No. 836,245. PATENTED NOV. 20, 1906.

R. CRAWFORD.

SECTIONAL OVEN.

APPLICATION FILED OCT. 30, 1905.

3 SHEETS—SHEET 1.

Fig. 1.

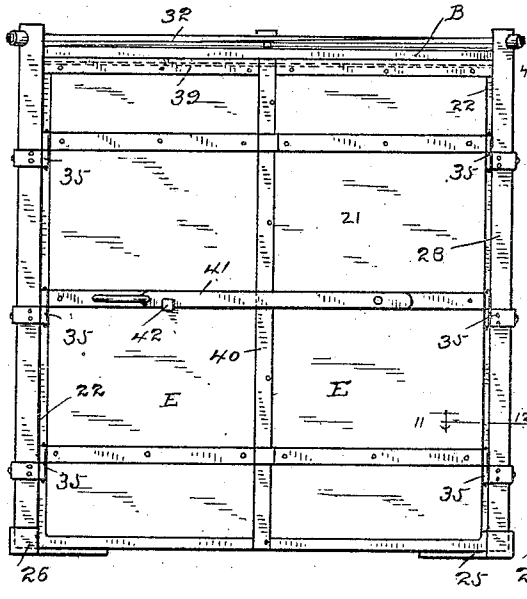


Fig. 3.

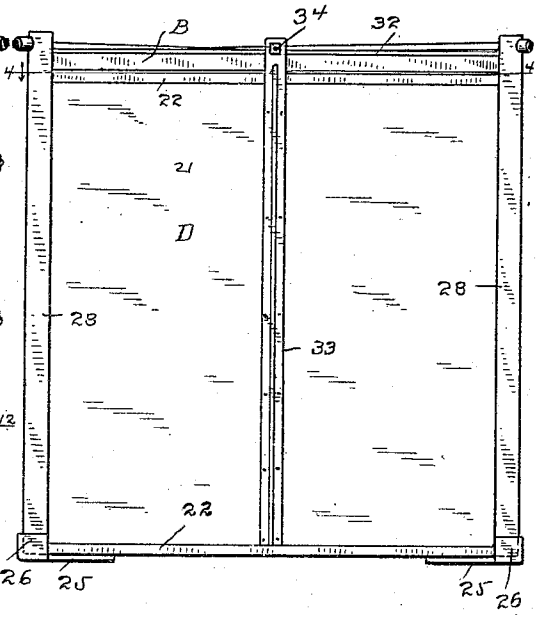


Fig. 2.

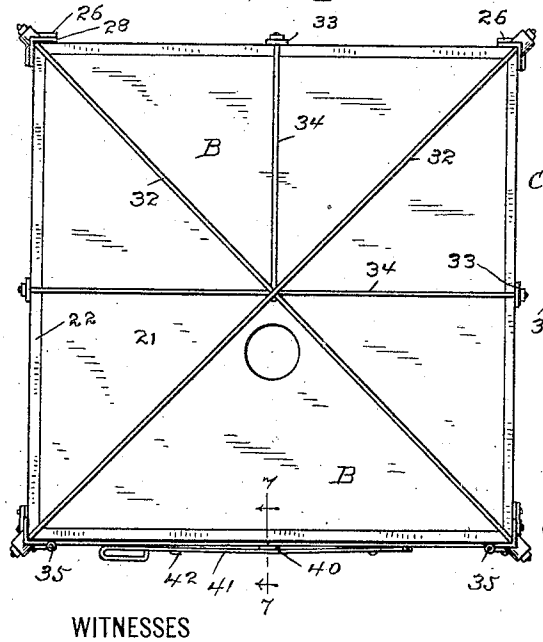
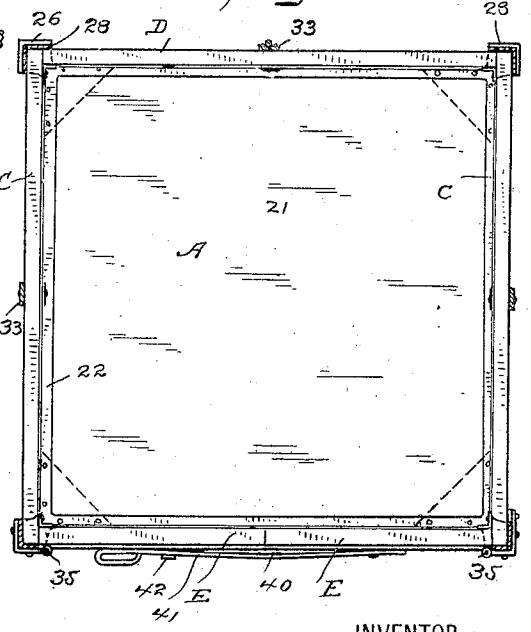


Fig. 4.



