

W. T. HANNA.
BLAST FEED STOKER.

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1,002,392.

Patented Sept. 5, 1911.

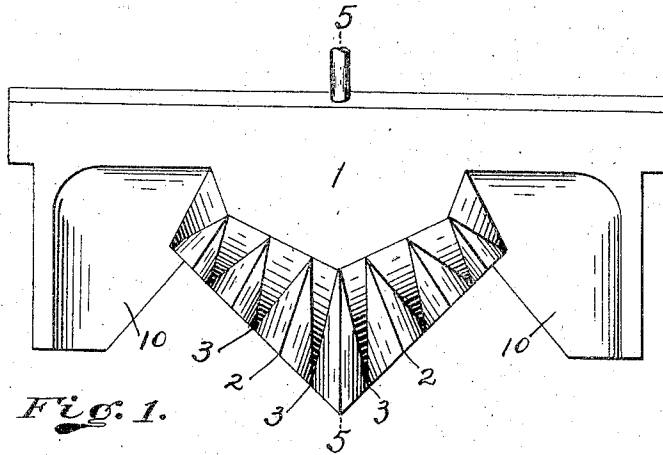


Fig. 1.

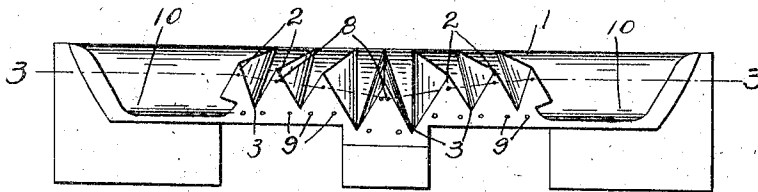


Fig. 2.

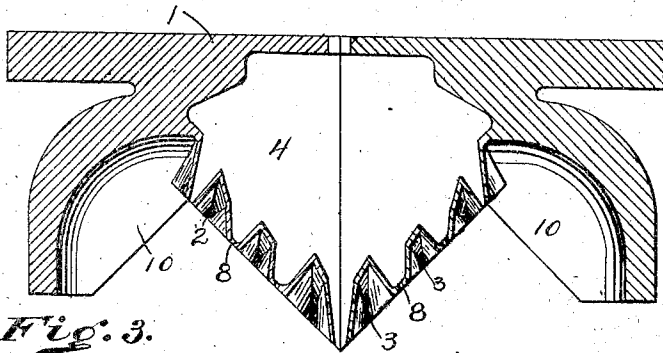


Fig. 3.

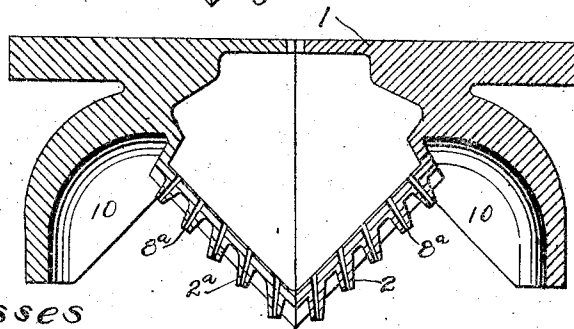


Fig. 6.

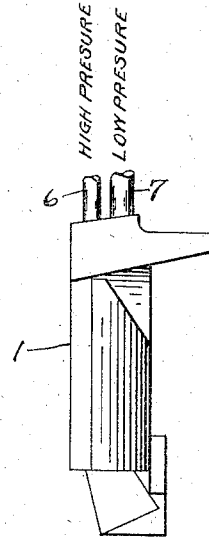


Fig. 4.

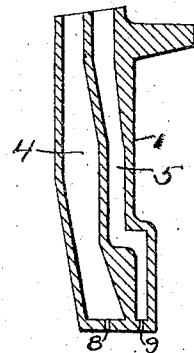


Fig. 5.

Witnesses
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BLAST-FEED STOKER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM T. HANNA, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Blast-Feed Stokers, of which the following is a specification.

