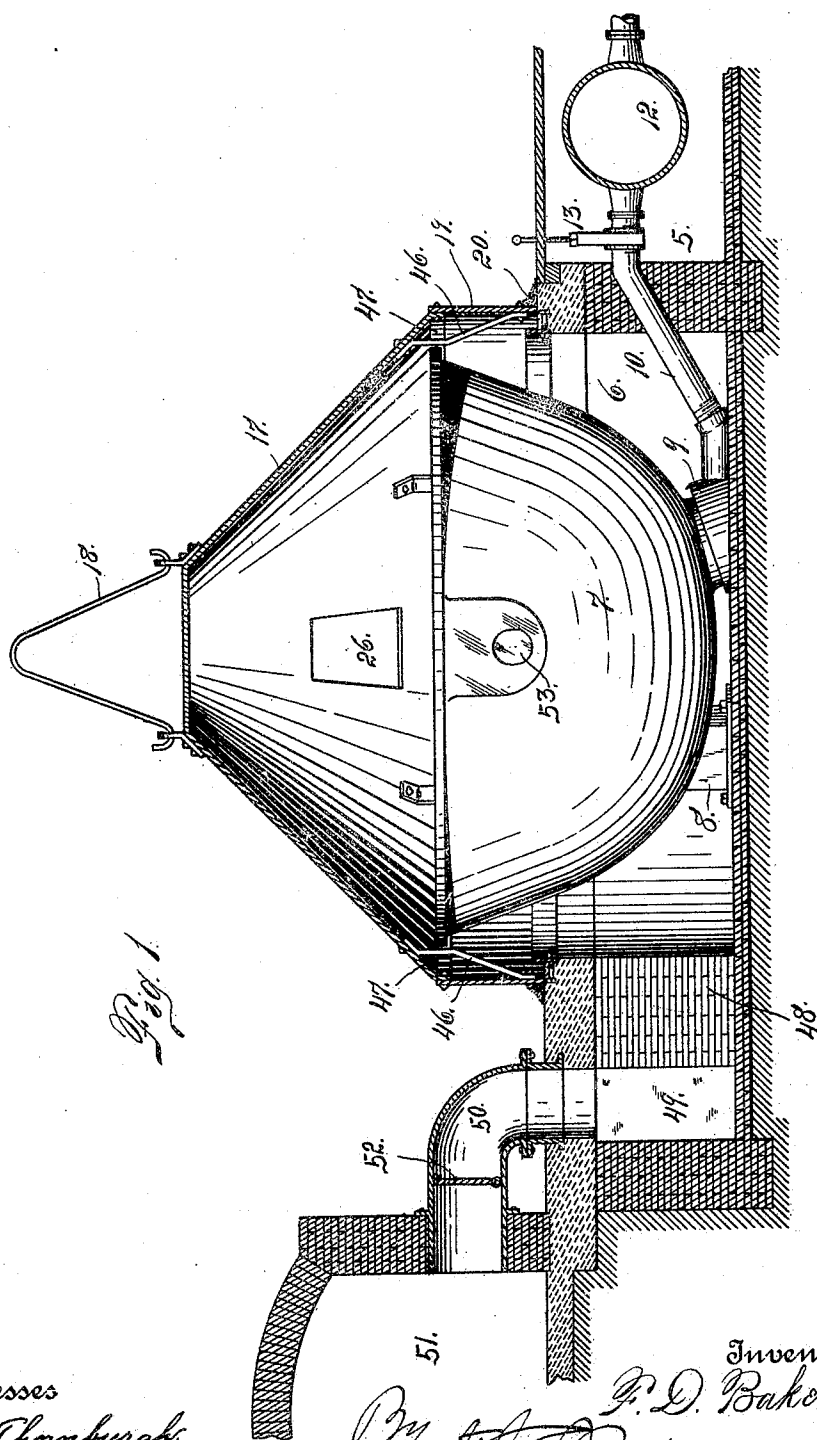


942,810.

F. D. BAKER.
ORE ROASTING POT.
APPLICATION FILED NOV. 14, 1908

Patented Dec. 7, 1909.
4 SHEETS—SHEET 1.



