

U.S. Refrigeration and Air Conditioning Patents

PART 1: U.S. Refrigeration Patents

Last revision: January, 2004

Scope:

This listing was compiled from patent listings published in trade literature such as *Electric Refrigeration News*, *Refrigeration and Air Conditioning News*, *Ice and Refrigeration*, *Refrigerating Engineering* as well as articles, books, trade literature. In the early 1980's, the Historical Committee of The American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) investigated the possibility of re-creating a patent file that had been assembled by ASHRAE president Glenn Muffley covering the period 1800's -1930's. (That file no longer exists) Bernard Nagengast volunteered to research US Air Conditioning and Refrigeration Patents and create a list and obtain copies of the patents. The hard copies of the patents have been deposited in the ASHRAE Library in Atlanta, Georgia. Copies of these patents are available directly from the US Patent Office and can be accessed online at the US Patent Office websight. This file does not contain every Refrigeration or Air Conditioning Patent that was issued during the time period, only those that were found in the sources checked. Patents can be issued by the Patent Office under many different classes, making it difficult to locate every single patent on a given subject. Although most of the patents are present in this listing, is probably not complete and additional patents may be added.

Contents:

Part 1 of the list has US Refrigeration Patents listed in numerical order. Reissued patents are listed last. Part 2 of the list has US Air Conditioning Patents. In some case, the same patent is listed in both parts if it pertains to both Refrigeration and Air Conditioning. Patents are listed with the number, inventor, issue date, file date (if present on the patent) and title.

Searching:

The list can be searched using the software of this program. (originally created in Microsoft Word) Note that the titles of the patents may not indicate the scope of the patent, and the word "refrigeration" or "air conditioning" may not be used in the same context as we use the terms today. For example, some early patents use the term refrigeration to refer to what we would call air conditioning now.

PART 1: U.S. Refrigeration Patents

Note: reissue patents are listed at the end of this part.

726	Frederic Tudor May 4, 1838 <i>Improvement in the method of packing and stowing ice</i>	Boston, MA
750	Henry V. Hill May 25, 1838 <i>Improvement in constructing refrigerators</i>	Washington, D.C.
1,240	Joseph E. Manuel July 12, 1839 <i>Mode of obtaining and securing ice</i>	Philadelphia, PA
1,941	Thomas B. Smith January 23, 1841 <i>Method of manufacturing or forming ice</i>	St. Louis, MI
3,080	John Dutton May 8, 1843 <i>Improvement in accumulating ice</i>	Aston, PA
4,086	Thomas H. King June 20, 1845 <i>Refrigerator</i>	New York, N.Y.
6,865 County, OH	Goldsmith Coffeen Jr. November 13, 1849 <i>Ice-cream freezer</i>	Warren
8,080	John Gorrie May 6, 1851 <i>Improved process for the artificial production of ice</i>	New Orleans, LA
10,221 VT	Alexander C. Twining November 8, 1853 <i>Manufacturing Ice</i>	Middlebury,

12,530	John C. Schooley March 13, 1855 <i>Process of curing meats</i>	Cincinnati, OH
14,510	Azel Storrs Lyman March 25, 1856 <i>Improved method of cooling and ventilating rooms</i>	New York, NY
17,394	William A. Royce May 26, 1857 (Reissued December 24, 1872 as #'s 5,201 and 5,202.) <i>Machinery for compressing gaseous bodies</i>	Newburgh, NY
25,992	Jean Louis Baudelot Assignor to: Henry Migeon November 1, 1859 (Reissued January 28, 1862 as #'s 1,265; 1,266 and 1,267.) <i>Apparatus for cooling liquids</i>	Harancourt, France
28,292	Harris Morse May 15, 1860 <i>Improvement in the treatment of snow or ice to convert it into large blocks</i>	Columbia, CA
30,201	Ferdinand P. E. Carré October 2, 1860 <i>Improvement in apparatus for freezing liquids</i>	Paris, France
31,736	Enoch Piper March 19, 1861 <i>Improvement in methods of preserving fish</i>	Camden, ME
34,018	Alexander C. Twining December 24, 1861 <i>Improvement in apparatus for cooling and freezing</i>	New Haven, CT
31,993 CT	Alexander C. Twining	New Haven,

- April 15, 1862
Improvement in apparatus for making ice
- 35,051 Alexander C. Twining New Haven,
CT
- April 22, 1862
Improvement in apparatus for cooling and freezing
- 46,595 Daniel E. Somes Washington, D.C.
February 28, 1865
*Improvement in cooling and preserving-houses, packing-houses, refrigerators,
and other similar structures.*
- 49,601 Nelson W. Clark Detroit, MI
August 29, 1865
Improvement in buildings for preserving milk, fruit, &c.
- 50,212 Jean Baptiste Java Mignon & Paris, France
Stanislas Henri Rouart
September 26, 1865
Improved Apparatus for freezing liquids
- 50,790 S. R. Beckwith Cleveland, OH
November 7, 1865
Improvement in granaries and fruit-houses
- 53,101 S. R. Beckwith Cleveland, OH
March 13, 1866
Improvement in granaries, fruit-houses, &c.
- 53,682 William Rose St. Louis, MO
April 3, 1866
Improved apparatus for cooling beer
- 57,221 Matheus Tschirgi & Dubuque, IA
Louis Kammuller
August 14, 1866
Improved beer-cooler

57,670	James A. Boyer September 4, 1866 <i>Improvement in refrigeration-buildings for preserving fruit, and &c.</i>	Greensburg, IN
57,805	William J. Wilcox September 4, 1866 <i>Improvement in cooling lard</i>	New York, NY
59,396	E. G. Holden November 6, 1866 <i>Improvement in preserving fruits and vegetables</i>	Covington, KY
63,404	Thaddeus S. C. Lowe April 2, 1867 <i>Improvement in apparatus for the manufacturing of ice</i>	New York, NY
63,405	T. S. C. Lowe April 2, 1867 <i>Improved apparatus for condensing carbonic acid, and for drawing off and applying the same for cooling and freezing</i>	New York, NY
68,413	Thaddeus S. C. Lowe April 2, 1867 <i>Improved mode of manufacturing ice</i>	New York, NY
64,288	William B. Coates Assignor to: Thomas Reece & Arthur Clarke April 30, 1867 <i>Improved bags for preserving ice</i>	Philadelphia, PA
64,452	Philip Schweikhart Assignor to: Daniel Schweikhart May 7, 1867 <i>Improved beer-cooler</i>	Buffalo, NY Eden, NY
66,666	John Rutter	West Chester, PA

July 9, 1867

Improvement in preserving, storing, and transporting fruits, vegetables, and other perishable items

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| 68,908 | Daniel E. Somes
September 17, 1867 | Washington, D.C. |
| | <i>Improvement in the manufacture of ice, and in air-cooling and other substances</i> | |
| 69,955 | Daniel E. Somes
October 15, 1867 | Washington, D.C. |
| | <i>Improved apparatus for cooling, freezing, and heating</i> | |
| 72,431 | P. H. Vander Weyde
December 17, 1867 | Philadelphia, PA |
| | <i>Improvement in the manufacture of liquids for making ice, and for other purposes</i> | |
| 73,292 | Edwin D. Brainard
January 14, 1868 | Albany, NY |
| | <i>Improved refrigeration and condensing-apparatus for preserving animal and vegetable substance</i> | |
| 78,159 | Jean Baptiste Toselli
May 19, 1868 | Paris, France |
| | <i>Improved apparatus for freezing</i> | |
| 80,063 | Robert S. Egbert
July 21, 1868 | Colfax, CA |
| | <i>Improvement in the manufacturing of ice</i> | |
| 80,080 | John Martin
July 21, 1868 | Philadelphia, PA |
| | <i>Improved refrigerator</i> | |
| 82,076 | Wilson Bray
September 15, 1868 | Stockton, NY |
| | <i>Improved refrigerator</i> | |

83,099	Louis Schulze October 13, 1868 <i>Improved beer-cooler</i>	Louisville, KY
85,719	Charles Tellier January 5, 1869 <i>Improved the manufacture of ice and the refrigerating of air liquids &c.</i>	Passy, France
87,084	P. H. Vander Weyde February 16, 1869 <i>Improved machine for the manufacturing of ice</i>	Philadelphia, PA
89,901	Asaph Thompson & James Darling May 11, 1869 <i>Improvement in milk-coolers</i>	Hudson, OH North Field Township, OH
94,450	A. H. Tait August 31, 1869 <i>Improved mode of cooling and freezing liquids and other substances</i>	New York, NY
95,347	D.L. Holden September 28, 1869 <i>Improvement in ice machines</i>	New Orleans, LA
101,682 MD	David K. Tuttle April 5, 1870 <i>Improvement in ice machines</i>	Baltimore,
101,876	D. L. Holden April 12, 1870 <i>Improvement in apparatus for the manufacture of ice</i>	New Orleans, LA
104,614	William S. Mason June 21, 1870 <i>Improvement in apparatus for cooling building and making ice</i>	Raleigh, NC

104,814	Lawrence Angster June 28, 1870	Newark, NJ
	<i>Improvement in refrigerators for condensing vapors from fermenting vats in breweries &c.</i>	
105,609	P. H. Vander Weyde July 19, 1870	New York, NY
	<i>Improvement in apparatus for cooling and refrigerating</i>	
106,251	Edward S. Boyton Assignor to: Charles Parker August 9, 1870	Meriden, CT
	<i>Improvement in process of forming vacuum in freezing apparatus</i>	
107,898 NY	John F. Gesner October 4, 1870	West Farms,
	<i>Improvement in the manufacture of ice</i>	
108,606 OH	Oscar P. Lewis October 25, 1870	Cincinnati,
	<i>Improvement in method of cooling beer-worts &c.</i>	
108,816	Sydney James Newsham & William H. Haines William S. Henson November 1, 1870	Mont Claire, NJ Newark, NJ
	<i>Improvement in the manufacture of ice</i>	
111,280	David K. Tuttle & Orazio Lugo January 7, 1871	Baltimore, MD
	<i>Improvement in ice machines</i>	
112,284	Adolphe Rock February 28, 1871	Boston, MA
	<i>Improvement in ice machines</i>	

- 112,654 Archibald B. Tripler New Orleans, LA
February 28, 1871
Improvement in apparatus for making ice and for refrigerating purposes
- 112,726 Orazio Lugo & Baltimore,
MD James B. McPherson
March 14, 1871
Improvement in cooling air and in the manufacture of ice
- 114,965 Daniel E. Somes & Washington, D.C.
Frank C. Somes
May 16, 1871
Improvement in apparatus for cooling and preserving milk and other liquids
- 115,409 Albert Albertson Jersey City, NJ
May 30, 1871
Improvement in the manufacture of ice
- 117,013 Samuel Stroock New York, NY
July 11, 1871
Improvement in ice bags
- 117,087 Charles P. Leavitt New York, NY
July 18, 1871
Antedated: July 7, 1871
Improvement in apparatus for making ice
- 117,572 Benjamin F. Smith New Orleans, LA
Assignor of one half to: G. L. Laughland
August 1, 1871
Improvement in refrigerating and ventilating apparatus
- 118,411 Elwyn C. Weld New York, NY
August 22, 1871
Improvement in apparatus for making ice

118,649	James E. Sears August 29, 1871 <i>Improvement in apparatus for the manufacture of ice</i>	Waco, TX
199,252 CT	Alexander C. Twining September 26, 1871 Antedated: September 25, 1871 <i>Improvement in apparatus and process for the manufacture of salt</i>	New Haven,
121,402	A. Muhl November 28, 1871 <i>Improvement in apparatus for the manufacture of ice</i>	San Antonio, TX
121,888	Andrew Muhl December 12, 1871 <i>Improvement in ice machines</i>	Waco, TX
121,975 CT	Alexander C. Twining December 19, 1871 Antedated: December 9, 1871 <i>Improvement in ice machines using ammonia</i>	New Haven,
123,697	Daniel L. Holden February 13, 1872 <i>Improvement in body preservers</i>	Covington, KY
126,109	Louis Townsend April 23, 1872 <i>Improvement in ice-increasers</i>	Terre Haute, IN
126,305	William R. Johnson & William Whitelaw Assignors to: John Johnson April 30, 1872 <i>Improvement in ice machines</i>	Sedalia, MO Memphis, TN Memphis, TN

