

July 26, 1949.

W. F. SKINNER

2,477,210

REFRIGERATOR DRINKING WATER COOLER

Filed March 13, 1947

2 Sheets-Sheet 1

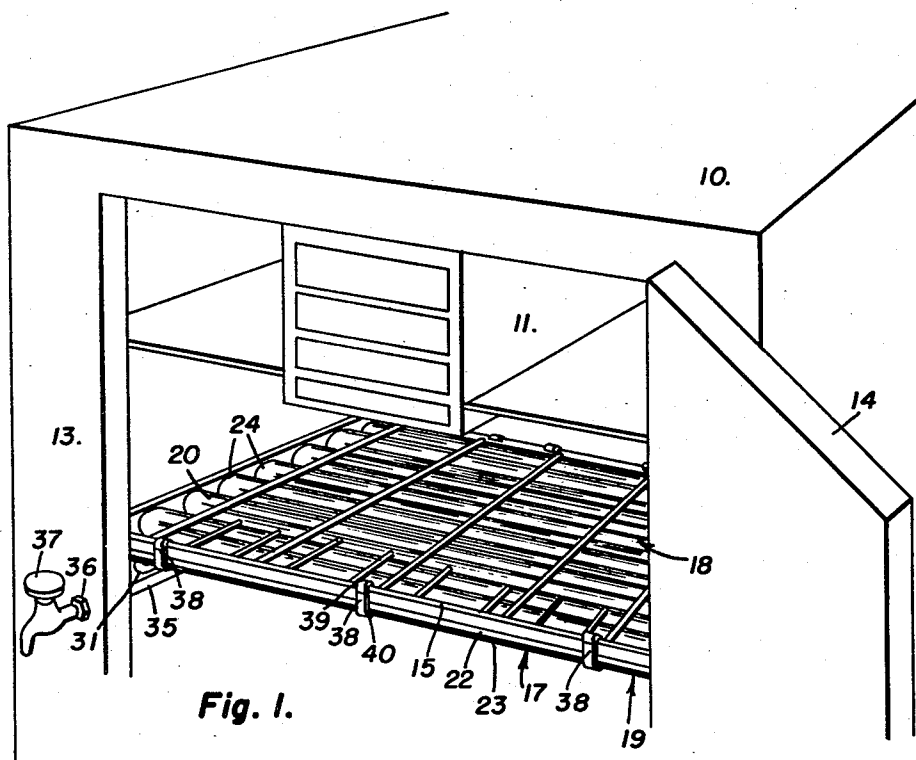


Fig. 1.

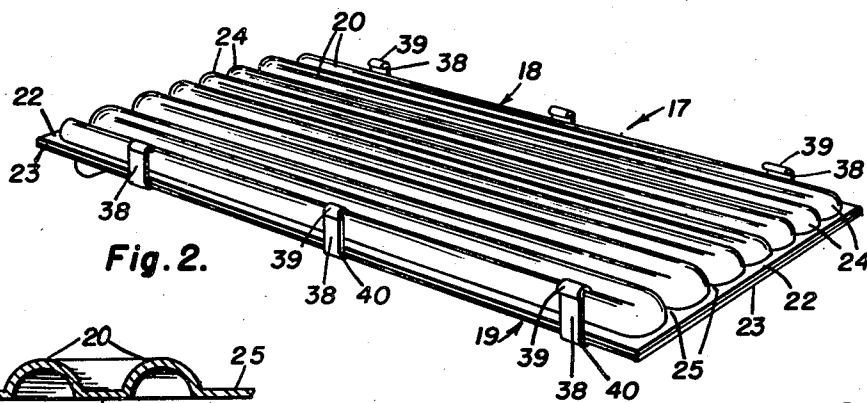


Fig. 2.

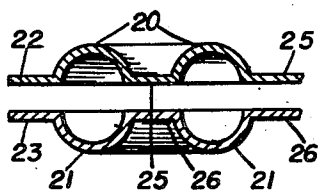


Fig. 6.

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2 Sheets-Sheet 2

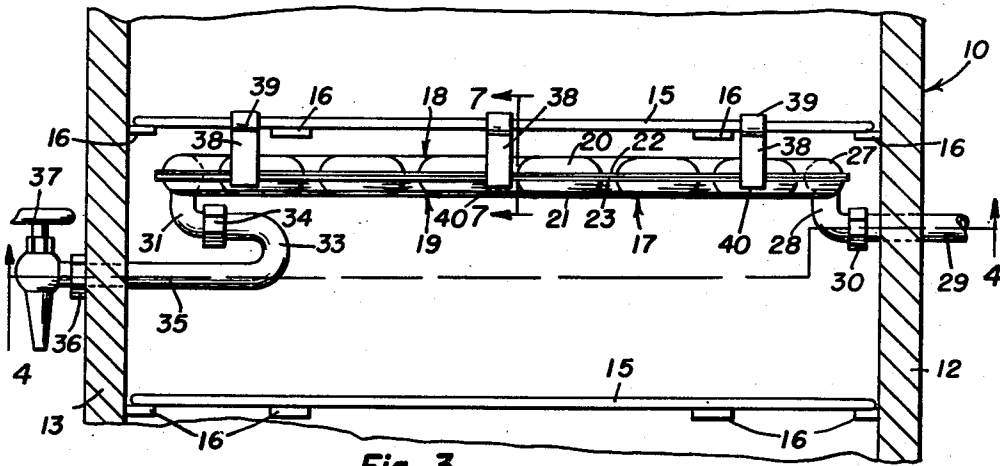


Fig. 3.