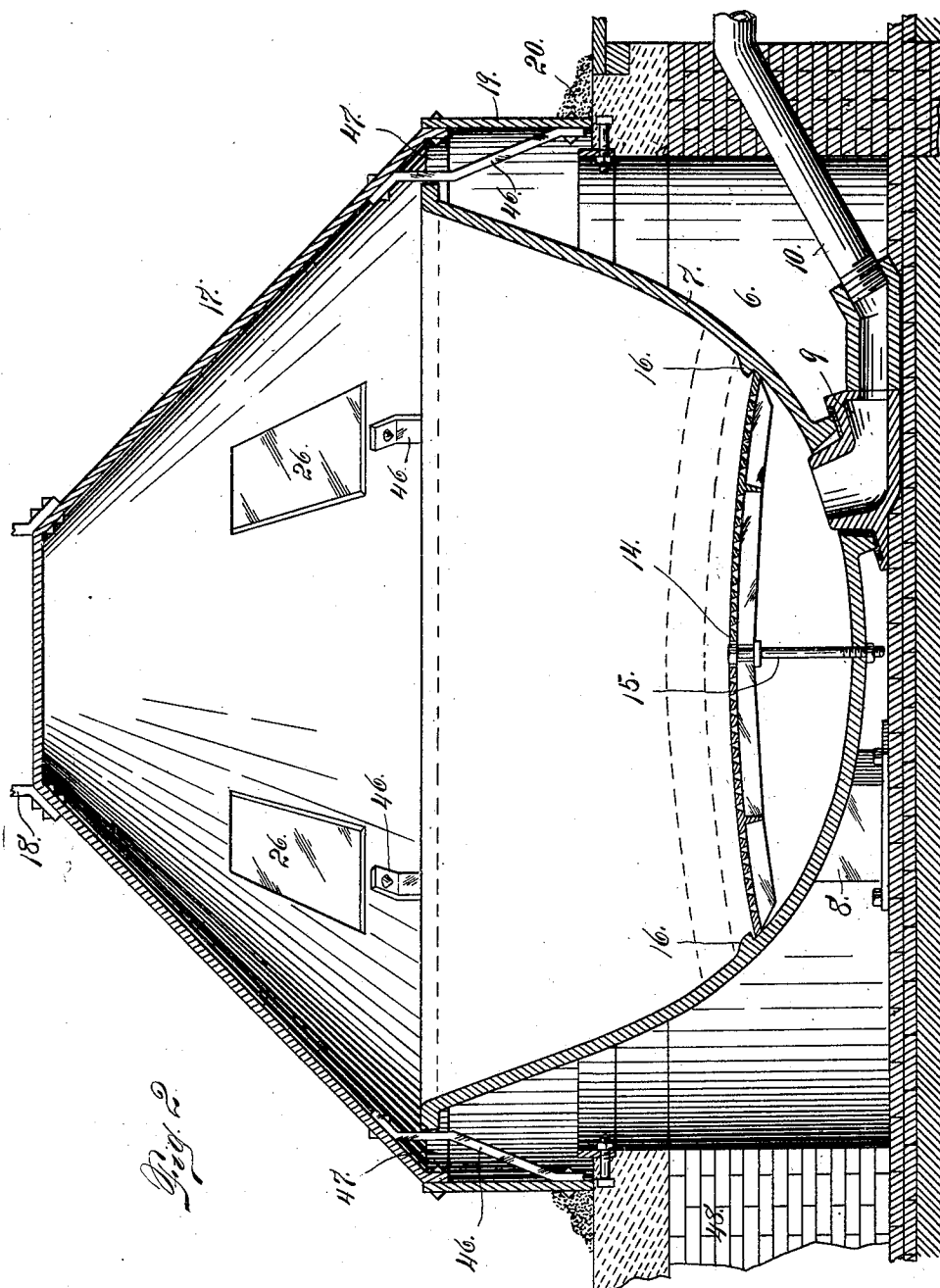
Witnesses
J. D. Thornburgh.
Otto E. Hoddick.

Inventor
F. D. Baker.
By *[Signature]* Attorney

942,810.

F. D. BAKER.
ORE ROASTING POT.
APPLICATION FILED NOV. 14, 1908.

Patented Dec. 7, 1909.
4 SHEETS—SHEET 2.



Witnesses
J. D. Thornburgh.
Otto E. Hoddick.

