G. B. MEEK.

PORTABLE REEL GAS OVEN.

APPLICATION FILED APR. 22, 1908.

906,251.

Patented Dec. 8, 1908.

4 SHEETS—SHEET 1.

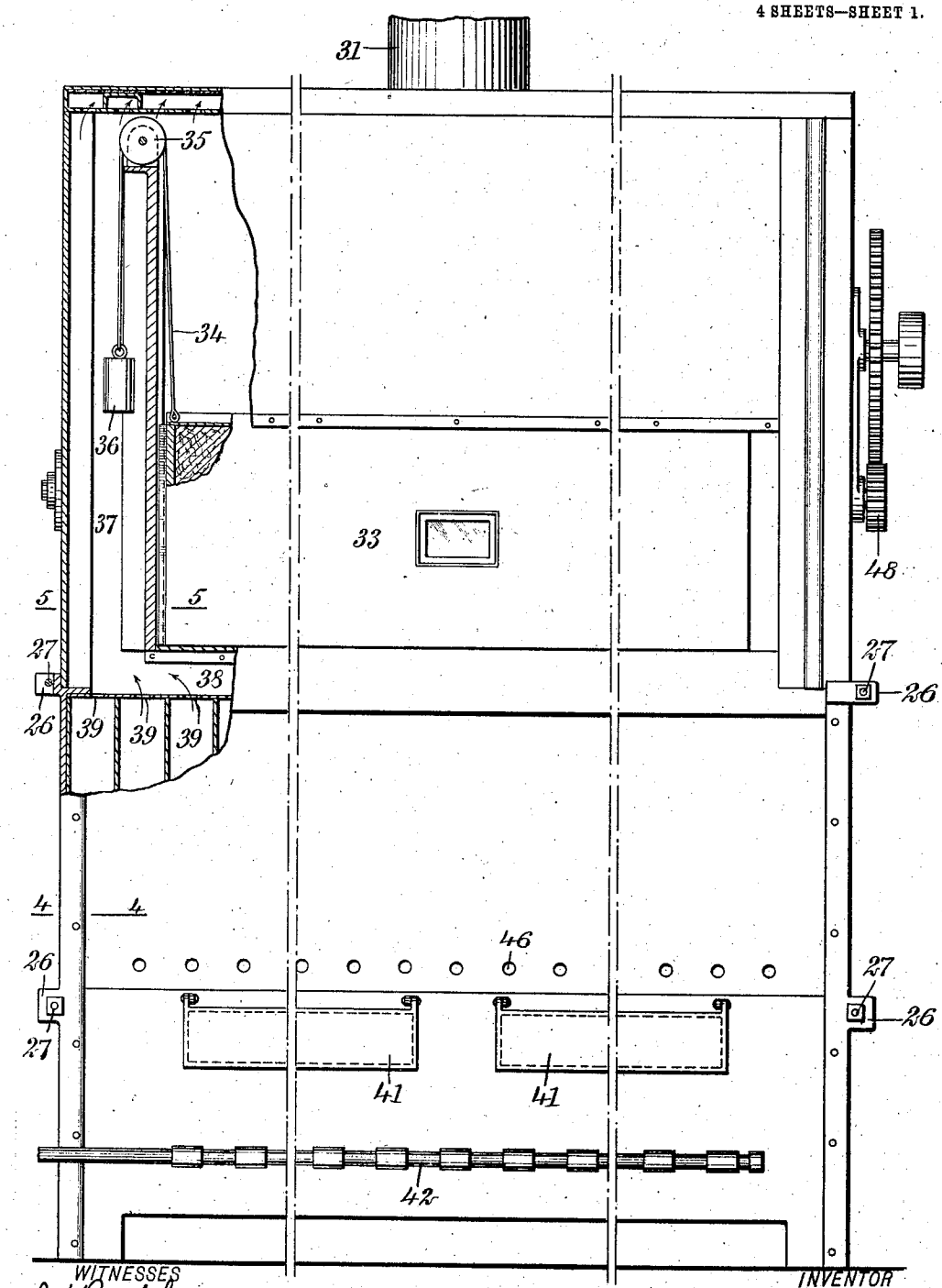


Fig. 1.