127,180	Samuel B. Martin John M. Beath May 28, 1872 <i>Improvement in the manufacture of ice and refrigerating machines</i>	San Francisco, CA
128,448	David Boyle Assignor to: John W. Pearson June 25, 1872 <i>Improvement in ice machines</i>	San Francisco, CA
131,783	Rees Reece October 1, 1872 <i>Improvement in ice machines</i>	Llandoilo, Wales
135,210	Edward S. Earley January 28, 1873 <i>Improvement in corpse-coolers</i>	Philadelphia, PA
135,576	Henry Norman & Charles F. Dietrich February 4, 1873 <i>Improvement in ice machines</i>	New Orleans, LA
137,323	Gardner Willard April 1, 1873 Application filed: March 20, 1873 <i>Improvement in apparatus for making ice</i>	New York, NY
138,478	James W. Collier May 6, 1873 Application filed: April 14, 1873 <i>Improvement in coolers for liquors</i>	New York, NY
140,375	Thomas D. Kingan July 1, 1873 Application filed: July 18, 1873 <i>Improvement in apparatus for cooling air</i>	Indianapolis, IN

141,331	Savilla H. Crump July 28, 1873 Application filed: April 30, 1873 <i>Improvement in corpse coolers</i>	Reading, PA
142,046	Louis Schulze August 19, 1873 Application filed: August 14, 1873 <i>Improvement in cooling and purifying air in breweries, packinghouses, and other buildings</i>	Philadelphia, PA
142,393	John Hoffman September 12, 1873 Application filed: April 19, 1873 <i>Improvement in corpse coolers</i>	Toledo, OH
142,533	Frederick N. Troll September 2, 1873 Application filed: June 25, 1873 <i>Improvement in corpse coolers</i>	Baltimore, MD
144,577	Augustus H. Tait November 11, 1873 Application filed: July 23, 1873 <i>Improvement in apparatus for the manufacture of ice, cooling buildings &c.</i>	Jersey City, NJ
146,267	Andrew Muhl January 6, 1874 Application filed: December 8, 1871 <i>Improvement in the apparatus for cooling the air of buildings</i>	Waco, TX
146,620	Alexander C. Twining January 20, 1874 Application filed: November 22, 1869 <i>Improvement in the method of freezing and cooling</i>	New Haven, CT
146,621 CT	Alexander C. Twining January 20, 1874	New Haven,

Application filed: June 6, 1872
Improvement in ice machines

150,477 Samuel B Martin San Francisco, CA
May 5, 1874
Application filed: October 20, 1873
Improvement in ice machines

150,644 John Wilkinson Baltimore, MD
May 5, 1874
Application filed: January 13, 1874
Improvement in cooling dairies

152,435 B. Frank Teal Philadelphia, PA
June 23, 1874
Application filed: March 26, 1874
Improvement in ice machines

156,056 Francis V. De Coppet New Orleans, LA
Assignor to: J. Ward Gurley, Jr. &
R. M. Davis
October 20, 1874
Application filed: December 31, 1873
Improvement in ice machines

159,997 Lucien B. Woolfolk Lexington, KY
February 16, 1875
Application filed: November 7, 1874
Improvement in process in apparatus for cooling liquids

160,077 Adam Brandt New York, NY
February 23, 1875
Application filed: December 24, 1874
Improvement in cooling floors for breweries

161,976 Samuel B. Martin San Francisco, CA
John M. Beath
April 13, 1875
Application filed: July 8, 1873

Improvement in ice manufactures and ice machines

162,397	Samuel B. Martin April 20, 1875 Application filed <i>Improvement in the manufacture of ice</i>	San Francisco, CA
162, 432	Augustus H. Tait April 20, 1875 Application filed: December 23, 1874 <i>Improvement in ice machines</i>	Jersey City, NJ
162,468	Erastus Warren Giddings April 27, 1875 Application filed: April 12, 1875 <i>Improvement in refrigerators</i>	Johnston, PA
163,142	David Boyle May 11, 1875 Application filed: November 10, 1874 <i>Improvement in ice machines</i>	Washington, D.C.
163,143	David Boyle May 11, 1875 Application filed: October 24, 1874 <i>Improvement in ice machines</i>	Washington, D.C.
163,144	David Boyle May 11, 1875 Application filed: April 14, 1875 <i>Improvement in ice machines</i>	Quincy, IL
163,376	Walter N. Hill May 18, 1875 Application filed: December 7, 1874 <i>Improvement in machines for making liquid carbonic acid</i>	Newport, RI
163,576	George H. Chincock	Brooklyn, NY

173,316	Samuel B. Martin February 8, 1876 Application filed: November 4, 1873 Improvement in ice-machines	San Francisco, CA
175,291	Samuel D. Lount March 28, 1876 Application filed: December 27, 1875 <i>Improvement in refrigerating processes and apparatus</i>	Chattanooga, TN
175,498	Thomas L. Rankin March 28, 1876 Application filed: March 4, 1876 <i>Improvement in ice-machines</i>	Emporia, KS
175,939	John J. Craven April 11, 1876 Application filed: March 10, 1876 <i>Improvement in refrigerating chambers</i>	Jersey City, NJ
177,717	Bernard Hoppenyan May 23, 1876 Application filed: April 18, 1876 <i>Improvement in methods of making ice</i>	Hancock, MI
177,845	Auguste Jas Assignor to one half to: Albert C. Janin May 23, 1876 Application filed: April 27, 1876 <i>Improvement in ice machines</i>	New Orleans, LA
177,999	John F. Gesner May 30, 1876 Application filed: September 19, 1874 <i>Improvement in ice machines</i>	New York, NY
178,300	Auguste Jas June 6, 1876	New Orleans, LA

Application filed: May 27, 1876
Improvement in ice machines

183,406 Robert H. Lucas San Francisco, CA
October 17, 1876
Application filed: July 14, 1876
Improvement in processes of refrigeration

186,581 Theodore Krausch New York, NY
January 28, 1877
Application filed: November 22, 1876
Improvement in methods of preserving ice in icehouses

187,413 Raoul Pierre Pictet Geneva, Switzerland
February 13, 1877
Application filed: June 28, 1876
Improvement in process of producing artificial cold by means of anhydrous sulphurous oxide

189,331 Francois Victor Baudelot Harancourt, Near Sedan, France
April 10, 1877
Application filed: March 12, 1877
Improvement in coolers for beer, ale &c.

189,958 Carroll L. Riker New York, NY
April 24, 1877
Application filed: November 18, 1876
Improvement in refrigerator-buildings

190,036 Daniel L. Holden Covington, KY
April 24, 1877
Application filed: January 31, 1877
Improvement in ice machines

191,256 Carroll L. Riker New York, NY
May 29, 1877
Application filed: February 19, 1876
Improvement in the manufacture of ice

191,638	Alexander T. Ballantine Assignor to: US Ice and Refrigerating Company June 5, 1877 Application filed: May 28, 1877 <i>Improvement in ice machines</i>	New York, NY
194,414	George W. Cornwell August 21, 1877 Application filed: July 20, 1877 <i>Improvement in refrigeration chambers</i>	Jersey City, NJ
198,831	Albert Albertson Assignor to: Simon Benton Hunt January 1, 1878 Application filed: August 6, 1877 <i>Improvement in ice machines</i>	Jersey City, NJ New York, NY
202,265	John P. Jones April 9, 1878 Application filed: October 10, 1877 <i>Improvement in Congealing-plates for ice machines</i>	Gold Hill, NV
202,641	John Enright April 23, 1878 Application filed: March 5, 1878 <i>Improvement in ammoniacal-gas pumps</i>	Cleveland, OH
202,787	Asa C. Call April 23, 1878 Application filed: January 14, 1878 <i>Improvement in the method of forming ice in separated layers</i>	Algona, Iowa
202,867	Alonzo C. Rand April 23, 1878 Application filed: March 30, 1878 <i>Improvement in refrigerators</i>	Minneapolis, MN

204,961	Edward Fixary June 18, 1878 Application filed: February 27, 1878 <i>Improvement in freezing apparatus</i>	New Orleans, LA
205,119	John Ring June 25, 1878 Application filed: April 22, 1878 <i>Improvement in cooling and freezing apparatus</i>	St. Louis, MI
205,643	Daniel L. Holden July 2, 1878 Application filed: May 10, 1878 <i>Improvement in methods and apparatus for producing ice</i>	Philadelphia, PA
206,626	Joshua Siddeley & Frederick N. Mackay July 30, 1878 Application filed: May 20, 1878 Patented in England: May 10, 1875 <i>Improvement in process and apparatus for making ice</i>	Liverpool, England
206,627	Joshua Siddeley & Frederick N. Mackay July 20, 1878 Application filed: May 20, 1878 Patented in England: May 10, 1875 <i>Improvement in cells for the tanks of ice machines</i>	Liverpool, England
207,278	Daniel L. Holden August 20, 1878 Application filed: May 13, 1878 <i>Improvement in apparatus for making ice</i>	Philadelphia, PA
207,290	Ernest P. Lorch August 20, 1878 Application filed: May 17, 1878 <i>Improvement in the apparatus for making ice</i>	New Berne, NC

208,019	John Kyle Assignor to: Joshua Siddeley & John Siddeley September 17, 1878 Application filed: May 20, 1878 Patented in England: September 22, 1874 <i>Improvement in process and apparatus for making ice</i>	Glasgow, North Britain Liverpool, England
208,045	John Siddeley & Frederick N. Mackay September 17, 1878 Application filed: May 20, 1878 Patented in England: January 20, 1869 <i>Improvement in ether-meters for refrigerating machines</i>	Liverpool, England
208,304	John Gamgee September 24, 1878 Application filed: October 18, 1877 <i>Improvement in ice machines</i>	Chelsea, England
208,305	John Gamgee September 24, 1878 Application filed: October 18, 1877 <i>Improvement in ice machines</i>	Chelsea, England
213,219	Frederick N. Mackay March 11, 1879 Application filed: August 17, 1878 Patented in England: October 17, 1874 <i>Improvement in cells for the tanks of ice-making machines</i>	Liverpool, England
213,530	Benjamin Rose March 25, 1879 Application filed: September 23, 1878 <i>Improvement in refrigerators</i>	Cleveland, OH
213,794	Henry J. West England April 1, 1879 Application filed: October 2, 1878 <i>Improvement in apparatus for the refrigeration or freezing of liquids</i>	Great Suffolk Street, Surrey County,

215,272	Benjamin W. Gillett Assignor to: Jerome D. Gillett May 13, 1879 Application filed: April 5, 1879 <i>Improvement in refrigerators</i>	Jersey City, NJ
217,617	Joshua Siddeley & Frederick N. Mackay July 15, 1879 Application filed: May 10, 1875 <i>Improvement in cells for the tanks of ice-making apparatus</i>	Liverpool, England
219,621	Henry J. Slee & Edward K. Goss September 2, 1879 Application filed: March 11, 1879 <i>Improvement in modes of preserving, protecting and handling ice</i>	Chicago, IL
219,131	James A. Whitney September 2, 1879 Application filed: May 24, 1877 <i>Improvement in refrigeration apparatus</i>	New York, NY
222,433 of	William Young & Alexander Nelson December 9, 1879 Application filed: February 29, 1879 Patented in England: December 21, 1877 <i>Improvement in apparatus for refrigerating liquids</i>	Clippens, County Renfrew, England
227,703	Cassius C. Palmer May 18, 1880 Application filed: August 22, 1878 <i>Ice-Making Apparatus</i>	San Francisco, CA
228,364	Charles P. G. Linde June 1, 1880 Application filed: July 14, 1879	Munich, Germany

