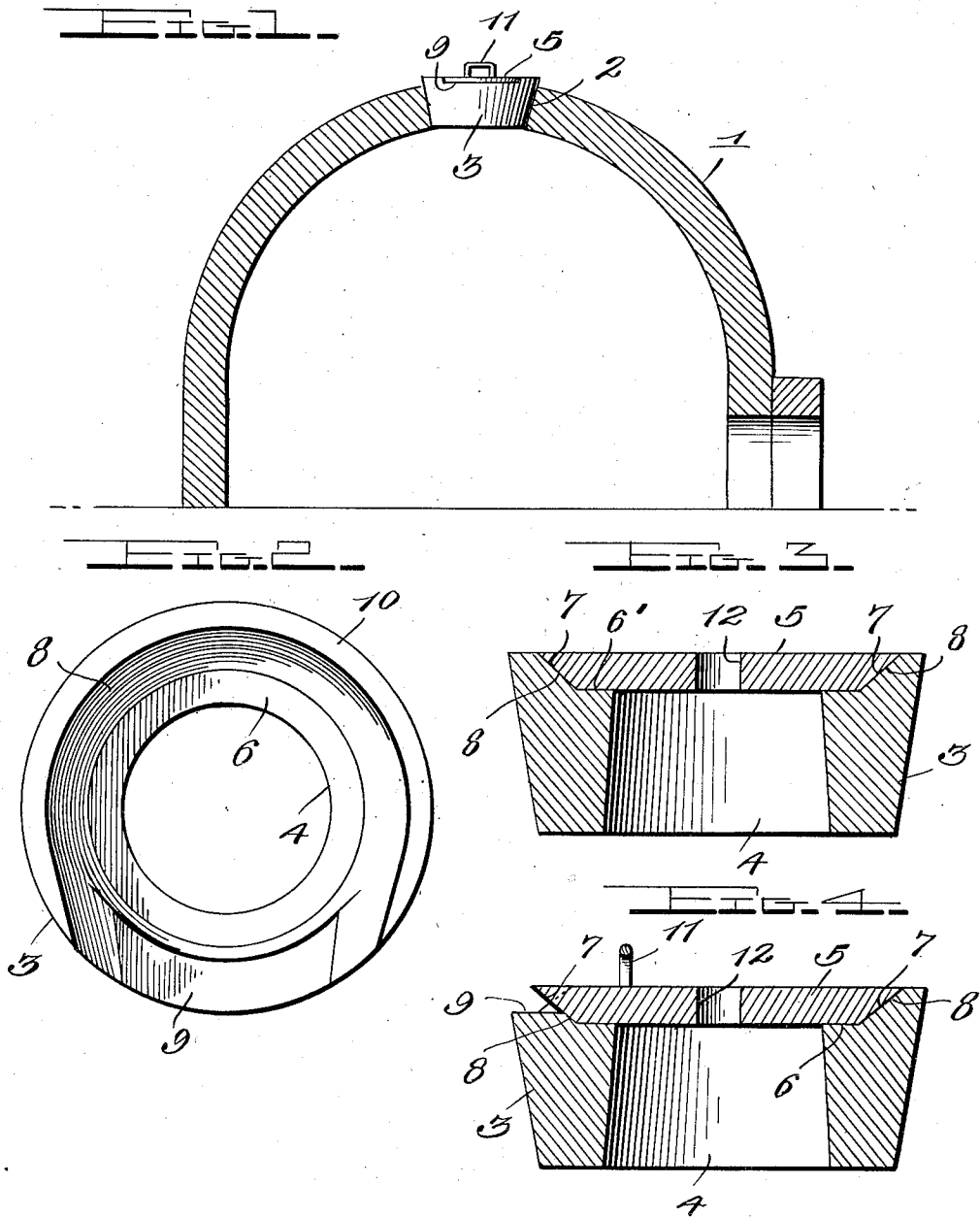


J. CHRISTIE.
TUNNEL HEAD.
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1,058,550.

Patented Apr. 8, 1913.



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UNITED STATES PATENT OFFICE.

JAMES CHRISTIE, OF UNIONTOWN, PENNSYLVANIA.

TUNNEL-HEAD.

1,058,550.

Specification of Letters Patent.

Patented Apr. 8, 1913.

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To all whom it may concern:

Be it known that I, JAMES CHRISTIE, a citizen of the United States, residing at Uniontown, in the county of Fayette and State of Pennsylvania, have invented certain new and useful Improvements in Tunnel-Heads, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention comprehends improvements in tunnel heads or flue-rings for coke ovens of the bee-hive or arched-crown-wall type, and the invention has for its primary object to provide a device of this character with a flue plate or cover adapted to be readily and easily applied to or removed from the tunnel head, which will give a better draft to the ovens, and when placed thereupon will, to a large extent, prevent the entrance of rain water, during heavy rains, to the oven and will also close the head to retain the heat in the oven after the coke has been withdrawn until the succeeding charge of coal is supplied.