WITNESSES

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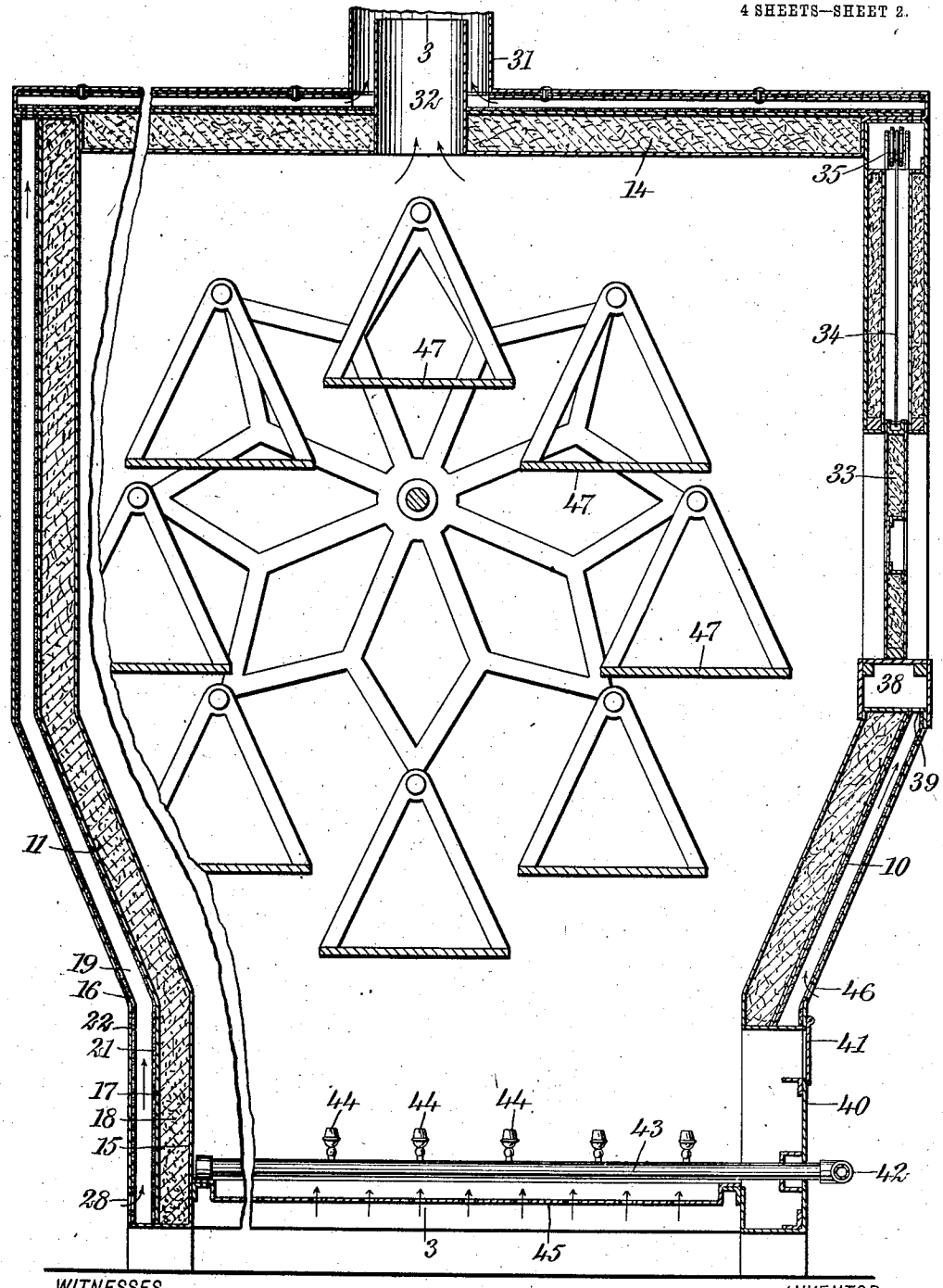


Fig. 2.

