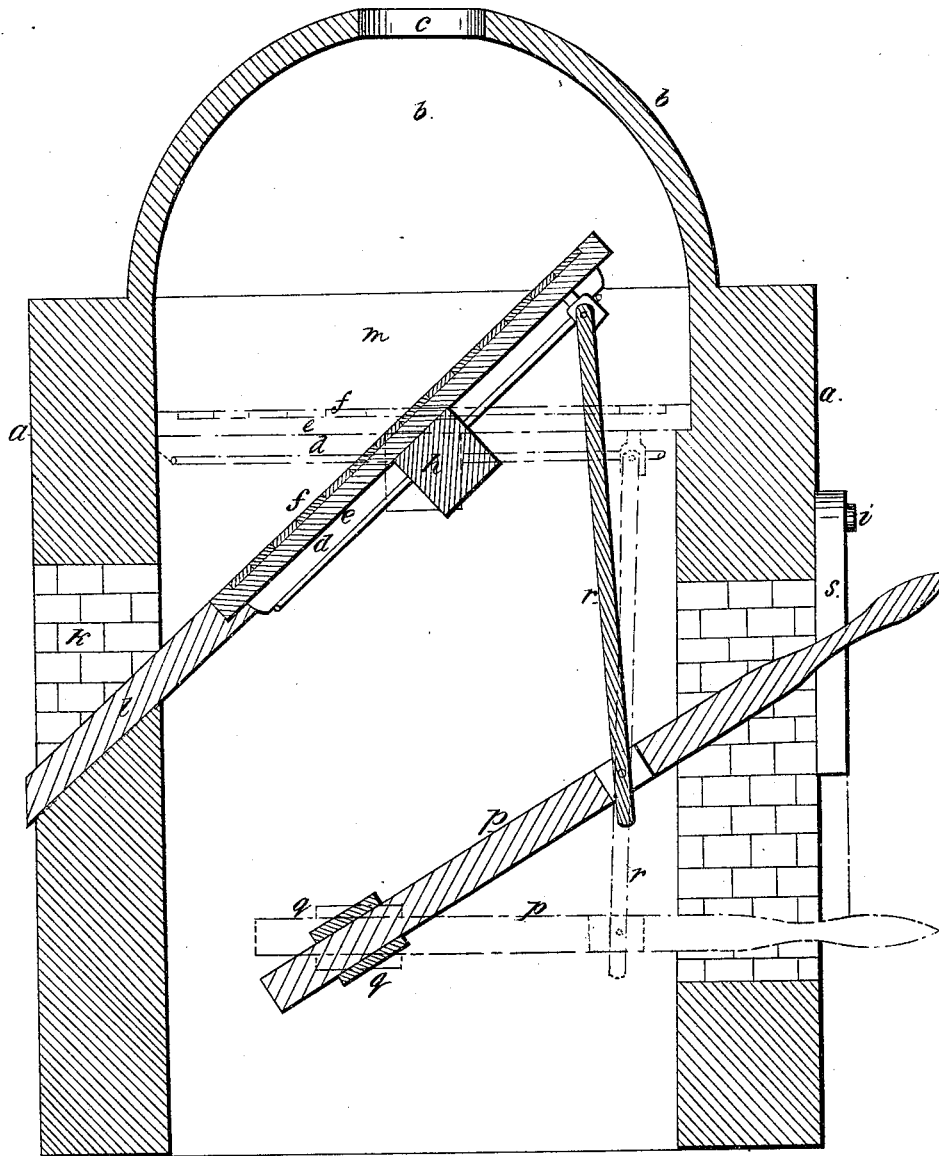


J. BOWERS.  
Coke Oven.

No. 50,552.

Patented Oct. 24, 1865.



Witnesses:

*Allan B. Bakewell,*  
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Inventor:

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# UNITED STATES PATENT OFFICE.

JACOB BOWERS, OF CONNELLSVILLE, PENNSYLVANIA.