Refrigerating and ice-making apparatus

- 229,941 Alexander T. Ballantine Portland, ME
Assignor of one half to: Robert A. Ripley
July 13, 1880
Application filed: March 23, 1880
Congealer for ice-making apparatus
- 230,025 Oscar Kropff Nordhausen,
Germany
July 13, 1880
Application filed: May 15, 1880
Patented in Germany: April 13, 1879
Apparatus for freeing water from atmospheric air
- 230,102 Andrew J. Zilker Austin, TX
July 13, 1880
Application filed: November 13, 1879
Apparatus for the manufacture of ice
- 230,318 John W. Miller
Whitesborough, NY
July 20, 1880
Application filed: May 15, 1880
Process of and apparatus for making ice
- 231,824 Benjamin Maillefert Astoria
Assignor of one half to: Henry Ehlers New York,
NY
August 31, 1880
Application filed: March 11, 1880
Process of and apparatus for refrigerating and making ice
- 231,886 Leicester Allen Brooklyn, NY
September 7, 1880
Application filed: June 9, 1879
Process and apparatus for cooling air
- 234,494 Stanislas H. Rouart Paris, France

237,372	John C. De La Vergne & William M. Mixer February 8, 1881 Application filed: October 30, 1880	New York, NY
	<i>Ice-making machinery</i>	
237,953	David Boyle February 22, 1881 Application filed: November 4, 1879	Chicago, IL
	<i>Refrigerating device</i>	
239,343	De Witt C. Sanford March 29, 1881 Application filed: July 27, 1880	St. Louis, MO
	<i>Refrigerator and refrigerator house</i>	
239,666	Cassius C. Palmer April 5, 1881 Application filed: March 22, 1880	Oakland, CA
	<i>Ice-machine</i>	
239,979	John W. Nystrom April 12, 1881 Application filed: January 3, 1881	Philadelphia, PA
	<i>Process of refrigeration</i>	
240,004	Paul H. Bate Assignor to: The Bate Refrigerating Company April 12, 1881 Application filed: December 2, 1876	Brooklyn, NY
	<i>Refrigerator</i>	
240,415	Silas A. Hosmer April 19, 1881 Application filed: August 30, 1880	Concord, MA
	<i>Refrigerator</i>	

240,697
CA
John F. Gesner
San Rafael,
CA
Assignor of three fourths: Edward P. Flint
San Francisco, CA
April 26, 1881
Application filed: August 21, 1880
Apparatus for and process of producing artificial cold by chloride of ethyl

242,107
David Boyle
Chicago, IL
May 31, 1881
Application filed: December 27, 1878
Ice and refrigerating machine

244,236
Ebenezer Hill
South Norwalk, CT
July 12, 1881
Application filed: May 16, 1881
System or method of supplying dynamic refrigeration and machinery for the same

244,300
Thomas L. Rankin
New York, NY
Assignor to: The Rankin Ice Manufacturing Company
July 12, 1881
Application filed: May 5, 1881
Ice-machine

244,601
Ebenezer Hill
South Norwalk, CT
July 19, 1881
Application filed: May 21, 1881
Refrigerating apparatus and method of using the same

244,602
Ebenezer Hill
South Norwalk, CT
July 19, 1881
Application filed: May 21, 1881
Method of apparatus for cooling refrigerating-cars

246,013
Ralph S. Jennings
Baltimore, MD
August 23, 1881
Application filed: July 28, 1881
Air-cooling apparatus

246,406	Francis M. McMillan August 30, 1881 Application filed: July 15, 1881 <i>Apparatus for the manufacture of ice and for other cooling purposes</i>	Washington, D.C.
247,020	George W. Dietzler September 13, 1881 Application filed: April 22, 1881 <i>Combined water-cooler and refrigerator</i>	San Francisco, CA
247,578	William Plumer September 27, 1881 Application filed: May 11, 1881 <i>Cooling and condensing apparatus</i>	Lexington, MA
247,772	William T. Lyons October 4, 1881 Application filed: February 11, 1881 <i>Ice-machine</i>	Decherd, TN
252,553	Theodore S. Very January 17, 1882 Application filed: January 19, 1881 <i>Method of and apparatus for refrigerating</i>	Boston, MA
252,622	J. Thorton Reed January 24, 1882 Application filed: July 20, 1881 <i>Refrigerating apparatus</i>	Boston, MA
252,766	Ebenezer Hill January 24, 1882 Application filed: September 14, 1881 <i>Dynamic dry-air refrigerating apparatus</i>	South Norwalk, CT
252,921	Leicester Allen Assignor to: Henry T. Brown, Trustee January 31, 1882 Application filed: May 25, 1881	New York, NY

Process of and apparatus for dynamic cooling

- 254,203 Edouard Fixary Paris, France
February 28, 1882
Application filed: January 21, 1882
Ice-machine
- 256,023 Reuben A. Messervey Medford, MA
Assignor to one half: John M. Watson
 Brookline, MA & Samuel V. Johnson
 Medford, MA
April 4, 1882
Application filed: January 31, 1882
Refrigerator cooled by ammonia and other volatile liquids
- 256,350 Charles G. Mayer Nauvoo, IL
Assignor to one half: Leo Rassiuer St. Louis, MO
April 11, 1882
Application filed: February 14, 1882
Refrigerating apparatus
- 257,505 Francis M. McMillan & Washington, D.C.
Henry C. Johnson
May 9, 1882
Application filed: March 9, 1882
Refrigerating buildings, cars, vessels, and other structures
- 257,506 Francis M. McMillan & Washington, D.C.
Henry C. Johnson
May 9, 1882
Application filed: March 21, 1882
System of refrigeration for cooling cars, ships, buildings, &c.
- 258,682 George W. Stevens San Francisco, CA
May 30, 1882
Application filed: December 30, 1881
Ice-machine
- 259,421 Orin Parker Washington, D.C.

June 13, 1882
 Application filed: November 21, 1881
Method of cooling air for making ice and cooling min general

259,697 Samuel D. Lount Phoenix, AZ Territory
 June 20, 1882
 Application filed: December 19, 1881
Manufacture of ice

260,706 Orin Parker Washington, D.C.
 July 4, 1882
 Application filed: November 12, 1881
Process of and apparatus for preserving food

261,460 Henry C. Johnson & Francis M. McMillan Washington, D.C.
 July 18, 1882
 Application filed: April 22, 1882
Refrigerating and drying grain

261,810 Thomas Cook & Otto Albrecht Philadelphia, PA
 July 25, 1882
 Application filed: January 3, 1882
Ice-making apparatus

263,620 John Sturgeon Westminster County, Middlesex, England
 Assignor to: John Wilfred De Villemount Galwey
 & George William Bainbridge
 Warrington Eng. August 29, 1882
 Application filed: December 21, 1877
Apparatus for cooling, drying, and purifying air

265,250 John Enright Cleveland, OH
 October 3, 1882
 Application filed: July 20, 1882
Refrigerating apparatus

265,627 Orin Parker Washington, D.C.

October 10, 1882
Application filed: January 11, 1882

Refrigerating apparatus

268,196 John T. Davis New York, NY
Assignor to: Amy M. King
November 28, 1882
Application filed: April 12, 1882

Ice Machine

268,347 William H. Hood & Brooklyn, NY
George Richmond
November 28, 1882
Application filed: September 4, 1882

Refrigerating and ice machine

274,500 Joseph C. Kline Philadelphia, PA
March 27, 1883
Application filed: December 15, 1882

Ice-Making machine

275,192 George W. Goodwell Beardstown, IL
April 3, 1883
Application filed: February 5, 1883

Process of and apparatus for blocking ice

276,824 Samuel W. Johnson Medford, MA
May 1, 1883
Application filed: December 6, 1882

Marine refrigerator

277,024 Ossian Guthrie Chicago, IL
May 8, 1883
Application filed: January 13, 1883

Aiding the formation of atmospheric or natural ice

281,090 Hugh Logan San Francisco, CA
July 10, 1883
Application filed: January 31, 1883

Refrigerating and ice machine

283,054 William M. Wood & Washington, D.C.
 William L. Bailie
 August 14, 1883
 Application filed: June 20, 1883

Ice machine

285,394 Edward Z. Collings & Camden, NJ
 Charles F. Pike Philadelphia, PA
 September 25, 1883
 Application filed: October 20, 1882

Refrigerator car

285,879 Thomas H. Day San Francisco, CA
 October 2, 1883
 Application filed: January 10, 1882

Machine for making ice and producing cold

285,893 Julius Hess Detroit, MI
 October 2, 1883
 Application filed: May 10, 1883

Refrigerator room

286,604 George W. Goodell Beardstown, IL
 October 16, 1883
 Application filed: September 8, 1883

Process of blocking ice

288,063 Samuel Watson Johnson Belmont, MA
 November 6, 1883
 Application filed: August 21, 1883

Ice Machine

290,600 Cassius C. Palmer New York, NY
 December 18, 1883
 Application filed: August 15, 1883

Refrigerating car

290,794 Cassius Clay Palmer Oakland, CA
December 25, 1883
Application filed: December 30, 1882
Patented in England: April 20, 1880
Patent No. 1,752
Patented in France: April 29, 1880
Patent No. 134,416
Patented in Victoria: May 13, 1880
Patent No. 2,828
Patented in New South Wales: June 30, 188
Patent No. 3,960

Refrigerating apparatus

290,795 Cassius Clay Palmer Oakland, CA
December 30, 1883
Application filed: December 30, 1882

Refrigerating apparatus

291,914 Samuel Henry Linn New York, NY
January 15, 1884
Application filed: September 18, 1883

Method of and apparatus for preserving and transporting food

300,133 James C. Rossi Perth Amboy, NJ
June 10, 1884
Application filed: December 29, 1883

Process of and apparatus for producing cold

300,695 John J. Craven Patchogue, NY
June 17, 1884
Application filed: April 4, 1884

Refrigerating apparatus for chambers and buildings

301,457 John Patten New York, NY
July 1, 1884
Application filed: September 8, 1883

Ice-machine

301,539 Oscar Vezin Elizabeth, NJ

July 8, 1884
Application filed: January 12, 1883
Renewed: December 8, 1883

Method or process of uniting sheets of ice

302,294 Julius J. Suckert Ridgewood, NJ
July 22, 1884
Application filed: December 13, 1883

Method of and apparatus for compressing and liquefying gases and producing refrigeration

302,443 Julius J. Suckert Ridgewood, NJ
July 22, 1884
Application filed: January 17, 1884

Process of absorbing heat from rooms or material by use of a liquefied gas

306,724 Timothy C. Eastman New York, NY
October 21, 1884
Application filed: March 6, 1884

Method and apparatus for cooling the air in refrigeration rooms

306,725 Timothy C. Eastman New York, NY
October 21, 1884
Application filed: August 29, 1884

Method of and apparatus for cooling the air in rooms

307,996 David Smith Washington, D.C.
November 11, 1884
Application filed: February 26, 1884

Ice-Making

308,008 Henry Tallichet Austin, TX
November 11, 1884
Application filed: May 12, 1884

Process of and apparatus for refrigerating cars

308,980 Cassius C. Palmer Oakland, CA
December 9, 1884
Application filed: February 15, 1883

Ice making and refrigerating machine

310,616 John Ring St. Louis, MO
January 13, 1885
Application filed: October 13, 1884

Cooling attachment for gas and other machines

311,831 Christian Heintz & Buffalo, NY
George M. Heintz
Andrew Dotterweich & Dunkirk, NY
Said Dotterweich
Assignor to: Said C. and G. M. Heintz
February 3, 1885
Application filed: July 12, 1884

