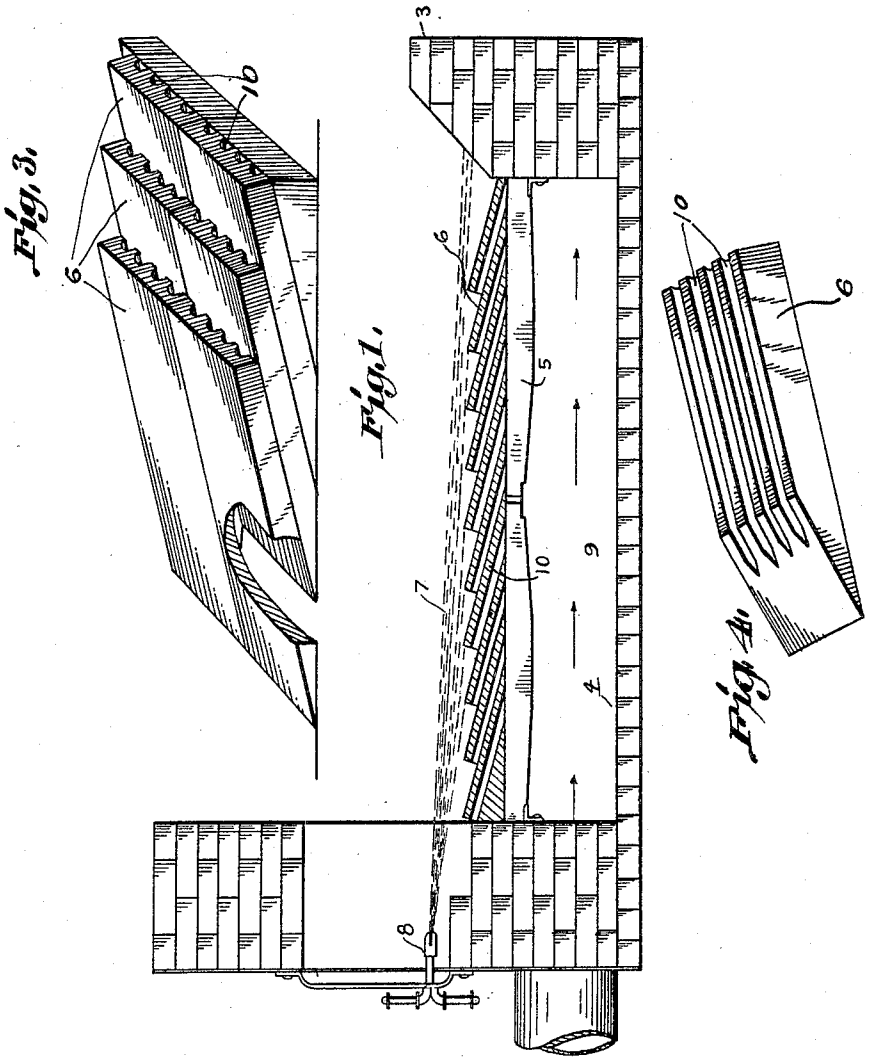
Dec. 26, 1922. 1,440,095.

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FUEL BURNING APPARATUS.

FILED NOV. 14, 1919. 2 SHEETS—SHEET 1.



INVENTOR
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2 SHEETS—SHEET 2.

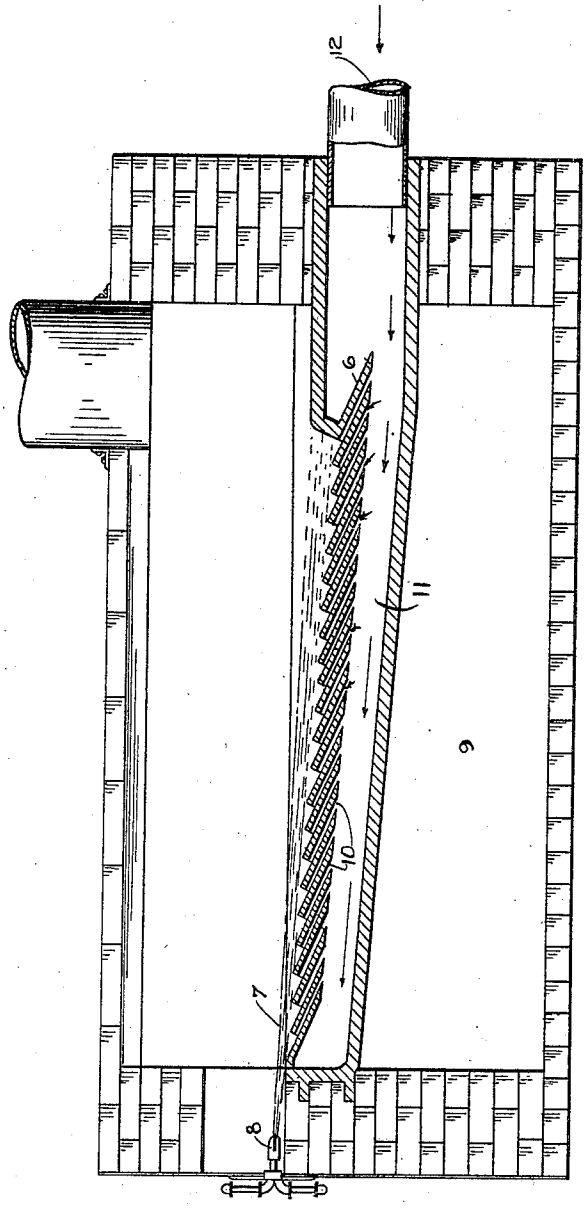


FIG. 2

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Patented Dec. 26, 1922. 1,440,095

UNITED STATES PATENT OFFICE.

