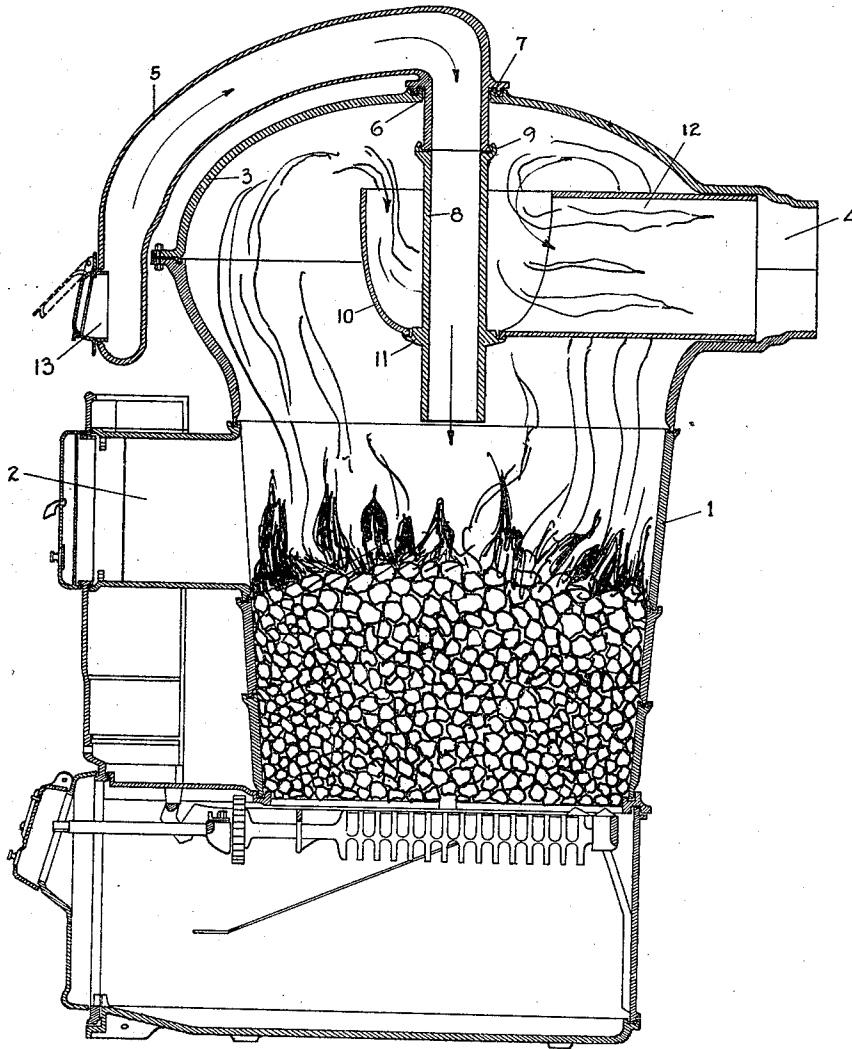


J. M. TRIGGS AND W. D. REDRUP.
FURNACE.
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1,310,811.

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UNITED STATES PATENT OFFICE.

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DIANA.

FURNACE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, JAMES M. TRIGGS and WILLIAM D. REDRUP, citizens of the United States, and residents of Huntington, in the county of Huntington and State of Indiana, have invented a certain new and useful Furnace; and we do hereby declare the following to be full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to furnaces, and particularly to those for feeding air to the fire, and has for its object the provision of a simple and improved furnace of this class, which is economical in use and highly efficient in operation. Further objects and advantages of the invention will be apparent from the following detailed description thereof.

While the invention, in its broader aspect, is capable of embodiment in numerous forms, a preferred embodiment thereof is illustrated in the accompanying drawing, which is a central vertical section thereof with the hot air casing removed.

Referring to the drawing, 1 designates the fire-pot of the furnace, which fire-pot has the fuel introducing opening 2 in one side thereof, and 3 is the furnace dome which rests on the fire-pot and coöperates therewith to form the combustion chamber. The dome 3 preferably flares outwardly at its top portion to transversely enlarge the combustion chamber at its top portion, and is provided in one side with the outlet flue 4, which can be disposed in any desired angular relation to the fuel introducing opening by relative angular adjustment of the dome and fire-pot when setting up the furnace.