## IMPROVEMENT IN COKE-OVENS.

Specification forming part of Letters Patent No. 50,552, dated October 24, 1865.

*To all whom it may concern:*

Be it known that I, JACOB BOWERS, of Conneltsville, in the county of Fayette and State of Pennsylvania, have invented a new and useful Improvement in Coke-Ovens; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification, which is a vertical section of a coke-oven constructed with my improvement.

Ovens for making coke from coal are ordinarily built of brick, with a rectangular or cylindrical chamber covered by an arch or dome having a circular opening in the crown of the dome, through which the oven is charged with coal, and which also serves for the escape of smoke and gas. In the lower part or body of the oven is an opening or doorway, through which the charge is withdrawn when the operation of coking is finished. This doorway is usually closed during the operation by loose masonry or brick-work. The oven has a solid bottom.

My improvement consists in the use of a movable bottom to the oven, which is pivoted in such a way to the sides of the oven that it may be tilted up at an angle of about forty-five degrees, in order to discharge the coke through a chute or opening in the front wall of the oven, situate below the level of the floor, so that when the movable bottom is fixed in a horizontal position the communication between the interior of the oven and the discharge opening or chute is closed.

In the drawing, *a* is the cylindrical body of the oven. *b* is the arch or dome, and *c* the circular opening in the crown of the arch.

The bottom of the oven is circular, if the oven is cylindrical, and is made of a cast-iron framework of ribs, *d*, and bed-plate *e*. The bed-plate is countersunk on its upper surface to within a short distance of its periphery, and to such depth as to receive a bottom lining of fire-brick or tile, *f*. The ribs *d* prevent the bed-plate from becoming warped. This bottom is attached to and supported by a strong girder, *h*, of wood or iron, which is placed horizontally under it and extends diametrically under the center of the bottom, and is pivoted by journals, either projecting from or entering into the ends of the beam, to the sides of the oven, so that the bottom may be tilted up by turning on its journals, as shown in the drawing, in which

the red-ink lines indicate the position of the bottom when closed, and the black lines its position when tilted to discharge the contents of the oven.

In the front wall of the oven is the doorway *k*, on the bottom of which is an inclined plate, *l*, which may be made of iron. This plate *l* forms the chute over which the coke passes from the oven, and it projects upward into the space under the chamber *m* of the oven, and is rabbeted at its upper edge, so as to receive the edge of the tilting bottom, as shown in the drawing, and thus make a continuous inclined plane for the coke to pass out at the doorway.

The tilting bottom is operated by means of a lever, *p*, attached to a cross-beam, *q*, which is so arranged in any convenient way as to turn on its axis in fixed bearings. To the lever *p*, at a sufficient distance from the fulcrum of the lever to give the requisite degree of inclination to the tilting bottom of the oven, is pivoted a connecting-bar, *r*, the other end of which is pivoted to the tilting bottom near to its circumference, so that when the lever *p* is raised, as shown by the black-ink drawing, the bottom of the oven will be tilted. The bottom is restored to its horizontal position by depressing the lever *p*, which serves to keep it in that position by means of a bar, *s*, pivoted at *i* to the outside of the back wall of the oven, the end of which, when it hangs perpendicularly, rests on the lever *p* and prevents its rising. The free end of the lever *p* projects through a narrow opening in the back wall of the oven below the level of the oven-bottom.

Having thus described my improvement in coke-ovens, what I claim as my invention, and desire to secure by Letters Patent, is—

Placing the opening or doorway for discharging the contents of the oven below the level of the bottom of the oven, in combination with the moving bottom, so constructed and arranged as to make a passage from the interior of the oven to the doorway when the bottom is tilted and to close the communication when the bottom is shut down, substantially as and for the purposes hereinbefore set forth.

In testimony whereof I, the said JACOB BOWERS, have hereunto set my hand.

JACOB BOWERS.

Witnesses:

ALLEN C. BAKEWELL,  
A. S. NICHOLSON.