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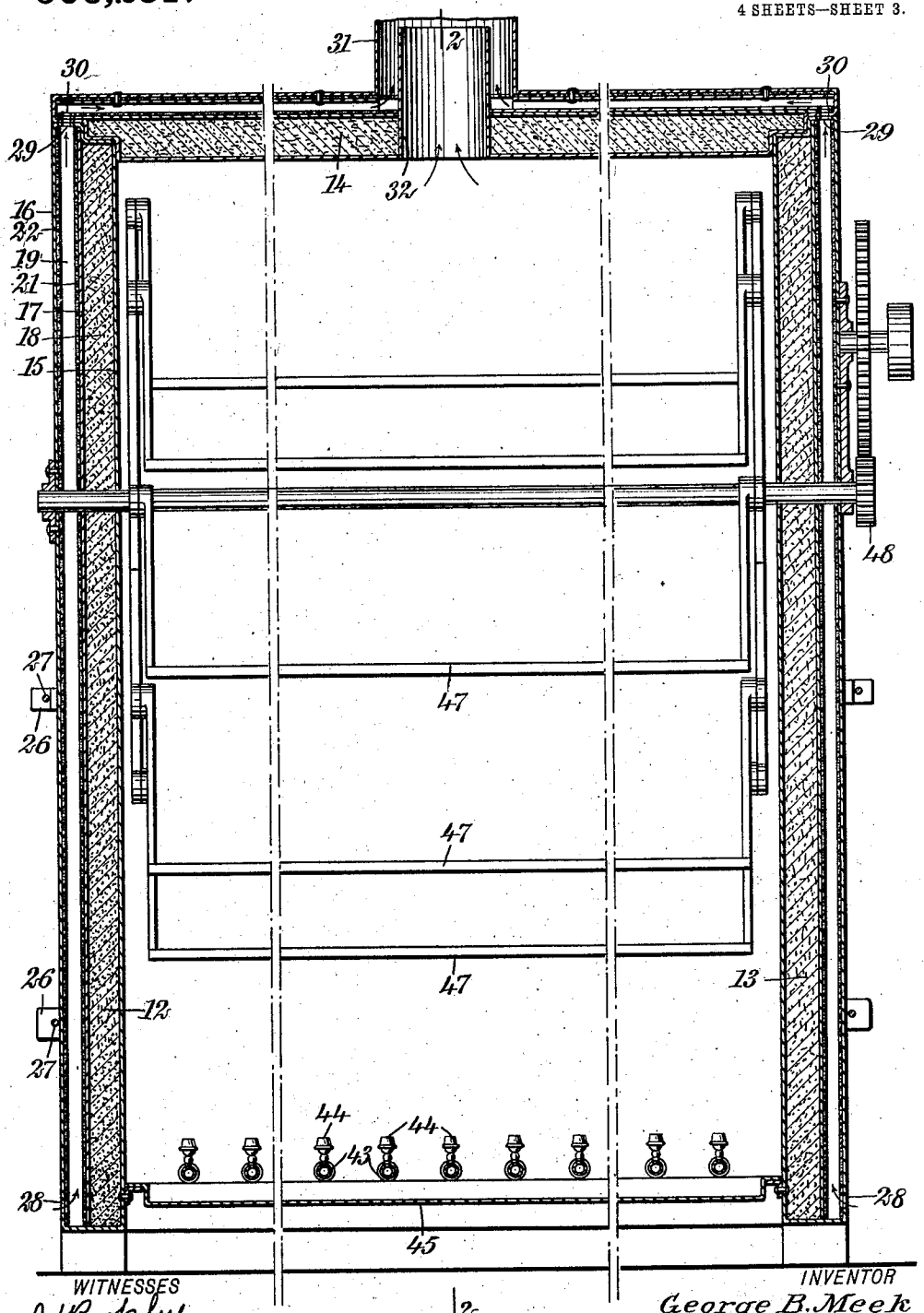
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4 SHEETS—SHEET 3.



