

APPLICATION FILED JUNE 24, 1904.

Patented Apr. 19, 1910.

3 SHEETS—SHEET 1.



Demiza Matthews
John Wheeler.

354 *for Irvine*

Attorney

E. R. CAHOONE.

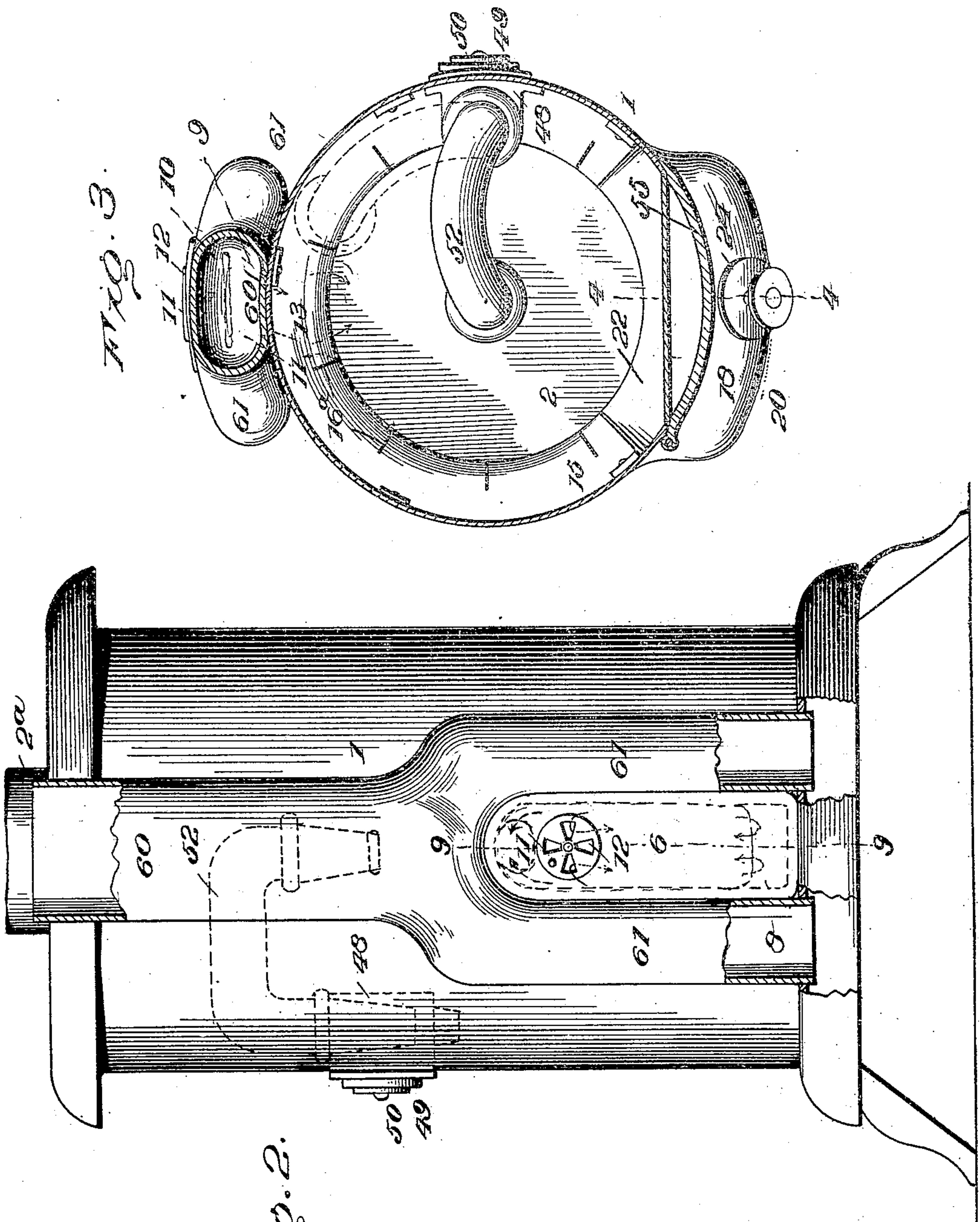
STOVE.

