

CPC**COOPERATIVE PATENT CLASSIFICATION****F25D****REFRIGERATORS ; COLD ROOMS ; ICE-BOXES ; COOLING OR FREEZING APPARATUS NOT COVERED BY ANY OTHER SUBCLASS**

(refrigerated show cases [A47F 3/04](#) ; thermally-insulated vessels for domestic use [A47J 41/00](#) ; refrigerated vehicles, see the appropriate subclasses of classes [B60](#) to [B64](#) ; containers with thermal insulation in general [B65D 81/38](#) ; heat-transfer, heat-exchange or heat-storage materials, e.g. refrigerants, or materials for the production of heat or cold by chemical reactions other than by combustion [C09K 5/00](#) ; thermally-insulated vessels for liquefied or solidified gases [F17C](#) ; air-conditioning or air-humidification [F24F](#) ; refrigeration machines, plants or systems [F25B](#) ; cooling of instruments and comparable apparatus without refrigeration [G12B](#) ; cooling of engines or pumps, see the relevant classes)

NOTE

In this subclass, the following term is used with the meaning indicated:

- "device" means an enclosed space to be cooled; such devices being associated either with refrigerating machinery, e.g. in a refrigerator, or with other cold sources, e.g. in an ice-box.

Attention is drawn to Note (2) following the title of subclass [F24F](#) .

Guidance heading: Devices not associated with refrigerating machinery

F25D 1/00 **Devices using naturally cold air or cold water**

F25D 1/02 . using naturally cold water, e.g. household tap water

F25D 3/00 **Devices using other cold materials ; Devices using cold-storage bodies**

F25D 3/005 . { combined with heat exchangers }

F25D 3/02 . using ice, e.g. ice-boxes

F25D 3/04 .. Stationary cabinets

F25D 3/045 ... { Details }

F25D 3/06 .. Movable containers

F25D 3/08 ... portable, i.e. adapted to be carried personally

F25D 3/10 . using liquefied gases, e.g. liquid air { (for cooling semiconductor devices [H01L 23/445](#)) }

F25D 3/102 .. { Stationary cabinets }

F25D 3/105 .. { Movable containers }

F25D 3/107 .. { portable, i.e. adapted to be carried personally }

F25D 3/11 .. with conveyers carrying articles to be cooled through the cooling space

- F25D 3/12 . . using solidified gases, e.g. carbon-dioxide snow
- F25D 3/122 . . { Stationary cabinets }
- F25D 3/125 . . { Movable containers }
- F25D 3/127 . . { Stationary devices with conveyers carrying articles to be cooled through the cooling space }
- F25D 3/14 . . portable, i.e. adapted to be carried personally

- F25D 5/00 Devices using endothermic chemical reactions, e.g. using frigorific mixtures**

- F25D 5/02 . . portable, i.e. adapted to be carried personally

- F25D 7/00 Devices using evaporation effects without recovery of the vapour (butter or cheese dishes with cooling devices [A47G 19/26](#))**

- F25D 9/00 Devices not covered by groups [F25D 1/00](#) to [F25D 7/00](#) ; Combinations of devices covered by two or more of the groups [F25D 1/00](#) to [F25D 7/00](#)**

- F25D 9/005 . . { using fluorinated halogenous hydrocarbons }

- Guidance heading: Devices associated with refrigerating machinery**

- F25D 11/00 Self-contained movable devices, e.g. domestic refrigerator**

- F25D 11/003 . . { Transport containers }
- F25D 11/006 . . { with cold storage accumulators }
- F25D 11/02 . . with cooling compartments at different temperatures
- F25D 11/022 . . { with two or more evaporators }
- F25D 11/025 . . { using primary and secondary refrigeration systems }
- F25D 11/027 . . { of the sorption cycle type }
- F25D 11/04 . . specially adapted for storing deep-frozen articles ([F25D 11/02](#) takes precedence)

- F25D 13/00 Stationary devices, e.g. cold-rooms**

- F25D 13/02 . . with several cooling compartments, e.g. refrigerated locker systems
- F25D 13/04 . . the compartments being at different temperatures
- F25D 13/06 . . with conveyers carrying articles to be cooled through the cooling space
- F25D 13/062 . . { with refrigerated conveyers }
- F25D 13/065 . . { Articles being submerged in liquid coolant }
- F25D 13/067 . . { with circulation of gaseous cooling fluid }

