This invention relates to improvements in furnaces, particularly apartment house furnaces, or the like, and it is the principal object of the invention to provide a so-called self-feeder, in which the coal provides a gas-tight closure or seal, thus avoiding all danger of asphyxiation especially by the gas escaping during the feeding of the furnace.

Another object of the invention is the provision of a coal feeder magazine which is kept filled and from which the coal is automatically fed to the grate.

A further object of the invention is the provision of an air-tight coal seal for furnaces, preventing the draught from driving the coal gas into the feeder, thus avoiding all danger connected with the feeding of the furnace.

A still further object of the invention is the provision of a furnace with a coal magazine and adjustable chute connected therewith for feeding the coal to the grate and for providing a gas-tight seal by the falling or fed coal itself.

These and other objects and advantages of my invention will become more fully apparent as the description thereof proceeds, and will then be more specifically defined in the appended claims.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a front elevation of a furnace with a portion thereof broken away to disclose certain interior parts of the furnace, and having a coal magazine, constructed according to the invention, mounted therein.

Fig. 2 is a detail view of a chute.

Fig. 3 is a detail side elevation thereof, illustrating the adjustability of the chute.

Fig. 4 is a sectional detail view of a modification of the chute.

The furnace 10 has mounted therein, a coal magazine 11 for the reception of the coal 12, and equipped with a cover 13 hinged to the front of the furnace, and a chute 14 through which the coal is fed from the magazine 11 to the grate 15. The chute 14 has a lining 16 of fire clay, and upper converging sides 17, preferably also lined with fire-proof material 16. These sides are adapted to be bolted to the chute 14, as indicated at 18, or secured thereto in any appropriate manner. A plurality of openings 19 in the sides 17 engageable by bolts to the chute, permit an adjustment of these sides within certain limits, to better accommodate the interior of the furnace.

In Fig. 4 a modified form of chute 20 is illustrated having having the walls of its body held together or braced by means of the turnbuckle arrangement 21 while the upper converging sides 22 are made integrally with the chute and a strengthening rib 23 is provided at the point of junction between the sides and chute and the ends of the strengthening ribs 23 permit of suitably supporting the chute to the furnace 10 to hold it in place against displacement. The chute 20 comprises an upper hopper provided by the converging walls 22 and a lower adjustable discharge nozzle comprising the spaced side and end walls 25 and 26 respectively. Each side wall 25 of the nozzle portion is provided with an end wall section 26 which is disposed substantially at right angles to the plane of the side walls 25. The end wall sections of one side member 25 are positioned in telescoping relation to the end wall sections of the other side member as illustrated in Fig. 4 and these side members are retained in spaced relation by the fuel as it passes through the passage formed by the sides 25 and the ends 26 and by the turnbuckle. When it is desired to reduce the size of this passage the side elements 25 may be drawn closer together by adjustment of the turnbuckles.

A door 24 at the front of the furnace allows the removal of the ashes, etc., and cleaning doors 25, or inspection and draught regulation doors may be arranged as shown, in any desired and required manner.

It will be clear that if the magazine is filled with coal the same will produce an air-tight seal because the coal will be fed successively to the grate and will not burn before it reaches the same under its own weight. The weight of the coal will pack the same tightly and prevent the gas from escaping from the furnace, otherwise than through the flues provided for this purpose.

The coal will be gradually consumed and the burnt coal will make room for more coal falling through the chute. Thus any danger of asphyxiation by gas entering the magazine during the feeding operation is positively avoided and the coal may be fed at any time without danger.

It is to be understood that such changes may be made in the general arrangement and
in the construction of the furnace as come within the scope of the appended claims, without departure from the spirit of the invention and the principle involved.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is:

1. In a device of the class described, a fuel hopper comprising converging sides, a fuel discharge nozzle comprising substantially vertical sides made integral with the converging sides of said hopper, end sections on said vertical sides substantially perpendicular to the plane thereof, the end sections of one of said sides being positioned in telescoping relation to the end sections of the other side of said nozzle, and means comprising turnbuckles secured at their extremities for retaining said sides at a predetermined distance apart.

2. In a device of the class described, a fuel feeder comprising an upper hopper having converging sides, a lower discharge nozzle comprising substantially vertical sides integral with the converging sides of said fuel hopper, end flanges on the extremities of the sides of said nozzle disposed substantially at right angles thereto, the end flanges of one of said sides being positioned in telescoping relation to the end flanges of the other side of said nozzle, and adjustable means comprising a turnbuckle for varying the distance between said sides for suitably adjusting the passage of said nozzle.

3. In a device of the class described, a fuel feeder comprising spaced side members, the lower portions of side members being disposed substantially vertical and the upper portions being disposed outwardly relative to each other, end flanges on said vertical side portions positioned in telescoping relation to opposite end flanges, and means comprising a turnbuckle for predetermining the distance between said sides for varying the size of the passage therebetween.

In testimony whereof I have affixed my signature.

JOHN T. BROWN.