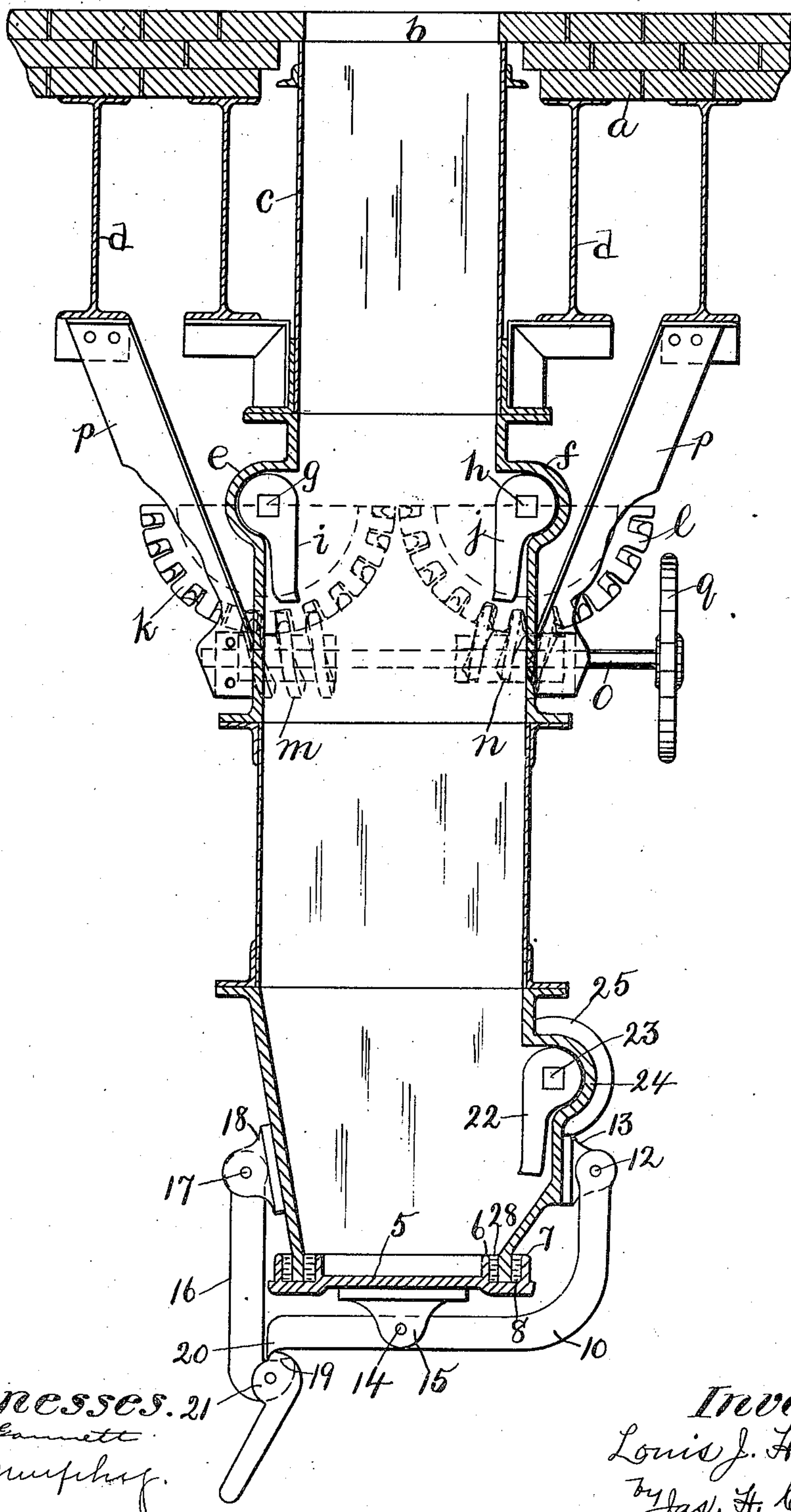


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L. J. HIRT.
COKING OVEN.
APPLICATION FILED JAN. 3, 1903.



Witnesses. 21
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UNITED STATES PATENT OFFICE.

LOUIS J. HIRT, OF BROOKLINE, MASSACHUSETTS.

COKING-OVEN.

No. 847,001.

Specification of Letters Patent.

Patented March 12, 1907.

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To all whom it may concern:

Be it known that I, LOUIS J. HIRT, a citizen of the United States, residing in Brookline, in the county of Norfolk and State of Massachusetts, have invented an Improvement in Coking-Ovens, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to coking-ovens of the class shown and described in United States Patent No. 679,749, granted to me August 6, 1901, and has for its object to provide the extension of the coking-chamber with efficient means whereby the hot coke may be supported while the cooler coke is being discharged from the said extension.

The invention further has for its object to provide a novel door for closing the discharge outlet or opening in the bottom of the extension.