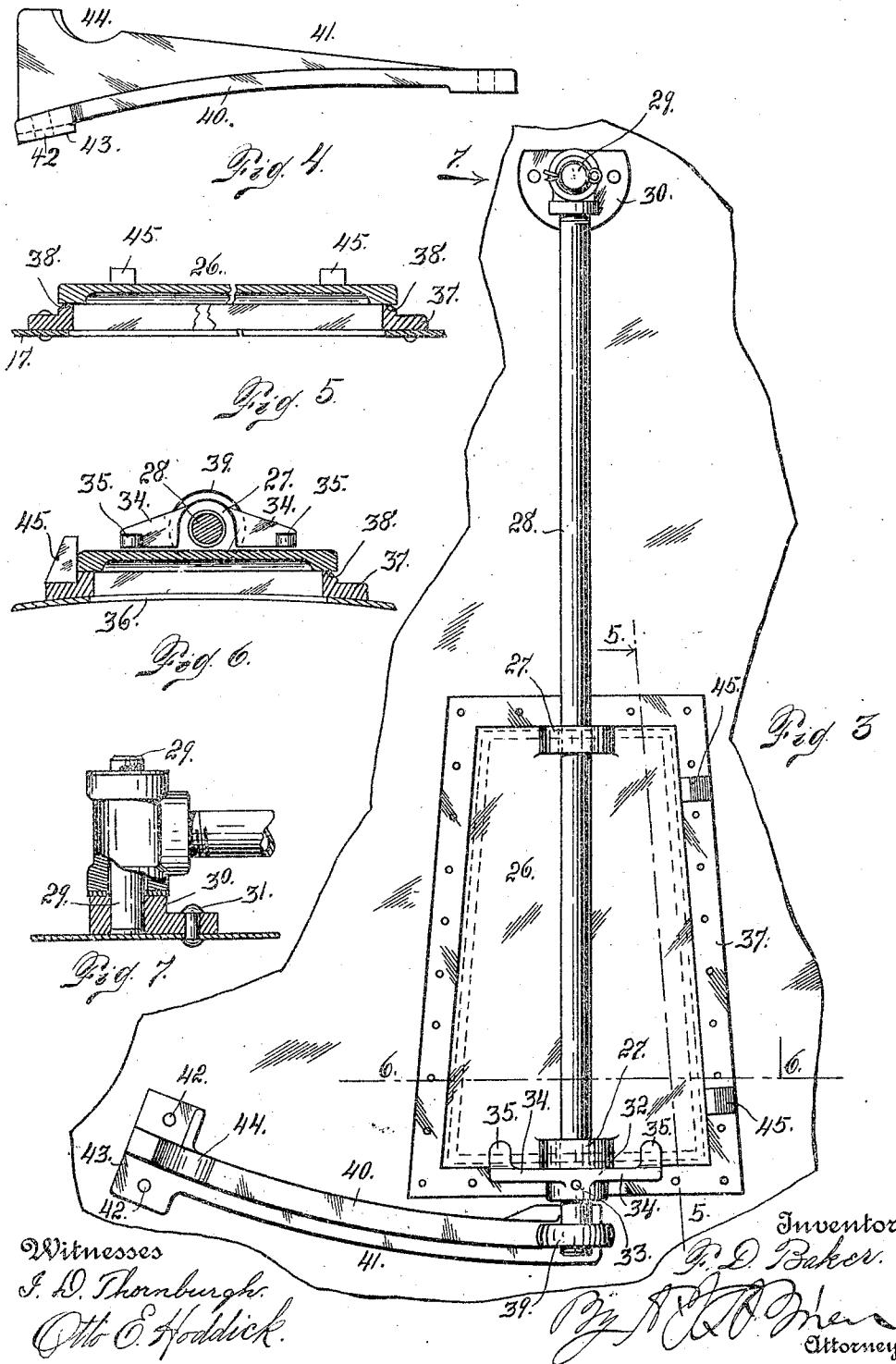
Inventor
F. D. Baker.
By *[Signature]* Attorney

F. D. BAKER.
ORE ROASTING POT.
APPLICATION FILED NOV. 14, 1908.

942,810.

Patented Dec. 7, 1909.

4 SHEETS—SHEET 3.



942,810.

F. D. BAKER.
ORE ROASTING POT.
APPLICATION FILED NOV. 14, 1908.

Patented Dec. 7, 1909.
4 SHEETS—SHEET 4.