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Fig. 3

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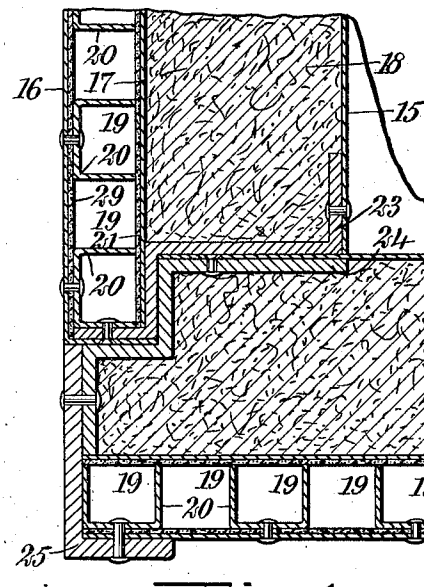


Fig. 4

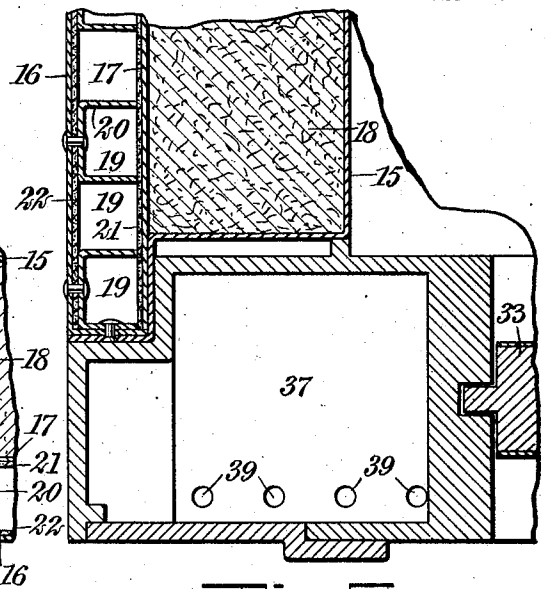


Fig. 5

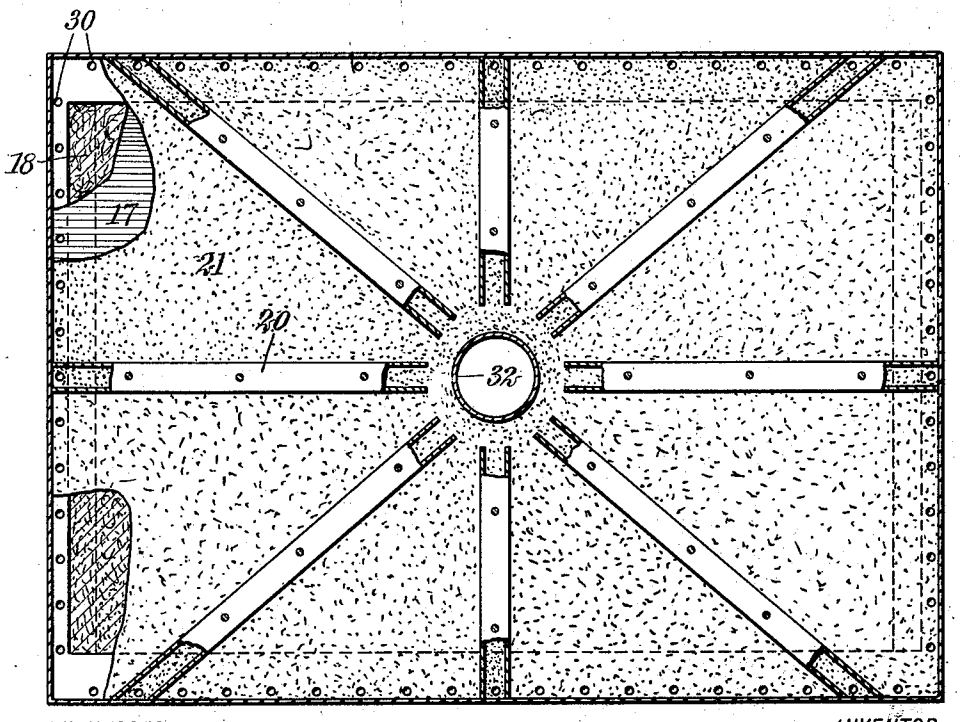


Fig. 6

WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE BEVERIDGE MEEK, OF NEW YORK, N. Y., ASSIGNOR TO THE CRANDALL & GODLEY CO., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PORTABLE REEL GAS-OVEN.

No. 906,251. Specification of Letters Patent. Patented Dec. 8, 1908.

Application filed April 22, 1908. Serial No. 428,493.

To all whom it may concern:

Be it known that I, GEORGE BEVERIDGE MEEK, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Portable Reel Gas-Oven, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in baking ovens, and more particularly to a wall construction, whereby the oven is formed of separate detachable sections which may be readily taken apart to facilitate shipment.

The object of the invention is to prevent heating of the exterior wall by the heat of the gas burners employed in the baking. I accomplish this object by forming each of the walls or wall sections with an inner packing or lining of asbestos, or other suitable non-heat-conducting material, and outside of the lining of asbestos, I provide a plurality of air passages or conduits, so arranged that an automatic circulation of air is maintained.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, and in which

Figure 1 is a front elevation of an oven constructed in accordance with my invention, one corner thereof being broken away; Fig. 2 is a transverse section at right angles to the view shown in Fig. 1, and taken on the line 2—2 of Fig. 3; Fig. 3 is a longitudinal section taken on the line 3—3 of Fig. 2; Fig. 4 is a transverse section through one corner of the oven, said section being taken on the line 4—4 of Fig. 1; Fig. 5 is a transverse section through a corner adjacent the end of the door, said section being taken on the line 5—5 of Fig. 1; and Fig. 6 is a top plan view, the outer layer or covering of sheet metal being removed.

