April 14, 1953 R. T. CORNELIUS 2,634,745

COOLING DEVICE FOR FAUCETS

Filed July 29, 1949

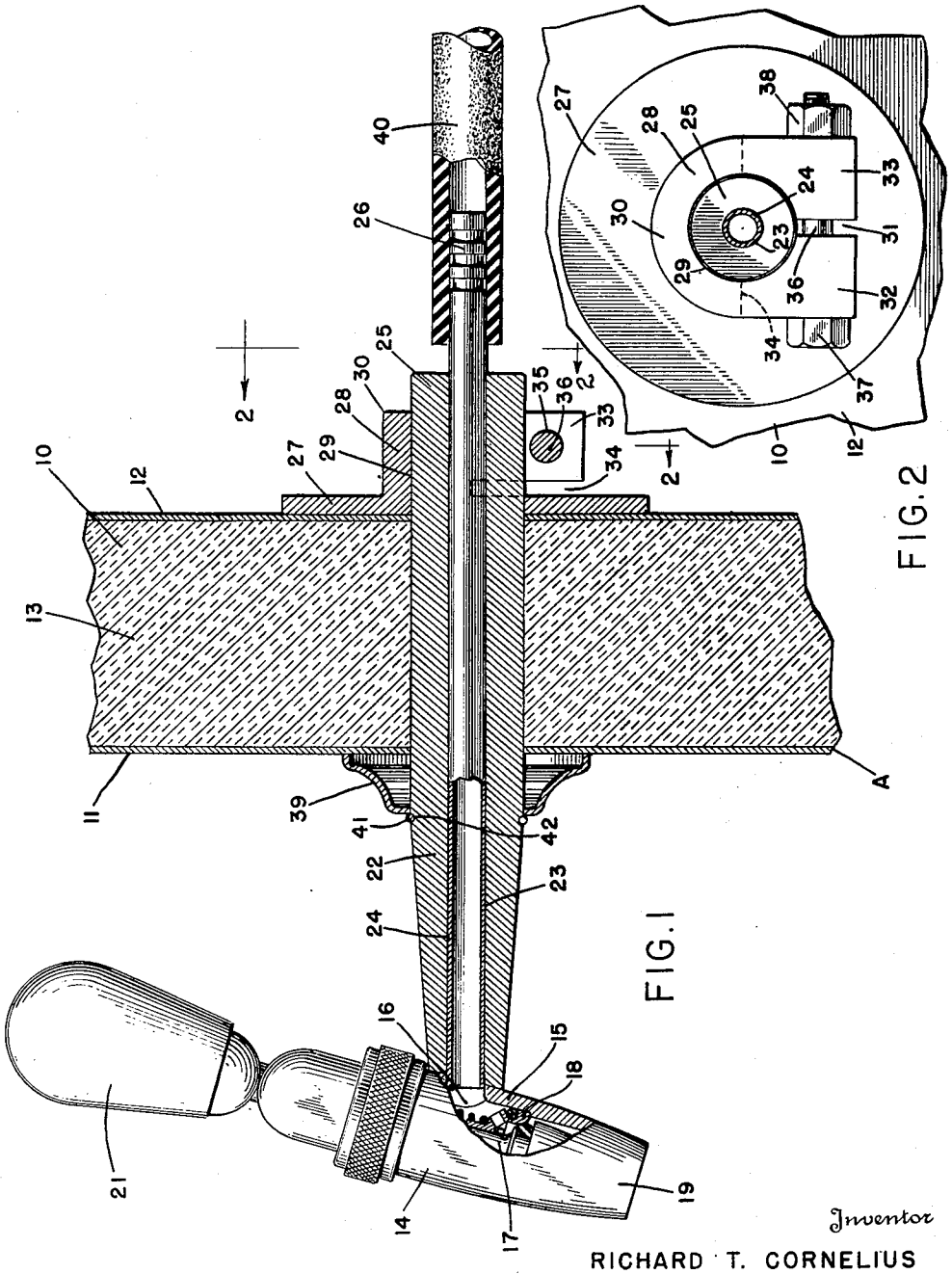


FIG. 2

FIG. 1

Inventor

RICHARD T. CORNELIUS

By Caswell & Lagaard

Attorneys.