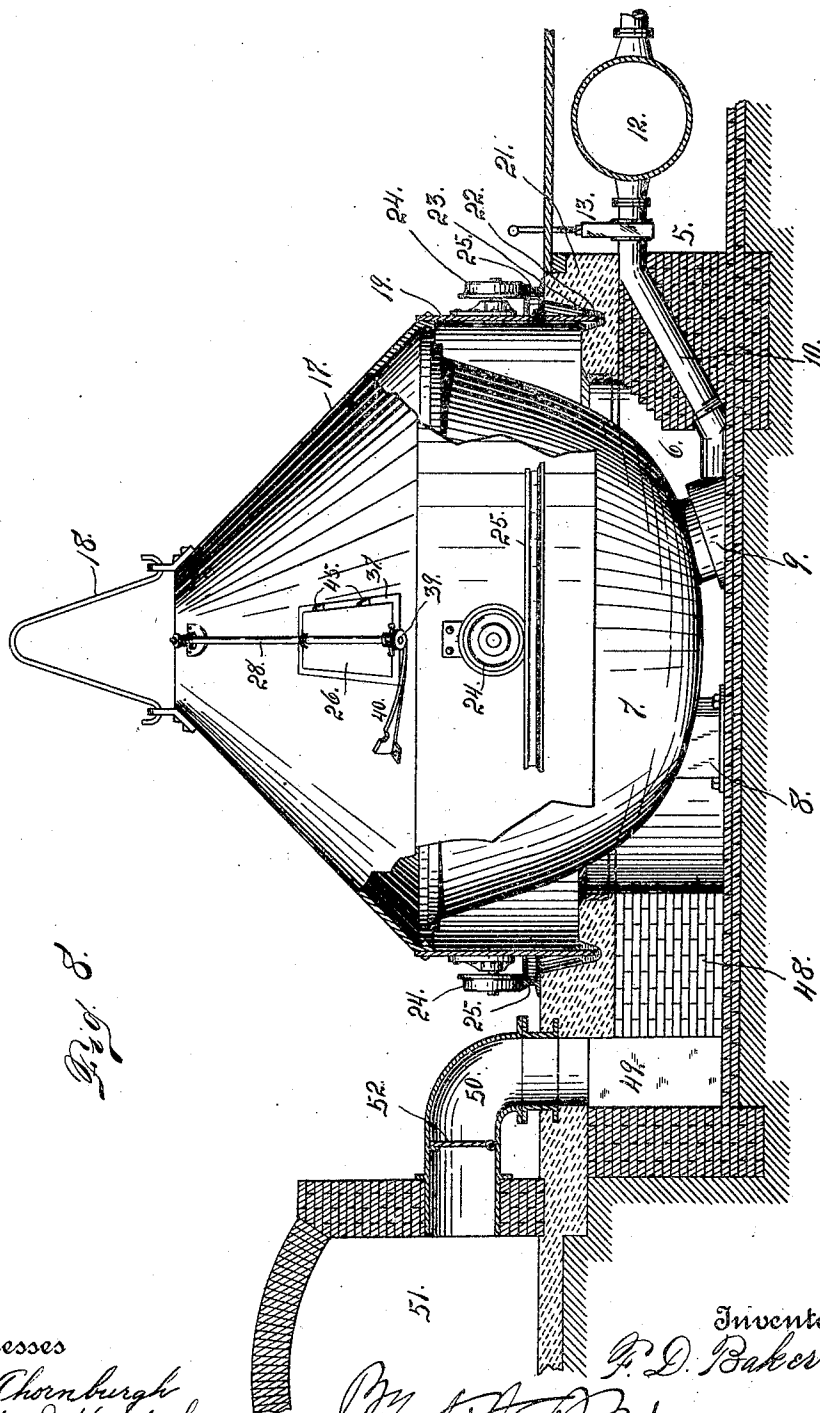


Fig. 8.

Witnesses

J. D. Thornburgh
Otto C. Woodcock

Inventor

F. D. Baker.

By *[Signature]* Attorney

UNITED STATES PATENT OFFICE.

FRANK D. BAKER, OF DENVER, COLORADO.

ORE-ROASTING POT.

942,810.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Application filed November 14, 1908. Serial No. 462,702.

To all whom it may concern:

Be it known that I, FRANK D. BAKER, a citizen of the United States, residing at the city and county of Denver and State of Colorado, have invented certain new and useful Improvements in Ore-Roasting Pots; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in ore roasting apparatus in which roasting-pots are employed.

My improved features relate more particularly to the hood or cover for the pot. In my improved construction, the hood is devoid of connecting flues and provision is made for a seal around its lower edge whereby the entrance of air is prevented. The number of openings in my improved hood for rabbling purposes, is also reduced to a minimum, and provision is made for tightly closing them by means of doors movably mounted, whereby they may be readily swung to the open position, a special construction being employed to facilitate the opening and closing operation. By preventing the entrance of air from the outside, the volume of air to be handled by the flue and the stack is reduced, thus making it practicable to form these elements of less capacity than would otherwise be required. By providing the hood with air-tight doors and by sealing its lower edge the gases, after escaping from the pot may be delivered by pressure from the blower supplying air into the converter-pot, through the flues into the atmosphere without the aid of a stack or other means of supplying draft.