APPLICATION FILED JUNE 24, 1904.

955,758.

Patented Apr. 19, 1910.

3 SHEETS—SHEET 2.



Inventor

E. R. Cahoon

Witnesses

Leuzza Matthews
John Wheeler.

By

J. R. Smith

Attorney

E. R. CAHOONE.

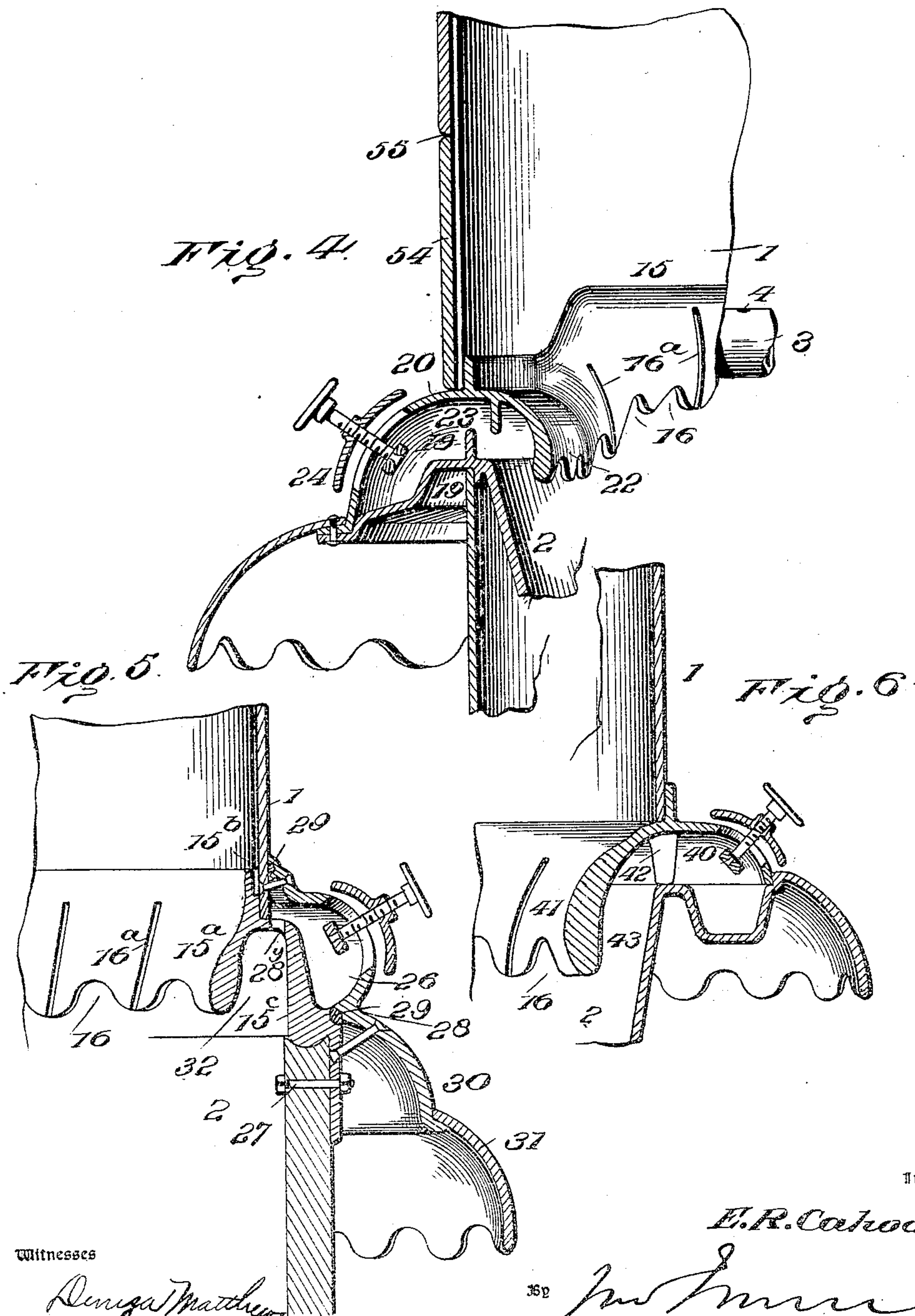
STOVE.

