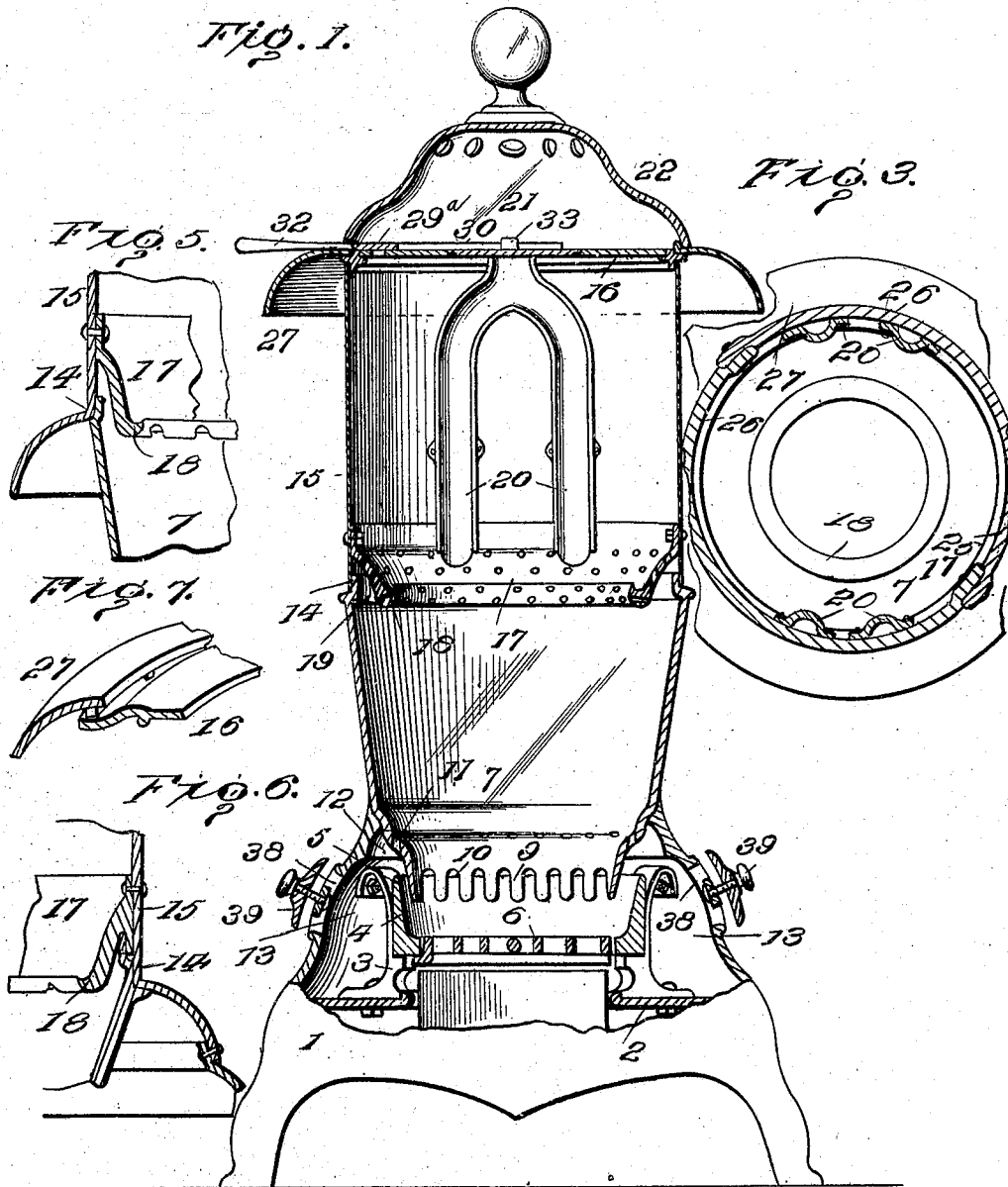


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 HEATING STOVE.
 APPLICATION FILED DEC. 11, 1906.

918,823.

Patented Apr. 20, 1909.