These and other features of this invention will be pointed out in the claims at the end of this specification.

The drawing represents in section and elevation a sufficient portion of a coking-oven embodying this invention to enable it to be understood.

Referring to the drawings, *a* represents the brickwork of a coking-oven, which may be provided with a plurality of coking-chambers *b*, substantially as shown and described in the patent referred to, the chamber *b* being provided with the metal extension *c*, which projects a considerable distance below the I-beams *d*, which support the oven.

The metal extension *c* is provided with an intermediate portion having offsets *e f*, located substantially diametrically opposite each other and within which offsets are located rock-shafts *g h*, upon which are mounted a plurality of cranks or arms *i j* of a length substantially equal to one-half the diameter of the extension *c*. The intermediate section of the extension *c* is made of greater width, so that the cranks or arms *j i* when occupying a vertical position have their front faces substantially in line with the walls of the upper portion of the extension *c*, thereby affording an unobstructed or free passage for the coke located in the upper portion of the extension *c* into the lower portion of the same.

The rock-shafts *g h* are extended through the walls of the intermediate section of the extension *c* and are provided at one end with worm-gears *k l*, which mesh with worms *m n*

on a shaft *o*, having bearings in suitable supports *p*, attached at their upper ends to the supports for the I-beams *d* and at their lower ends to the intermediate section of the extension. The shaft *o* may be provided with a suitable hand-wheel *q*.

The lower portion of the extension *c* is provided with an open mouth normally closed by a door 5, having annular flanges 6 7 on its upper face, which form a groove 8, into which the lower end of the extension *c* projects when the door 5 is closed. The groove 8 is adapted to receive water 28 to seal the discharge outlet or mouth of the extension *c* when the door is closed. The door 5 is mounted on a pivotal support, shown as a bent arm or lever 10, having its upright member pivoted at 12 to a lug or casting 13, attached to the outside of the lower portion of the extension *c*.

The horizontal portion of the lever 10 is connected by the pin 14 to lugs or ears 15, secured to or forming part of the under portion of the door. The door is held in its closed position by a suitable latch, shown as a lever 16, pivoted at 17 to a lug 18, attached to the outside of the lower portion of the extension *c* and having a hook-shaped end 19, adapted to extend under and be engaged by the hooked end 20 of the supporting-lever 10. The latch 16 has pivoted to it a cam-lever 21, by which the door may be securely locked in its closed position and by turning which the latch may be disengaged from the door, so as to permit the latter to open by gravity.

Intermediate of the door 5 and the supporting fingers or arms *i j* the extension may be provided with a plurality of fingers 22, mounted on a rock-shaft 23 in an offset portion 24 of the lower end of the extension *c*, the said rock-shaft having on it outside of the extension the hand-wheel 25. The fingers 22 are adapted to be turned into a substantially horizontal position to act as a supplemental support for the coke being discharged through the lower end of the extension *c*. With the apparatus herein shown and described the cranks or arms *i j* may be turned into a substantially horizontal position by rotation of the hand-wheel *q*, and when in this position they act as a support for the hot body of coke in the extension *c* above them and at such time permitting the door 5 to be opened in order to discharge the portion of the coke in the lower part of the extension *c*, which latter coke is in a cold or

substantially cold condition at such time. After the cooled coke has been discharged from the lower portion of the extension *c* the door 5 is again closed and the hand-wheel *q* is rotated, so as to turn the supporting cranks or arms *i j* into a substantially vertical position, (represented in the drawing,) thereby permitting the hot coke to descend by gravity into the cooling portion of the extension *c*.

The fingers 22 are also employed for the purpose of pinching the main body of the coke and allowing a small portion thereof to be discharged when the door is opened. The purpose of this discharge is to lower the body of coke in the oven, thereby enabling a portion of the charge in the oven to be withdrawn a short time after the coking process is started, so as to make provision for the expansion of the coke in the oven.

I claim—

1. In a coking-oven, in combination, a coking-chamber provided with an extension having at its lower end a discharge outlet or mouth, a cover to normally close said mouth, supporting cranks or arms located within the

extension above the said mouth, rock-shafts upon which the said cranks or arms are mounted, worm-gears mounted on the said rock-shafts outside of the said extension, and a rotatable shaft provided with worms in mesh with said gears, substantially as described.

2. In a coking-oven, in combination, a coking-chamber provided with an extension having its lower portion of greater area than its upper portion, rock-shafts supported in the portion of larger area on opposite side of the extension, cranks or arms attached to said rock-shafts and movable toward each other, means to operate said rock-shafts, a rock-shaft located below the first-mentioned rock-shaft and provided with cranks or arms, and means to operate said second rock-shaft, substantially as described.

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

LOUIS J. HIRT.

Witnesses:

JAS. H. CHURCHILL,
J. MURPHY.