Having briefly outlined my improved construction, I will proceed to describe the same in detail, reference being made to the accompanying drawing in which is illustrated an embodiment thereof.

In this drawing, Figure 1 is a sectional view of the hood and the apparatus employed in connection therewith, the pot, however, and its direct connections, being shown in elevation. Fig. 2 is a sectional view of the pot and hood shown on a larger scale, parts of the surrounding construction being broken away for lack of room on the

sheet. Fig. 3 is a fragmentary view of the hood showing my improved door construction on a larger scale. Fig. 4 is a side elevation illustrating the track adapted to engage a roller mounted upon one extremity of the rod which carries the door. Fig. 5 is a section taken on the line 5-5 Fig. 3 viewed in the direction of the arrow. Figs. 6 and 7 are sections taken on the lines 6-6 and 7-7 respectively, viewed in the direction of the arrows. Fig. 8 shows the pot in elevation and the hood partly broken away and partly in elevation. In this view a modified form of seal is illustrated. The hood is also provided with wheels which engage a surrounding track making it practicable to rotate the hood, whereby the hood need be provided with a single rabble opening only.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a wall inclosing a chamber 6, in which the pot 7 sits, being supported upon seats 8 and a twyer 9 through which the necessary blast of air is introduced for properly roasting the ore. For this purpose an air conduit 10 has one extremity in communication with the twyer, while the other extremity leads to a large air-supply pipe 12. The conduit 10 is provided with a gate valve 13 for controlling the passage of air through the conduit.

The pot is interiorly provided with a perforated false bottom or hearth 14, which is held in place by a bolt 15, the outer edge of the hearth engaging the inner wall of the pot below an interiorly projecting retaining ring 16. This hearth is formed in sector-shaped sections, but as nothing is claimed thereon in this application, this feature need not be further explained in detail.

The hood 17 is provided at the top with a bail 18 to facilitate handling the same. Its body portion is frusto-conical in shape. To the lower edge of this cone-shaped part is secured a depending cylindrical member 19 whose lower edge is sealed to prevent the entrance of air. The sealing means employed may be varied. In the form of construction shown in Figs. 1 and 2, sand or other granular material 20, is illustrated; while in the construction shown in Fig. 8, the upper portion 21 of the wall surrounding the chamber 6 is provided with a circumferential recess 22 containing a liquid seal 23 into which the lower edge of the

member 19 dips. In this form of construction the part 19 may be equipped with wheels 24 engaging a track 25 making it practicable to rotate the hood whereby the position of its opening may be changed at pleasure, thus obviating the necessity for more than one opening for rabbling purposes. Each rabble opening, whether one or more is employed, is closed by a door 26 provided with apertured lugs 27 through which passes a rod 28. The upper extremity of this rod is mounted to swing loosely upon a spindle 29, engaging a bearing 30 secured to the hood by a fastening device 31. The rod is provided near its lower extremity with a collar 32 made fast to the rod as shown at 33. Projecting in opposite directions from this collar and formed integral therewith, are arms 34 provided with upwardly projecting lugs 35, which overlap the lower extremity of the door and form stops to prevent the latter from swinging too far in either direction upon the rod 28.

The opening 36 in the hood is surrounded by a frame 37, the frame having an upwardly projecting flange 38 upon which the door 26 rests when in the closed position. The lower extremity of the rod 28 is provided with a roller 39 which engages a rail 40 formed on a track-bar 41 secured to the hood by suitable fastening devices 42 passed through flanges 43 with which the extremities of the track are provided. The upper extremity of the track is provided with a recess 44 adapted to receive the roller 39, when the door is in the open position. This recess retains the door in the open position and prevents its accidental return to the closed position. The frame 37 is provided on one side with stops 45 which prevent the door from moving beyond its proper position for closing the opening 36.

The lower part of the hood is provided on the inside with bars 46 which form guides adapted to engage the top of the pot as the hood is lowered to the closing position.

By reference to the drawing it will be understood that while the chamber in which the pot is mounted is made air-tight except for its communication with the stack, the fumes from the pot escape through the space 47 between the top of the pot and the adjacent portion of the hood, into the said chamber, and pass out through flues 48, 49 and 50 to the stack 51. The flue member 50 is provided with a gate valve 52. When the apparatus is in use, the pot is filled with ore which rests upon the perforated hearth or false bottom 14 of the pot.

