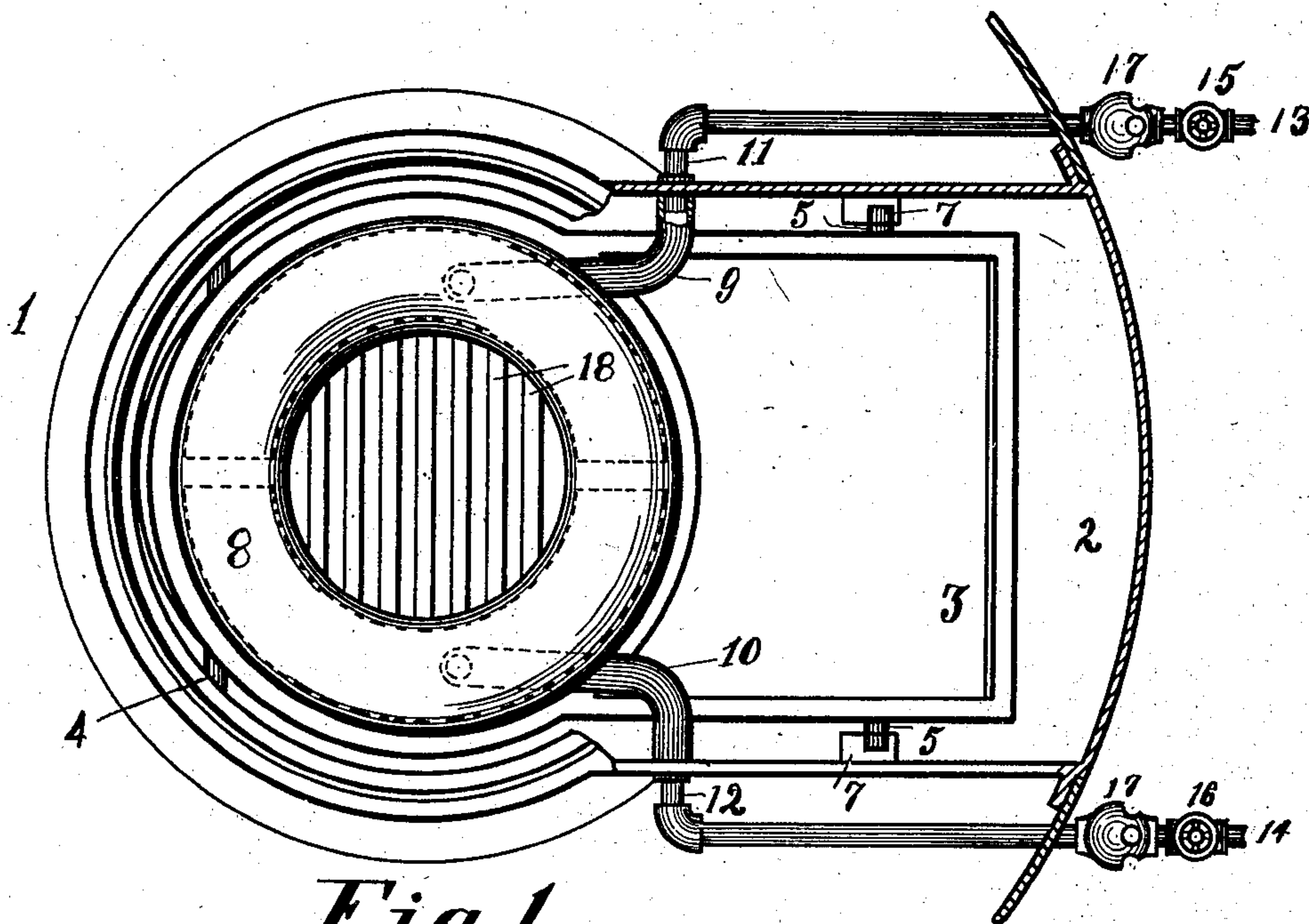


No. 721,506.