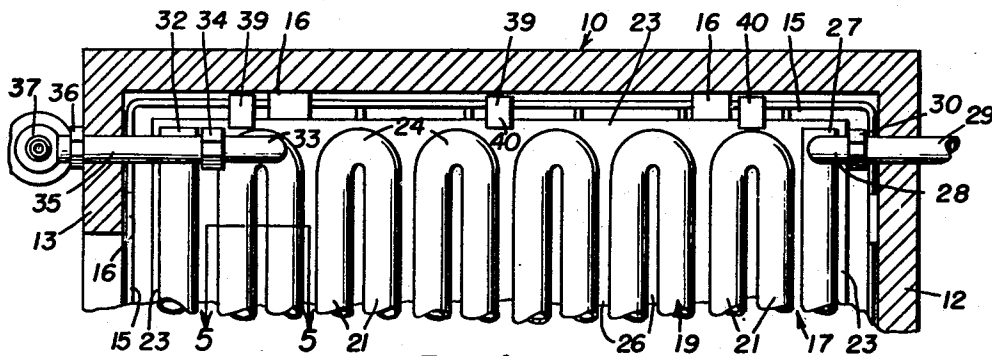


Fig. 4.

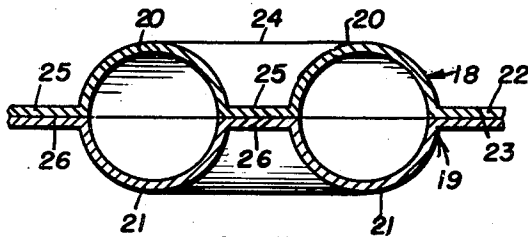


Fig. 5.

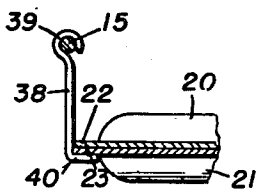


Fig. 7.

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UNITED STATES PATENT OFFICE

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REFRIGERATOR DRINKING WATER COOLER

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2 Claims. (Cl. 62-141)

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My invention relates to a refrigerator drinking water cooler or cooler unit, designed as an attachment to a permanent or other shelf of a refrigerator, to receive water from a source of supply such as a city water system or gravity feed from an outside bottle or tank, and adapted to cool the water for the purpose of furnishing a constant supply of cold drinking water to be drawn out as desired.

Another object of the invention is to provide a cooler unit for drinking water comprising a pressed sheet metal circuitous circulating medium pressed from sheet metal such as stainless steel or other suitable material silver soldered or otherwise secured together so that two sections will form a circulating coil through which the water passes and is cooled, from the city water supply, to be drawn off as desired for drinking or other purposes. Obviously, the device may be made of other suitable sheet material such as copper, consisting of two sections put together and held by spot welding or otherwise with the edges soldered and dipped so as to render the same watertight, and provided with means for detachably suspending the same from a wire frame or other shelf of a refrigerator, so as to lend the same to be readily removed and cleaned, but accessible without removal for such purposes and without collecting frost or ice, such as would occur by resting the same on a horizontal supporting surface of sheet metal or solid wall placed beneath the cooler unit or coil, thereby rendering the device extremely sanitary, economical to produce, easy to install and efficient in operation.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view showing a wire shelf in a portion of a refrigerator with the door opened and the drinking water cooler or cooler unit mounted in position therein;

Figure 2 is a perspective view of the water cooler or unit detached from the refrigerator;

Figure 3 is a side elevation of the cooler mounted in a refrigerator and suspended from a permanent or removable shelf thereof;

Figure 4 is a fragmentary plan view of the structure shown in Figure 3, taken on the line 4-4 of Figure 3;

Figure 5 is an enlarged fragmentary sectional view taken on the line 5-5 of Figure 4;

Figure 6 is a fragmentary sectional view simi-

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lar to Figure 5 on a reduced scale but showing the manner of assembling the two sections forming the cooler unit, and

Figure 7 is a fragmentary vertical sectional view taken on the line 7-7 of Figure 3.