APPLICATION FILED JUNE 24, 1904.

955,758.

Patented Apr. 19, 1910.

3 SHEETS—SHEET 3.



Inventor

E. R. Cahoon

Witnesses

Benjamin Matthews
John Wheeler

352

[Signature]

Attorney

UNITED STATES PATENT OFFICE.

EDWIN R. CAHOONE, OF TROY, NEW YORK.

STOVE.

955,758.

Specification of Letters Patent.

Patented Apr. 19, 1910.

Application filed June 24, 1904. Serial No. 214,007.

To all whom it may concern:

Be it known that I, EDWIN R. CAHOONE, a 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 Stoves, of which the following is a specification.

This invention relates to improvements in stoves adapted for burning either wood or coal.

The object of the invention is to provide specific means for heating air in a chamber adjacent the fire pot, and deflect the heated air, as by a flange, toward the fuel.

The invention further comprehends improvements in the specific arrangement of the means employed to introduce the air from the atmosphere to the air heating chamber.

A further object of the invention is to provide in a stove of the character mentioned, a tube which, where coal is used as fuel is positioned to deliver air to approximately the center of the fire pot, while when burning chunks or long sticks of wood or other large fuel, the tube may be turned to one side and out of the way.

In connection with the above mentioned features, I locate and employ a specific form of air heating drum to direct the heated air to remote rooms.

In the drawings, Figure 1 is a vertical section of a stove embodying my improvements. Fig. 2 is a rear elevation of the same. Fig. 3 is a horizontal section on the line 3—3 Fig. 1. Fig. 4 is a detail vertical section on the line 4—4, Fig. 3. Fig. 5 is a similar detail, but showing a modified structure of air heating chamber. Fig. 6 is a similar view but showing a second modification. Fig. 7 is a detail vertical section on the line 9—9, Fig. 2.

The same numerals refer to like parts in all the figures.

1 represents the stove casing; 2 the fire pot, and 2^a the exit flue. An air heating chamber 3 is arranged near the upper part of the fire pot, and it is provided with a plurality of upwardly inclined exit openings 4. This air chamber may be supplied with air from the atmosphere from a supplemental air heating chamber 6, located preferably at the rear of the stove.

7 indicates a partition or baffle plate in the supplemental chamber, said plate being suspended from the top of the chamber to

within a short distance of the bottom thereof, leaving an opening 8 which forms communication between the passages 9 and 10 in the supplemental chamber. The passage 10 communicates with the atmosphere at 11, and a damper 12 is employed to regulate the admission of air, and the passage 9 communicates with the chamber 3 at the point 13.

A flange or deflector 15 is partially placed over and spaced from the air heating chamber 3, the lower portion of the deflector being enlarged to better resist the destructive influences of the heat in the fire pot. The lower edge of the deflector is fluted to form air passages 16, and extending upwardly from the bottom are a series of slots 16^a, through which air may be directed against the sides of the body of the fuel.

Obviously the air which enters the supplemental chamber 6 is gradually heated until by the time it reaches the chamber 3, the chill has been entirely removed, and by reason of the location of the latter chamber, the rising products of combustion contact with it and necessarily highly heat the air escaping through the exits 4. As stated, the products of combustion have a tendency to contact with the chamber and travel approximately as indicated by the arrows *a*. This is vital to the operation of the air deflected by the deflector 15, inasmuch as the air is very hot at this point, it mixes with the rising gases, and combustion is promoted. If the fuel should pack at particular points the air will be deflected to the body of fuel at various angles, etc., while on the other hand, the draft conditions may cause the air to be deflected in streams. However, the numerous jets from the openings 4 force the rising gases downward into the fuel, as well as in an outward direction through the passages 16 and slots 16^a.