WITNESSES

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3 SHEETS—SHEET 2.

Fig. 5.

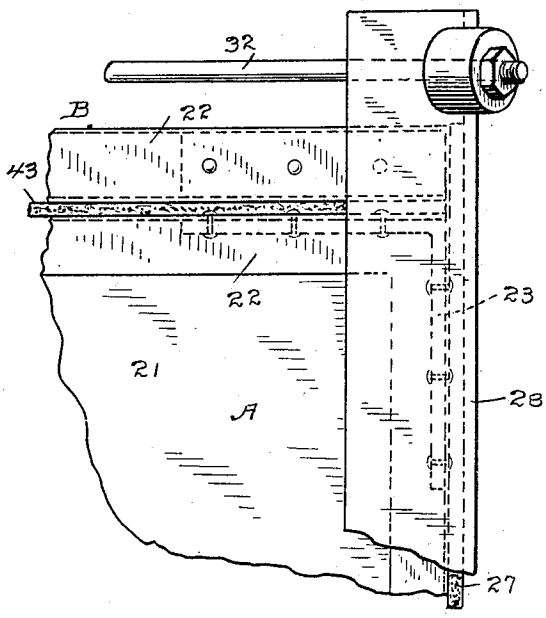
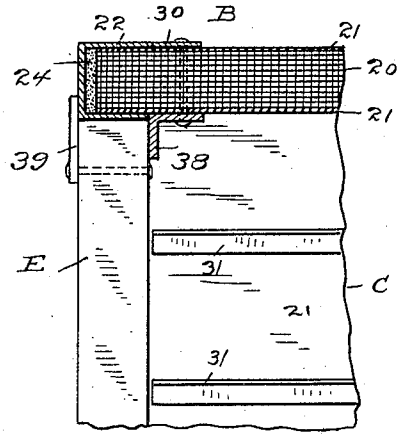


Fig. 7.



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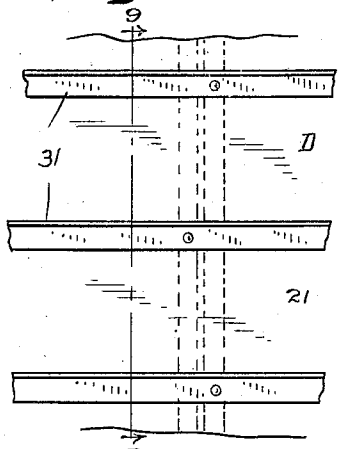

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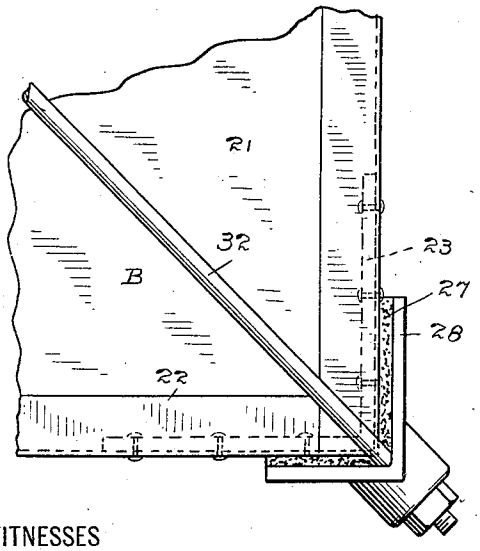

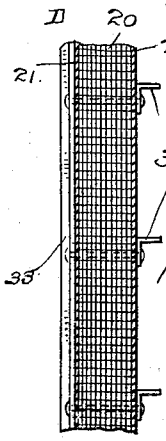

Fig. 9.

WITNESSES

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3 SHEETS—SHEET 3.

Fig. 10.