25 The invention has for a further object the construction of the tunnel head which, when applied to the coke oven of the bee-hive or arched-type, will act as a strengthening member or key stone for the arch which is not liable to work its way gradually into the opening formed within the walls of the oven and drop, in the course of time, into the oven owing to its heavy weight.

35 With these and other objects in view, the invention consists of the novel details of construction, combination, formation and arrangement of parts as will be hereinafter more fully described, claimed and particularly pointed out in the accompanying drawings, in which,

40 Figure 1 is a vertical sectional view through the oven illustrating my invention as applied thereto; Fig. 2 is a plan view embodying my invention; Fig. 3 is a vertical transverse sectional view taken through the same; and Fig. 4 is a vertical sectional view taken at right angles to Fig. 3.

Reference now being had to the accompanying drawings wherein like and corresponding parts are designated by similar reference characters throughout the several views, the numeral 1 indicates an ordinary coke oven of the bee-hive or arched-crown-wall type having an opening 2 formed therein in which is adapted to rest my improved tunnel head. This tunnel head or

flue ring comprises a body portion 3 being made of fire clay, silica, or any other suitable substance, having a centrally located bore 4 and the damper plate 5 which is adapted to rest within a recess 6 formed within the upper face of the same. 60

Many objections have been made to the ordinary form of tunnel head now in use for the reasons that because of their great weight they often work themselves gradually through the crown openings formed within the wall of the ovens and then in a course of time drop within the oven thereby damaging and mutilating the wall of the oven in such a manner as to render it difficult to repair, and the present invention overcomes this objection by making the body portions of the head cylindrical and having the inner and outer faces thereof converging toward the lower extremity thereof, being substantially key stone shape in cross section. 65 70 75

In this construction the greater portion of the weight is apparently formed at the upper end of the tunnel head which will prevent the same from working its way into the oven when placed into the crown opening formed therein and also owing to its configuration will add to the strength of the arched wall of the oven. 80 85

The periphery of the damper plate 5 is inclined inwardly as at 7, which is adapted to rest snugly upon the inclined wall 8 of the recess 6 formed within the body portion of the tunnel head. This will obviously prevent the escape of any heat from the oven and at the same time prevent the entrance of rain water. As these damper plates are very heavy they will rest snugly upon the inclined walls 8. These damper plates are made of fire clay or metal and being of large size will carry considerable weight which will be comparatively difficult to handle and to provide means to facilitate the removal of the damper plates the cut away portion 9 is formed within the upper face of the body portion of the flue head leaving a flange or curb being substantially one-half of the height of the curb or rim 10 formed by cutting the recess 6 within the body portion of the head. It will be seen from this construction that when removing the damper plates one end thereof may be slightly raised to the height of the flange formed by the cut away portion 9 and the damper plate may then be readily slid over 90 95 100 105 110

the cut away portion 9 and removed from the head by means of a gripping handle 11.

The horizontal shoulder or seat 6' is produced by the formation of the inclined wall 5 8, upon which the plate 5 rests. By the provision of the cut-away portion 9 which communicates with the recess 6, convergently disposed oppositely beveled or inclined walls are formed at opposite sides of said cut-away portion as clearly shown in Fig. 2 of the drawing. It will be obvious that these beveled walls greatly facilitate the removal of the damper plate, as the same may be tilted by grasping the handle 11 so that the same 15 will gravitate downwardly and outwardly upon said inclined side walls.

A small opening 12 is formed within the central portion of the damper plate so that when the plate is placed upon the head a little draft will always be created within the 20 oven to keep the fire contained therein.

Having thus fully described my invention, what I claim as new is:

25 A tunnel head comprising a body provided with a longitudinal bore and having

a recess formed in its upper surface, said recess having an outwardly inclined annular wall and a horizontal shoulder or seat at the base thereof, said head being further provided in its upper face with a laterally 30 extending recess communicating with said first named recess, the annular inclined wall of said first named recess merging into the side walls of the latter recess, said side walls being oppositely beveled or inclined, and a 35 circular damper plate having a beveled peripheral face to engage upon the annular inclined wall of the head, said plate resting upon said horizontal seat, a portion of the edge of said plate projecting outwardly and 40 upwardly from the base of the last mentioned recess in said head, substantially as and for the purpose specified.

In testimony whereof I hereunto affix my signature in the presence of two witnesses. 45

JAMES CHRISTIE.

Witnesses:

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