Combined air pressure apparatus and refrigerator

320,305 Julius J. Suckert Ridgewood, NJ
June 16, 1885
Application filed: April 24, 1885

Cooling and separating a lubricating agent from a compressed gas, and liquefaction of gases and production of refrigeration

320,306 Julius J. Suckert Ridgewood, NJ
June 16, 1885
Application filed: April 23, 1885

Process of liquefying gases and producing refrigeration

320,307 Julius J. Suckert Ridgewood, NJ
June 16, 1885
Application filed: April 24, 1885

Method of and apparatus for purifying and liquefying gases and producing refrigeration

320,308 Julius J. Suckert Ridgewood, NJ
June 16, 1885
Application filed: April 23, 1885

Process of separating and cooling a sealing or lubricating liquid in apparatus for producing refrigeration

320,309	Julius J. Suckert June 16, 1885 Application filed: May 18, 1885 <i>Separating and cooling a sealing or lubricating liquid in producing refrigeration</i>	Ridgewood, NJ
321,669	William H. Wood July 7, 1885 Application filed: March 12, 1885 <i>Refrigerating and ice machine</i>	New York, NY
323,749	Frederick Stizel Assignor of two thirds: Adolph Reutlinger & Moses Schwartz August 4, 1885 Application filed: November 3, 1884 <i>Compressor for ice machines</i>	Louisville, KY
323,767	Franz Windhausen August 4, 1885 Application filed: November 10, 1884 <i>Refrigerating rooms and liquids and apparatus used therefor</i>	Berlin, Germany
324,278	Johann Stuber Jacob Stuber August 11, 1885 Application filed: June 17, 1885 <i>Refrigerating apparatus for houses</i>	Syracuse, NY
326,027	Henry Albert Fleuss September 8, 1885 Application filed: December 10, 1884 Patented in England: February 26, 1884 No. 3,978 Patented in France: November 18, 1884 No. 165,443 Patented in Germany: November 25, 1884 No. 31,811 <i>Ice machine</i>	Newtown, Isle of Wright, England
328,624	Oscar Verzin	Elizabeth, NJ

- October 20, 1885
Application filed: June 23, 1883
Ice machine
- 328,686 Henry Clay Johnson Meadville, PA
October 20, 1885
Application filed: August 10, 1885
Corpse cooler and preserver
- 328,784 Henry Clay Johnson Meadville, PA
October 20, 1885
Application filed: August 22, 1885
Refrigerating and dehydrating apparatus for meat and etc.
- 329,726 Peter Effertz Chemnitz, Saxony, Germany
November 3, 1885
Application filed: June 29, 1885
Gas compressor
- 330,884 Edouard Fixary Paris France
November 24, 1885
Application filed: July 10, 1885
Patented in France: August 23, 1884
No. 163,920
Apparatus for freezing liquids
- 331,530 Hugo Nehrlich & Berlin, Germany
Adam Neubecker Offenbach-On-The-Main, Hesse
Assignor to: A. Neubecker Offenbach-On-The-Main, Hesse,
Germany
December 1, 1885
Application filed: March 1, 1885
Refrigerator
- 332,150 Joseph E. Holmes Washington, D.C.
December 8, 1885
Application filed: May 29, 1885
Instrument for regulating the flow of gases and liquids in refrigerators and other structures

- 332,344 Edmund Jungenfeld & St. Louis, MO
Hermann Rassbach
Assignor to: The Empire Refrigerating Company
December 15, 1885
Application filed: November 17, 1884
Oil-drip and separating-tank for ammonia-gas pumps
- 336,235 Eli Emory Hendrick Carbondale, PA
February 16, 1886
Application filed: January 11, 1886
Machine for cooling liquids and other articles commonly called "Ice-machines"
- 336,952 Albert Schmitz Essen-on-the-
Ruhr
Assignor to: Wilhelm Raydt Hanover, Prussia, Germany
March 2, 1886
Application filed: June 3, 1885
Patented in Belgium: November 24, 1884
No. 66,986
Patented in France: November 19, 1884
No. 165,545
Patented in England: November 24, 1884
No. 15,475
Patented in Germany: November 25, 1884
No. 33,166
Patented in Italy: December 19, 1884
No. 17,595
Patented in Austria-Hungary: March 8, 1885
No. 44,353
Patented in Spain: March 30, 1885
No. 4,054
Production of cold manufacture of ice and apparatus therefor
- 343,035 Elias Kauffeld Pittsburg, PA
June 1, 1886
Application filed: September 9, 1885
Cooling and refrigerating apparatus
- 343,369 Charles Haffcke Baltimore, MA
June 8, 1886
Application filed: March 31, 1885
Cooling air in refrigerators, & c.

344,006	Cassius Clay Palmer June 22, 1886 Application filed: March 9, 1885	New York, NY
	<i>Refrigerator</i>	
344,310	Abner Evans Jr. June 22, 1886 Application filed: August 20, 1883	Philadelphia, PA
	<i>Ice machine</i>	
344,708	Lucien H. Barkdull June 29, 1886 Application filed: February 15, 1886	Chicago, IL
	<i>Preparing mineral waters for transportation</i>	
345,059	Henry C. Johnson Assignor to: Consolidated Refrigerator Company New York, NY July 6, 1886 Application filed: October 29, 1885	Meadville, PA
	<i>Apparatus for cooling beer</i>	
346,184	William H. Wood July 27, 1886 Application filed: December 21, 1885	New York, NY
	<i>Refrigeration and ice machine</i>	
348,824	Andrew J. Chase & Charles F. Smith September 7, 1886 Application filed: March 18, 1886	Boston, MA Fitchburg, MA
	<i>Method of and means for refrigeration</i>	
356,254 NY	Mathew Leavy January 18, 1887 Application filed: July 13, 1886	New York,
	<i>Method of and means for refrigerating cellars and vaults</i>	

- 356,382 David Smith Washington, D.C.
January 18, 1887
Application filed: March 5, 1883
Ice machine
- 372,327 Raoul Pierre Pictet Geneva, Switzerland
November 1, 1887
Application filed: July 31, 1886
Patented in France: December 6, 1884
No. 165,743
Patented in England: December 16, 1884
No. 16,556
Patented in Germany: December 31, 1884
No. 33,239
Apparatus for producing cold
- 373,319 August Snyder Pittsburg, PA
November 15, 1887
Application filed: April 26, 1887
System of and apparatus for refrigerating
- 381,195 Henry Joseph West
116 Southwark Bridge Rd. County of Surrey England
April 17, 1888
Application filed: March 5, 1885
Patented in England: March 16, 1881
No. 1,147
Patented in France: June 21, 1881
No. 143,520
Apparatus for the production of transparent ice
- 386,447 Victor H. Becker Chicago, IL
July 24, 1888
Application filed: January 29, 1887
Condenser
- 388,722 John Ring St. Louis, MO
August 29, 1888
Application filed: April 29, 1887
Ammonia system for cooling rooms, & c.

390,836	Louis Block October 9, 1888 Application filed: March 17, 1887 <i>Gas Compression and refrigerating apparatus</i>	New York, NY
406,775	Charles F. Sautter July 9, 1889 Application filed: October 27, 1888 <i>Thermostatic-valve regulator</i>	Brooklyn, NY
436,858	Granville Kimball September 23, 1890 Application filed: January 10, 1890 <i>Fluid-Pressure Governor</i>	Chicago, IL
424,747	Frederick W. Wolf April 1, 1890 Application filed: April 24, 1889 <i>Ice or refrigerating machine</i>	Chicago, IL
426,781	Mark W. Dewey Assignor to: The Dewey Corporation April 29, 1890 Application filed: February 10, 1890 <i>Electric Refrigerating apparatus for railway cars</i>	Syracuse, NY
431,244	Hector Von Bayer Assignor by direct and mesne attachments to: The Century Ice Machine Company July 1, 1890 Application filed: December 3, 1889 <i>Method of cooling and freezing</i>	Washington, D.C. West Virginia
435,566	George F. Meyer September 2, 1890 Application filed: June 8, 1887 Renewed: March 18, 1890 <i>Art of Making Ice</i>	New York, NY

442,026 Wilson E. Facer Cleveland, OH
Assignor by mesne assignments to: Facer
Refrigerating and Ice Making Company
New York, NY
December 2, 1890
Application filed: December 6, 1888
Refrigerating apparatus

443,020 Randolph G. Ward Baltimore, MD
December 16, 1890
Application filed: December 15, 1888
Machine for producing artificial freezing and refrigeration

449,181 Frederick Schneider New York, NY
March 31, 1891
Application filed: July 5, 1890
Rotary valve

449,615 Samuel B. Clemmens Springfield, OH
March 31, 1891
Application filed: May 12, 1890
Cooling or refrigerating apparatus

450,575 Charles A. Cox & Louisville, KY
Charles N. Brockington
Assignors of one fifth to: J. Frank Cox
April 14, 1891
Application filed: March 20, 1890
Refrigerating valve and regulator

452,536 Ehregott Theodore Winkler Philadelphia, PA
Assignor by mesne assignments to: The
American Ice Machine Company
May 19, 1891
Application filed: September 20, 1887
Ice-making and refrigerating machine

453,651 Charles Frederick Miller & Lancaster PA

Alexander Whiteside Carlile
Assignor to: Said Miller
June 9, 1891
Application filed: November 29, 1890

Refrigerator

458,226 William E. Eastman Boston, MA
August 25, 1891
Application filed: March 2, 1891

Automatic valve-operating mechanism and thermostatic index and controlling device therefor

458,247 Lewis N. Charles Washington, D.C.
August 25, 1891
Application filed: May 26, 1890

Automatically governed valve

460,028 Edward A. Quisenberry Lexington, VA
September 22, 1891
Application filed: May 20, 1890

Method of and apparatus for manufacturing ice

476,358 Alexander T. Ballantine Cleveland, OH
Assignor to: Domestifroid Company
June 7, 1892
Application filed: April 2, 1891

Portable or domestic refrigerator

478,373 Alexander Shiels Glasgow, Scotland
July 5, 1892
Application filed: May 6, 1891

Apparatus for automatically regulating temperature

487,706 Louis Block New York, NY
December 13, 1892
Application filed: July 11, 1892

Refrigerating machine

489,335 Alfred Siebert New York, NY

January 3, 1893
Application filed: June 22, 1888
Renewed: November 30, 1892

Refrigerating apparatus

489,212 James Bartlett Toledo, OH
January 3, 1893
Application filed: August 23, 1892

Temperature-indicator

504,092 Paul I. Schmaltz Hamburg, Germany
August 29, 1893
Application filed: December 12, 1891

Automatic pressure-regulator for refrigerating-machines

508,141 John Levey, Thomas H. Butler, & Chicago, IL
Charles A. McDonald
Assignors to: Hercules Iron Works
November 7, 1893
Application filed: November 16, 1892

Refrigerating -Machine

508,755 Thomas L. Rankin Chicago, IL
November 14, 1893
Application filed: February 25, 1893

Artificial-ice skating-rink

511,857 William Mild Hamilton, OH
January 2, 1894
Application filed: December 31, 1892

Refrigerating apparatus

518,541 Louis Block New York, NY
April 17, 1894
Application filed: July 11, 1891

Refrigerating-machine

519,359 Robert M. Taylor Melrose, MA
May 8, 1894

Application filed: May 17, 1893

Manufacture of Artificial Ice

523,412

Theodore Scheffler Paterson
Assignor of one half: Frederick A. Scheffler
Passaic, NJ

July 24, 1894

Application filed: September 19, 1893

Method of cooling refrigerators

530,526

Daniel L. Holden New York, NY
Assignor to: Kathryn M. Holden
December 11, 1894
Application filed: April 18, 1892
Renewed: May 5, 1894