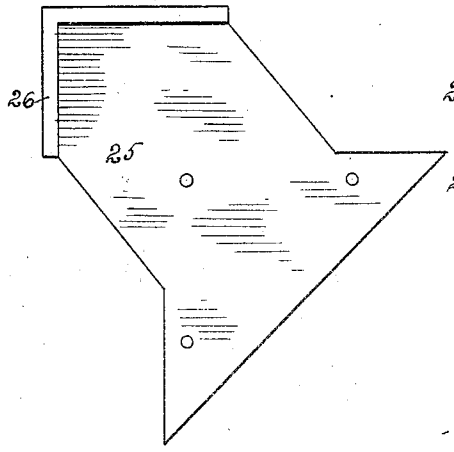


Fig. 11.

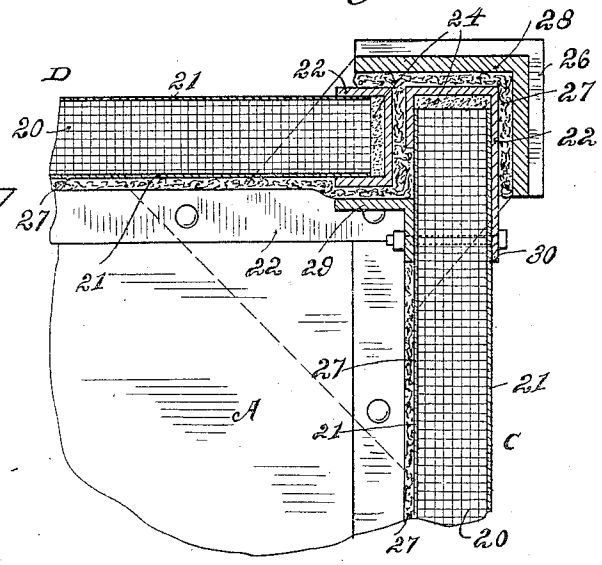


Fig. 12.

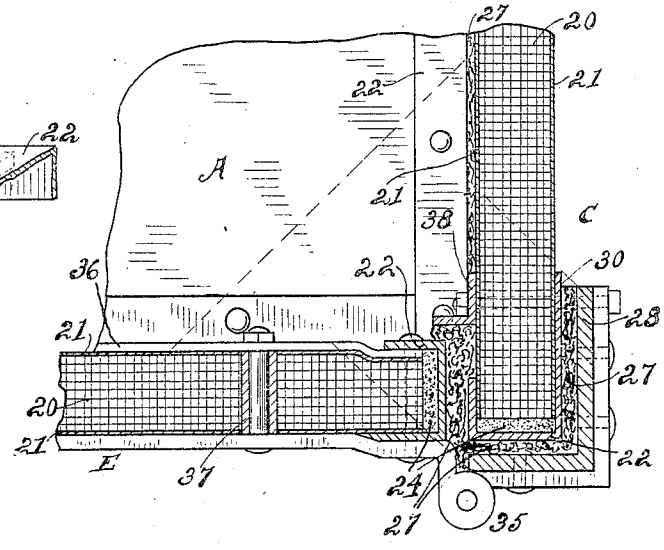
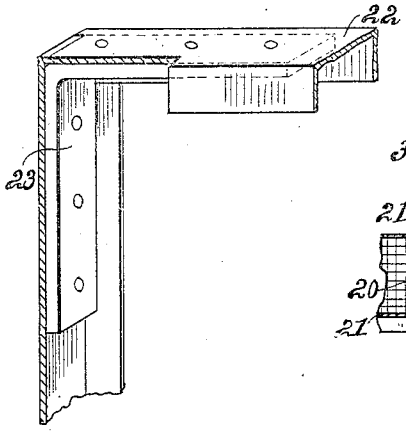


Fig. 13.



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UNITED STATES PATENT OFFICE.

RONALD CRAWFORD, OF STAMFORD, CONNECTICUT.

SECTIONAL OVEN.

No. 836,245. Specification of Letters Patent. Patented Nov. 20, 1906.

Application filed October 30, 1905. Serial No. 285,012.

To all whom it may concern:

Be it known that I, RONALD CRAWFORD, a citizen of the United States, residing at Stamford, county of Fairfield, State of Connecticut, have invented a new and useful Sectional Oven, of which the following is a specification.

