference to the accompanying drawings.

Figure 1 is a section of a coke receiving chamber below a vertical retort and shows a helical discharging apparatus which on being rotated extracts the residual from the retort. Figs. 2 and 3 show a ratchet wheel and pawl drive in connection with the driving gear for the discharging apparatus. Fig. 4 is a larger view of the safety appliance in connection with the ratchet pawl.

Referring to the figures, *a* is the lower end of a vertical retort from which the carbonized material is to be extracted, and *b* is the worm extractor which is driven by the shaft *c*. On the shaft *c* is mounted a ratchet wheel *d* which is actuated by means of the ratchet pawl *e* which is pivotally mounted on the lever *f*.

g is the coke-receiving chamber.

A spring *h* normally keeps the ratchet wheel *e* in contact with the teeth of the ratchet wheel *d*. The pawl *e* is provided with a hinged outer end *e'* which is normally held in operative position when in contact with the ratchet wheel *d* by a bolt or pin *i* which is weakened, as by being reduced in diameter, as clearly shown in Fig. 2. The bolt *i* is so constructed that it will be sufficiently strong to hold the hinged end *e'* in position during normal conditions of working. In the event of the coke chamber *g* becoming full, thus causing an over loading, the bolt *i* will break, thus rendering the part *e'* inoperative, as clearly shown in Fig. 3.

A convenient way of holding the bolt or pin *i* in position is to provide forked lugs on the parts *e* and *e'* and to insert split pins through the forked lugs in back of the bolt, as shown.

What we claim and desire to secure by Letters Patent is:—

1. In a retort discharging device in combination, a rotatable extractor adapted to extend within the retort to be discharged, a ratchet wheel operatively connected thereto, and a pawl adapted upon actuation to rotate said ratchet wheel, said pawl being provided with a hinged wheel engaging portion, and means normally maintaining said hinged portion in operative position with respect to said wheel, said means becoming inoperative under an overload.

2. In a retort discharging device in combination, a rotatable extractor adapted to extend within the retort to be discharged, a ratchet wheel operatively connected thereto, and a pawl adapted upon actuation to ro-

tate said ratchet wheel, said pawl comprising a body portion and a wheel engaging end portion hinged thereto, and a weakened member normally holding said end portion against movement relatively to said body portion, said weakened member being adapted to break under an over load whereby said end portion will be rendered inoperative.

In testimony whereof we have affixed our signatures, in presence of two witnesses.

SAMUEL GLOVER.
JOHN WEST.

Witnesses:
ERNALD SIMPSON MOSELEY,
JOHN WILLIAM THOMAS.