Apparatus for manufacturing ice

530,527

Daniel L. Holden & New York, NY
Lemuel W. Serrell Plainfield, NJ
Assignors to: Kathryn M. Holden New York, NY
December 11, 1894
Application filed: June 19, 1893
Renewed: May 5, 1894

Ice-making machine

537,626

Ehregott T. Winkler Kansas City, MO
Assignor by direct and mesne
assignments to: The Winkler Machine Manufacturing Co.
April 16, 1895
Application filed: February 16, 1894
Renewed: March 13, 1895

Refrigerating Machine

549,426

Alexander T. Ballantine Cleveland, OH
Assignor to: The Domestifroid Company
November 5, 1895
Application filed: December 13, 1894

Ice Machine

551,107

Marcel Audiffern Grasse, France

December 10, 1895
Application filed: February 12, 1895
Patented in France: May 31, 1894
No. 238,845
Patented in Germany: October 31, 1894
No. 82,314
Patented in Belgium: November 3, 1894
No. 112,536
Patented in England: November 17, 1894
No. 22, 279
Patented in Italy: December 22, 1894
No. 37,840
Patented in Spain: December 29, 1894
No. 16,809

553,077 Alexander Shiels Glasgow, Scotland
January 14, 1896
Application filed: June 11, 1894
Patented in England: February 11, 1893
No. 3,057
Automatic Governor for refrigerating plants

559,533 George F. Knox & Chicago, IL
Eliel L. Sharpneck
May 5, 1896
Application filed: August 29, 1895
Refrigerating-machine

559,753 Eliel Sharpneck & Chicago, IL
George F. Knox
May 5, 1896
Application filed: April 3, 1895
Refrigerating-Machine

577,328 William F. Singer New York, NY
Assignors to: The American Electric Cold-Supply
Company Maine
February 16, 1897
Application filed: January 23, 1897
Refrigerating apparatus

578,297	Eliel L. Sharpneck & George F. Knox March 2, 1897 Application filed: June 10, 1895 <i>Expansion-regulator for refrigerating-machines</i>	Chicago, IL
578,499	Frederick O. Pierson March 9, 1897 Application filed: July 31, 1895 <i>Compressor for refrigerating-machines</i>	Oshkosh, WI
594,440	John Stocker & Harry H. Philper November 30, 1897 Application filed: November 13, 1896 <i>Liquid-cooling apparatus</i>	St. Louis, MO
630,715	William F. Singer January 18, 1898 Application filed: April 5, 1897 <i>Refrigerating apparatus</i>	New York, NY
601,716	Julius Sedlacek April 5, 1898 Application filed: February 26, 1897 Patented in France: December 21, 1892 No. 226,556 Patented in Germany: January 13, 1893 No. 72,657 Patented in Italy: March 26, 1893 No. 1,194 Patented in Austria-Hungary: May 6, 1893 No. 1,089 No. 5,637 Also Patented in: August 30, 1893 No. 10,239 No. 19,809 Patented in Switzerland: July 22, 1893 No. 7,363 Also patented: June 25, 1894 No. 8,798 Patented in Belgium: August 25, 1894	Nuremberg, Germany

No. 85,843
Patented in England: May 14, 1895
No. 9,530

Condensing-water and air apparatus for refrigerating-machines

602,199 Julius Sedlacek Nuremberg, Germany
April 12, 1898
Application filed: February 26, 1897
Patented in France: December 21, 1892
No. 226,556
Patented in Germany: February 10, 1893
No. 82,773
Patented in Italy: March 28, 1883
No. 1,194
Patented in Austria-Hungary: May 6, 1893
No. 1,089
No. 5,637
Also patented in: August 30, 1893
No. 10,239
Patented in Switzerland: July 22, 1893
No. 7,363 and June 25, 1894 No. 8,798
Patented in Belgium: August 25, 1894
No. 85,843
Patented in England: May 14, 1895
No. 9,530

Refrigerating Machine

604,162 Julius Sedlacek Nuremberg, Germany
May 17, 1898
Application filed: September 27, 1897
Patented in France: December 21, 1892
No. 226,556
Patented in Germany: February 10, 1893
No. 82,773
Patented in Italy: March 28, 1883
No. 1,194
Patented in Austria-Hungary: May 6, 1893
No. 1,089
No. 5,637
Also patented in: August 30, 1893
No. 10,239
No. 19,089
Patented in Switzerland: June 25, 1894
No. 8,798
Patented in Belgium: August 25, 1894

No. 85,843
Patented in England: May 14, 1895
No. 9,530

Cooling and sealing

617,437 Heywood Cochran Johnstown, PA
January 10, 1899
Application filed: November 19, 1897

Stop-Valve

625,447 James Humes New York, NY
May 23, 1899
Application filed: February 2, 1899

Method of and apparatus for making ice

630,616 Albert T. Marshall Brockton, MA
August 8, 1899
Application filed: June 4, 1897

Automatic Refrigeration apparatus

630,617 Albert T. Marshall Brockton, MA
August 8, 1899
Application filed: February 11, 1898

Automatic expansion-valve for refrigerating apparatus

630,618 Albert T. Marshall Brockton, MA
August 8, 1899
Application filed: August 29, 1898

Automatic regulator for electric motors

632,860 Abraham Wilkinson Lorain, OH
Assignor to: The Cochran Company
September 12, 1899
Application filed: September 30, 1898

Expansion-valve

644,847 Madison Cooper Minneapolis, MN
March 6, 1900
Application filed: September 25, 1899

Process of preventing formation of frost on refrigerating-surfaces

- 649,204 Jules Grouvelle & Paris, France
 Henri Arquembourg
 May 8, 1900
 Application filed: March 7, 1900
Manufacture of coolers or condensers
- 658,899 Henry D. Pownall Cincinnati, OH
 October 2, 1900
 Application filed: December 7, 1899
Cooling and condensing apparatus
- 673,075 Maurice Ernest Douane Paris, France
 April 30, 1901
 Application filed: February 1, 1900
Refrigerating apparatus
- 674,463 Elijah C. Hall Braintree, MA
 May 21, 1901
 Application filed: February 15, 1901
Refrigerating System
- 683,186 William F. Singer New York, NY
 Assignor to: Singer Automatic Ice Machine Co.
 Jersey City, NJ
 September 24, 1901
 Application filed: January 14, 1901
Thermostatic switch
- 697,029 William F. Singer New York, NY
 Assignor: Singer Automatic Ice Machine Co. Jersey City, NJ
 April 8, 1902
 Application filed: November 15, 1900
Refrigerating apparatus
- 707,633 James F. Place Glenridge, NJ

August 26, 1902

Application filed: February 15, 1901

Art or process of liquefying air or other gases and cooling by means thereof

716,480

Robert W. Rollins

Hartford, CT

December 23, 1902

Application filed: August 12, 1901

Regulating apparatus for refrigerating-compartments

740,170

Eugene F. Osborne

Chicago, IL

Assignor by mesne assignments to:

Said Osborne & J. Motte Martin, Trustees

September 29, 1903

Application filed: October 26, 1899

Automatic expansion-controlling valve

761,701

Cassius Clay Palmer

New York, NY

Assignor to: Railway and Stationary Refrigeration
Company

Delaware

June 7, 1904

Application filed: August 22, 1903

Refrigerating apparatus

764,515

Marcel Antione Audiffern

Grasse, France

July 5, 1904

Application filed: March 29, 1904

Oil-Separator for rotary refrigerating appliances

785,265

Albert T. Marshall

Swampscott, MA

Assignor to: Federal Automatic Refrigeration Co.

New York, NY

March 21, 1905

Application filed: March 4, 1904

Expansion-valve for refrigerating apparatus

793,696

Gardner T. Voorhees

Boston, MA

July 4, 1905

Application filed: January 28, 1901

Refrigerating apparatus

793,864 Gardner T. Voorhees Boston, MA
Assignor to: William H. Harris, Trustee
New York, NY
July 4, 1905
Application filed: July 30, 1903
Multiple-effect compressor

795,014 Richard Whitaker New Brunswick, NJ
Assignor to two thirds: Robert W. Johnson
& James W. Johnson
July 18, 1905
Application filed: January 11, 1904
Refrigerating apparatus

795,015 Richard Whitaker New Brunswick, NJ
Assignor to two thirds: Robert W. Johnson
& James W. Johnson
July 18, 1905
Application filed: March 28, 1904
Refrigerating apparatus

796,969 William C. Hiester Dayton, OH
August 8, 1905
Application filed: February 9, 1905
Continuation of application: May 14, 1903
Refrigerating apparatus

806,478 Albert T. Marshall Brockton, MA
Assignor by mesne assignments to: The Automatic
Refrigerating Co. Corporation of, NJ
December 5, 1905
Application filed: June 12, 1902
Renewed: March 13, 1905
Condenser Valve for refrigerating apparatus

815,912 Arthur H. Eddy Windsor, CT
March 20, 1906
Application filed: July 19, 1905
Expansion Valve

821,563 Richard Whitaker New Brunswick, NJ
Assignor by direct and mesne assignments to:
Brunswick Refrigerating Company Corp. of NJ
May 22, 1906
Application filed: January 11, 1904
Divided and application filed: January 5, 1905

Gas-Pump

834,870 Jacob Chester Chamberlain & New York
Albert T. Marshall New Rochelle, NY
Assignors by direct and mesne assignments to:
Automatic Refrigerating Company Corp. of NJ
October 30, 1906
Application filed: June 21, 1905

Automatic controlling means for fluid-pressure systems

843,864 Louis Herman Brinkman West Hartford, CT
Assignor to: Whitlock Coil Pipe Company
Corporation of, CT
February 12, 1907
Application filed: January 29, 1903

Cooler

848,277 Richard Whitaker New Brunswick, NJ
Assignor by direct and mesne assignments to:
Brunswick Refrigerating Company
March 26, 1907
Application filed: January 11, 1904

Gas-pump

853,503 Arthur H. Eddy Windsor, CT
Assignor of one half: Charles E. Shepard
Hartford, CT
May 14, 1907
Application filed: January 6, 1906

Expansion-Valve

853,505 Arthur H. Eddy Windsor, CT
Assignor of one half: Charles E. Shepard
Hartford, CT

May 14, 1907
Application filed: January 26, 1906
Automatic Expansion-Valve for refrigerating apparatus

853,541 Arthur H. Eddy Windsor, CT
Assignor of one half: Charles Shepard
Hartford, CR
May 14, 1907
Application filed: January 26, 1906
Automatic Expansion-Valve

898,400 Marcel Audiffren & Golbey, France
Henri Albert Singrun Epinal, France
Said Singrun Assignor to:
Societe des Etablissements Singrun
September 8, 1908
Application filed: June 20, 1906
Rotary refrigerating machine

906,508 George P. Carroll Bridgeport, CT
December 15, 1908
Application filed: January 7, 1907
Automatic expansion-valve

911,635 Richard Whitaker New Brunswick, NJ
Assignor by direct and mesne assignments
to: Brunswick Refrigeration Company Corp. of, NJ
February 9, 1909
Application filed: March 3, 1905
Refrigerating apparatus

912,866 Robert F. Massa Chicago, IL
February 16, 1909
Application filed: May 25, 1906
System of refrigeration

924,964 George P. Carroll Bridgeport, CT
June 15, 1909
Application filed: March 1, 1907
Divided & application filed: June 5, 1907

Valve and connection

929,151 Robert F. Massa Chicago, IL
July 27, 1909
Application filed: July 9, 1906

Automatic refrigerating apparatus

932,599 Richard Whitaker New Brunswick, NJ
Assignor by mesne and direct applications
to: Brunswick Refrigeration Company
August 31, 1909
Application filed: April 27, 1904

Refrigeration-machine

933,682 Gardner Tufts Voohees Boston, MA
September 7, 1909
Application filed: July 3, 1908