CHARLES D. MOSHER, OF NEW YORK, N. Y.

FUEL-BURNING APPARATUS.

Application filed November 14, 1919. Serial No. 338,099.

To all whom it may concern:

Be it known that I, CHARLES D. MOSHER, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Fuel-Burning Apparatus, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to improvements in furnaces, and more particularly has reference to means in combination with a furnace for burning liquid, gaseous or dust fuel whereby the proper quantity of air is supplied at the proper temperature to insure more perfect combustion, and embodies various other advantages.

Referring to the accompanying drawings, Fig. 1 illustrates in side elevation, partly broken away and partly in section, an application of my invention in which several units are stacked together upon the grate bars of the furnace, Fig. 2 is a modification showing instead of units or sections, an integrally formed structure which can be conveniently placed as a whole in position within or removed from the furnace, Fig. 3 is an enlarged detail in perspective, partly broken away, illustrating the units shown in section in Fig. 1, and Fig. 4 is an enlarged perspective view of one of said units in inverted position.

3 is the bridge wall and 4 the base of the furnace, 5 are the usual grate bars, and 6 the sections, units, or partitions preferably of carborundum or other suitable material against the upper edges of which a suitable jet of liquid, gaseous or other fuel such as 7 may be directed preferably by a fan-shaped nozzle such as 8, or other suitable means. 9 indicates the pit below the furnace through which the air may be supplied under pressure to pass upwardly through the channels or ducts 10 in the units or sections 6.

In the application of my invention shown in Fig. 2 the parts are intended to be formed integrally and the integral structure may be provided with a lower chamber such as 11 through which the air may be supplied. The fuel from the nozzle 8 which is preferably constructed to deliver a fan-shaped jet as shown, is directed under pressure so as to strike the upper edges of the carborundum portions as indicated. As the fuel and air are ignited the contact of the hot gases and radiation of the heat upon the carborundum material heat the same to a very high degree thereby insuring the heating of the air as it passes through the same, thus creating an intensely hot radiating surface and insuring a perfect mixture of air as it is projected into the fuel. The form and arrangement of the refractory material is such that it provides ridges or serrations in front of the air channels or ducts thus preventing the flame or gas from the burners being projected directly into the air ducts. The position of the burner is preferably low so as to direct the gas or flame sufficiently nearly horizontal to strike the ridges, corrugations or serrations instead of entering the air inlet passages.

Where the sections or units are stacked as indicated in Fig. 1, the same may of course be supported by the grate bars as shown, but where the same are intended to be formed integrally in a single structure as shown in Fig. 2 the entire structure may be readily fitted in place, and of course the grate bars will not be necessary. The air admitted beneath the combustion chamber it will be observed flows upwardly and according to the construction shown in Fig. 2 is then caused to be delivered into the furnace in the reverse direction to the inflowing fuel which strikes it above the air outlets and instantly and intimately mixes with the air driving the products of combustion rearwardly over the bridge wall. In the form shown in Fig. 1 suitable blocks or slabs of refractory material preferably of rectangular formation except that the lower ends of the same may be beveled or cut at an angle to rest upon the grate bars, may be stacked, said blocks or slabs being provided upon the under surface with suitable grooves or channels serving as ducts through which the air may be drawn. The fuel being injected under pressure in a fan-like stream over the top edges induces the air to pass upwardly through the ducts or channels where it is met by the fuel, thoroughly mixed therewith and ignites with it. It is of course preferable to supply the air under pressure, the same entering by the inlet 12 and passing upwardly through the ducts where it meets the incoming fuel as aforesaid, although the air need not be supplied under pressure. It will of course also be readily understood that the burner may be placed in the furnace shown in Fig. 1 so as to oppose the air entering the passages 10 as shown in Fig. 2, but where the

fuel and air are opposed in this manner it is of course preferable to supply the air under forced draft.

Of course it will be understood that various modifications may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

I claim:

1. In combination with a furnace, bricks of refractory material arranged in parallel rows transversely of the furnace and forming substantially straight passages between said bricks extending entirely from end to end of the same for admitting air, and means for admitting fuel thereto in a direction substantially opposite to that in which said air is admitted.

2. In combination with a furnace, a refractory structure therein having parallel rows arranged transversely of the furnace of substantially straight passages extending entirely through the same for admitting air, and means for admitting fuel into said furnace in a direction substantially opposite to that in which said air is admitted.

In testimony whereof I hereunto affix my signature.

CHARLES D. MOSHER.