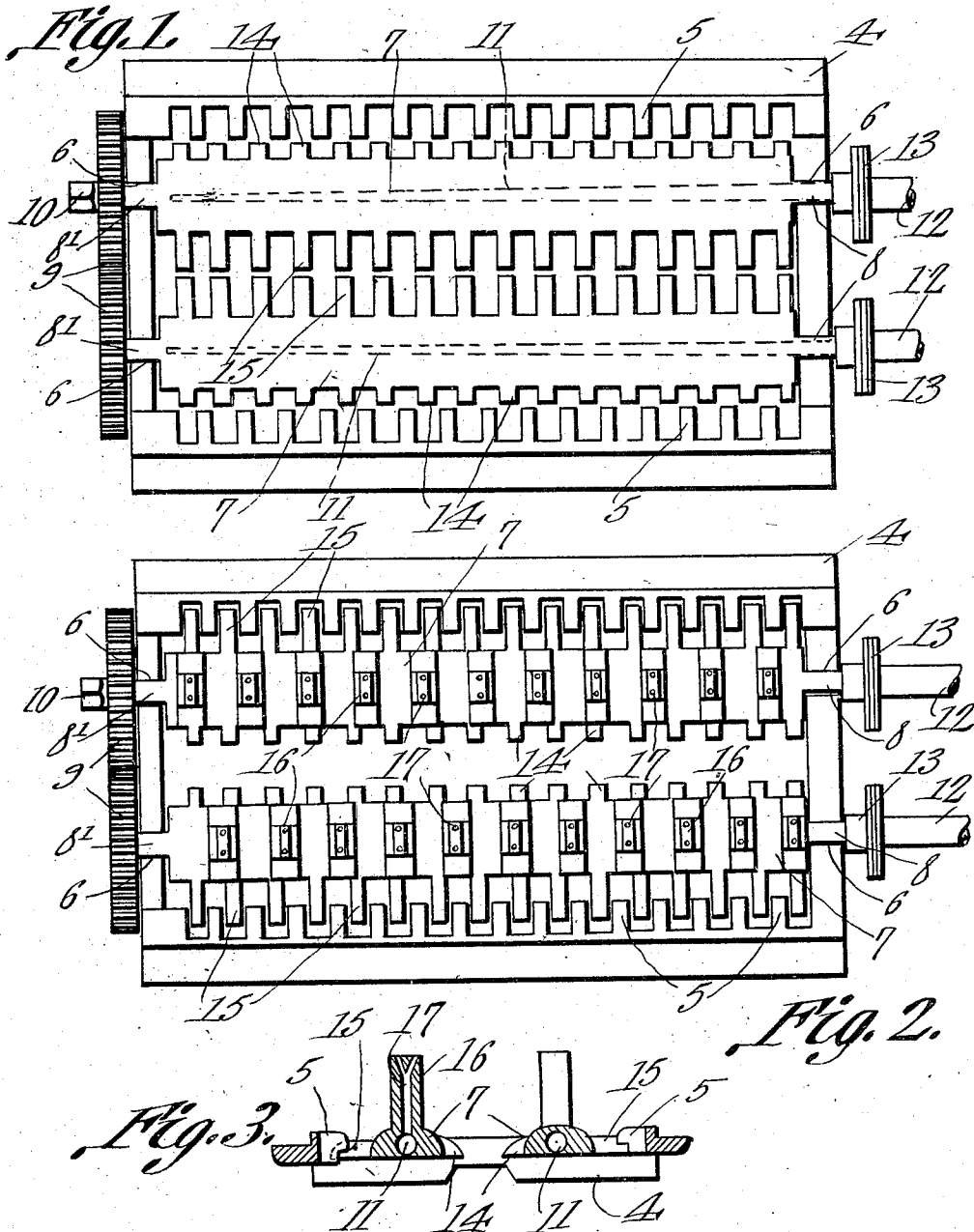


M. L. SCANLON.
COMBINATION GAS AND COAL GRATE.
APPLICATION FILED JULY 15, 1912.

1,043,871.