This invention has for its object to provide an oven adapted for general use as for baking japanned articles, which shall be made in sections, so that it can be shipped in knocked-down form and readily set up at the place of use, in which the sections shall be made of insulating material and be insulated from each other, so that heat cannot pass from one section to another, which shall be so constructed that expansion and contraction of the parts will not throw the oven out of square or permit escape of heat, the joints, in fact, becoming tighter as the heat increases, and in case of explosion the oven shall not be blown to pieces, but the roof will rise and permit the gases to escape and will then settle to place again, and which shall be thoroughly scientific and relatively inexpensive to build and inexpensive to run on account of saving in fuel, as the heat in the oven cannot escape.

With these and other objects in view I have devised the novel structure of which the following description in connection with the accompanying drawings is a specification, reference characters being used to indicate the several parts.

Figure 1 is a front elevation of my novel oven complete; Fig. 2, a plan view; Fig. 3, a rear elevation; Fig. 4, a section on the line 4 4 in Fig. 3, the top being removed and the sides, back, and door appearing in plan; Fig. 5, a detail elevation, on an enlarged scale, illustrating an upper corner of the oven; Fig. 6, a detail plan view corresponding therewith; Fig. 7, a detail sectional view on the line 7 7 in Fig. 2, showing the top in section and the edge of the left door in elevation; Fig. 8, a detail elevation showing the inner side of one of the sides; Fig. 9, a detail section of the back on the line 9 9 in Fig. 8; Fig. 10, a plan view of a bottom corner-plate detached; Fig. 11, a detail transverse section of a back corner on the line 11 12 in Fig. 1; Fig. 12, a similar section of a front corner on the same line; and Fig. 13 is a detail perspective, partly in section, showing top and side channel-plates and the angle-plate by which they are secured together.

A denotes the bottom; B, the top; C, the sides; D, the back, and E the doors, which are hinged to the sides. These parts which are all made independently of each other, I term "sections." They consist, essentially, of walls of cellular insulating material (indicated by 20) lying between loose side sheets of iron (indicated by 21.) The edges of the walls and side plates lie in channel-plates 22, which are rigidly secured in place by angle-plates 23. It should be noted that the side plates merely lie within the channel-plates and are not secured thereto, so that they are free to expand in any direction and buckling is wholly prevented. The insulating material used in the sections is preferably a material known as "asbestos" cellular insulating material, which consists of superposed corrugated sheets of asbestos, the corrugations of alternate sheets lying in opposite directions and the ends being closed by cement lying between the edges of the sheets and the channel-plates and indicated by 24, whereby dead-air cells or spaces are formed. The mode of making the sections and of assembling them in setting up an oven will be readily understood from Figs. 11 and 12. The sections are made of any required size and shipped ready for setting up. In building the sections the channel-plates are secured together by means of the angle-plates, as indicated in Fig. 13, and the insulating-walls and side plates are sprung into place.

In setting up an oven the back and sides are placed upon corner-plates 25, provided at the corner edges with flanges 26, against which corner angle-plates 28 rest. The bottom, also resting upon the corner-plates, is placed between the back and sides. Insulating material, which may be asbestos, firefelt, mineral wool, or any suitable material and which is indicated by 27, is placed between the parts themselves and also between the parts and the corner angle-plates, so that the sections are held together in use with perfectly-tight joints, but without securing the sections to each other and without a metal contact therebetween. Hence there is less tendency of distortion and possible disengagement of the parts under the action of the heat and especially where the heat is unevenly distributed, in addition to which the expan-

sion and contraction of the sections are confined to each individual section. In practice the ends of the back rest against stay-plates 29, which are bolted to the sides, but not to the back, the bolts passing entirely through the sides and through vertical strips 30, lying outside of side sheets 21. Upon the inner side of the sides I provide rests 31 to support rods from which articles to be baked may be suspended. The bottoms of corner angle-plates 28 are secured in place by the flanges of corner-plates 25, which in turn are rigidly bolted to the bottom. The upper ends of corner angle-plates 28 extend above the top and are secured in place by diagonal tie-rods 32.