- F25D 15/00 Devices not covered by group [F25D 11/00](#) or [F25D 13/00](#) , e.g. non-self-contained**

movable devices

F25D 16/00 **Devices using a combination of a cooling mode associated with refrigerating machinery with a cooling mode not associated with refrigerating machinery**

Guidance heading: Details or features of the devices covered by groups [F25D 1/00](#) to [F25D 16/00](#)

F25D 17/00 **Arrangements for circulating cooling fluids ; Arrangements for circulating gas, e.g. air, within refrigerated spaces**

F25D 17/005 . { in cold rooms }

F25D 17/02 . for circulating liquids, e.g. brine

F25D 17/04 . for circulating air, e.g. by convection

F25D 17/042 .. { Air treating means within refrigerated spaces (air conditioning in general [F24F](#)) }

F25D 17/045 ... { Air flow control arrangements }

F25D 17/047 ... { Pressure equalising devices }

F25D 17/06 .. by forced circulation

F25D 17/062 ... { in household refrigerators }

F25D 17/065 { with compartments at different temperatures }

F25D 17/067 ... { Evaporator fan units }

F25D 17/08 ... using ducts

F25D 19/00 **Arrangement or mounting of refrigeration units with respect to devices { or objects to be refrigerated, e.g. infra-red detectors }**

F25D 19/003 . { with respect to movable containers }

F25D 19/006 . { Thermal coupling structure or interface }

F25D 19/02 . plug-in type

F25D 19/04 . with more than one refrigeration unit

F25D 21/00 **Defrosting ; Preventing frosting ; Removing condensed or defrost water (removing ice or water from heat-exchange apparatus in general [F28F 17/00](#) ; heating arrangements specially adapted for transparent or reflecting areas [H05B 3/84](#))**

F25D 21/002 . { Defroster control }

F25D 21/004 .. { Control mechanisms ([F25D 21/006](#) takes precedence) }

F25D 21/006 .. { with electronic control circuits }

F25D 21/008 .. { by timer }

F25D 21/02 . Detecting the presence of frost or condensate

- F25D 21/025 . . { using air pressure differential detectors }
- F25D 21/04 . Preventing the formation of frost or condensate
- F25D 21/06 . Removing frost ([defrosting cycles F25B 47/02](#))
- F25D 21/065 . . { by mechanical means }
- F25D 21/08 . . by electric heating
- F25D 21/10 . . by spraying with fluid
- F25D 21/12 . . by hot-fluid circulating system separate from the refrigerant system
- F25D 21/125 . . . { the hot fluid being ambient air }
- F25D 21/14 . Collecting or removing condensed and defrost water ; Drip trays
- F25D 23/00** **General constructional features ([F25D 21/00](#) takes precedence)**
- F25D 23/003 . { for cooling refrigerating machinery }
- F25D 23/006 . { for mounting refrigerating machinery components }
- F25D 23/02 . Doors ; Covers ([F25D 23/08](#) takes precedence) { locks or fastenings [E05B 65/0042](#) }
- F25D 23/021 . . { Sliding doors }
- F25D 23/023 . . { Air curtain closures }
- F25D 23/025 . . { Secondary closures }
- F25D 23/026 . . { for open-top cabinets }
- F25D 23/028 . . { Details }
- F25D 23/04 . . with special compartments, e.g. butter conditioners
- F25D 23/06 . Walls ([F25D 23/08](#) takes precedence; containers with thermal insulation [B65D 81/38](#))
- F25D 23/061 . . { with conduit means }
- F25D 23/062 . . { defining a cabinet }
- F25D 23/063 . . . { formed by an assembly of panels }
- F25D 23/064 . . . { formed by moulding, e.g. moulding in situ }
- F25D 23/065 . . { Details }
- F25D 23/066 . . . { Liners }
- F25D 23/067 . . . { Supporting elements }
- F25D 23/068 . . . { Arrangements for circulating fluids through the insulating material }
- F25D 23/069 . . { Cooling space dividing partitions }
- F25D 23/08 . Parts formed wholly or mainly of plastics materials
- F25D 23/082 . . { Strips }
- NOTE**
- When a document describes both breaking and sealing strips it is classified in group [F25D 23/082](#) only.
- F25D 23/085 . . . { Breaking strips }

