

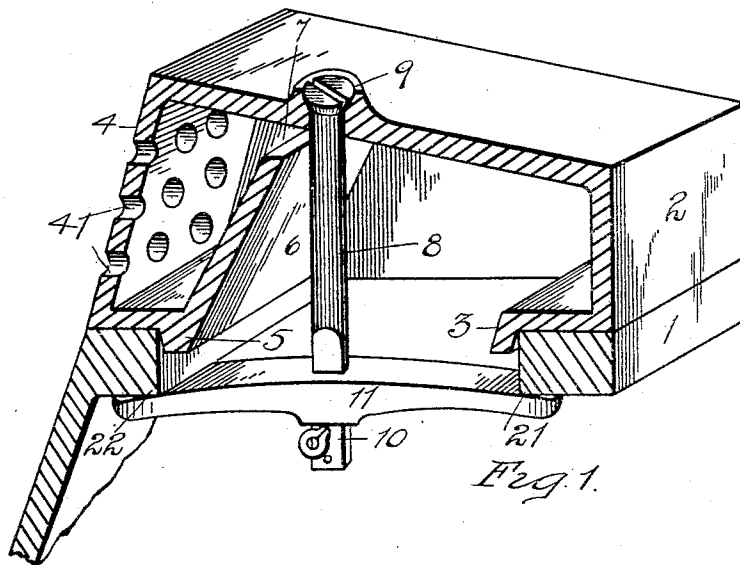
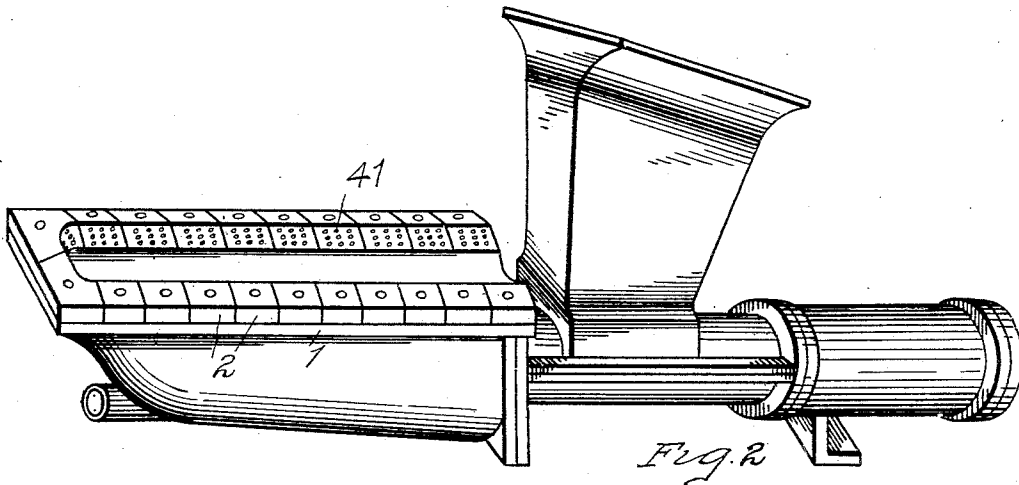
A. BENNER.

TWYER BLOCK.

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935,954.

Patented Oct. 5, 1909.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## TWYER-BLOCK.

935,954.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed April 10, 1908. Serial No. 423,404.

*To all whom it may concern:*

Be it known that I, ANDREW BENNER, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Twyer-Blocks, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to twyer blocks.

It has for its object an improved twyer block to be used in connection with what is known as underfeed stokers.

In the class of stokers with which this improved twyer block is employed, the coal employed in producing a fire is driven into a trough-like receptacle, that is called a retort, by the action of a piston plunger which travels under the outlet of a hopper, and forces coal from the hopper through a cylinder into a long retort, which retort lies at the base or underneath the fire of the burning coal. The coal driven into the retort is forced inward and upward, traveling across the inclined faces of the twyer blocks, through which inclined faces passages are provided for the introduction of the air necessary for the combustion of the coal. In this class of stokers the retort is several feet long, and there are usually a number of twyer blocks arranged in two rows, one on each side of the retort, and at the top thereof. The number of twyer blocks differs in different sized furnaces, may vary from six, or less, to ten, or more. The block resembles in form a truncated cone having an opening through the bottom that is contracted somewhat, and the neck around the opening rests in seats in the edge or rim of the retort frame. The neck opens downward into an air chamber, and the air enters through this neck and passes into the twyer block, and out through side openings which face toward the middle line of the retort. Each twyer block is adapted to be independently removed. A block with rectangular side openings allows small particles of coal to drop into the air chamber under the retort where they accumulate and are liable to catch fire, and heat and warp the iron-work and greatly injure it.