Patented Nov. 12, 1912.



Witnesses

J. P. Dineen
L. H. Alford

Michael L. Scanlon,

Inventor

by

C. A. Brown & Co.

Attorneys

UNITED STATES PATENT OFFICE.

MICHAEL L. SCANLON, OF CLEVELAND, OHIO.

COMBINATION GAS AND COAL GRATE.

1,043,871.

Specification of Letters Patent.

Patented Nov. 12, 1912.

Application filed July 15, 1912. Serial No. 709,549.

To all whom it may concern:

Be it known that I, MICHAEL L. SCANLON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Combination Gas and Coal Grate, of which the following is a specification.

This invention relates to grates for ranges, stoves, furnaces, boilers and the like, and has for its primary object to provide a grate adapted to be employed for burning gas or for the usual function, in forming the bottom of the fire box when coal, coke or other material is used.

The present invention contemplates the provision of a grate embodying a pair of hollow grate bars pivoted in a frame and which are so constructed that they may be reversed for use with gas or coal.

It is a further object of the present invention to provide a grate of the character indicated which shall be simple, substantial, durable and inexpensive in construction; as well as convenient and efficient in use.

The present invention also aims to provide other advantages and to generally improve grates of this character, as will hereinafter more fully appear.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

The invention has been illustrated in its preferred embodiment in the accompanying drawings, wherein like reference characters have been employed to denote corresponding parts, and wherein—

Figure 1 is a plan view of the grate when employed in connection with coal, coke or the like. Fig. 2 is a similar view showing the grate when employed for burning gas. Fig. 3 is a transverse section of the grate when employed for burning gas.

Referring specifically to the drawings, the frame of the grate has been designated by the numeral 4, the same being of any

preferable construction, contour and size, to accommodate the range, stove, furnace, boiler or the like to which it is applied, the frame as illustrated being rectangular.

In carrying out the present invention, the sides of the frame are provided with inner lugs 5 and each end is provided with a pair of seats 6. The grate bars, which have been designated by the numeral 7, are arranged longitudinally within the frame 4 and are provided at their ends with the respective trunnions 8 and 8' engaging in the seats 6. The grate bars are thus mounted pivotally between the ends of the frame 4 and are made to rotate simultaneously in opposite directions by gears 9 carried by the pair of trunnions 8' exterior of the frame, which gears intermesh with each other. One of the trunnions 8' is preferably extended into a non-circular portion 10 for the engagement of a crank or other suitable implement for conveniently shaking or rotating the grate bars.

Each grate bar 7 is of semi-circular cross section and is provided with a longitudinal bore or passage 11 which opens through the trunnion 8, the said bore tapering forwardly or decreasing in cross sectional area from the rear end to the front end, the trunnions 8 being arranged at the rear end and the trunnions 8' being arranged at the front end.

Gas may be supplied to the grate bars by means of a pair of branch pipes 12 connected to the ends of the trunnions 8 by means of swivel connections or unions 13.

The particular construction of the unions 13 is not essential and may be of any desired type, the same therefore not being illustrated or described in detail.

Each of the grate bars 7 are provided with the short and long lugs 14 and 15 respectively, along its sides or edges, which lugs are flush with the flat faces of the grate bars. The long lugs 15 are designed to pass between the lugs 5 of the frame when the flat faces of the grate bars are down; and their free ends are designed to come close together when the flat faces of the grate bars are up.

Projecting from the convex face of each of the grate bars is provided a row of outlet nozzles 16 which are of considerable length, and which have their ducts 17 communi-

cating with the passage 11 in order to provide outlets for the gas. The nozzles of the respective grate bars are in staggered relation, so that when the grate bars are reversed, the nozzles are arranged to pass between each other.