- F25D 23/087 . . . { Sealing strips }
- F25D 23/10 . Arrangements for mounting in particular locations, e.g. for built-in type, for corner type
- F25D 23/12 . Arrangements of compartments additional to cooling compartments ; Combinations of refrigerators with other equipment, e.g. stove
- F25D 23/123 . . { Butter compartment }
- F25D 23/126 . . { Water cooler }

F25D 25/00 Charging, supporting, and discharging the articles to be cooled

- F25D 25/005 . { using containers }
- F25D 25/02 . by shelves
 - F25D 25/021 . . { combined with trays }
 - F25D 25/022 . . { Baskets }
 - F25D 25/024 . . { Slidable shelves }
 - F25D 25/025 . . . { Drawers }
 - F25D 25/027 . . { Rotatable shelves }
 - F25D 25/028 . . { Cooled supporting means }
- F25D 25/04 . by conveyers (in general [B65G](#))

F25D 27/00 Lighting arrangements (in general [F21](#))

- F25D 27/005 . { combined with control means }

F25D 29/00 Arrangement or mounting of control or safety devices

- F25D 29/001 . { for cryogenic fluid systems }
- F25D 29/003 . { for movable devices }
- F25D 29/005 . { Mounting of control devices }
- F25D 29/006 . { Safety devices }
- F25D 29/008 . { Alarm devices }

F25D 31/00 Other cooling or freezing apparatus

- F25D 31/001 . { Plate freezers }
- F25D 31/002 . { Liquid coolers, e.g. beverage cooler (receptacle coolers [F25D 31/006](#)) }
- F25D 31/003 . . { with immersed cooling element }
- F25D 31/005 . { Combined cooling and heating devices }

- F25D 31/006 . { specially adapted for cooling receptacles, e.g. tanks }
- F25D 31/007 . . { Bottles or cans }
- F25D 31/008 . . { Drinking glasses }

F25D 2201/00 Insulation

- F25D 2201/10 . with respect to heat
- F25D 2201/12 . . using an insulating packing material
- F25D 2201/122 . . . of loose fill type
- F25D 2201/124 . . . of fibrous type
- F25D 2201/126 . . . of cellular type
- F25D 2201/1262 with open cells
- F25D 2201/128 . . . of foil type
- F25D 2201/1282 with reflective foils
- F25D 2201/14 . . using subatmospheric pressure
- F25D 2201/30 . with respect to sound

F25D 2230/00

F25D 2240/00

F25D 2250/00

F25D 2260/00

F25D 2270/00

F25D 2300/00 Special arrangements or features for refrigerators ; cold rooms ; ice-boxes ; Cooling or freezing apparatus not covered by any other subclass

F25D 2303/00

- F25D 2303/08 . Devices using cold storage material, i.e. ice or other freezable liquid
- F25D 2303/081 . . using ice cubes or crushed ice
- F25D 2303/082 . . disposed in a cold storage element not forming part of a container for products to be cooled , e.g. ice pack or gel accumulator
- F25D 2303/0821 . . . the element placed in a compartment which can be opened without the need of opening the container itself
- F25D 2303/0822 . . . Details of the element
- F25D 2303/08221 Fasteners or fixing means for the element
- F25D 2303/08222 Shape of the element

- F25D 2303/08223 having the shape of an ice cube
- F25D 2303/083 .. using cold storage material disposed in closed wall forming part of a container for products to be cooled
- F25D 2303/0831 ... the liquid is disposed in the space between the walls of the container
- F25D 2303/0832 ... the liquid is disposed in an accumulator pack locked in a closable wall forming part of the container
- F25D 2303/084 .. Position of the cold storage material in relationship to a product to be cooled
- F25D 2303/0841 ... external to the container for a beverage, e.g. a bottle, can, drinking glass or pitcher
- F25D 2303/0842 ... inside the beverage contained in a bottle, can, drinking glass, pitcher or dispenser
- F25D 2303/0843 ... on the side of the product
- F25D 2303/0844 ... above the product
- F25D 2303/0845 ... below the product
- F25D 2303/0846 ... around the neck of a bottle
- F25D 2303/085 .. Compositions of cold storage materials