Owing to the fact that it is impractical to continue the chamber 3 around the inside of the stove, because it is preferable to have an enlarged opening for the introduction of wood, I arrange a small air heating chamber on the outside and front of the stove structure, which may or may not communicate with the chamber 3. This chamber is indicated at 18, and as shown is formed by an extension 19 of the fire pot, and a top 20. The top 20 rests on the extension 19 at the outer edge, while its inner free edge extends inwardly toward the fire pot to form a flange or deflector 22, which is a continuation of

the flange 15. The chamber 18 is provided with baffle plates 23, and a damper 24. Air introduced to the fuel from this chamber is regulated in conjunction with the amount of air introduced from chamber 3, so that warm air can be introduced at particular points at will. In lieu of forming the air heating chamber as shown in Figs. 1 to 4, I may construct it on the outside of the stove, as disclosed in Figs. 5 and 6.

In Fig. 5, the deflector 15^a is formed at its lower portion just the same as hereinbefore described, and it is extended upwardly to form a support 15^b for the casing 1, and outwardly and downwardly to form a portion 15^c of the air heating chamber 26. The portion 15^c rests in a seat on the top of the fire pot, and is bolted as indicated at 27. The top section 28 of the air heating chamber 26 is fitted over the portion 15^c, and cement or packing is placed at the points 29, and depending from the said section is a hood 30, on which may be attached an ornament or band 31. A damper controls the admission of air to the chamber 26, and exits 28^v are provided for the air to enter the fire pot through the space 32 between the deflector 15^a and the portion 15^c.

The construction shown in Fig. 6 is slightly different from that set forth above, but the results are substantially the same. The fire pot is extended to form the bottom of the air heating chamber 40, and the deflector 41 is extended to form the top of said chamber. This deflector is supported on the fire pot by legs 42, located at intervals to form air inlets between the chamber 40 and the exit or passage 43.

Of course, it will be understood that I am not limited to the particular means of supplying air to the chambers 26—40, as it is evident that the supplemental chamber 6 can be arranged to cooperate with either of these chambers if it be desired.

The heated air around the fire pot (see for instance Fig. 5) ascends and contacts with the bottom of the air heating chamber 26, which tends to heat the air in said air heating chamber and is then deflected downwardly by the hood 30 and band 31 increases and spreads the heat on the floor.

A box like structure 48 is fastened to the side of the casing 1, and is in communication with the atmosphere at the point indicated at 49, a damper 50 being shown at this place. A tube 52 of approximately U-shape in outline has one of its ends mounted to turn in the box, while its opposite end is disposed to deliver air at a point near the center of the fire pot. In plan view the outline of the tube is such that when it is turned against the casing 1, as shown in Fig. 3, it corresponds to the contour thereof. Any suitable means may be employed to lock the tube in a set position, but as the feature forms

no part of the present invention, it is not deemed necessary to show or describe it. The function of the swinging tube is to enable it to be positioned to deliver air to the fire pot at about the center when burning coal, and to be able to throw it to one side and out of the way to make more room when burning wood.

At the front of the stove and just above the fire pot is the feed door 54, and above this door is a supplemental feed door 55. When burning coal or the like fuel, the door 54 is used, but when chunks of wood or long sticks are used, both doors 54 and 55 are opened, when a piece of wood can be introduced.

As shown in the drawings, the stove is in condition for burning coal, while to convert the structure into a wood stove, the tube will be turned against the casing, as shown in dotted lines in Fig. 3, and will allow of the introduction of large pieces of wood, which is of considerable importance and convenient in certain sections where either coal or wood is at hand.

A drum 60 having legs 61, the latter straddling the supplemental chamber 6, serves to take air from the bottom of the room and heat it, to be used in heating rooms above.

It will therefore be seen that I have provided a stove structure which may be readily and quickly converted from a coal to a wood stove, or vice versa, at short notice, and that by the arrangement of the air chamber and the exits thereof, either coal or wood can be conveniently and practically consumed.