My improved oven may be made of any desired shape or size, but is preferably of such size that each side thereof may be formed of a single section readily transported. As shown, the oven is substantially rectangular in cross section, there being provided a front section 10, a rear section 11, two end sections 12 and 13, and a top section 14. These sections are all formed in substantially the same manner, but at the edges of each, the construction is such that the adjacent sections may be readily secured together, so as to permit the air circulation hereinafter referred to. Each section is preferably formed of three layers of sheet metal; an inner one 15, an outer one 16, and an intermediate one or partition 17. The space between the inner sheet metal wall or surface 15 and the intermediate wall or partition 17, is filled with a suitable non-combustible non-conducting material as, for instance, asbestos 18. This serves as the main heat insulating portion of the wall, and prevents the transmission of any great degree of heat from the interior of the oven to the intermediate or partition wall 17. The space between the outer wall 16 and the partition 17 constitutes a space for the circulation of air, and is sub-divided to form a plurality of air conduits or passageways 19. The means for subdividing the air space preferably comprises a plurality of sheet metal channels 20, each having the base thereof rigidly secured to the outer wall 16, and having the free edges thereof lying closely adjacent the wall 17. These channels are spaced apart and preferably arranged parallel, so as to serve the double function of forming air passages and spacing the outer and intermediate walls the desired distance apart. If desired, a thin layer of asbestos 21 may be provided at the outer surface of the wall 17, and intermediate it and the free edges of the channels, and a second layer of asbestos 22 may be provided on the inner surface of the wall 16 and between said wall and the channels. These two thin layers of asbestos prevent any direct conduction of the heat from the wall 17 to the wall 16.