F25D 2317/00

- F25D 2317/04 . Treating air flowing to refrigeration compartments
- F25D 2317/041 .. by purification
- F25D 2317/0411 ... by dehumidification
- F25D 2317/04111 Control means therefor
- F25D 2317/0413 ... by humidification
- F25D 2317/04131 Control means therefor
- F25D 2317/0415 ... by deodorizing
- F25D 2317/0416 ... using an ozone generator
- F25D 2317/0417 ... using an UV-lamp
- F25D 2317/043 .. by creating a vacuum in a storage compartment
- F25D 2317/06 . with forced air circulation
- F25D 2317/061 .. through special compartments
- F25D 2317/062 .. along the inside of doors
- F25D 2317/063 .. with air guides
- F25D 2317/065 .. characterised by the air return
- F25D 2317/0651 ... through the bottom
- F25D 2317/0652 ... through the corner
- F25D 2317/0653 ... through the mullion
- F25D 2317/0654 ... through the side
- F25D 2317/0655 ... through the top
- F25D 2317/066 .. characterised by the air supply
- F25D 2317/0661 ... from the bottom
- F25D 2317/0662 ... from the corner
- F25D 2317/0663 ... from the mullion

- F25D 2317/0664 . . . from the side
- F25D 2317/0665 . . . from the top
- F25D 2317/0666 . . . from the freezer
- F25D 2317/0667 . . . from the refrigerator
- F25D 2317/067 . . characterised by air ducts
- F25D 2317/0671 . . . Inlet ducts
- F25D 2317/0672 . . . Outlet ducts
- F25D 2317/068 . . characterised by the fans
- F25D 2317/0681 . . . Details thereof
- F25D 2317/0682 . . . Two or more fans
- F25D 2317/0683 . . . the fans not of the axial type
- F25D 2317/0684 . . . the fans allowing rotation in reverse direction

F25D 2321/00

- F25D 2321/14 . Collecting condense or defrost water ; Removing condense or defrost water
- F25D 2321/141 . . Removal by evaporation
- F25D 2321/1411 . . . using compressor heat
- F25D 2321/1412 . . . using condenser heat or heat of desuperheaters
- F25D 2321/1413 . . . using heat from electric elements or using an electric field for enhancing removal
- F25D 2321/142 . . characterised by droplet guides
- F25D 2321/143 . . characterised by means to fix, clamp, or connect water pipes or evaporation trays
- F25D 2321/144 . . characterised by the construction of drip water collection pans
- F25D 2321/1441 . . . inside a refrigerator
- F25D 2321/1442 . . . outside a refrigerator
- F25D 2321/145 . . characterised by multiple collecting pans
- F25D 2321/146 . . characterised by the pipes or pipe connections
- F25D 2321/147 . . characterised by capillary, wick, adsorbent, or evaporation elements

F25D 2323/00

- F25D 2323/0011 . Means for leveling refrigerators
- F25D 2323/002 . Details for cooling refrigerating machinery
- F25D 2323/0021 . . using air guides
- F25D 2323/0022 . . using multiple air flows
- F25D 2323/0023 . . Control of the air flow cooling refrigerating machinery
- F25D 2323/0024 . . Filters in the air flow cooling refrigerating machinery
- F25D 2323/0026 . . characterised by the incoming air flow
- F25D 2323/00261 . . . through the back bottom side
- F25D 2323/00262 . . . through the back top side
- F25D 2323/00263 . . . through the back corner side

- F25D 2323/00264 . . . through the front bottom part
- F25D 2323/00265 . . . through the front top part
- F25D 2323/00266 . . . through the bottom
- F25D 2323/00267 . . . through the side
- F25D 2323/00268 . . . through the top
- F25D 2323/0027 . . characterised by the out-flowing air
- F25D 2323/00271 . . . from the back bottom
- F25D 2323/00272 . . . from the back top
- F25D 2323/00273 . . . from the back corner
- F25D 2323/00274 . . . from the front bottom
- F25D 2323/00275 . . . from the front top
- F25D 2323/00276 . . . from the bottom
- F25D 2323/00277 . . . from the side
- F25D 2323/00278 . . . from the top
- F25D 2323/0028 . . characterised by the fans
- F25D 2323/00281 . . . Two or more fans
- F25D 2323/00282 . . . the fans not of the axial type
- F25D 2323/00283 . . . the fans allowing rotation in reverse direction
- F25D 2323/00284 . . . Details thereof

- F25D 2323/02 . Details of doors or covers not otherwise covered
- F25D 2323/021 . . French doors
- F25D 2323/022 . . Doors that can be pivoted either left-handed or right-handed
- F25D 2323/023 . . Door in door constructions
- F25D 2323/024 . . Door hinges