The grate bars 7 are right and left handed, so that when the grate bars are in one position, the flat and convex faces being up and down respectively, the free ends of the lugs 15 are arranged in close relation and the free ends of the lugs 14 are arranged between and in close relation with the free ends of the lugs 5. When the grate bars are in this position, the grate may be employed in its usual capacity for supporting coal, coke, or the like for consumption, the grate being provided with suitable openings for the passage of ashes. By engaging a crank or other suitable implement to the extension 10 of one of the trunnions 8', the grate bars may be simultaneously rocked or agitated, thus facilitating the passage of ashes downwardly into the ash pit below the grate. Then when the grate is to be converted into a gas burner, the extension 10 may be rotated or swung so as to reverse the grate bars and to thus position the nozzles 16 in an upwardly projecting manner. When the grate bars have thus been reversed, the convex and flat faces are arranged up and down, respectively, and the free ends of the lugs 14 are spaced apart so as to provide a large central opening through which clinkers and the like may drop, the free ends of the lugs 15 passing between the respective lugs 5. Gas may then be admitted into the hollow grate bars through the branch pipes 12, the gas being controlled by means of a suitable valve (not shown), and the gas passing into the grate bars is discharged through the tips of the nozzles 16, to provide a series of flames. It will be observed that the nozzles in being of considerable length elevate the flames to such a position that they will effectively heat the object or body to be heated. This is of advantage for the reason that when coal, coke, or the like is burned, the flames are arranged above same and are in close relation with the body or object to be heated, and should the gas flames be close to the grate, the flames would be spaced farther from the body or object to be heated so as to decrease the heating efficiency. In order that the nozzles may be of sufficient length and that the grate bars may be assembled sufficiently close together, the nozzles must be in staggered relation and must be arranged to pass between each other as the grate bars are reversed, as above described.

The objects aimed at are thus attained in a satisfactory manner and it will be apparent that the present device provides a

desirable grate for the purposes for which it is designed.

Having thus described the invention, what is claimed as new is:—

1. A grate embodying a frame, and a pair of reversible hollow grate bars mounted in the frame and operatively connected to rotate simultaneously in opposite directions, the grate bars having lugs along their sides, and rows of staggered outlet nozzles intermediate the lugs designed to pass between each other when the grate bars are reversed.

2. A combination gas and coal or coke grate comprising an open frame having inner lugs along its sides, right and left hand hollow grate bars having their ends pivoted to the ends of the frame, each grate bar having short and long lugs along its opposite sides, the long lugs being designed to pass between the lugs of the frame when the grate bars are in one position and their free ends being designed to come close together when the grate bars are in reversed position, the grate bars being provided with rows of staggered outlet nozzles intermediate the lugs designed to pass between each other when the bars are reversed and to project upwardly when the said long lugs are between the lugs on the frame, and an operative connection between the grate bars whereby they rotate simultaneously in opposite directions.

3. A combination gas and coal or coke grate embodying an open frame having seats in its ends, a pair of reversible grate bars arranged in the frame and having trunnions at the ends thereof engaging the said seats, the grate bars having lugs along their sides and rows of staggered outlet nozzles intermediate the lugs, and the grate bars also being provided with longitudinal passages communicating with the nozzles and opening through one pair of trunnions, and intermeshing gears carried by one pair of trunnions so that the grate bars are simultaneously reversible in opposite directions, the nozzles being designed to pass between each other when the grate bars are reversed.

4. A combination gas and coal or coke grate embodying an open rectangular frame having inner lugs along its sides, and seats in its ends, a pair of grate bars of semi-circular cross section having trunnions at their ends engaging the said seats, the grate bars having longitudinal passages therein opening through one pair of trunnions, each grate bar having short and long lugs along its sides flush with the flat face of the grate bar, the long lugs being designed to pass between the lugs on the frame when the flat faces of the grate bars are down and their free ends being designed to come close together when the flat faces of the grate bars are up, the grate bars being provided

with rows of staggered outlet nozzles projecting from their convex faces and designed to pass between each other when the grate bars are reversed, and intermeshing gears carried by the other pair of trunnions exterior of the frame.

In testimony that I claim the foregoing

as my own, I have hereto affixed my signature in the presence of two witnesses.

MICHAEL L. SCANLON.

Witnesses:

JOHN CAUGHELL,
STEV A CAUGHELL.