Multiple-effect receiver

936,065 Richard Whitaker New Brunswick, NJ
Assignor by direct and mesne applications to:
Brunswick Refrigerating Company Corporation of, NJ
October 5, 1909
Application filed: September 16, 1904

Cut-off device for ice machines

938,554 Eugene Carpenter Newton, MA
Assignor to: Automatic Refrigeration Company
Corporation of, NJ
November 2, 1909
Application filed: October 5, 1907

Refrigerating-counter

962,704 Ralph W. Emerson & South Bend, IN
Frank Bishop
June 28, 1910
Application filed: October 28, 1908

Refrigerating appliance

971,162	Ehergott T. Winkler Assignor of one half to: J. W. Roberts September 27, 1910 Application filed: October 25, 1909	Kansas City, MO
	<i>Refrigerating Systems</i>	
977,659	Maurice Leblanc Assignor to: Societe Anonyme Pour L'exploitation des procedes Westinghouse-Leblanc December 6, 1910 Application filed: February 24, 1904	Paris, France Paris, France
	<i>Refrigerating-machine</i>	
981,840	Eugene Carpenter & Fred M. Kimball Assignors to: Automatic Refrigerating Company January 17, 1911 Application filed: March 15, 1907	Newton, MA Somerville, MA Corporation of, NJ
	<i>Automatic controlling mechanism for refrigerating systems</i>	
982,794	Eugene Carpenter & Fred M. Kimball Assignors to: Automatic Refrigerating Company January 31, 1911 Application filed: March 15, 1907 Divided and application filed: August 21, 1907	Newton, MA Somerville, MA Corporation of, NJ
	<i>Automatic controlling mechanism for refrigerating systems</i>	
985,147	Andrew Clinton Culver Assignor to: Automatic Refrigerating Company February 28, 1911 Application filed: August 30, 1910	Hartford, CT Corporation of, NJ
	<i>Automatic water-regulator</i>	
1,003,283	Albert T. Marshall	Hartford, CT

Assignor to: Automatic Refrigerating Company
Corporation of, NJ

September 12, 1911

Application filed: July 30, 1910

Multiple feed system

1,005,851

Maurice Leblanc

Paris, France

Assignor to: Societe anonyme pour l'exploitation des procedes

Westinghouse-Leblanc

Paris, France

October 17, 1911

Application filed: February 15, 1905

Refrigerating-machine

1,013,348

Richard Whitaker

New Brunswick, NJ

Assignor to: Brunswick Refrigeration Company

January 2, 1912

Application filed: July 1, 1907

Gas-pump

1,050,910

Frank Bishop

South Bend, IN

Assignor to: Auto-Electric Refrigerating Company

Chicago, IL

Corporation of, SD

January 21, 1913

Application filed: January 22, 1912

Automatic control device for refrigerating apparatus

1,064,272

Linus Wolf

Zurich, Switzerland

June 10, 1913

Application filed: July 14, 1909

Apparatus for making ice

1,088,206

Confucius Chase &

Boston, MA

Warren A. Chase

Assignors to: Willard E. Robinson

Winchester, MA

February 24, 1914

Application filed: October 7, 1907

Refrigerating Apparatus

1,088,615 William A. Owen Johnson City, TN
Assignors to: Grand Manufacturing Company
Corporation of, TN
February 24, 1914
Application filed: April 19, 1913
Refrigerating apparatus

1,103,885 George Knox Omaha, NE
Assignor of one half to: J. L. Baker
July 14, 1914
Application filed: July 29, 1910
Controlling Device for refrigeration systems

1,117,786 Carl A. V. Carlsson Washington, D.C.
Assignor of one fourth to: Clement J. Carew
Franklin, PA
November 17, 1914
Application filed: November 9, 1913
Refrigerating apparatus

1,152,708 Clyde J. Coleman New York, NY
Assignor by mesne assignments to: Virginia
Refrigerator Corporation Corporation of, VA
September 7, 1915
Application filed: October 1, 1902
Renewed: July 24, 1914
Refrigerating Apparatus

1,155,780 Marcel Audiffren & Golbey, near Epinal
Henri Albert Singrun Epinal, France
Assignors to: Audifren Refrigerating Machine Co.
Corporation of, NJ
October 5, 1915
Application filed: May 27, 1912
Refrigerating apparatus

1,164,245 James J. Wood Fort Wayne, IN
Assignor to: General Electric Company
Corporation of, NY
December 14, 1915
Application filed: April 22, 1914

Rotary refrigeration-machine

1,164,689 Edward T. Williams New York, NY
Assignor to: Arthur Williams Brooklyn, NY
December 21, 1915
Application filed: December 12, 1914

Refrigerating Machine

1,165,926 Edward T. Williams New York, NY
Assignor to: Arthur Williams Brooklyn, NY
December 28, 1915
Application filed: September 16, 1914

Refrigerating apparatus

1,166,874 Fred W. Wolf Jr. & Cleveland, OH
Harrison H. Southworth
Assignors by mesne assignments to: Iceless
Machine Company Corporation of, OH
January 4, 1916
Application filed: January 16, 1912

Valve-control mechanism for refrigerating apparatus

1,195,269 James D. Ross Seattle, WA
August 22, 1916
Application filed: September 6, 1913

Refrigerating Machine

1,195,844 Thomas M. Myers New York, NY
Assignor to: Audiffren Refrigerating Company
Corporation of, NJ
August 22, 1916
Application filed: April 9, 1914

Refrigerating apparatus

1,212,127 Howard H. Carpenter Altadena, CA
January 9, 1917
Application filed: August 31, 1915

Refrigerating apparatus

1,214,255	Edmund Altenkirch & Bernhard Tenchkoff January 30, 1917 Application filed: January 6, 1912 <i>Heating Plant utilizing the waste heat of refrigerating -machine of the compression or absorption type</i>	Berlin, Germany
1,222,170	Fred W. Wolf Assignor by mesne assignments to: Isko, Incorporated April 10, 1917 Application filed: May 9, 1914 Renewed: June 9, 1916 <i>Refrigerating apparatus</i>	Chicago, IL Detroit, MI
1,225,453	Gustave F. Maisch May 8, 1917 Application filed: October 2, 1916 <i>Refrigerating Apparatus</i>	Chicago, IL
1,253,026	Victor J. Goetz January 8, 1918 Application filed: June 10, 1915 <i>Centrifugal refrigerating-machine</i>	Philadelphia, PA
1,256,730	William A. Richter & Ernest S. H. Baars Assignor to: Said Richter February 19, 1918 Application filed: December 29, 1916 <i>Refrigerating apparatus</i>	Milwaukee, WI
1,263,633	Heinrich Zoelly April 23, 1918 Application filed: June 13, 1917 <i>Electric Driven refrigerating Machine</i>	Zurich, Switzerland
1,272,735	Orie E. Ves Sells July 16, 1918 Application filed: July 16, 1917	Detroit, MI

Refrigerating apparatus

1,276,450 Milton Tibbetts Detroit, MI
Assignor by mesne assignments to:
Isko Company Chicago, IL
Corporation of, DE
August 20, 1918
Application filed: July 28, 1916

Refrigerating apparatus

1,273,653 Clark Orr Fort Wayne, IN
Assignor to: General Electric Company
Corporation of, NY
July 23, 1918
Application filed: September 15, 1916

Rotary refrigerating machine

1,276,612 Reuben E. Bechtold & Fort Wayne, IN
Alfred W. Mellowes Detroit, MI
Assignors to: Guardian Refrigerator Company
Corporation of, MI
August 20, 1918
Application filed: June 10, 1916

Cooling Apparatus

1,279,608 McKinnon Summers Weldon, IL
& William R. Viles Clinton, IL
Said Viles assignor to: Said Summers
September 24, 1918
Application filed: October 20, 1915

Refrigerating and cooling device

1,280,765 Gustav A. Kramer New York, NY
Assignor by mesne assignments to: The Frigidor
Corporation Corporation of, VA
October 8, 1918
Application filed: February 19, 1915

Refrigeration apparatus

1,281,027 Gustav A. Kramer New York, NY

Assignor to: Frigidor Corporation
Corporation of, VA

October 8, 1918
Application filed: January 4, 1917

Refrigerating apparatus

1,281,820
Clark Orr
Assignor to: General Electric Company
Fort Wayne, IN
Corporation of, NY

October 15, 1918
Application filed: November 28, 1917

Rotary refrigerating Machine

1,281,821
Clark Orr
Assignor to: General Electric Company
Fort Wayne, IN
Corporation of, NY

October 15, 1918
Application filed: November 28, 1917

Rotary Refrigerating-machine

1,291,334
Fred W. Wolf
Assignor by mesne assignments to:
Chicago, IL
Isko Company
Corporation of, DE

January 14, 1919
Application filed: April 8, 1916

Process of and apparatus for refrigeration

1,312,600
Edward T. Williams
New York, NY
August 12, 1919

Application filed: September 15, 1915
Renewed: January 17, 1919

Refrigeration Machine

1,314,234
Fred W. Wolf
Assignor by mesne assignments to:
Chicago, IL
Isko Company
Corporation of, DE

August 26, 1919
Application filed: September 11, 1914

Expansion-Valve

1,326,686	Clark Orr Assignor to: General Electric Company December 30, 1919 Application filed: February 24, 1919 <i>Rotary refrigeration machine</i>	Fort Wayne, IN Corporation of, NY
1,329,348	Edmund J. Copeland Assignor to: Kelvinator Corporation January 27, 1920 Application filed: January 31, 1918 <i>Refrigerating apparatus</i>	Detroit, MI Wilmington, DE Corporation of, DE
1,331,600	Nathaniel B. Wales Assignor to: George Lewis February 24, 1920 Application filed: December 20, 1918 <i>Combined refrigerating and hot-water storage apparatus</i>	New York, NY
1,337,175	Fred W. Wolf Assignor by mesne assignments to: Isko Company April 13, 1920 Application filed: December 23, 1913 Renewed: December 1, 1916 <i>Process of and apparatus for refrigerating</i>	Chicago, IL Chicago, IL Corporation of, DE
1,350,453	Fred J. Heideman Assignor by direct and mesne assignments to: Household Utilities Corporation August 24, 1920 Application filed: April 16, 1919 <i>Refrigeration Tank</i>	Detroit, MI
1,362,757	Douglas Henry Stokes December 21, 1920 Application filed: July 7, 1916	Cremorne, near Sydney, New South Wales Australia

Refrigerating apparatus

1,373,174 Jay Grant De Remer Washington, D.C.
March 29, 1921
Application filed: January 16, 1918

Refrigerating apparatus

1,373,175 Jay Grant De Remer San Francisco, CA
March 29, 1921
Application filed: January 16, 1918
Divided & application filed: December 9, 1919

Compressor

1,375,836 Ernest F. Fisher Essington, PA
April 26, 1921
Application filed: January 17, 1919

Refrigerating apparatus

1,419,097 Frank W. Andrews Wapakoneta, OH
Assignor by mesne assignments to: Superior
Refrigerating Company
June 6, 1922
Application filed: May 14, 1917

Refrigerating apparatus

1,425,265 Albert T. Marshall Hartford, CT
Assignor to: Automatic Refrigerating Company
Corporation of, NJ
August 8, 1922
Application filed: October 29, 1919

Refrigerating apparatus

1,436,815 Albert T. Marshall Hartford, CT
Assignor to: Automatic Refrigerating Company
Corporation of, NJ
November 28, 1922
Application filed: February 25, 1922

Refrigerating apparatus

1,465,028 Alfred E. Stacy Jr. Chicago, IL
Assignor to: Carrier Engineering Corporation
Corporation of, NY
August 14, 1923
Application filed: September 17, 1918
Method of and apparatus for chilling materials such as meat

1,476,546 John R. Replogle Detroit, MI
Assignor to: Nizer Laboratories Company
Corporation of, MI
December 4, 1923
Application filed: July 21, 1922
Refrigerating food cabinet

