UNITED STATES PATENT OFFICE.

J. D. WHELPLEY AND JACOB J. STORER, OF BOSTON, MASSACHUSETTS.

IMPROVED METHOD OF BURNING WASTE COAL.

Specification forming part of Letters Patent No. **53,208**, dated March 13, 1866.

To all whom it may concern:

Be it known that we, JAS. D. WHELPLEY and J. J. STORER, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in the Use and Application of Fuel; and we do hereby declare that the following is a full, clear, and exact description of the process and operation of the same.

As the machinery in the operating of this process and method is not claimed by us in this present application for a patent, but has been already partially invented, claimed, and granted to us by Letters Patent of the United States No. 41,250, dated the 12th day of January, 1864, we shall refer only to the drawing accompanying said Letters Patent so far as they may be necessary in explaining our specifications.

The nature of our improvement consists in the use of finely-pulverized coal or other fuel screened, blown, or dropped into any fire-chamber or hollow passage of flame in reverberatory or other furnaces where currents of air are employed to bring the heat in action upon the substances or surfaces to be heated.

For as hitherto it has been impossible to make economical use of waste or refuse coal, we propose to economize the same by the following-described method and process. The best explanation, however, will be in reference to the furnace patented by us of the above-mentioned date and number.

By referring to the drawing of the same, it will appear that a fan-blower, (marked M,) seated upon a frame, O, with a pipe, J. The pipe, leading into the crown or head of the furnace T, is used to give an adequate supply of air for the purposes of combustion.

We propose to make use of this apparatus, which we disclaim in our present application and specification, to force very finely pulverized coal or other fuel, such as dried peat, carbonized wood, dried and pulverized sawdust, or spent tan-bark dried and reduced to dust, bituminous and anthracite coals absolutely pulverized, preferring the refuse of mines and coal-yards for the sake of economy, into the above-described furnace, allowing the same to fall into the air-feed hole of the fan-blower either by hand or any convenient apparatus of introduction, such as are usually employed for the delivery of pulverized material.

The advantage which we discover in practice in this use of fuel, and upon which we found our claim to a useful invention and discovery, is that the fuel, entering with the column of air and meeting near the point of entrance with the flames of the furnace-fires as they enter the flue or working-chamber, is instantly consumed with a vivid and intense combustion much exceeding the effect of gas introduced and burned in the same manner, for it is well known when gas—carbonic oxide, for example—is generated by the fuel in the fire-boxes and burned in the usual manner of gas-furnaces, by meeting with air introduced by any opening for the purpose, only one-half or a part at least of the heat is economized at the working-point where it is needed, the other part of the heating effect being wasted in the fire-boxes themselves.

By our process and method above described we transfer the entire process of combustion, both the generation of the gas and its combustion, to the point where the work is to be done, nearly doubling thereby the heating effect of the fuel; but in fact having made experiments in a large way of using fuel in the manner described, supplying abundance of air to each particle of carbon as it ignites, we find that the advantages are in excess of those claimed by the theory of the process, for the air which is introduced as accessory to the burning of the gas is converted into an intensely-heated medium by contact with the floating carbon, which also imparts to the sides and roof of the furnace the entire effects of radiation, which, by other methods, are more or less wasted.

We discover no mechanical difficulties in this method, and from our first employment of it have found it to answer every useful purpose.

We do not propose by this method to entirely dispense with the usual fires in the fire-boxes of the furnace, since they are necessary to support the combustion; but we do claim that a vast and important economy in the consumption of fuel therein is effected.

We do not propose at present any change in the established forms of existing furnaces or fire-boxes, but only that the auxiliary air which is used to aid the combustion shall be charged with the finely-comminuted fuel.

We claim—

The use of finely-comminuted fuel or dust of fuel mingled with the air used in supporting the combustion of the gases of furnaces and fire-boxes.

JAMES D. WHELPLEY.
JACOB J. STOBER.

Witnesses:
WEBB HABINSTRAY,
W. H. C. COPELAND.