2 SHEETS—SHEET 1.



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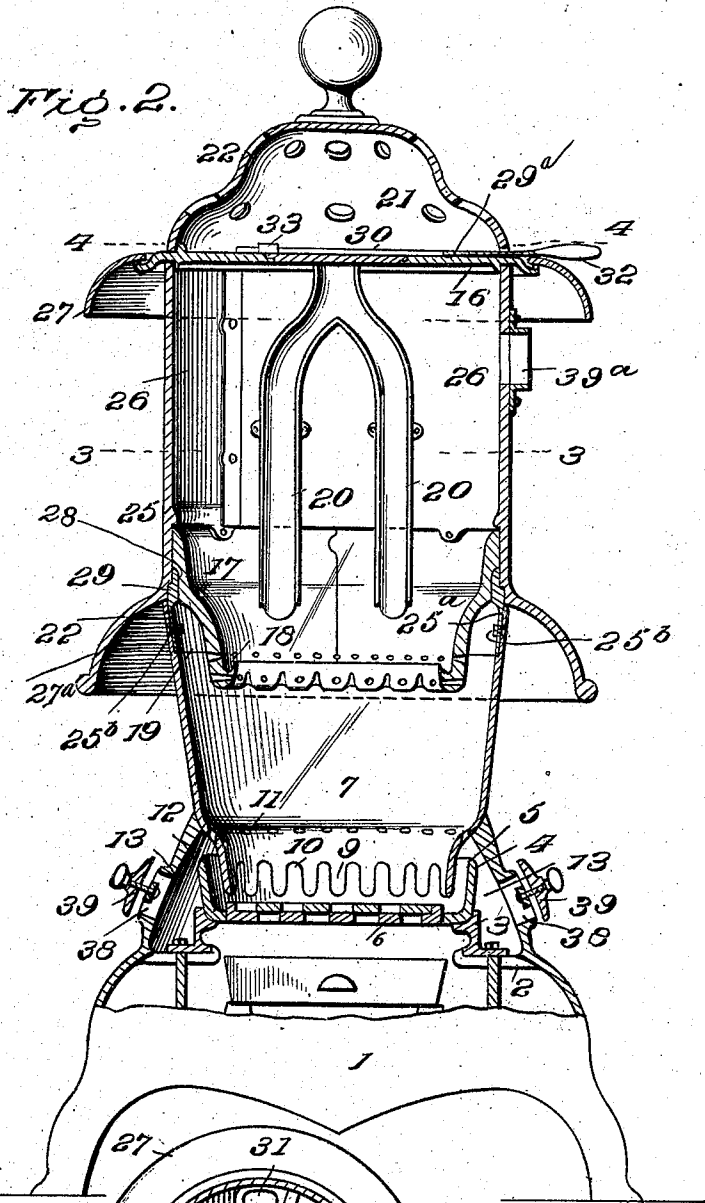
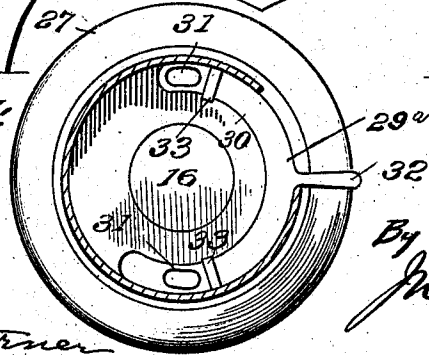


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWIN R. CAHOONE, OF TROY, NEW YORK.

HEATING-STOVE.

No. 918,823.

Specification of Letters Patent.

Patented April 20, 1909.

Application filed December 11, 1905. Serial No. 291,337.

To all whom it may concern:

Be it known that I, EDWIN R. CAHOONE, citizen of the United States, residing at Troy, in the county of Rensselaer and State of New York, have invented new and useful Improvements in Heating-Stoves, of which the following is a specification.

This invention relates to improvements in heating stoves for burning bituminous fuel.

The object of the invention is to provide specific means for forming air heating chambers at the top and the bottom of the fire pot to distribute heated air to the fuel to promote combustion.

A further object of the invention is to arrange the parts whereby the whole structure may be cast in sections and assembled, producing an economical and effectual construction.

Other objects and advantages will be hereafter referred to and particularly pointed out in the claims.

In the drawings Figure 1 is a vertical section of my improved stove a part of the base being in elevation. Fig. 2 is a similar view of a slightly different form of my invention a part of the base being in elevation. Fig. 3 is a detail horizontal section on the line 3—3, Fig. 2. Fig. 4, is a horizontal section on the line 4—4, Fig. 2. Fig. 5, is a detail sectional view of a different form of joint between the drum and the fire pot. Fig. 6 is a similar view of another form of joint. Fig. 7, is a detail perspective view of the stove top and the means for supporting the ornamental ring.