What I claim as new is:

1. In a stove, the combination with a fire pot, of an air heating chamber located at or near the upper part of the fire pot and provided with a plurality of exit openings, a deflector spaced from the air heating chamber to deflect the heated air into the fuel, the edge of the deflector being fluted to form air passages, and slots formed intermediate said flutes, and means for supplying air to the air heating chamber, substantially as described.

2. In a stove, the combination with a fire pot, of an air heating chamber formed with air exit openings and located at or near the top of the fire pot, a deflector adjacent to and spaced from said air heating chamber, and a swinging tube mounted above the fire pot, said tube being adapted to be turned outwardly toward the stove structure when not in use, and turned to deliver air approximately to the middle of the fire pot, substantially as described.

3. In a stove, the combination with a casing, a fire pot, an air heating chamber at or near the top of the fire pot, a deflector overhanging the air heating chamber and spaced

therefrom, the air heating chamber communicating with said space, an overhanging air feeding pipe having its open end positioned to introduce heated air downwardly toward the top of the fuel, and pivoted means for turning the said open end adjacent the casing.

4. In a stove, the combination with a casing, a fire pot, an air heating chamber at or near the top of the fire pot, said air heating chamber being partially inside the casing and partially outside said casing, means supplying heated air to the air heating chamber, a tube for delivering heated air toward the top of the fuel, and a feed door adjacent the part of the air heating chamber extending outside the casing.

5. In a stove, the combination with a casing, a perforated air heating chamber inside the casing, means supplying heated air to the air heating chamber, and a deflector overhanging and spaced from the air heating chamber, said deflector being enlarged at its end, the perforations in the air heating chamber directing streams of heated air against the deflector to be delivered toward the fuel.

6. In a stove, the combination with a casing, a fire pot, an air heating chamber at or near the top of the fire pot, a deflector overhanging and spaced from the air heating chamber, means introducing heated air to the air heating chamber, a swinging tube located above the fuel to direct a stream of heated air toward the top of the fuel, and means for turning the tube against the casing.

7. In a stove, the combination with a casing, a fire pot, an air heating chamber at or near the top of the fire pot, means for introducing heated air to the air heating chamber, a deflector overhanging and spaced from the air heating chamber, the end of the deflector being enlarged, a swinging tube having its open end approximately above the center of the fire pot, means for turning the tube adjacent the casing, and an exit flue above the tube.

8. In a stove, the combination with a casing, a fire pot, an air heating chamber

formed with air exit openings and located at or near the top of the fire pot, a deflector having a series of air exits formed therein and overhanging and spaced from the air heating chamber, a swinging tube having its open end approximately above the center of the fire pot, and means for turning the tube adjacent the casing.

9. In a stove, the combination with a casing, a deflector extending inwardly from the casing, the lower edge of the deflector being enlarged, a fire pot below the deflector and having its upper edge adjacent the casing, an air heating chamber under the deflector, a tube for delivering air to the top of the fuel, and an exit flue communicating with the casing above the tube.

10. In a stove, the combination with a casing, a deflector extending inwardly from the casing, the lower end of the deflector being enlarged, a series of air exit openings being formed in the deflector, a fire pot below the deflector, an air heating chamber formed with air exit openings and located under the deflector, a tube to deliver air to the top of the fuel, and an exit flue communicating with the casing above the tube.

11. In a stove, the combination with a fire pot, an air heating chamber formed with a plurality of air exit openings, a deflector spaced from the air heating chamber to deflect heated air into the fuel and formed with a series of notches, the edge of the deflector being fluted to form air passages, and means for supplying air to the air heating chamber, substantially as described.

12. In a stove, the combination with a casing, a fire pot, an air heating chamber formed with an outlet to the fire pot, means to deflect the air from the air heating chamber toward the fuel in the fire pot, a pivoted tube located above the fire pot to direct air to the latter, and means to supply air to the tube.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWIN R. CAHOONE.

Witnesses:

FRANK SHRAUDER,
W. S. HOPKINS.