Patented Apr. 14, 1953 2,634,745

UNITED STATES PATENT OFFICE

2,634,745

COOLING DEVICE FOR FAUCETS

Richard T. Cornelius, Minneapolis, Minn.

Application July 29, 1949, Serial No. 107,405

10 Claims. (Cl. 137—334)

1

My invention relates to faucets and particularly to cooling devices for faucets adapted to be used with a refrigerator having an insulated wall provided with a metal lining contacting the cooling medium. An object of the invention resides in providing the cooling device disclosed in the accompanying drawing, specification and claims and having the functions and advantages hereinafter set forth.

In the drawings I have shown a portion of a refrigerator having an insulated wall formed with a metal lining adapted to contact the cooling medium of the refrigerator. In conjunction with the said refrigerator an ordinary faucet has been shown which has connected to it either by brazing or otherwise a heavy metal shank having marked heat conducting properties said shank being adapted to extend through the wall of the refrigerator and inwardly into the interior thereof. This shank has a bore in the same and in which is placed a tube of suitable properties to resist corrosion and deterioration by the flow of the liquid to be dispensed and which forms a fluid-tight connection with the faucet. This tube extends inwardly into the refrigerator and beyond the shank and is provided at its inner end with a hose connection to which a suitable hose may be attached for connecting the tube and faucet to a suitable cooling coil in the refrigerator and which in turn is connected to the container of the liquid to be dispensed. Mounted on the inner lining of the refrigerator is a plate which may be soldered to or otherwise connected to the lining in intimate heat conducting relation with respect thereto throughout the major portion of the area thereof. This plate has a clamp issuing inwardly therefrom and preferably integral therewith and which is in the nature of a collar formed with a bore therein and through which the shank of the faucet may extend. The said collar is separated from the plate from which it issues for a portion of the diametrical extent of the collar and at said locality is formed with a longitudinal slit dividing the collar into two relatively movable parts. A bolt extends through these parts and serves to draw the same together and into contact with the shank to provide heat conducting contact therewith.

In the drawings:

Fig. 1 is a cross sectional view of a portion of a refrigerator illustrating a faucet together with a cooling device embodying my invention applied thereto.

Fig. 2 is an elevational sectional view of the structure shown in Fig. 1 and taken on line 2—2 of Fig. 1.

2

In the dispensing of beverages such as beer and the like, when the dispensing apparatus has been idle for a period of time the faucet becomes warm and the first glass of beer or beverage drawn is usually of a temperature considerably greater than that of the second or third glass drawn. The instant invention provides a construction whereby the shank of the faucet and the faucet proper may be maintained at a temperature more nearly to that of the beer to be dispensed and whereby the variation in temperature of the beer as drawn from the faucet is more nearly constant regardless of the lapse of time between the drawing of successive glasses of beer.

For the purpose of illustrating the invention I have shown a portion of the wall 10 of a refrigerator A. Refrigerator A may be a cooling system such as is now in common use for cooling the beverage to be drawn and may contain a coil or other cooling apparatus not shown in the drawings and which is adapted to be connected to the faucet. This coil is either immersed in water, brine or some other suitable coolant which is contained within the interior of the refrigerator. The wall 10 consists of an outer case 11 constructed of metal, wood or any other suitable material. Within this case is disposed a lining 12 which forms a suitable receptacle in which the coolant is placed. The lining 12 is spaced from the case 11 and in this space is filled a suitable insulation 13 which prevents the rapid infiltration of heat to the coolant. The lining 12 is preferably constructed of tinned copper, or some other suitable heat conducting material which is not readily attacked by the coolant employed.