The special features of improvement in this retort block are found in the small

round openings through the side wall of the block for air passages, and in an apron or guard which is located within the retort block, and prevents small pieces of coal that may fall into the block through the openings from dropping down into the air chamber below the block.

Another feature of improvement consists in the means of readily attaching and detaching the independent blocks in the position they are intended to occupy.

In the drawings:—Figure 1, is a sectional perspective of a single block and a small portion of the retort frame on which it rests. Fig. 2, is a perspective of a number of twyer blocks located properly with relation to the retort, and the hopper and plunger piston.

The retort frame 1 is provided with seats for the twyer block 2, which is provided with a rectangular opening through the neck 3, and the neck 3 rests in an opening or seat through the retort frame 1. The outer wall or wall farthest removed from the cavity of the retort has a height that is less than the inner wall 4, which lies next to, and is inclined slightly away from the cavity of the retort. The side 4 is provided with numerous air passages 41, preferably round holes adapted to permit the air to flow out quite freely, but to prevent the admission of any large particles of coal into the twyer block. Rising from the flange 5 of the neck, which flange 5 lies on the side of the neck toward the retort, is an inclined guard or apron 6, which rises nearly to the top of the twyer block, leaving a narrow horizontal passage 7 between the upper edge of the guard 6 and the deck of the twyer block. Through this narrow passage 7 the air coming from the neck can readily pass, and find its way through the passages 41, but any particles of coal dust coming into the twyer block through the passages 41 are prevented from dropping through the neck of the twyer block into the air chamber below it. A nicked bolt 8 is dropped through an opening 9 in the deck of the twyer block, and has secured on its slatted lower end 10 a button 11 of a length to pass through the neck opening of the twyer block when turned to a diagonal relation therewith, but long enough to engage under the edges 21 and 22 of the retort frame when turned across the opening through the retort frame. The upper surface of this button 11 is curved or inclined in each direction from the stem of the

bolt 8, and when turned with the bolt 8 engages with increasing tightness as it approaches a location directly across the opening, and it therefore acts as efficiently as a screw would in securing the twyer block to the retort frame, but requires only a partial turn to either engage it tightly or loosen it; the turning movement is effected by engaging the bolt stem with a tool similar to a screw driver.

This twyer block consists essentially of a chambered head rising from a neck by which it is joined to the retort frame, within the chamber is a guard which rises from below the twyer openings, and terminates below the deck of the block, leaving a narrow passage between the two parts of the chamber. The round air passage divides the air blast and prevents the air from driving the flame of combustion against the side walls, produces a much more uniform and regular fire, and preserves the furnace from the destructive action common with structures using the slotted twyers now in common use.

What I claim is:—

1. The combination, with a fuel retort having a supporting frame, of removable twyer blocks adapted to deliver air into said retort mounted on said frame, each of said blocks having that portion which faces the interior of the retort located above the lowermost combustion level and provided with a plurality of round perforations there-

through, a guard member within and spaced from said perforated face and reaching from the bottom portion of said block toward the top deck thereof, and a button member passing through said deck and through the central portion of the block, adapted by engagement under a portion of the retort frame to removably hold the twyer block thereto with its perforated face and guard member in proper position with respect to the adjacent blocks and to the central combustion chamber, substantially as described.

2. The combination of a fuel retort having a supporting frame, a removable twyer block adapted to deliver air into said retort mounted on said frame, said block having a wall provided with a series of round perforations on its interiorly facing firepot side, a guard member rising from the bottom portion in substantial alinement with said perforated face a portion of the distance toward the top deck of the block, and a holding button engaging through the block from top to bottom and under a portion of the retort frame, whereby the block is held firmly in place with respect thereto and to similar adjacent blocks, substantially as described.

In testimony whereof, I sign this specification in the presence of two witnesses.

ANDREW BENNER.

Witnesses:

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