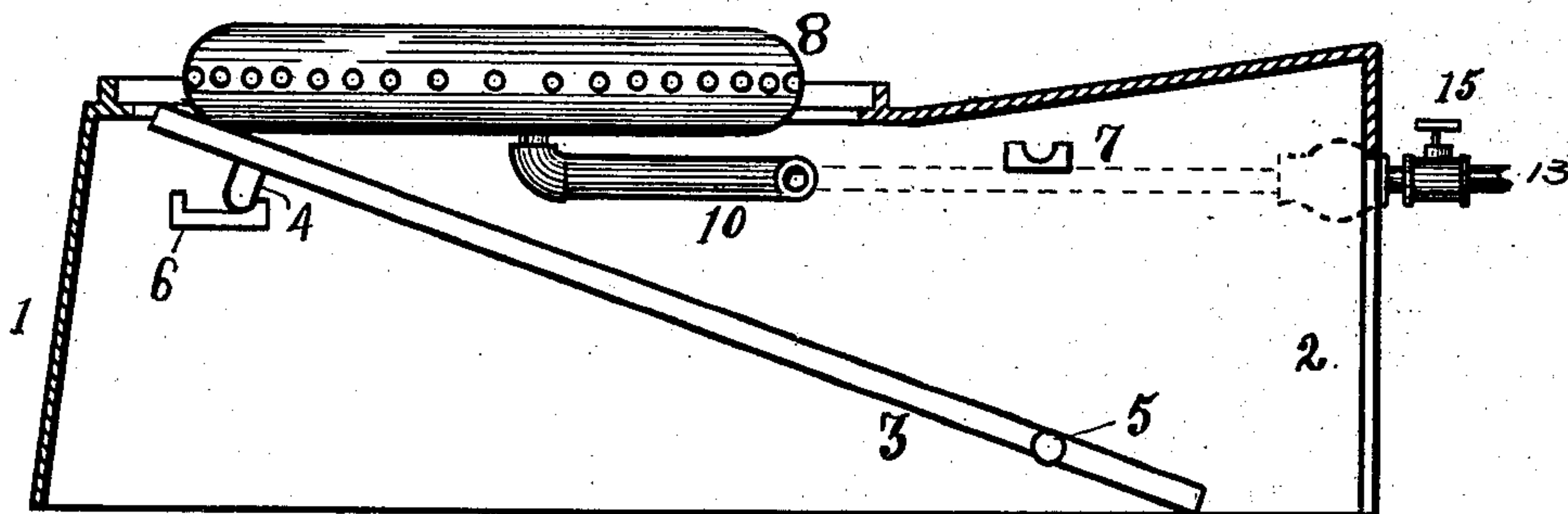
PATENTED FEB. 24, 1903.

F. FIEBEGER.  
CONVERTIBLE FURNACE.  
APPLICATION FILED NOV. 3, 1902.

NO MODEL.



*Fig. 1.*



*Fig. 2.*

Witnesses:  
Maude Gwisler,  
Attest Bourman.

Inventor:  
Frank Fieberger,  
By C. E. Kempney,  
Atty.



# UNITED STATES PATENT OFFICE.

FRANK FIEBEGER, OF AKRON, OHIO.

## CONVERTIBLE FURNACE.

SPECIFICATION forming part of Letters Patent No. 721,506, dated February 24, 1903.

Application filed November 3, 1902. Serial No. 129,910. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK FIEBEGER, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a certain new and useful Improvement in Convertible Furnaces, of which the following is a complete specification.

My invention has relation to devices for converting a coal-burning grate for furnaces, boilers, and the like into one in which gas may be used as a fuel and in which when for any reason the supply of gas is temporarily shut off the devices in which the gas is burned may be readily removed by any person, and thus leaving the grate in a condition for the use of coal.

The object of my invention is to place within an ordinary coal-burning grate a gas-burner which can be readily removed when desired and as readily replaced.

It frequently happens in those communities where the public generally depend upon the use of natural gas as a fuel that owing to its uncertain nature it fails either by breakage in the pipe or other means, and hence it becomes very desirable that the heating device in which the gas is used may be quickly converted into one in which other fuel—such as coal, wood, &c.—may be used during the interval of the failure of the gas-supply.

To the accomplishment of this object my invention consists in the peculiar and novel construction, arrangement, and combination of the various parts hereinafter described and then specifically claimed, reference being had to the accompanying drawings, forming a part of this specification.

In the drawings, in which similar reference-numerals indicate like parts in the different figures, Figure 1 is a plan of an ash-pit, grate, and my improved device; and Fig. 2, a side elevation with parts in section.

In the drawings, 1 is an inclosing shell of the ash-pit, which is substantially circular, from which projects the entrance or doorway 2. In this ash-pit is mounted a grate 3, which is supported by trunnions 4, resting on supports 6 within the ash-pit, and has projecting from its sides in the doorway trunnions 5. The supports 6 for the trunnions 4 are elongated with a view to permitting a slight lon-

gitudinal movement of the entire grate. The supports 7 for the trunnions 5 consist of grooved blocks 7, placed on the sides of the walls of the doorway 2. This grate is arranged to lie ordinarily horizontal with the trunnions 4 in the supports 6 and the trunnions 5 in the supports 7 when coal or other similar fuel is used in the furnace.