Each section may be constructed at the edges thereof in any suitable manner, to enable it to be secured to the adjacent section to make a substantially air-tight joint. As shown, the two end sections 12 and 13, at their vertical edges are provided with metal reinforcing strips 23, which are provided with flanges riveted to the inner and outer walls, and serving to inclose the edge of the asbestos-packed space between the inner wall and the intermediate one. These reinforcing edge strips 23 are so formed that the outer or air-circulating portion of the wall extends beyond the inner or asbestos filled section, so that when the walls are connected

together, they will meet in a zigzag line rather than in a straight line, thus more effectively preventing the escape of hot air from the oven, and preventing the direct radiation of heat. The front and back walls are provided with somewhat similar edge reinforcing strips 24, formed at such an angle as to fit the edges of the end wall sections, and they also carry border or corner strips 25. These last-mentioned strips may be provided with outwardly-extending lugs 26 for receiving transverse tie bolts 27, exposed upon the outer surface of the ends of the oven and rigidly holding the front and back wall sections to the end sections. The end and back sections are each provided with a plurality of air inlet openings 28, at the lower edges thereof, there being provided at least one opening for each channel and at least one opening for each space between adjacent channels. At the upper edges of the end and rear sections, there is provided a corresponding number of openings 29, whereby the air in said wall sections may escape to the air passages in the top wall section of the oven.

The top wall section is constructed of the same layers arranged in substantially the same manner as are the rear and end sections, but the asbestos portion of the top section preferably extends below the level of the top edge of the asbestos portions of the ends and rear, while the outer or air-circulating portion of the top sections extends out across the upper edges of the entire thickness of the vertical walls. The channels between the intermediate and outer sheet metal walls may be arranged in any suitable manner, but so as not to interfere with the free passage of the air from the periphery toward the center. The channels are preferably arranged substantially as shown in Fig. 6, and extend inward radially. About the periphery of the top section, there are provided a plurality of openings 30, on the under surface, which register with the openings 29 in the side and end wall sections, and at the center the outer sheet metal wall 16 of the top communicates with the gas-escape conduit or pipe 31. Thus the air which enters through the openings 28 about the bottom of the oven, may pass upwardly through the channels and through the space between the channels to the openings 29, thence through the openings 30 to the air space of the top, and thence to the center and out the conduit 31. To increase the circulation of air through these air passages, and also to permit an escape of the gases of combustion from the burners which heat the oven, the top wall carries a conduit 32, somewhat smaller than the conduit 31 and concentric therewith and terminating a short distance from the entrance to the conduit 31. The hot gases from the oven escape through the center gas-escape conduit 32, and in passing up the conduit 31 they draw with them air from the air spaces and passages in the wall sections. The front wall of the oven is also for the circulation of air therethrough, but is provided with an entrance opening and a door 33, whereby access may be gained to the interior of the oven. The door is formed of inner and outer layers of sheet metal packed with asbestos, as shown in section in Fig. 2, and at each end of the door, a cord or chain 34 extends upwardly over a corresponding pulley 35, and downwardly to a counterbalancing weight 36. The door opening is somewhat shorter than the oven, so as to leave vertical passageways 37 at the ends of the doorway, and these passageways serve the double purpose of permitting a circulation of air and a free up-and-down movement of the weight. The door sill, that is, the lower portion of the door casing, is formed with a transverse passage 38, which communicates at each end with the vertical passages 37, and communicates at its under side with the vertical passages within the channels and between the channels of that portion of the front wall section below the door, by openings 39, as illustrated in Figs. 1 and 2. The lowermost portion of the front section is not insulated, but is formed of a single sheet metal wall portion 40, having small doors 41 through which the burners may be examined or lighted. Extending across below the door is the main gas supply pipe 42, and this is provided with a plurality of branches 43 extending across the lower portion of the oven, and each having a plurality of burners 44. Beneath the sets of burners, a perforated sheet metal pan or floor 45 may be provided, if desired. Directly above the doors 41, the outer surface of the front wall is provided with a plurality of openings 46, whereby the air may enter the wall section beneath the main door 33.

