SECTION F — MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING

F24 HEATING; RANGES; VENTILATING

F24F AIR-CONDITIONING; AIR-HUMIDIFICATION; VENTILATION; USE OF AIR CURRENTS FOR SCREENING (removing dirt or fumes from areas where they are produced B08B 15/00; vertical ducts for carrying away waste gases from buildings E04F 17/02; tops for chimneys or ventilating shafts, terminals for flues F23L 17/02)

Note(s) [3]

1. In this subclass:
   - air-humidification as auxiliary treatment in air-conditioning, i.e. in units wherein the air is also either cooled or heated, is covered by groups F24F 1/00 or F24F 3/14;
   - air-humidification per se, e.g. "room humidifiers", is covered by group F24F 6/00.
2. In this subclass, the following terms or expressions are used with the meanings indicated:
   - "air-conditioning" means the supply of air to rooms or spaces by means which provide for the treatment of the air in at least two of the following ways:
     heating — cooling — any other kind of treatment, e.g. humidification;
   - "ventilation" means the supply of air to, or its extraction from, rooms or spaces, and systems for circulating air within rooms or spaces, but does not cover the mere treatment of air being supplied to, extracted from, or circulated within, rooms or spaces.

Subclass index

AIR-CONDITIONING
Room units; central systems; other systems or apparatus.....1/00, 3/00, 5/00
AIR-HUMIDIFICATION.....6/00
VENTILATION.....7/00
SCREENING BY AIR CURRENTS.....9/00
COMMON DETAILS
Control, safety.....11/00
Use of energy recovery systems.....12/00
Other details.....13/00

Air-conditioning

1/00 Room units, e.g. separate or self-contained units or units receiving primary air from a central station [1, 2006.01, 2011.01]

1/01 • in which secondary air is induced by injector action of the primary air **[3, 2006.01, 2011.01]**

1/02 • self-contained, i.e. with all apparatus for treatment installed in a common casing **[1, 2006.01, 2011.01]**

1/04 • • Arrangements for portability **[1, 2006.01, 2011.01]**

1/06 • Separate outdoor units, e.g. outdoor unit to be linked to a separate room unit comprising a compressor and a heat exchanger **[2011.01]**

Note(s) [2011.01]

In this group, the first place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place.

1/08 • • Compressors specially adapted for separate outdoor units **[2011.01]**

1/10 • • • Arrangement or mounting thereof **[2011.01]**

1/12 • • • Vibration or noise prevention therefor **[2011.01]**

1/14 • • Heat exchangers specially adapted for separate outdoor units **[2011.01]**

1/16 • • • Arrangement or mounting thereof **[2011.01]**

1/18 • • • characterised by their shape **[2011.01]**

1/20 • • Electric components for separate outdoor units **[2011.01]**

1/22 • • • Arrangement or mounting thereof **[2011.01]**

1/24 • • • Cooling of electric components **[2011.01]**

1/26 • • Refrigerant piping **[2011.01]**

1/28 • • • for connecting several separate outdoor units **[2011.01]**

1/30 • • • for use inside the separate outdoor units **[2011.01]**

1/32 • • • for connecting the separate outdoor unit to indoor units **[2011.01]**

1/34 • • • Protection means therefor, e.g. covers for refrigerant pipes **[2011.01]**

1/36 • • Drip trays for outdoor units **[2011.01]**

1/38 • • Fan details of outdoor units, e.g. bell-mouth shaped inlets or fan mountings **[2011.01]**

1/40 • • Vibration or noise prevention at outdoor units (for outdoor unit compressors F24F 1/12) **[2011.01]**

1/42 • • characterised by the use of the condensate, e.g. for enhanced cooling **[2011.01]**
1/44 • • characterised by the use of internal combustion engines **[2011.01]**
1/46 • • Component arrangements in separate outdoor units **[2011.01]**
1/48 • • • characterised by airflow, e.g. inlet or outlet airflow **[2011.01]**
1/50 • • • • with outlet air in upward direction **[2011.01]**
1/52 • • • • Inlet and outlet arranged on the same side, e.g. for mounting in a wall opening **[2011.01]**
1/54 • • • • Inlet and outlet arranged on opposite sides **[2011.01]**
1/56 • • Casing or covers of separate outdoor units, e.g. fan guards **[2011.01]**
1/58 • • • Separate protective covers for outdoor units, e.g. solar guards, snow shields or camouflage **[2011.01]**
1/60 • • Arrangement or mounting of the outdoor unit **[2011.01]**
1/62 • • • Wall-mounted **[2011.01]**
1/64 • • • Ceiling-mounted, e.g. below a balcony **[2011.01]**
1/66 • • • under the floor level **[2011.01]**
1/68 • • • Arrangement of multiple separate outdoor units **[2011.01]**