In blast feed stokers the coal, usually varying in size from the smallest particle up to lumps three inches or more in diameter, is brought within range of the blast either in a stream or in charges, and the blast engages the fine particles and the coarse lumps with like pressure. The result is that the fine particles are driven farther into the fire box than the coarser lumps, and that the fuel bed is largely composed of coarse coal at the back and fine coal at the front or flue end, the intervening part being graduated from coarse to fine. If the blast is powerful some of the finer particles pass into the flues without being consumed; if the blast is weak the front of the fire box is insufficiently fed. It is desirable to have the fine and the coarse coal distributed with practical uniformity, and it is especially desirable to avoid delivering an undue proportion of the fine coal at the flue end of the fire box.

The object of my invention is to provide mechanism whereby the delivery of the fine and the coarse coal may be separately controlled, and whereby they may be mingled in the fire box with practical uniformity, and my invention consists in the parts and combination and arrangement of parts hereinafter described and claimed.

In the drawings, Figure 1 is a top plan view of a blast casing embodying my invention; Fig. 2 a front elevation of the same; Fig. 3 a horizontal section on the line 3—3 of Fig. 2; Fig. 4 a side elevation; Fig. 5 a vertical section on the line 5—5 of Fig. 1; and Fig. 6 a horizontal section showing a modified form of the casing.

The reference numeral 1 denotes a blast casing, the upper face of which forms the spreading and delivery plate; 2 a series of sloping and diverging ridges, on the upper front face of the blast casing; forming sloping and deepening channels 3; 4 and 5 steam chambers in the blast casing constituting respectively high and low pressure chambers; 6 and 7 steam inlet pipes leading respectively to the high and low pressure chambers; 8 steam exits in the apices of the

ridges and leading from the high pressure chamber 4; 9 steam exits below the bottoms of the channels and leading from the low pressure chamber 5; and 10 sloping faces adapted to direct any fuel which may reach them into the range of the blast.

In the modified form shown in Fig. 6, a series of projecting nipples 2^a provided with steam exits 8^a is substituted for the ridges shown in the other figures.

In operation the coal is fed by any suitable mechanism to the front upper edge of the blast casing. The finer coal falls into the channels and, as it is discharged from the lower ends thereof, comes in range of blasts from steam exits 9; the larger lumps of coal ride down the ridges and, as they drop from the lower ends, come in range of the blasts from steam exits 8. The finer coal flows down the channels and, as it passes therefrom, comes in range of the blasts from steam exits 9. By applying a comparatively powerful blast to the coarse coal and a comparatively weak blast to the finer coal, a proper mingling and distribution of the coal in the fire box may be obtained. Any desired means may be employed for regulating the intensity of the blasts. When a single blast, or line of blasts, is used a portion of the fine fuel is driven forwardly and upwardly and part of it goes into the flues. When the fine fuel is separated from the coarse and two lines of blasts are used, an upper blast for the coarse fuel and a lower blast for the fine, the upper blast keeps the fine fuel down and prevents it from getting into the flues.

I claim as my invention:

1. In fuel feeding mechanism for stokers, the combination of means for separating the coarse from the fine fuel, and means for applying a comparatively powerful blast to the coarse fuel and a comparatively weak blast to the fine fuel.

2. In fuel feeding mechanism for stokers, the combination of a spreading plate and channels for separating the coarse from the fine fuel, with one or more steam chambers provided with steam exits adapted to deliver a comparatively powerful blast to the coarse fuel and a comparatively weak blast to the fine fuel.

3. In fuel feeding mechanism for stokers, the combination of a spreading plate having a series of ridges and channels for separating the coarse from the fine fuel; one or

more steam chambers having separate exits adapted to deliver a blast of steam against the coarse fuel, and a blast of steam against the fine fuel.

- 5 4. In fuel feeding mechanism for stokers, the combination of a spreading plate, having a series of sloping and diverging ridges and channels for separating the coarse from the fine fuel, and means for applying a comparatively powerful blast to the coarse fuel
10 and a comparatively weak blast to the fine fuel.

5. In fuel feeding mechanism for stokers,

the combination of a spreading plate, having a series of sloping and diverging ridges 15 and channels for separating the coarse from the fine fuel; a steam chamber having exits adapted to deliver a blast of steam against the coarse fuel, and a steam chamber having exits adapted to deliver a blast against the 20 fine fuel.

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Witnesses:

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