The material to be cooked may be supported within the oven in any suitable manner, but preferably upon the pans or trays 47 of a reel. One end of the shaft of the reel may extend through the wall of the oven and be provided with a suitable gear wheel 48, whereby the reel may be rotated at the desired speed.

The entire oven may be readily taken apart for shipment, it only being necessary to remove the burner pipes and reel, and remove the end bolts 27. The parts going to make up each wall section are rigid in respect to one another, so that the separate sections may be shipped without danger of injury, and when reaching the destination, they may be very readily assembled due to their extreme simplicity.

In use, the outside surface is of no higher temperature than the surrounding atmosphere, as the insulation and the automatic circulation of air through the walls prevents

heat from passing outwardly to the outer surface. A uniform distribution of air through the air space is insured by the arrangement of channels each with its own inlet and outlet openings, and the channels which form the separate passages also serve to brace the parts and secure them in the desired relationship. The escape of the hot gases from the upper portion of the chamber acts as an injector and draws the air through all of the wall passages.

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

1. An oven having the sides thereof formed of an inner sheet metal wall, an outer sheet metal wall, an intermediate sheet metal partition, a packing of insulating material intermediate the partition and the inner wall, means for spacing the outer wall from the partition and subdividing the space into a plurality of air passages, each out of communication with the interior of the oven and communicating with the outside atmosphere at the lower end, and a conduit communicating with all of said passages at the upper end.

2. An oven having the sides thereof formed with an inner insulating section and an outer air-circulating section, a plurality of channel members subdividing said air-circulating section into a plurality of separate passages, each of which is out of communication with the interior of the oven and communicates with the outside atmosphere at the lower end, and means communicating with each of said passages at the upper end for creating a forced air circulation.

3. An oven having the sides thereof provided with vertically-disposed air passages, each of which communicates with the outside atmosphere at its lower end, a top provided with a plurality of radially-disposed passages communicating with said vertically-disposed passages, a conduit communicating with all of said radially-disposed passages, and a gas escape conduit leading from the interior of the oven and terminating within said conduit, to serve as an ejector to draw air through said passages.

4. An oven having a front wall provided with a vertically-sliding door, a plurality of vertically-disposed air passages within the wall below said door, and each communicating with the outside atmosphere at its lower end, a transverse passage beneath said door and communicating with all of said passages at the upper ends thereof, vertically-disposed passages adjacent the ends of said door and communicating with said transverse passage, a conduit having communication with each of said side passages, and weights for counter balancing said door and movable within said side passages.

5. A knockdown oven having a plurality of sides and a top, each constituting a separate detachable section having an inner insulating portion and an outer air-circulating chamber, said air-circulating chambers being subdivided by a plurality of channel members to form separate air passages, the air passages of the sides communicating with the outside atmosphere at their lower ends and communicating with the passages of the top at their upper ends, and a gas escape conduit for the passages in said top.

6. An oven having a front wall provided with a door, a plurality of vertically-disposed air passages within the wall below said door and each communicating with the outside atmosphere at its lower end, a transverse passage beneath said door and communicating with all of said passages at the upper ends thereof, vertically-disposed passages adjacent the ends of said door and communicating with said transverse passage, and an outlet having communication with each of said side passages.

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

GEORGE BEVERIDGE MEEK.

Witnesses:
W. C. PETTEE,
W. S. GRIES.