The invention may be used with any type of faucet and for the purpose of illustration a faucet 14 is shown. This faucet has a body 15 preferably of a nickel alloy such as stainless steel or of brass and when constructed of brass is preferably plated upon the interior thereof. The body 15 of faucet 14 is provided with a valve chamber 16 in which is disposed a valve 17 adapted to seat on a seat 18. A nozzle 19 at the lower end of the body 15 discharges the beverage therefrom. The valve 17 is adapted to be operated by means of a handle 21 in any suitable manner. The construction of the faucet forming no feature of the invention has not been shown in detail in this application.

Issuing outwardly from the body 15 of faucet 14 is a shank 22. This shank is constructed of brass or some other suitable heat conducting material and is of appreciable dimensions. The said shank has a bore 23 therein which extends throughout the length of the same and which communicates

with the chamber 16 in the body 15 of the faucet. I have found that the diameter of the shank should be preferably at least twice the diameter of the bore therein. Within the bore 23 is disposed a tube 24 preferably of a nickel alloy such as stainless steel or the like and which is soldered to the body 15 to form a fluid-tight connection therewith. The said tube may or may not be disposed in heat conducting relation with reference to the shank 22. The shank 22 is preferably brazed to the body 15 or if desired the same may be integral therewith to form a connection providing rapid heat transfer between the faucet and shank. The tube 24 extends inwardly beyond the end 25 of shank 22 and is provided with a hose connection 26 by means of which a flexible hose 40 may be connected. Hose 40 is adapted to be connected to the coil or other cooling device for cooling the beverage discharged from the nozzle 19 of the faucet.

Encircling the inner end 25 of shank 22 is a plate 27 of heat conducting material such as brass, copper or the like. This plate has extending outwardly from it a collar 28 which is preferably integral therewith to form a good heat conducting connection therebetween. The collar 28 and plate 27 are formed with a bore 29 through which the end 25 of shank 22 extends. The plate 27 is preferably soldered to the lining 12 or the same may be connected thereto in any suitable manner providing sufficient heat transfer therebetween. The collar 28 is formed with a longitudinal slit 31 and is somewhat enlarged at such locality to form two ears 32 and 33 disposed on opposite sides thereof. The ears 32 and 33 and a portion of the collar proper are severed from the plate 27 by means of a kerf 34. By means of this construction the ears 32 and 33 may be drawn together. For this purpose a hole 35 is formed in the two ears 32 and 33 and through which a bolt 36 extends. This bolt has a head 37 engaging the ear 32 and is provided with a threaded nut 38 screwed on the said bolt and engaging the ear 33. When the said bolt is screwed up the two ears 32 and 33 are drawn together and a tight connection formed between the shank 22 and the collar 28. In this manner the collar 28 and ears 32 and 33 form a clamp for connecting the plate 27 to the shank 22 and which is indicated in its entirety by the reference numeral 30.

For ornamental purposes a collar 39 is employed which encircles the shank 22 exteriorly of the case 11. This collar seats against said case and against a ring 41 mounted in a groove 42 in the shank 22. Said collar and ring form a a stop for limiting the inward movement of the shank into the refrigerator.

In use the nut 38 is loosened and the clamp 30 becomes disengageable from the shank 22. Upon removing the hose 40 the shank and faucet may be completely withdrawn from the refrigerator for the purpose of cleaning the faucet and the tube 24. In mounting the faucet into the refrigerator the shank is inserted in the bore 29 and when the collar 39 strikes the case 11 nut 38 is tightened. The shank then becomes rigidly positioned and in heat conducting relation with respect to the plate 27 and the lining 12. Hose 40 is again applied and the faucet is ready for use. In use the cooling medium within the refrigerator is in contact with the lining 12 and cools said lining and the exposed parts of the shank 12, tube 24 and clamp 30. The shank 22 being of substantial proportions conducts the heat away from the body 15 of faucet 14 and thus maintains the faucet cool. By the use of a separate tube 24 corrosion of the shank is prevented and contamination of the liquid dispensed is prevented.

The advantages of my invention are manifest. The device is extremely simple in construction and provides all of the advantages normally found with similar devices. With my invention the faucet is maintained relatively cool and without the use of special circulating systems or water jackets. The device permits of quickly and easily removing the faucet for cleaning and repair.