1, represents a base, provided with inwardly extending projections 2, on which are bolted or otherwise secured, supports 3, and resting on said supports is an annulus 4, provided with an upwardly extending flange 5. A grate 6, is mounted on the annulus, and is of the reciprocating dumping type, and is usually closed or substantially so when the fuel is burning.

A fire pot 7, is supported on the upper edge of the base 1, and its lower portion is reduced and fits within the flange 5. The reduced portion of the fire pot is or may be formed with a series of depending fingers 9, and adjacent spaces 10, and above the fingers and spaced therefrom are openings 11, which communicate with a space 12, formed between the reduced end of the fire pot and the upper part of the base 1. The flange 5, extends into the space 12 and is disposed

so as to form passages 13, between it and the base, and the fire pot 7, is formed at its upper edge with a flange 14, to which is bolted a drum 15, to the upper part of which is secured the top 16. Secured to the inner side of the drum is a sectional overhanging shield 17, enlarged at its lower end and formed with a seat 18, on which ashes accumulate to protect the metal from the heat. The overhanging portion of the shield is perforated and spaced from the drum to form an air heating chamber 19, air being introduced thereto through ducts 20, located inside the drum and extending up to the stove top, where they communicate with a chamber 21, formed by a cover 22.

The construction described is adapted for use in a stove when the ordinary sheet metal drum is employed, but I find I can make a more economical structure and produce a less expensive stove by arranging the various parts so that they may be cast. Such a construction is shown in Fig. 2. The drum 25, is cast and made in sections 26—26, and an ornamental band 27^a, is or may be formed at the bottom. In this figure the shield is also made slightly different. It is provided with a seat 28, to receive the upper end of a band 29, the lower portion of which fits into a seat 25^a and is bolted to the fire pot 7 at 25^b. The advantage of a structure of this type is that the drum is not liable to rust and wear out quickly; furthermore the parts can be conveniently replaced.

A damper 29^a, having arms 30, is supported on the top 16, and is adapted to control the admission of air to the ducts 20. The arms are formed with openings 31, and a handle 32, the latter passing through a slot in the cover 22. Keepers 33, on the stove top serve to guide and keep the damper in place.

In operation a fire is started in the fire pot, and air from the ash-pit passes into the space 12, and is heated, the air being drawn through the openings 11, and also through the spaces 10, by the draft, and distributed to the fuel.

It is to facilitate the distribution of air coming from the ash pit that I provide the flange 5, the division of the volume of air permitting of its being more readily heated prior to being introduced to the fuel. If it is found that the air from the ash pit is not sufficient to promote combustion, an additional supply of air may be taken into the space through the openings 38, regulated by the

dampers 39, air is thus taken in, preliminarily heated, and divided and further heated and introduced to the fire pot in a series of individual heated streams, attacking the body of the fuel at different points. The exit flue 39^a, being located near the top of the stove the air currents are drawn through the body of the fuel and an incandescent mass is produced.

The air heating chamber formed by the shield 17, is located at such position relative to the air inlets at the bottom of the fire pot, as to accentuate the combustion when the air from said chamber is introduced to the fuel. Air entering the chamber 21, is slightly heated, and enters the ducts 20, and as the latter are located within the zone of the products of combustion passing to the exit flue, obviously by the time the air reaches chamber 19, it is highly heated and is delivered to the fuel around the bottom of the shield and through the numerous perforations therein. The various air currents introduced above the fuel meet and mingle with the rising gases and the grade of combustion is materially improved.

What I claim is:—

1. In a heating stove, the combination with a base, of a casing, a grate, a fire pot having a reduced lower end provided with fingers and adjacent spaces, the reduced portion of the fire pot being spaced from the base and supported by the latter, a grate support having an upwardly extending flange extending in the space between the reduced portion of the fire pot and the base, means introducing air to the space, and an exit flue above the fire pot.

2. In a heating stove, the combination with a base, of a casing, a substantially closed grate, a fire pot having a reduced lower end provided with fingers and adjacent spaces and openings formed above the fingers and spaces, the reduced portion of the fire pot being spaced from the base and supported by the latter, a grate support having an upwardly extending flange extending in the space between the reduced portion of the fire pot and the base, means introducing air to the space, and an exit flue above the fire pot.