- F25D 2323/06 . Details of walls not otherwise covered
- F25D 2323/061 . . Collapsible walls
- F25D 2323/062 . . Inflatable walls

- F25D 2323/121 . the refrigerator is characterised by a water filter for the water/ice dispenser
- F25D 2323/122 . the refrigerator is characterised by a water tank for the water/ice dispenser

- F25D 2325/00**

- F25D 2325/021 . Shelves with several possible configurations
- F25D 2325/022 . Shelves made of glass or ceramic
- F25D 2325/023 . Shelves made of wires

- F25D 2327/00**

- F25D 2327/001 . Lighting arrangements on the external side of the refrigerator, freezer or cooling box

F25D 2331/00

- F25D 2331/80 . Type of cooled receptacles
- F25D 2331/801 .. Bags
- F25D 2331/8011 ... to be carried on the back of a person
- F25D 2331/8012 ... for cosmetics
- F25D 2331/8013 ... for playing golf
- F25D 2331/8014 ... for medical use
- F25D 2331/8015 ... Pouches
- F25D 2331/802 .. Barrels
- F25D 2331/803 .. Bottles
- F25D 2331/804 .. Boxes
- F25D 2331/8041 ... for drinking
- F25D 2331/805 .. Cans
- F25D 2331/8051 ... for holding milk
- F25D 2331/806 .. Dispensers
- F25D 2331/807 .. Eggs
- F25D 2331/808 .. Glasses
- F25D 2331/809 .. Holders
- F25D 2331/81 .. Pitchers
- F25D 2331/811 .. Pour-throughs
- F25D 2331/812 .. Trays

F25D 2400/00

General features of, or devices for refrigerators, cold rooms, ice-boxes, or for cooling or freezing apparatus not covered by any other subclass

- F25D 2400/02 . Refrigerators including a heater
- F25D 2400/04 . Refrigerators with a horizontal mullion
- F25D 2400/06 . Refrigerators with a vertical mullion
- F25D 2400/08 . Refrigerator tables
- F25D 2400/10 . Refrigerator top-coolers
- F25D 2400/12 . Portable refrigerators
- F25D 2400/14 . Refrigerator multi units
- F25D 2400/16 . Convertible refrigerators
- F25D 2400/18 . Aesthetic features
- F25D 2400/20 . Carts specially adapted for transporting objects to be cooled

- F25D 2400/22 . Cleaning means for refrigerating devices
- F25D 2400/24 . Protection against refrigerant explosions
- F25D 2400/26 . Refrigerating devices for cooling wearing apparel, e.g. garments, hats, shoes or gloves.
- F25D 2400/28 . Quick cooling
- F25D 2400/30 . Quick freezing
- F25D 2400/32 . Removal, transportation or shipping of refrigerating devices from one location to another
- F25D 2400/34 . Temperature balancing devices
- F25D 2400/36 . Visual displays
- F25D 2400/361 . . Interactive visual displays
- F25D 2400/38 . Refrigerating devices characterised by wheels
- F25D 2400/40 . Refrigerating devices characterised by electrical wiring
- F25D 2500/00 Problems to be solved**
- F25D 2500/02 . Geometry problems
- F25D 2500/04 . Calculation of parameters
- F25D 2500/06 . Stock management
- F25D 2600/00 Control issues**
- F25D 2600/02 . Timing
- F25D 2600/04 . Controlling heat transfer
- F25D 2600/06 . Controlling according to a predetermined profile
- F25D 2700/00 Means for sensing or measuring ; Sensors therefor**
- F25D 2700/02 . Sensors detecting door opening
- F25D 2700/04 . Sensors detecting the presence of a person
- F25D 2700/06 . Sensors detecting the presence of a product
- F25D 2700/08 . Sensors using Radio Frequency Identification (RFID)
- F25D 2700/10 . Sensors measuring the temperature of the evaporator

- F25D 2700/12 . Sensors measuring the inside temperature
- F25D 2700/121 . . of particular compartments
- F25D 2700/122 . . of freezer compartments
- F25D 2700/123 . . more than one sensor measuring the inside air temperature in a compartment
- F25D 2700/14 . Sensors measuring the temperature outside the refrigerator or freezer
- F25D 2700/16 . Sensors measuring the temperature of products