Changes in the specific form of my invention, as herein described, may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A cooling device for faucets used with a refrigerator having an insulated wall provided with a metal lining contacting the cooling medium of the refrigerator, said device comprising a shank of rapid heat conducting metal issuing from the faucet and integral therewith and having a bore therein, said shank having a diameter at least twice the diameter of the bore and extending through said wall and lining and into the interior of the refrigerator, a plate overlying a portion of said lining and in intimate heat conducting contact therewith over substantially the entire area thereof, a clamp connected to said plate and being in heat conducting relation relative thereto, said clamp having a bore therein through which said shank extends and clamp means for drawing said clamp against said shank to provide heat conducting contact therewith.

2. A cooling device for faucets used with a refrigerator having an insulated wall provided with a metal lining contacting the cooling medium of the refrigerator, said device comprising a shank of rapid heat conducting metal connected to the faucet and having a bore therein, said shank having a diameter at least twice the diameter of the bore and extending through said wall and lining and into the interior of the refrigerator, a plate overlying a portion of said lining and soldered thereto throughout the major portion of the surface thereof, a clamp integral with said plate and having a bore therein through which said shank extends and clamp means for drawing said clamp against said shank to provide heat conducting contact therewith.

3. A cooling device for faucets used with a refrigerator having an insulated wall provided with a metal lining contacting the cooling medium of the refrigerator, said device comprising a shank of rapid heat conducting metal issuing from the faucet and integral therewith and having a bore therein, said shank having a diameter at least twice the diameter of the bore, and extending through said wall and lining and into the interior of the refrigerator, a plate overlying a portion of said lining and soldered thereto throughout the major portion of the surface thereof, a collar integral with said plate and having a bore therein through which said shank extends and a screw carried by said collar and serving to draw said collar against said shank to provide heat conducting contact therewith.

4. A cooling device for faucets used with a refrigerator having an insulated wall provided with a metal lining contacting the cooling medium of the refrigerator, said device comprising a shank of rapid heat conducting metal issuing from the

faucet and integral therewith and having a bore therein, said shank having a diameter at least twice the diameter of the bore and extending through said wall and lining and into the interior of the refrigerator, a plate overlying a portion of said lining and soldered thereto throughout the major portion of the surface thereof, a collar integral with said plate and having a bore therein through which said shank extends said collar being severed from said plate throughout a portion of the same and being split longitudinally at said portion, and a bolt extending through the split portions of the collar for drawing the same against said shank to provide heat conducting contact between said collar and shank.

5. A cooling device for faucets used with a refrigerator having an insulated wall provided with a metal lining contacting the cooling medium of the refrigerator, said device comprising a shank of rapid heat conducting metal connected to the faucet and having a bore therein, said shank having a diameter at least twice the diameter of the bore and extending through said wall and lining and into the interior of the refrigerator, a plate overlying a portion of said lining and soldered thereto throughout the major portion of the surface thereof, a collar integral with said plate and having a bore therein through which said shank extends, said collar being severed from said plate throughout a portion of the same and being split longitudinally at said portion, ears formed on said collar adjacent the split portions thereof and a bolt extending through said ears for drawing said ears together and said collar against said shank to provide heat conducting contact therewith.

6. A cooling device for faucets used with a refrigerator having an insulated wall provided with a metal lining contacting the cooling medium of the refrigerator, said device comprising a shank of rapid heat conducting metal connected to the faucet and having a bore therein, said shank having a diameter at least twice the diameter of the bore and extending through said wall and lining and into the interior of the refrigerator, a plate overlying a portion of said lining and in intimate heat conducting contact therewith over substantially the entire area thereof, a clamp connected to said plate and being in heat conducting relation relative thereto said clamp having a bore therein through which said shank extends, clamp means for drawing said clamp against said shank to provide heat conducting contact therewith, a tube extending through the bore in said shank and forming a fluid-tight connection with the faucet said tube extending beyond said shank and a hose connection formed on the projecting end of said tube.