33 denotes vertical strips at the center of the sides and back, which are bolted to side sheets 21, extend above the top, and the upper ends of which are secured by tie-rods 34. The top is not secured to the sides or back, but merely rests thereon, being held in place by corner angle-plates 28 and vertical strips 33. Should an explosion occur within an oven, the top will be raised thereby and the entire force of the explosion will blow off under the top and over the tops of the sides, back, and doors, the top being merely lifted by the explosion, but held against removal or displacement by the corner angle-plates, vertical strips, and tie-rods, so that after being lifted it will instantly settle back to place, no damage whatever having been done to the oven. The doors are hinged to the sides. In the present instance they are shown as swinging upon heavy strap hinges 35, one strap being bolted to the corner angle-plate and the other to the door, strengthening-plates 36 being preferably placed on the inner sides of the doors through which the bolts pass. The bolts are shown as passing through metal sleeves 37, so as to permit the nuts upon the bolts to be tightened up without crushing the insulating material of the doors. Two doors are preferably used, which meet at the center. These doors swing against stop-plates 38, which are rigidly secured to the under side of the top and are provided on their outer side at the top with plates 39, which overlap the joint and prevent the escape of heat. One of the doors is also provided with an edge strip 40, which overlaps the other door and prevents the escape of heat at the joint between the doors.

The doors are shown as locked in the closed position by means of a latch 41, pivoted to one of the doors at about its mid-width, springing over edge strip 40 and engaging a catch 42 at about the mid-width of the other door. The springing of the latch over edge strip 40 and its engagement with the catch upon the other door forces both doors tightly to the closed position and retains them securely closed under the ordinary conditions of use. An explosion, however, might blow the doors open in addition to lifting the top without injury to oven or doors. This is an additional safeguard and in connection with the lifting of the top wholly does away with any danger of injury to the oven by means of an explosion.

It should be noted that the several sections of the oven are not secured to each other in any manner, but are held in position without attachment by means of the flanged corner-plates, the corner angle-plates, the vertical strips, and the tie-rods. This leaves every section of the oven free to expand and contract independently of other sections, so that no matter how uneven the heat within the oven may be no injury can be done to the oven by uneven expansion and it will be impossible to throw the oven out of square, as the parts will be retained in place by the corner-plates and the tie-rods. In use the corner angle-plates, the vertical strips, and the tie-rods are practically cold—that is to say, no matter how high the temperature within the oven may be these parts do not become heated to any appreciable degree.

Having thus described my invention, I claim—

1. An oven-section consisting of side plates, channel-plates at the edges thereof, insulating material inclosed by the side plates and channel-plates, said side plates and insulating material extending into the channel-plates, and cement between the edges of the insulating material and the channel-plates.

2. An oven-section consisting of a wall of cellular insulating material, loose side plates on opposite sides thereof, channel-plates at the edges thereof and cement between the edges of the wall and the channel-plates whereby the air-cells are closed.

3. An oven consisting of insulating-sections, corner angle-plates, corner-plates having flanges engaged by the corner angle-plates and tie-rods connecting the corner angle-plates at the top.

4. An oven consisting of insulating-sections, corner angle-plates, corner-plates having flanges engaged by the corner angle-plates, vertical strips 33, tie-rods connecting the corner angle-plates at the top and tie-rods connecting strips 33.

5. An oven consisting of independent sides, back, bottom and top each made of insulating material, corner angle-plates engaging the sides and back without attachment thereto, corner-plates secured to the bottom and having flanges engaging the corner angle-plates, and tie-rods connecting the corner angle-plates above the top, so that the top may be lifted to permit escape of gases without displacement and will settle back to place.

6. An oven consisting of independent sides, back, bottom and top each made of insulating material, corner angle-plates engag-

ing the sides and back, corner-plates secured to the bottom and having flanges engaging the corner angle-plates, insulating material between the sides, back, bottom and top at their points of engagement, and tie-rods connecting the corner angle-plates above the top.

7. An oven consisting of independent sides, bottom, back and top each made of insulating material, corner angle-plates engaging the sides and back without attachment thereto, corner-plates secured to the bottom and having flanges engaging the corner angle-plates, vertical strips 33, tie-rods connecting the angle-plates above the top and tie-rods connecting strips 33 above the top, substantially as described, for the purpose specified.

8. An oven consisting of independent sides, back, bottom and top each made of insulating material, stay-plates on the sides against which the back rests without attachment, corner angle-plates engaging the sides and back without attachment to either, corner angle-plates secured to the bottom and having flanges engaging the corner angle-plates and tie-rods connecting the corner angle-plates above the top.

9. An oven consisting of insulating-sections, corner angle-plates, corner-plates having flanges engaged by the corner angle-plates, tie-rods connecting the corner angle-plates at the top, hinged insulating-doors having a latch, and a stop-plate for limiting the inward movement of the doors.

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

RONALD CRAWFORD.

Witnesses:
A. M. WOOSTER,
S. W. ATHERTON.