3. In a heating stove, the combination with a base, of a casing, a substantially closed grate, a fire pot formed with a reduced lower end having openings, and a series of slots to provide fingers below the openings, said reduced end being spaced from the base and supported by the latter, a flange extending upwardly into the space formed between the reduced end of the fire pot and the base and extending entirely around said fire pot, means for introducing air to the space at a point below the top of the flange, said air passing through the openings in the lower end of the fire pot and the slots between the fingers, means for introducing currents of air

to the fire pot near the top of the latter, and an exit flue near the top of the stove.

4. In a stove, the combination with a base, a cast fire-pot, a cast casing in sections and supported on the fire-pot, a grate, an overhanging downwardly extending shield mounted within the fire-pot and forming with the wall thereof an open bottom air heating chamber, an air heating chamber at the top of the stove, ducts located inside the casing and leading from the last mentioned air heating chamber to the air heating chamber adjacent the shield, and an exit flue near the top of the stove.

5. In a stove, the combination with a casing, a base, a grate a fire pot supported by and having an extension extending within the base and spaced therefrom and formed with a series of openings arranged in different planes at points below the top of the space formed between the extension and the base, a flange extending from the grate into the space, means for introducing air to the space at a point below the top of the flange, an overhanging shield extending into the fire pot and spaced from the casing to form an air heating chamber, ducts introducing air to the latter chamber, and an exit flue near the top of the stove.

6. In a stove, the combination with a cast casing formed with a seat, a support fitting in the seat and extending downwardly therefrom a fire pot having a seat to receive the downwardly extending portion of the support, and a shield mounted on the support and extending upwardly therefrom to abut against the casing.

7. In a stove, the combination with a cast casing made in sections and formed with an ornamental flange, an inwardly extending shield, a fire pot, a detachable ring intermediate the fire pot, and the cast casing, said ring extending upwardly beyond the fire pot, means securing the ring to the fire pot, the portion of the ring extending beyond the fire pot supporting the casing and the shield.

8. In a stove, the combination with a base, a fire pot, having a reduced portion formed with openings spaced from the base, a grate having a flange extending up above the lower reduced end of the fire pot, means for introducing air to the space formed between the base and the end of the fire pot, a shield at the upper end of the fire pot and spaced therefrom, means for supplying heated air to said latter space, and an exit flue located above the shield.

9. In a stove, the combination with a casing, a base, a fire pot having a reduced lower end fitting within and spaced from the base and formed with a series of notches and openings above the notches, a grate, a flange in the space between the reduced end of the fire pot and the base, said flange terminating at a point between the notches and the open-

ings, means for supplying air to the space, a shield located at the upper end of the fire pot and spaced therefrom, the inner lower end of said shield being grooved to receive ashes to protect it against heat influence, an air heating chamber, ducts connecting the air heating chamber and the space adjacent the shield, and an exit flue located above the shield.

10 10. In a stove, the combination with a fire pot, means for supplying heated air to the lower end of the fire pot, a shield at the upper end of the fire pot and spaced therefrom to form a chamber, said shield being formed in sections, and provided with inwardly tapering openings to introduce jets of air to the fire pot from the chamber formed between the shield and fire pot, an air heating chamber, ducts connecting the air heating chamber and the chamber formed adjacent the shield, and an exit flue located above the shield.

11. In a stove, the combination with a casing, a fire pot, a grate, an overhanging shield formed with openings at the upper end of the fire pot, the lower end of the shield being spaced from the fire pot to form a chamber which is in open communication with said fire pot, an air heating chamber above the shield, ducts connecting the air heating chamber and the space adjacent the shield,

the air introduced to said space being divided, part passing directly downwardly to the fuel and part passing through the openings to the side of the fuel, and an exit flue located above the shield. 35

12. In a stove, the combination with a casing formed of cast sections, a cast fire pot, a grate, means for introducing air at the bottom of the fire pot, an overhanging shield formed in sections and provided with openings the lower end of said shield being spaced from the fire pot to form a chamber which is in open communication with said fire pot, means for supplying heated air to the space, said air being divided, part passing downwardly toward the fuel, and part passing through the openings to the sides of the fuel, and the exit flue located above the shield. 40 45

13. In a stove, the combination with a fire pot, a shield depending within the fire pot, said shield being enlarged at its lower end and provided with a groove to form a seat in which ashes accumulate to prevent the heat destroying said lower end. 50 55

In testimony whereof I affix my signature, in presence of two subscribing witnesses.

EDWIN R. CAHOONE.

Witnesses:

FRANK SHRANDER,
WILLIAM S. HOPKINS.