7. A cooling device for faucets used with a refrigerator having an insulated wall provided with a metal lining contacting the cooling medium of the refrigerator, said device comprising a shank of rapid heat conducting metal connected to the faucet and having a bore therein, said shank extending through said wall and lining and into the interior of the refrigerator, a plate overlying a portion of said lining and soldered thereto throughout the major portion of the surface thereof, a collar integral with said plate and having a bore therein through which said shank extends said collar being severed from said plate throughout a portion of the same and being split longitudinally at said portion, and a bolt extending through the split portions of the collar for drawing the same against said shank to provide heat conducting contact between said collar and shank.

8. A cooling device for faucets used with a refrigerator having an inslulated wall provided with a metal lining contacting the cooling medium of the refrigerator, said device comprising a shank of rapid heat conducting metal connected to the faucet and having a bore therein, said shank extending through said wall and lining and into the interior of the refrigerator, a plate overlying said lining, a solder joint between the outer surface of said plate and the inner surface of said lining and bringing said plate and lining into intimate heat conducting relation, a collar formed on said plate and issuing inwardly from the inner surface thereof, said collar being integral with said plate, said collar and plate having a bore therethrough and through which said shank extends, said collar having a longitudinally extending substantially radial slit therein intersecting said bore and forming ears on opposite sides thereof, said collar having a transverse kerf therein disposed in a plane substantially at right angles to said bore and extending partly through said bore and intersecting said slit to separate the end of one of said ears from said plate to accommodate relative movement between the portions of said ears adjacent said slit toward and from one another and threaded means engaging said ears and extending transversely of said slit and operating to draw said ears together to clamp the shank in said bore and provide heat conducting contact between said collar and shank.

9. A cooling device for faucets used with a refrigerator having an insulated wall provided with a metal lining contacting the cooling medium of the refrigerator, said device comprising a shank of rapid heat conducting metal connected to the faucet and having a bore therein, said shank extending through said wall and lining and into the interior of the refrigerator, a plate overlying said lining, means forming a joint between the outer surface of said plate and the inner surface of said lining and bringing said plate and lining into intimate heat conducting relation, a collar formed on said plate and issuing inwardly from the inner surface thereof, said collar being integral with said plate, said collar and plate having a bore therethrough and through which said shank extends, said collar having a longitudinally extending substantially radial slit therein intersecting said bore and forming ears on opposite sides thereof, said collar having a transverse kerf therein disposed in a plane substantially at right angles to said bore and extending partly through said bore and intersecting said slit to separate the end of one of said ears from said plate to accommodate relative movement between the portions of said ears adjacent said slit toward and from one another and threaded means engaging said ears and extending transversely of said slit and operating to draw said ears together to clamp the shank in said bore and provide heat conducting contact between said collar and shank.

10. A cooling device for faucets used with a refrigerator having an insulated wall provided with a metal lining contacting the cooling medium of the refrigerator, said device comprising a shank of rapid heat conducting metal connected to the faucet and having a bore therein, said shank extending through said wall and lining

and into the interior of the refrigerator, a plate overlying a portion of said lining and in intimate heat conducting contact therewith over substantially the entire area thereof, a clamp connected to said plate and being in heat conducting relation relative thereto, said clamp having a bore therein through which said shank extends, clamp means for drawing said clamp against said shank to provide heat conducting contact therewith, a tube extending through the bore in said shank and forming a fluid-tight connection with the faucet at said faucet, said tube extending beyond said shank and a hose connection formed on the projecting end of said tube.

RICHARD T. CORNELIUS.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,230,007	Milliken	June 12, 1917
2,014,492	Burdge	Sept. 17, 1935
2,025,851	Davis	Dec. 31, 1935
2,125,102	Cornelius	July 26, 1938
2,234,816	Anagno	Mar. 11, 1941
2,416,581	Harr	Feb. 25, 1947
2,420,850	Yuza	May 20, 1947