3/00 Air-conditioning systems in which conditioned primary air is supplied from one or more central stations to distributing units in the rooms or spaces where it may receive secondary treatment; Apparatus specially designed for such systems (room units F24F 1/00) **[1, 2006.01]**
3/02 • characterised by the pressure or velocity of the primary air **[1, 3, 2006.01]**
3/04 • • operating with high pressure or high velocity **[1, 2006.01]**
3/044 • Systems in which all treatment is given in the central station, i.e. all-air systems **[3, 2006.01]**
3/048 • • with temperature control at constant rate of air-flow **[3, 2006.01]**
3/052 • • • Multiple duct systems, e.g. systems in which hot and cold air are supplied by separate circuits from the central station to mixing chambers in the spaces to be conditioned **[3, 2006.01]**
3/056 • • the air at least partially flowing over lighting fixtures, the heat of which is dissipated or used (outlets for directing or distributing air into rooms or spaces combined with lighting fixtures F24F 13/078) **[3, 2006.01]**
3/06 • characterised by the arrangements for the supply of heat-exchange fluid for the subsequent treatment of primary air in the room units **[1, 2006.01]**
3/08 • • with separate supply and return lines for hot and cold heat-exchange fluids **[1, 2006.01]**
3/10 • • with separate supply lines and common return line for hot and cold heat-exchange fluids **[1, 2006.01]**
3/12 • characterised by the treatment of the air otherwise than by heating and cooling **[1, 2006.01]**
3/14 • • by humidification; by dehumidification **[1, 2006.01]**
3/147 • • • with both heat and humidity transfer between supplied and exhausted air **[3, 2006.01]**
3/153 • • • with subsequent heating, i.e. with the air, given the required humidity in the central station, passing a heating element to achieve the required temperature **[3, 2006.01]**
3/16 • • by purification, e.g. by filtering; by sterilisation; by ozonisation **[1, 2006.01]**

5/00 Air-conditioning systems or apparatus not covered by group F24F 1/00 or F24F 3/00 [1, 2006.01]

6/00 Air-humidification [3, 2006.01]
6/02 • by evaporation of water in the air **[3, 2006.01]**
6/04 • • using stationary unheated wet elements **[3, 2006.01]**
6/06 • • using moving unheated wet elements **[3, 2006.01]**
6/08 • • using heated wet elements **[3, 2006.01]**
6/10 • • • heated electrically **[3, 2006.01]**
6/12 • by forming water dispersions in the air **[3, 2006.01]**
6/14 • • using nozzles **[3, 2006.01]**
6/16 • • using rotating elements **[3, 2006.01]**
6/18 • by injection of steam into the air **[3, 2006.01]**

7/00 Ventilation [1, 2006.01]
7/007 • with forced flow (using ducting systems F24F 7/06) **[3, 2006.01]**
7/013 • • using wall or window fans, displacing air through the wall or window **[3, 2006.01]**
7/02 • Roof ventilation (ventilation of roof coverings E04D) **[1, 3, 6, 2006.01]**
7/04 • with ducting systems **[1, 2006.01]**
7/06 • • with forced air circulation, e.g. by fan **[1, 2006.01]**
7/08 • • • with separate ducts for supplied and exhausted air **[3, 2006.01]**
7/10 • • • with air supply, or exhaust, through perforated wall, floor or ceiling (outlet members for directing or distributing air F24F 13/06) **[3, 2006.01]**

9/00 Use of air currents for screening, e.g. air curtain [1, 2006.01]

<u>Common features or details</u>

11/00 Control or safety systems or apparatus [1, 3, 2006.01]
11/02 • Arrangement or mounting of control or safety devices **[1, 2006.01]**
11/04 • • solely for controlling the rate of air-flow **[1, 2006.01]**
11/047 • • • to constant value **[3, 2006.01]**
11/053 • • • by means responsive to temperature **[3, 2006.01]**
11/06 • • solely for controlling the supply of heating or cooling fluids for secondary treatment (F24F 11/08 takes precedence) **[1, 2006.01]**
11/08 • • for controlling the primary treatment of air **[1, 2006.01]**

12/00 Use of energy recovery systems in air conditioning, ventilation or screening (with both heat and humidity transfer between supplied and exhausted air F24F 3/147) **[4, 2006.01]**

13/00 Details common to, or for air-conditioning, air-humidification, ventilation or use of air currents for screening [1, 2006.01]

13/02 • Ducting arrangements **[1, 2006.01]**
13/04 • • Air-mixing units (F24F 13/06 takes precedence) **[1, 2006.01]**
13/06 • • Outlets for directing or distributing air into rooms or spaces, e.g. ceiling air diffuser **[1, 2006.01]**
13/062 • • • having one or more bowls or cones diverging in the flow direction **[3, 2006.01]**
13/065 • • • formed as cylindrical or spherical bodies which are rotatable **[3, 2006.01]**
13/068 • • • formed as perforated walls, ceilings or floors (F24F 13/078 takes precedence) **[3, 2006.01]**
13/072 • • • of elongated shape, e.g. between ceiling panels **[3, 2006.01]**
13/075 • • • having parallel rods or lamellae directing the outflow, e.g. the rods or lamellae being individually adjustable (F24F 13/072 takes precedence) **[3, 2006.01]**
13/078 • • • combined with lighting fixtures **[3, 2006.01]**
13/08 • Air-flow control members, e.g. louvres, grilles, flaps or guide plates (F24F 7/013, F24F 13/06 take precedence) **[1, 3, 2006.01]**
13/10 • • movable, e.g. dampers **[1, 2006.01]**
13/12 • • • built-up of sliding members **[1, 2006.01]**
13/14 • • • built-up of tilting members, e.g. louvre **[1, 2006.01]**
13/15 • • • • with parallel simultaneously tiltable lamellae **[3, 2006.01]**
13/16 • • • built-up of parallelly-movable plates **[1, 2006.01]**
13/18 • • specially adapted for insertion in flat panels, e.g. in door or window-pane **[1, 2006.01]**
13/20 • Casings or covers **[5, 2006.01]**
13/22 • Means for preventing condensation or evacuating condensate **[5, 2006.01]**
13/24 • Means for preventing or suppressing noise **[5, 2006.01]**
13/26 • Arrangements for air-circulation by means of induction, e.g. by fluid coupling or thermal effect **[6, 2006.01]**
13/28 • Arrangement or mounting of filters **[6, 2006.01]**
13/30 • Arrangement or mounting of heat-exchangers **[6, 2006.01]**
13/32 • Supports for air-conditioning, air-humidification or ventilation units **[6, 2006.01]**