In commencing the roasting operation, provision is made by the employment of suitable fuel or a quantity of ore sufficiently heated for the purpose, for igniting the combustible elements as sulfur contained in the ore, and which it is necessary to remove be-

fore the ore can be properly treated for the saving or removal of its metallic contents.

Assuming that the pot is filled with ore, and provision for igniting the same is made, and also assuming that the hood is in place and sealed to prevent the entrance of air or the escape of fumes, a blast of air for combustion purposes is delivered to the pot below the hearth thereof, through the tuyere 9 and the conduit 10 as heretofore explained. This blast of air may be sufficient to provide the necessary draft for roasting purposes without the aid of a tall chimney or stack.

Whenever it becomes necessary to rabble or stir the ore, the gate valves 13 and 52 may be closed and one or more doors 26 opened to permit access to the ore within the pot through an opening or openings 36 in the hood. After the rabbling operation has been effected the doors are closed and the gate valves 13 and 52 opened and the process of roasting goes on. After the ore is properly roasted the hood is removed by lifting the same from the pot in any suitable manner. The pot is then removed and dumped. For this purpose it is provided on each side with a recess 53 into which hooks (not shown) may be inserted for lifting purposes.

Having thus described my invention, what I claim is:

1. In ore roasting apparatus of the class described, the combination with a roasting-pot, of a hood inclosing the upper portion of the pot, the lower edge of the hood being sealed to form an air-tight chamber in which the pot is located.

2. The combination with a chamber and a roasting-pot mounted therein, of a hood covering and surrounding the upper portion of the pot, the lower edge of the hood being provided with an air-tight seal, for the purpose set forth.

3. In apparatus of the class described, the combination with a chamber and a roasting-pot mounted therein, of a hood inclosing the upper part of the pot, the lower edge of the hood being supported by the wall of the chamber, and means for forming an air tight seal around the lower edge of the hood, substantially as described.

4. The combination with a roasting-pot and a wall surrounding the pot and forming a chamber in which the pot is supported, of a hood supported by the wall and means applied to the wall for sealing the lower edge of the hood against the entrance of air, for the purpose set forth.

5. The combination with a roasting-pot, of a hood for the pot, the hood being mounted to rotate, and its lower edge being provided with an air tight seal, substantially as described.

6. The combination with a roasting-pot and a chamber in which the pot is mounted, of a hood supported by the wall of the

chamber, and mounted to travel annularly thereon.

7. The combination with a roasting pot, a hood for the pot, a support for the hood upon which the latter is mounted to rotate, the lower edge of the hood being provided with an air tight seal, substantially as described.

8. The combination with a roasting-pot, of a hood inclosing the upper portion of the pot, a support for the hood, a track mounted on said support, and wheels applied to the hood and engaging said track, to allow the hood to rotate, for the purpose set forth.

9. In apparatus of the class described, the combination of a roasting pot, and a chamber in which the pot is supported, of a hood provided with exteriorly located wheels, a track engaged by said wheels and forming a support for the hood, and means for sealing the lower edge of the hood, substantially as described.

10. The combination with a roasting-pot, of a hood having a rabble opening, a movable closure for said opening, the hood being rotatably mounted to permit access to any portion of the contents of the pot through the said opening, substantially as described.

11. The combination with a roasting-pot, of a hood for the pot, means for sealing the lower edge of the hood to form an air tight

chamber in which the pot is located, means for introducing a blast of air to the pot, and a fume escape flue in communication with the chamber, substantially as described. 35

12. In apparatus of the class described, the combination with a roasting-pot, of a hood therefor, a support for the lower edge of the hood, means for forming a seal around said edge, the hood being mounted to rotate and having an opening in its upper portion and a door movably mounted on the hood and forming an air tight closure for the opening, substantially as described. 40

13. The combination with a roasting-pot, of a hood therefor, the hood having an opening in its upper portion, a door mounted to swing upon the hood and adapted to form an air tight closure for the said opening, a roller connected with the door and a track mounted upon the hood and engaged by the roller during the opening and closing movement of the door, the track being constructed to cause the door to gradually rise during the opening operation, substantially as described. 45 50 55

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

FRANK D. BAKER.

Witnesses:

FRED S. BENJAMIN,

WILL. C. KEENEY.