When it is desired to remove the ashes or clean the grate or when it is desired to burn gas in this furnace, the short trunnions 5 are pulled forward out of engagement with the supports 7 and the grate drawn toward the entrance-door of the ash-pit until the trunnions 5 are free from the supports 7. The front end of the grate is then allowed to incline downward until it rests on the floor of the ash-pit. This forward-and-back movement is permitted by the fact that the supports 6 are elongated with this object in view.

The gas-burning device consists of a circular flattened tube 8, divided interiorly by partitions. From this burner 8 extend downwardly and outwardly projecting pipes 9 10. The outer ends of these pipes are open, and they are of such a size as to just nicely inclose the inner projecting ends of two pipes 11 12. These pipes 11 12 extend from main supply-pipes 13 14 along each side of the ash-pit and enter a short distance into the gateway 2 through the side walls thereof. They are provided with mixers 17 and stop-cocks 15 16 for the purpose of shutting off the gas from either side when it is desired to use only one-half of the burner. In placing this gas-burner in position the two pipes 9 10 are swung so that their free ends will each clear the sides of the ash-pit, and while in this position the burner is inserted through the open doorway of the ash-pit and slid up the face of the grate until the burner has reached the proper place, (shown in Fig. 2,) and the outwardly-projecting ends of the pipes 9 10 are pushed sidewise until they inclose the inner projecting tips of the gas-pipes 11 12. The engagement between the pipes 9 10 and the tips of the pipes 11 12 is sufficiently firm to sustain the burner proper in a horizontal position with its main body portion above the grate-line, with a view to throwing the flames projecting from the burner against the fire-



pot, thereby securing the greatest heat on the sides of the fire-pot, where the heat is most desirable.

If at any time the gas-supply fails, all that is necessary to change this furnace to a coal-furnace is to close the cocks 15 16 and swing the two pipes 9 10 of the burner inward, thereby disconnecting the pipes 9 10 from the tips of the pipes 11 12, and withdraw the burner from the ash-pit and then raise the grate 3 and start a fire of ordinary fuel. In order to permit a temporary use of this burner in connection with some light fuel, as wood or similar material, I cover the opening in the center of the burner 8 with a series of grate-bars 18. These may be cast integral with the main body portion of the burner itself.

It will be obvious that the pipes 9 and 10 are flexibly connected with the approximately annular burner 8, by reason of which the introduction of said burner into the fire-pot of the furnace, stove, or equivalent device is facilitated and can be easily accomplished without the aid of skilled labor. In fact, this result can be secured by a householder and the burner can be as readily removed. To insert the burner, the pipes 9 and 10 are first moved slightly toward each other, so that they can freely enter the fire-pot, and when the burner is in its proper position with its rear resting upon the corresponding end of the drop-down grate 3 or other support said pipes 9 and 10 are slipped over the tips of the pipes 11 and 12, it being understood that these parts are removably connected—for example, by telescopic or slide joints—and the fit between the same is a gas-tight one. To remove the burner 8, the pipes 9 and 10 are moved toward each other, which results in disconnecting them from the respective supply-pipes 11 and 12, at which time the burner can be slipped from the fire-pot.

The inner ends of the supply-pipes 11 and 12 constitute a means for supporting the front end of the burner 8, while the rear end thereof is sustained by the corresponding end of the drop-down grate 3, which may be of the kind common in coal-burning furnaces.

What I claim, and desire to secure by Letters Patent, is—

1. The combination of a coal-burning device, a burner removably mounted in said coal-burning device and provided with pipes flexibly connected therewith, and arranged for movement toward and from each other, and supply-pipes for a fluid fuel detachably connected with said first-mentioned pipes.

2. The combination of a coal-burning furnace and its fire-pot having a drop-down grate, a removable burner in said fire-pot provided with a pipe flexibly connected therewith and the rear end of the grate being arranged to uphold the corresponding end of the burner, and a supply-pipe for a fluid fuel detachably connected with said first-mentioned pipe.

3. A burner having a plurality of pipes flexibly connected therewith and arranged for movement toward and from each other.

4. The combination of a coal-burning device and its fire-pot having a drop-down grate, a removable burner in said grate provided with projecting pipes flexibly connected therewith and movable toward and from each other, and supply-pipes for a fluid fuel detachably connected with said first-mentioned pipes, rigidly mounted and constituting with the grate a support for said burner.

In testimony that I claim the above I hereunto set my hand in the presence of two subscribing witnesses.

FRANK FIEBEGGER.

In presence of—

C. E. HUMPHREY,  
MAUDE ZWISLER.