W. R. WOOD.

FUEL FEEDING AND DRYING APPARATUS.

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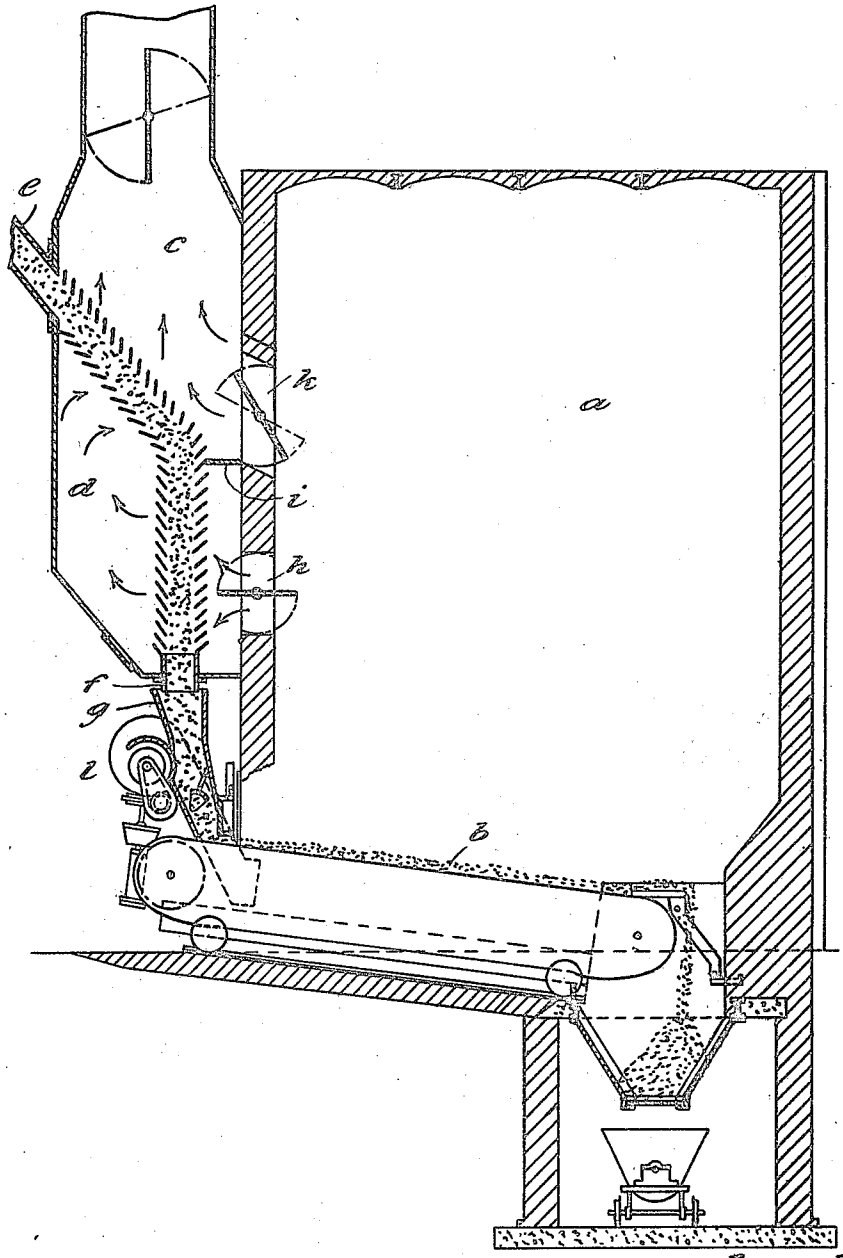

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UNITED STATES PATENT OFFICE.

WILFRED R. WOOD, OF LONDON, ENGLAND.

FUEL FEEDING AND DRYING APPARATUS.

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To all whom it may concern:

Be it known that I, WILFRED ROTHERY WOOD, a citizen of the United States of America, residing in London, England, have invented certain new and useful Improvements in Fuel Feeding and Drying Apparatus, of which the following is a specification.

It has been proposed to dry fuels for feeding furnaces or the like by conveying them through tunnels or flues traversed by hot waste gases, but such a procedure complicates the plant and increases the capital outlay and cost of maintenance.

My invention relates to apparatus for drying fuel, such as coal, wood, peat or the like, by causing it to pass by gravity through the waste gas connections, uptakes or flues of boilers or furnaces. This avoids mechanism and moving parts.

For example, for feeding coal to a boiler furnace the apparatus comprises a chute extending vertically or inclined at an angle to the horizontal greater than the angle of repose of the coal, or part inclined and part more or less vertical, through the uptake leading the products of combustion from the furnace to the chimney, or induced draught. My invention will be more fully understood by reference to the accompanying drawing, which represents a vertical section through the furnace chamber *a* of a water-tube boiler having a well-known mechanical stoker *b*. As usual, the furnace gases pass from the chamber *a* to the chimney by way of an uptake *c*. By my invention there is contained in this uptake a coal chute *d* which together with the baffle *i* divides the uptake into an upper and a lower compartment; the chute is continued outside the uptake by an upper extension *e* and a lower extension *f*. Within the uptake the chute is constructed of bars so that the gases can pass freely through it. Coal is suitably fed into the hopper *g* of the mechanical stoker at a rate corresponding with that at which the stoker feeds the fuel.

Thus the chute *d* constitutes a partition in the uptake through which the furnace gases, or a portion thereof, entering the uptake through the port *h*, must pass twice on their way to the chimney, baffle *i* in the uptake compelling this course.

It is preferred to arrange a second port *k* or passage of furnace gases into the uptake, above the baffle *i*, so that any desired proportion determined by controlling the dampers placed in the two ports, of the gases may pass to the chimney without passing through the chute.

The chute preferably widens in a downward direction as indicated to ensure free descent of the coal, and this descent may be continuous or intermittent as required by the kind of stoking used.

When, as here shown, the chute discharges into a stoking hopper *l*, the discharge end of the chute should not form a tight fit in the mouth of the hopper lest the draught draw fire gases longitudinally through the chute.

Having thus described the nature of the said invention and the best means I know of carrying the same into practical effect, I claim:—

1. Apparatus of the character described, comprising a furnace, and an uptake, a wall separating the two and provided with an opening connecting said furnace and said uptake, a damper controlling the passage through said opening, an inclined chute for fuel formed of a series of bars spaced apart and each downwardly inclined in cross section, said chute extending from the upper front portion of said uptake to the base thereof, a baffle plate mounted in the side of said uptake above said opening and extending from said wall to the adjacent side of said chute, means for feeding fuel in a divided condition to the upper end of said chute, and means for conveying the fuel from the lower end of said chute to said furnace.

2. Apparatus of the character described, comprising a furnace, and an uptake, a wall separating the two and provided with an opening connecting said furnace and said uptake, a damper controlling the passage through said opening, an inclined chute for fuel formed of a series of bars spaced apart and each downwardly inclined, in cross section, said chute extending from the upper

front portion of said uptake to the base thereof, the passage through said chute increasing in cross section from the top to the bottom thereof, a baffle plate mounted in the side of said uptake above said opening and extending from said wall to the adjacent side of said chute, means for feeding fuel in a divided condition to the upper end of said chute, and means for conveying the fuel from the lower end of said chute to said furnace.

In testimony whereof I have signed my name to this specification.

WILFRED R. WOOD.