Referring to the drawings in detail, in which like reference characters designate corresponding parts throughout the several views, there is shown a refrigerator 10 of the usual or any preferred construction having a cooling unit 11 ordinarily operated in connection with a refrigerating gas, such as ammonia, ethyl chloride or otherwise, the former being driven electrically while the latter is usually cooled by circulating water, but the construction thereof forms no part of the present invention and is conventional in the art. The refrigerator is shown provided with the usual insulated walls having a rear wall 12 and a front wall 13 forming a surrounding door frame, adapted to be closed by a suitable swinging or hinged door 14 of any preferred or conventional construction. Within the interior refrigerating compartment of the refrigerator, any number of permanent or removable shelves 15 may be supported, the same being shown as wire frames mounted upon supporting lugs or brackets 16 extending from the side, front and back walls of the refrigerator box and from which the drinking water cooler unit of the present invention is adapted to be suspended, preferably from the highest shelf such as in close proximity to the refrigerator unit 11, although it is not desired to be limited thereto as the water cooling unit may be supported in any other suitable position and the temperature within the refrigerator maintained at the customary temperature above the freezing point.

The water cooler comprises a unit 17 composed of two sections or sheets of sheet metal comprising an upper section 18 and a lower section 19 pressed from stainless steel, copper or otherwise with opposed oppositely semi-circular or concave water cooling and circulating portions or coils 20 and 21 and surrounding flat portions 22 and 23 silver soldered or spot welded together to form watertight circulating coils communicating with each other alternately at opposite ends of the coils or channels pressed from the sheets through bent U-shaped or elbow portions 24 at opposite ends thereof in staggered relation. The intermediate flat portions 25 and 26 between the coils are also secured together in watertight connection as described in connection with the surrounding edge or rim portions 22 and 23 which may be spot welded together, with the edges

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soldered and dipped in solder or other suitable sealing agent to form a watertight joint.

The coils are preferably set crosswise of the refrigerator compartment beneath the refrigerating unit 11 and at one side wall of the refrigerator at the back, the end portion of a coil indicated at 27 forms the inlet, and has an elbow 28 secured in a portion 21 through an opening therein and suitably soldered in position or formed integral therewith near the closed end 27 sealed by the attached surrounding flat portions 22 and 23. This elbow extends rearwardly for connection with a supply pipe 29 connected to the city water supply and coupled to the elbow 28 by a compression coupling or nipple 30 so that the water may enter the coils. At the front, a similar elbow 31 is attached to the end 32 of the coils at the same side of the refrigerator so as to depend therefrom, the connection being made in the same manner as the elbow 28 by soldering or otherwise, or even by brazing, and a gooseneck pipe or otherwise indicated at 33 connected to the extremity of the elbow 31 by a compression coupling or nipple 34 similar to the coupling or nipple 30. The pipe 33 then has a straight or rectilinear portion 35 which extends through the front wall 13 at one side of the door opening, with a suitable clamping ring or nut 36 and a faucet or spring closed valve 37 having a repressible plunger or valve head which is merely depressed to discharge the cooled water therefrom into a glass or other container. Of course, any suitable valve or faucet may be substituted for that depicted.

In order to support the drinking water cooler unit, the same is removably suspended from the shelf 15 of removable or permanent character, as by means of small clips or hangers 38 having hooks 39 engaged around the frame or rim portions of the shelf 15 and having angular portions 40 at the bottom to be engaged under the rim or edge portions of the formed sheets 18 and 19 at the flat portions 23 to removably support the coils and cooling unit or secured thereto if desired in any suitable manner, as by soldering, welding, brazing or the like. Attention is also directed to the fact that the coil dimensions and the sheets from which the same are formed are smaller than the refrigerator shelf to readily accommodate the cooling unit therebeneath with a space surrounding the same and between the unit and the walls of the refrigerator, which also facilitate the connections with the water supply pipe and the valve or faucet. In this way, a constant supply of cold drinking water in fresh condition is insured direct from the city water supply or other source, using a refrigerator, thereby obviating the necessity of using an extra means of refrigeration or necessitating the drinking of water using

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ice, either requiring an ice supply, or from the cubes produced in the refrigerator unit 11.

While in the foregoing there has been shown and described the preferred embodiment of this invention it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

What I claim is:

1. A drinking water cooler comprising a pair of sheets one overlying the other, an inlet member for supplying water to said cooler, an outlet member for withdrawing water therefrom, and means for suspending said cooler from a portion of a refrigerator, each sheet being embossed to provide not only a series of straight parallel channel elements connected one to another at their ends by curved channel elements to form a continuous conduit, but also flat portions separating the channel elements one from another and other flat portions at the extremities of the sheet, the flat portions of one sheet being welded to the corresponding flat portions of the other sheet, said inlet member being connected to one end of said conduit and said outlet member being connected to the other end.

2. In combination with a refrigerator including a compartment and a shelf mounted in said compartment, a drinking water cooler comprising a pair of sheets one overlying the other, an inlet member for supplying water to said cooler, an outlet member for withdrawing water therefrom, and means for suspending said cooler from said shelf, each sheet being embossed to provide not only a series of straight parallel channel elements connected one to another at their ends by curved channel elements to form a continuous conduit, but also flat portions separating the channel elements one from another and other flat portions at the extremities of the sheet, the flat portions of one sheet being welded to the corresponding flat portions of the other sheet, said inlet member being connected to one end of said conduit and said outlet member being connected to the other end.

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The following references are of record in the file of this patent:

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