1,480,671 Edward T. Curran Detroit, MI
January 15, 1924
Application filed: December 6, 1920
Means for varying the temperature of the atmosphere in chamber

1,482,028 Earl P. Oswald & Detroit, MI
Clarence M. Holley
Assignors to: Utility Compressor Company
Corporation of, MI
January 29, 1924
Application filed: October 9, 1919
Artificial-refrigerating apparatus

1,515,546 Milton W. Browne Kansas City, MO
November 11, 1924
Application filed: May 9, 1923
Cold-storage

1,516,739 Charles A. Ketterer East St. Louis, IL
November 25, 1924
Application filed: August 9, 1920
Divided and application filed: July 27, 1922
Method of Refrigeration

1,531,133 John R. Replogle Detroit, MI

Assignor to: Security Trust Company, Trustee
Corporation of, MI

March 24, 1925

Application filed: September 22, 1921

Vaporizer and refrigerating systems

1,537,937

Jay Grant De Remer

Greenwich, CT

Assignor to: Savage-De Remer Corporation

Corporation of, NY

May 19, 1925

Application filed: February 23, 1921

Renewed: July 23, 1924

Refrigerating apparatus

1,556,689

Harry B. Hull

Dayton, OH

Assignor to: Delco-Light Company

Corporation of, DE

October 13, 1925

Application filed: October 23, 1923

Refrigeration apparatus

1,559,883

Alfred D. Karr &

Newark, NJ

Karl D. Perkins

New York, NY

November 3, 1925

Application filed: March 23, 1923

Air-cooled refrigerating machine

1,568,102

Elihu Thomson

Swampscott, MA

Assignor of one third to: John A. McManus

Lynn, MA

Assignor of one third to: James R. Graham

Newtonville, MA

January 5, 1926

Application filed: July 23, 1923

Refrigerating apparatus

1,570,144

Fred J. Heideman

Detroit, MI

Assignor to: Freezerator Company

Corporation of, MI

January 19, 1926

Application filed: February 21, 1923

Pressure-controlled temperature regulator for artificial refrigerators

1,589,373 Jay Grant De Remer San Francisco, CA
Assignor to: Savage-De Remer Corporation
Corporation of, NY
June 22, 1926
Application filed: November 11, 1919

Refrigerating apparatus

1,609,334 Baltzar Carl von Platen & Stockholm, Sweden
Carl Georg Munters
Assignors to: Electrolux Servel corporation New York, NY
Corporation of, DE
December 7, 1926
Application filed: August 18, 1926

Refrigeration

1,613,627 Baltzar Carl von Platen & Stockholm, Sweden
Carl Georg Munters
Assignors to: Electrolux Servel Corporation New York, NY
Corporation of, DE
January 11, 1927
Application filed: November 21, 1925
Patented in Sweden: May 3, 1924
Renewed: November 5, 1926

Refrigerator

1,613,628 Baltzar Carl von Platen & Stockholm, Sweden
Carl Georg Munters
Assignors to: Electrolux Servel Corporation New York, NY
Corporation of, DE
January 11, 1927
Application filed: November 21, 1925
Patented in Sweden: May 3, 1924
Divided and application filed: June 5, 1926

Refrigerator

1,642,942 Willis H. Carrier Essex Fells, NJ
Assignor to: Carrier Engineering Corporation Newark, NJ
September 20, 1927

Application filed: April 23, 1923
Substance and process for using the same for refrigerating purposes

1,645,198 Andrew A. Kucher Chester, PA
October 11, 1927
Application filed: April 7, 1922
Divided and application filed: February 8, 1923
Renewed: April 27, 1927

Working fluid for refrigeration

1,648,178 Harry B. Hull Dayton, OH
Assignor to: Delco-light Company Corporation of, DE
November 8, 1927
Application filed: October 3, 1923
Divided and application filed: April 30, 1924

Refrigerating apparatus

1,651,826 Frederick B. MacLaren Jamaica, NY
Assignor to: MacLaren Electric Appliance Corporation New York, NY
Corporation of, DE
December 6, 1927
Application filed: June 13, 1922

Refrigeration Machinery

1,656,917 Andrew A. Kucher Chester, PA
January 24, 1928
Application filed: April 7, 1922

Refrigeration

1,656,918 Andrew A. Kucher Chester, PA
January 24, 1928
Application filed: June 4, 1923

Refrigerator

1,658,209 John R. Replogle Detroit, MI
Assignor by mesne assignments to: Electric
Refrigeration Corporation
February 7, 1928
Application filed: November 9, 1923

1,675,599	Lloyd G. Copeman July 3, 1928 Application filed: May 3, 1928 <i>Sharp-freezing container for mechanical refrigerators</i>	Flint, MI
1,685,270	Harry W. Bundy September 25, 1928 Application filed: July 14, 1937 <i>Method of making finned tubing</i>	Detroit, MI
1,702,529	Clarence Warner & Harry B. Hull Assignors by mesne assignments to: Frigidaire Corporation February 19, 1929 Application filed: November 6, 1924 Renewed: November 27, 1926 <i>Refrigerating apparatus</i>	Dayton, OH Corporation of, DE
1,709,176	Rollin M. Hyde Assignor to: McCord Radiator & MFG CO. April 16, 1929 Application filed: December 13, 1926 <i>Condenser for refrigerating machines</i>	Detroit, MI Corporation of, MA
1,710,579	Percival P. Henshall Assignor to: John J. Nesbitt Inc. April 23, 1929 Application filed: January 25, 1927 <i>Reversible heating or cooling radiator</i>	Philadelphia, PA Corporation of, NJ
1,716,150	John R. Replogle Assignor by mesne assignments to: Kelvinator Corporation June 4, 1929 Application filed: August 25, 1924 <i>Refrigerated food cabinet</i>	Detroit, MI

October 8, 1929
Application filed: April 30, 1923

Refrigeration apparatus

1,736,635 Christian Steenstrup Schenectady, NY
Assignor to: General Electric Company
November 19, 1929
Application filed: February 5, 1927

Refrigeration Machine

1,736,973 Jesse G. King Dayton, OH
Assignor to: General Motors Research Corporation
Corporation of, DE
November 26, 1929
Application filed: July 19, 1920

Pump for refrigeration systems

1,740,737 David Forbes Keith Toronto, Ontario, Canada
December 24, 1929
Application filed: June 27, 1927

Refrigerating device

1,742,062 William B. Day Lexington, KY
Assignor of one half to: Kathryn W. Benick Winchester, KY
December 31, 1929
Application filed: December 15, 1927

Electric Defroster for refrigerating coils

1,744,969 Arthur J. Kercher Berkley, CA
January 28, 1930
Application filed: August 26, 1925

Refrigerating Apparatus

1,745,544 John Karmazin Detroit, MI
February 4, 1930
Application filed: April 14, 1927

Series condenser for refrigerant cooling

1,747,958 Harry E. Thompson Detroit, MI

Assignor to: Universal Cooler Corporation Corporation of, MI
February 18, 1930

Application filed: August 24, 1927

Thermostatic control for automatic refrigerating systems

1,751,209 Andrew A. Kucher Chester, PA
Assignor to: Westinghouse Electric & Manufacturing
Company
March 18, 1930
Application filed: July 10, 1923

Refrigerator

1,753,951 Charles C. Spreen Detroit, MI
Assignor to: Kelvinator Corporation
April 8, 1930
Application filed: June 4, 1927

Condenser for refrigerating apparatus

1,753,953 Charles C. Spreen Detroit, MI
Assignor to: Kelvinator Corporation
April 8, 1930
Application filed: August 31, 1927

Condenser

1,760,038 Harry W. Bundy Detroit, MI
Assignor by mesne assignments to: Bundy Tubing
Company
May 27, 1930
Application filed: July 14, 1927

Finned tube

1,760,621 Swan F. Anderson Rockford, IL
May 27, 1930
Application filed: July 13, 1925

Refrigerating apparatus

1,761,981 Harry W. Bundy Detroit, MI
Assignor by mesne assignments to: Bundy Tubing
Company
June 3, 1930

		Corporation of, MA
	March 3, 1931	
	Application filed: June 14, 1928	
	<i>Condenser</i>	
1,797,287	Andrew A. Kucher	Jersey City, NJ
	Assignor to: Westinghouse Electric & Manufacturing Company	Corporation of, PA
	March 24, 1931	
	Application filed: October 22, 1921	
	<i>Refrigerating machine</i>	
1,797,803	Charles C. Spreen	Detroit, MI
	March 24, 1931	
	Application filed: April 18, 1927	
	<i>Compressor</i>	
1,798,684	Andrew A. Kucher	Chester, PA
	Assignor to: Westinghouse Electric & Manufacturing Company	
	March 31, 1931	
	Application filed: October 13, 1925	
	<i>Refrigerator</i>	
1,802,369	Clarence Birdseye	Gloucester, MA
	Assignor by mesne assignments to: Frosted Foods Company, Inc.	Dover, DE
	April 28, 1931	
	Application filed: July 2, 1929	
	<i>Refrigerating apparatus</i>	
1,802,485	Harry F. Smith & Elmer L. Horlacher	Dayton, OH
	Assignors to: Frigidaire Corporation	Dayton, OH
		Corporation of, DE
	April 28, 1931	
	Application filed: November 30, 1928	
	<i>Refrigerating apparatus</i>	
1,805,701	Jesse G. King	Dayton, OH

Assignor by mesne assignments to: Frigidaire Corporation
Corporation of, DE

May 19, 1931

Application filed: July 22, 1926

Refrigerating apparatus

1,807,774

Jay G. De Remer

Greenwich, CT

Assignor by mesne assignments to: J. G. DeRemer

Research Corporation

Jersey City, NJ

June 2, 1931

Application filed: June 8, 1926

Automatic refrigeration

1,807,871

Osborne I. Price

Frederick, MA

Assignor to: John M. McCarthy

Weehawken, NJ

June 2, 1931

Application filed: April 20, 1925

Refrigerating apparatus

1,807,872

Osborne J. Price

Frederick, MA

Assignor to: John M. McCarthy

Weehawken, NJ

June 2, 1931

Application filed: October 20, 1931

Divided and application filed: January 16, 1931

Refrigeration apparatus

1,811,523

Russell T. Smith

Cincinnati, OH

Assignor to: Crosley Radio Corporation

June 23, 1931

Application filed: February 20, 1930

Refrigeration Unit

1,813,979

Frank R. West

Detroit, MI

Assignor to: Rice Products, Inc.