An air introducing pipe 5 extends up over the top of the dome 3 from one side thereof, in the present instance, and thence downward through an opening 6 in the dome top center, and is provided with an annular flange 7 without the furnace top, which connects with an interengaging seat on the dome and permits a rotation of the pipe with respect to the dome. The pipe 5 extends down a desired distance within the center of the dome in position for the air

discharge to be directed against the fuel, and, in the present instance, is shown as having an extension section 8, which is suspended from the inner end of the pipe 5 by an interengaging flange connection 9.

The pipe section 8 extends down through the center of a smoke bowl 10 and an opening in its bottom, and is provided with a flange or shoulder 11 beneath the bowl on which the latter is adapted to freely rest. The flanged end 9 of the section 8 is intended to be inserted through the opening in the bowl bottom and such opening should therefore be of suitable size for such purpose. The bowl 10 has its top open to the interior of the combustion chamber and has a flue 12 extending from one side thereof and fitted into or connected with the exit flue 4 of the combustion chamber. It is thus evident that the products of combustion rise within the enlarged top portion of the combustion chamber around the smoke bowl 10, thence pass into said bowl through the top thereof, around the pipe section 8, and then through the exit flue 12—4. It is evident that the smoke bowl is supported at its inner end by the pipe section 8 and that to remove the smoke bowl from the furnace it is only necessary to disengage the flange connection 9 of the pipe section 8 with the pipe 5, then withdraw the section 8 from the bowl downwardly through the bottom opening thereof, after which the bowl and section may be separately removed through the fuel introducing opening 2.

The pipe 5 has its outer end provided with a damper controlled inlet opening 13 and such end of the pipe may be swung relative to the furnace to place the control damper in any convenient position of access.

It is found in practice that the air which enters through the pipe 5—8 is highly heated in its passage therethrough and discharges over the top of the fire and effects an outward spreading of the flames and products of combustion in every direction, so that they are caused to have contact with the dome before entering the smoke bowl 10. The introducing of air into the fire-pot in this manner insures a more perfect combustion of low grade fuel and reduces to a minimum the formation of slag and clinkers. The hot air also consumes practically all of the soot and smoke arising from the fuel and turns them into heat units.

We wish it understood that our invention is not limited to any specific construction or arrangement of the parts as it is capable of numerous modifications without departing
5 from the spirit of the claims.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is,—

1. A furnace having a fire-pot and a sur-
10 mounting dome, a smoke bowl within said dome and having an outlet flue, and an air introducing pipe extending down into the dome from without the same through said
15 bowl and terminating adjacent to the top of the fire-pot.

2. In a furnace, a fire-pot, a dome forming a combustion chamber and having an exit flue, a smoke bowl within said dome and having a flue leading therefrom and connecting with said exit flue, and an air introducing pipe extending down through the
20 central portion of said dome, from without the same and through said bowl, and terminating adjacent to the top of the fire-pot,
25 said bowl being supported by said pipe.

3. In a furnace, a fire-pot, a dome forming a combustion chamber and having an exit flue, an air introducing pipe extending

over one side of said dome and thence down
30 through the top central portion thereof into the combustion chamber and terminating adjacent to the top of the fire-pot, at least a portion of said pipe being rotatable relative
35 to the dome, and a smoke bowl encircling said pipe within the dome in spaced relation to its top and having a flue extending there-
40 from in communication with said exit flue.

4. In a furnace, a fire-pot, a dome forming a combustion chamber and having an
45 exit flue, an air introducing pipe extending at one side of said dome over its top and thence down through the center thereof for rotary adjustment relative thereto, a pipe
50 section extending down into the combustion chamber from said first pipe and terminating adjacent to the top of the fire-box, said section having a shoulder adjacent to its lower end, and a smoke bowl encircling said pipe section in spaced relation to the dome and resting on said shoulder, said bowl having a
55 flue extending from one side thereof to said exit flue.

In testimony whereof, we have hereunto signed our names to this specification.

JAMES M. TRIGGS.
WILLIAM D. REDRUP.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."