

Nov. 14, 1933.

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1,934,787

HEATING COIL

Filed Sept. 15, 1931

Fig. 1.

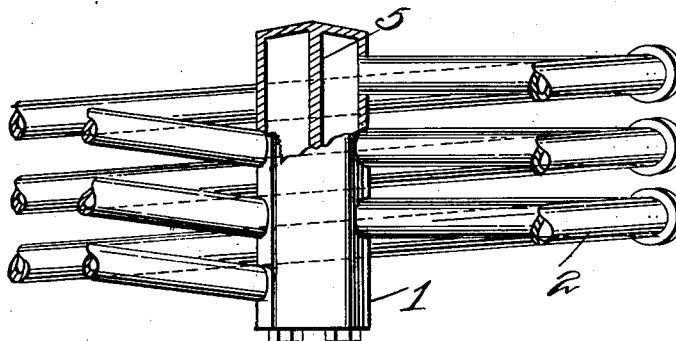
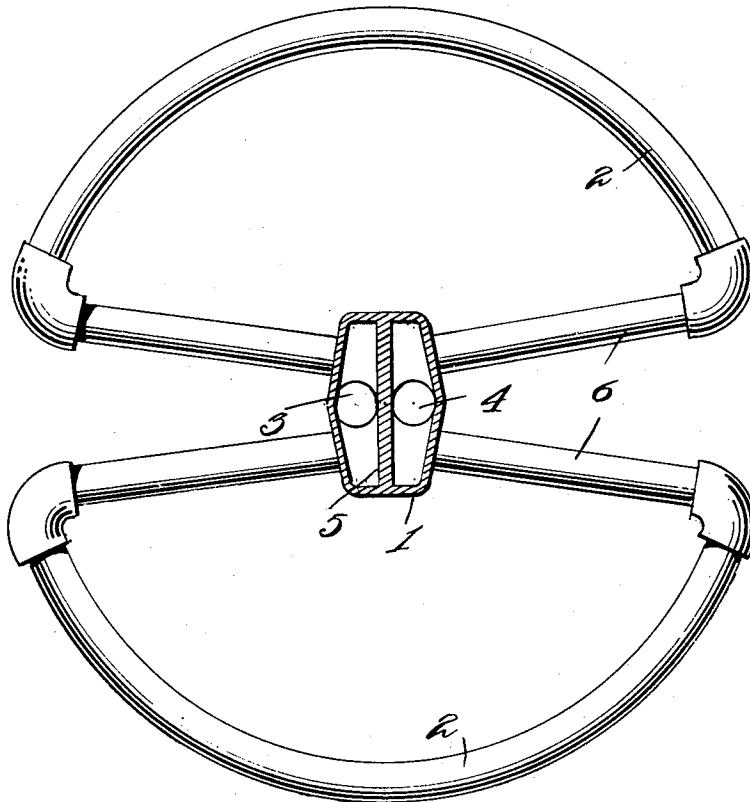


Fig. 2.

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UNITED STATES PATENT OFFICE

1,934,787

HEATING COIL

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Application September 15, 1931
Serial No. 562,964

3 Claims. (Cl. 257—248)

This invention relates to a heating coil for use in cooking ketchup or like substances and is used inside a suitable cooking tank or vessel the substance to be cooked being in the vessel and the coil immersed in the substance. The coil is preferably heated by steam or hot water, although it is quite obvious that other media may be used for heating.

This coil is constructed to be self draining and to have no cold air pockets so that the heating medium will flow through the coil without hindrance and properly heat every portion of it.

Broadly the coil comprises a central header into which a plurality of semi-circular coils have connection, this central header has inlet and outlet means in the bottom for the admission of the heating medium, the coils being completely closed except for their connection with the central header. The header also has a central partition to cause the heating medium to flow through all the coils before it can escape.

Fig. 1 of the drawing is a plan of an assembly embodying the invention with the top of the central header cut away to clearly show the partition and the inlet and outlet.

Fig. 2 is a vertical elevation partly in section to clearly show the manner of assembling the coils with the header.

1 represents the central header. 2 represents the coils. 3 the inlet for the heating medium and 4 the outlet for the heating medium after it has traversed the coils. 5 is the partition in the header that forces the heating medium to flow through the coils before it can escape.

The coil sections 2 are partly semi-circular and are then joined by radial sections 6 that connect directly with the header. This construction gives opposed heating units having circular heating areas and radial elements for crossing the body of material being heated which arrangement tends to distribute the heat throughout the mass of material much more effectively than where the coils are only circular, and with the relatively large header element in the center of the assembly and therefore in the center of the mass of material the heat distribution is very much improved over previous devices designed for this purpose.

There are three tiers of coil sections shown connected with the header but it is of course understood that as many coil sections may be arranged in vertical superposed relation as is necessary to supply the heat for the purpose in hand.

It will also be observed that the vertical height of the heating unit also has a very marked effect on the heating capacity of the unit, because as many coil sections may be used in superposed relation as is necessary to heat the product in the time desired.

The manner of connecting the coils to the

header also has a very decided effect on the distribution of the heat. When the heating medium flows into the header it divides and passes substantially equally through the opposed coil sections so that maximum heat is delivered more nearly over the entire heating area than if the heating medium was directed through a series of circular coils, because as soon as the heating medium begins to flow into the coils proper the heat is instantly absorbed by the product being heated so that not much of the original heat is left when the medium reenters the header to pass out of the unit. This arrangement of assembling the coils to the header shortens the several paths taken by the heating medium and thus permits a more regular flow of medium carrying the maximum temperature and thereby the product is brought to the proper cooking or heating temperature in the minimum of time and expenditure of heat from the medium.

What I claim as new and desire to secure by Letters Patent is:

1. A heating unit for cooking or sterilizing food products or the like comprising a centrally located header element, opposed coil sections comprising a plurality of coils connected with said header in multiple, each coil section comprising a plurality of circular portions and radial portions, a division wall in said header to direct the flow of heating medium into one end of the multiple sets of coil sections, with inlet and outlet means for the heating medium in said header.

2. A heating unit for cooking or sterilizing food products or the like comprising a header element, a partition in said element dividing it into two compartments, a plurality of opposed coil sections comprising a plurality of coils each connected in multiple with said header, one end of each coil section entering on one side of the partition in said header and the other ends of the coils sections entering on the other side of said partition, all of said coils being inclined to be self draining into said header.

3. A heating coil unit for heating food products or the like comprising a centrally disposed header element, opposed coil sections comprising a plurality of coils connected in multiple to said header element, each coil section comprising a circular portion and two radial portions, the radial portion having connection with said header element to thereby shorten the path of flow of the heating medium through the said unit.

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