July 14, 1931

Application filed: July 6, 1926

Flow control for refrigerating systems

1,817,890

Clarence Birdseye

Gloucester, MA

Assignor by mesne assignments to: Frosted Foods Company

Dover, DE

	August 4, 1931 Application filed: July 1, 1925 <i>Refrigerating apparatus and method of refrigerating food products</i>	
1,819,979	Otto M. Summers Assignor to: Frigidaire Corporation	Dayton, OH Dayton, OH Corporation of, DE
	August 18, 1931 Application filed: May 30, 1928 Renewed: May 5, 1931 <i>Refrigerating apparatus switch control</i>	
1,822,077	Clarence Birdseye Assignor by mesne assignments to: Frosted Foods Company	Gloucester, MA Dover, DE
	September 8, 1931 Application filed: February 6, 1929 <i>Refrigerating apparatus</i>	
1,823,002	John R. Replogle Assignor by mesne assignments to: Kelvinator Corporation	Detroit, MI
	September 15, 1931 Application filed: June 6, 1921 <i>Refrigerating unit</i>	
1,823,004	John R. Replogle Assignor by mesne assignments to: Kelvinator Corporation	Detroit, MI
	September 15, 1931 Application filed: June 6, 1921 In Canada: February 11, 1922 Divided and application filed: June 10, 1927 <i>Refrigerating unit</i>	
1,823,124	John R. Replogle Assignor by mesne assignments to: Kelvinator Corporation	Detroit, MI
	September 15, 1931 Application filed: June 6, 1921 In Canada: February 11, 1922 Divided and application filed: October 10, 1927 <i>Refrigerating unit</i>	

1,827,410	Virgil P. Warren October 13, 1931 Application filed: April 18, 1930 <i>Defrosting refrigeration system</i>	Atlanta, GA
1,828,559	Christian Dantsizen Assignor to: General Electric Company October 20, 1931 Application filed: May 21, 1929 <i>Refrigerant</i>	Schenectady, NY
1,833,847	Thomas Midgley, Albert L. Henne & Robert R. McNary Assignors to: Frigidaire Corporation November 24, 1931 Application filed: February 3, 1930 <i>Heat transfer</i>	Worthington, OH Columbus, OH Dayton, OH Dayton, OH Corporation of, DE
1,854,984	Christian Dantsizen Assignor to: General Electric Company April 19, 1932 Application filed: September 19, 1930 <i>Refrigerant</i>	Schenectady, NY
1,856,334	John F. Hoffman Assignor to: Baker Ice Machine co. Inc. May 3, 1932 Application filed: April 21, 1928 <i>Temperature responsive regulating valve</i>	Omaha, NE
1,863,427	Virgil P. Warren June 14, 1932 Application filed: January 19, 1931 <i>Defrosting refrigeration system</i>	Atlanta, GA
1,883,920	Harry B. Hull Assignor by mesne assignments to: Frigidaire Corporation	Dayton, OH

	October 25, 1932 Application filed: April 13, 1927 <i>Refrigerating apparatus</i>	Corporation of, DE
1,902,518	Clark Orr Assignor to: General Electric Company March 21, 1923 Application filed: July 3, 1920 <i>Refrigerating machine</i>	Fort Wayne, IN Corporation of, NY
1,909,992	Harry M. Williams Assignor to: Frigidaire Corporation May 23, 1933 Application filed: June 30, 1927 Divided and application filed: January 31, 1930 <i>Method of detecting leaks in refrigerating systems</i>	Dayton, OH Dayton, OH Corporation of, DE
1,910,077	Harry M. Williams Assignor by mesne assignments to: Frigidaire Corporation May 23, 1933 Application filed: June 30, 1927 <i>Refrigeration</i>	Dayton, OH Corporation of, DE
1,915,965	Harry M. Williams Assignor to: Frigidaire Corporation June 27, 1933 Application filed: May 23, 1931 <i>Method and composition for detecting leaks in refrigerating systems</i>	Dayton, OH Corporation of, DE
1,919,500	Thomas E. Carpenter Assignor by mesne assignments of two-thirds to: Issac L. Rice, Jr. Assignor by mesne assignments of one-third to: Stuart C. Barnes July 25, 1933 Application filed: July 9, 1926	Detroit, MI New York, NY Detroit, MI

Apparatus for controlling the flow of refrigerant in refrigerating apparatus

1,930,129 Thomas Midgley, Jr., Worthington, OH
 Albert L. Henne & Columbus, OH
 Robert R. McNary Dayton, OH
 Assignors to: Frigidaire Corporation Dayton, OH
 Corporation of, DE

October 10, 1933

Application filed: April 5, 1930

Manufacture of aliphatic fluoro compounds

1,964,391 Albert R. Thomas New York, NY
 Assignor to: Electrolux Servel Corporation New York, NY
 Corporation of, DE

June 26, 1934

Application filed: September 18, 1931

Refrigerating system

1,968,049 Thomas Midgley, Jr., Worthington, OH
 Albert L. Henne & Columbus, OH
 Robert R. McNary Dayton, OH
 Assignors by mesne assignments to: General Motors Corporation
 Corporation of, DE

July 31, 1934

Application filed: February 8, 1930

Dividend and application filed: November 19, 1931

Heat transfer and refrigeration

1,968,050 Thomas Midgley, Jr., Worthington, OH
 Albert L. Henne & Columbus, OH
 Robert R. McNary Dayton, OH
 Assignors by mesne assignments to: General Motors Corporation
 Corporation of, DE

July 31, 1934

Application filed: November 19, 1931

Divided and application filed: April 30, 1934

Heat transfer and refrigeration

1,969,102 Francis Shenton & Waynesboro, PA
 Milton W. Garland

	Assignors to: Frick Company August 7, 1934 Application filed: October 6, 1930 <i>Refrigerant control for refrigerating systems</i>	Corporation of, PA
1,985,931	Andrew A. Kucher Assignor to: Frigidaire Corporation January 1, 1935 Application filed: March 16, 1932 <i>Refrigerating apparatus</i>	Dayton, OH Corporation of, DE
1,998,575	Isaiah G. Furnas April 23, 1935 Application filed: March 21, 1932 Renewed: July 12, 1934 <i>Apparatus for defrosting refrigerating coils</i>	Chicago, IL
2,007,208	Thomas Midgley, Jr., Albert L. Henne & Robert R. McNary Assignors by mesne assignments to: July 9, 1935 Application filed: February 24, 1931 <i>Manufacture of halo-fluoro derivative of aliphatic hydrocarbons</i>	Worthington, OH Columbus, OH Dayton, OH General Motors Corporation Corporation of, DE
2,008,663	Earnest J. Dillman Assignor to: Detroit Lubricator Company July 23, 1935 Application filed: October 14, 1931 <i>Apparatus and method for controlling refrigeration</i>	Detroit, MI Corporation of, MI
2,011,078	John R. Replogle Assignor by mesne assignments to: August 13, 1935 Application filed: March 10, 1932 <i>Rearwardly removable refrigerator unit</i>	Detroit, MI Copeland Refrigeration Mount Clemens, MI Corporation of, MI

2,013,062	Thomas Midgley, Jr., Albert L. Henne & Robert R. McNary Assignors to: Frigidaire Corporation September 3, 1935 Application filed: February 26, 1931 Renewed: June 27, 1934 <i>Preparation of aliphatic halo-fluoro compounds</i>	Worthington, OH Columbus, OH Dayton, OH Dayton, OH Corporation of, DE
2,022,774	Andrew A. Kucher Assignor to: General Motors Corporation December 3, 1935 Application filed: December 29, 1934 <i>Refrigerating apparatus</i>	Dayton, OH Dayton, OH Corporation of, DE
2,049,625	Siegfried Ruppricht August 4, 1936 Application filed: December 16, 1930 <i>Automatic defrosting device</i>	New York, NY
2,050,994	John E. Dube August 11, 1936 Application filed: August 18, 1933 <i>Refrigerative system</i>	Chicago, IL
2,056,401	Anthony F. Hosel October 6, 1936 Application filed: September 11, 1935 <i>Refrigerating system</i>	Chicago, IL
2,059,822	Christian Steenstrup Assignor to: General Electric Company November 3, 1936 Application filed: March 22, 1935 <i>Method of making fabricated piston and crosshead assemblies</i>	Schenectady, NY Corporation of, NY

2,063,745	Andrew A. Kucher Assignor by mesne assignments to: General Motors Corporation December 8, 1936 Application filed: January 28, 1933 <i>Refrigeration</i>	Dayton, OH Corporation of, DE
2,072,567	Thomas I. Potter March 2, 1937 Application filed: February 14, 1934 <i>Refrigerator</i>	Buffalo, NY
2,093,811	Andrew A. Kucher Assignor by mesne assignments to: General Motors Corporation September 21, 1937 <i>Compressor unloader</i>	Dayton, OH Corporation of, DE
2,104,882 OH	Thomas Midgley, Jr., Albert L. Henne & Robert R. McNary Assignors by mesne assignments to: General Motors Corporation January 11, 1938 Application filed: November 19, 1931 Divided and application filed: May 1, 1934 <i>Heat transfer and refrigeration</i>	Worthington, Columbus, OH Dayton, OH Corporation of, DE
2,121,049	Osborne I. Price Assignor by mesne assignments to: General Motors Corporation June 21, 1938 Application filed: April 20, 1925 Divided and application filed: March 31, 1931 Renewed: August 20, 1934 <i>Refrigeration apparatus</i>	Frederick, MD Dayton, OH Corporation of, DE
2,130,349	Andrew A. Kucher Assignor by mesne assignments to: General Motors	Dayton, OH

	<p>Corporation September 20, 1938 Application filed: September 30, 1932 Renewed: April 21, 1937 <i>Motor-compressor unit for refrigeration</i></p>	<p>Corporation of, DE</p>
2,130,862	<p>Christian Steenstrup Assignor to: General Electric Company September 20, 1938 Application filed: January 11, 1935 <i>Motor-compressor unit for a refrigerating machine</i></p>	<p>Schenectady, NY Corporation of, NY</p>
2,133,875	<p>Carl H. Steenstrup Assignor to: General Electric Company October 18, 1938 Application filed: February 17, 1937 <i>Refrigerating machine</i></p>	<p>Schenectady, NY Corporation of, NY</p>
2,145,692	<p>Walter Jones Assignor to: Carrier Corporation January 31, 1939 Application filed: December 8, 1936 <i>Refrigerating method and apparatus</i></p>	<p>Princeton, NJ Newark, NJ Corporation of, DE</p>
2,158,716	<p>John G. Bergdoll Assignor to: York Ice Machinery Corporation May 16, 1939 Application filed: December 19, 1933 <i>Refrigeration</i></p>	<p>York, PA York, PA Corporation of, DE</p>
2,179,268	<p>Charles R. Neeson Assignor by mesne assignments to: Chrysler Corporation November 7, 1939 Application filed: December 16, 1937</p>	<p>Dayton, OH Highland Park, MI Corporation of, DE</p>

Two-cylinder compressor

2,200,222 Frederic L. Tarleton Dayton, OH
Assignor to: General Motors Corporation Dayton, OH
Corporation of, DE
May 7, 1940
Application filed: December 30, 1936

Refrigerating apparatus

2,200,241 William J. McGoldrick & Minneapolis, MN
Alwin B. Newton
Assignors to: Minneapolis-Honeywell Regulator Company
Minneapolis, MN
Corporation of, DE
May 14, 1940
Application filed: January 7, 1939

Temperature control system

2,243,464 Andrew A. Kucher Dayton, OH
Assignor to: General Motors Corporation Dayton, OH
Corporation of, DE
May 27, 1941
Divided and application filed: April 30, 1937

Method of making motor-compressor unit for refrigeration

2,289,847 Logan L. Mallard Norfolk, VA
Assignor of one-half to: H. Clay Hofheimer II
July 14, 1942
Application filed: November 9, 1938

Ice cube tray

2,294,037 Andrew A. Kucher Dayton, OH
Assignor to: General Motors Corporation Dayton, OH
Corporation of, DE
Application filed: April 30, 1937
Divided and application filed: June 28, 1939

Method of making motor-compressor units for refrigeration

2,303,857	Joseph A. Numero & Frederick M. Jones Assignors to: U.S. Thermo Control Company and association composed of Joseph A. Numero and M. Green December 1, 1942 Application filed: November 16, 1939	Minneapolis, MN
	<i>Air conditioner for vehicles</i>	
2,314,402	Walter Jones Assignor to: Carrier Corporation March 23, 1943 Application filed: June 20, 1940	Princeton, NJ Syracuse, NY Corporation of, DE
	<i>Refrigeration</i>	
2,336,735	Frederick M. Jones Assignor to: U.S. Thermo Control Company, a partner- ship composed of Joseph A. Numero and M. Green December 14, 1943 Application filed: July 30, 1941	Minneapolis, MN
	<i>Removable cooling unit for compartments</i>	
2,475,841	Frederick M. Jones Assignor by mesne assignments to: U.S. Thermo Control Co. July 12, 1949 Application filed: June 15, 1944	Minneapolis, MN Minneapolis, MN Corporation of, MN
	<i>Air conditioning unit</i>	
2,479,259	Winston Harrison Reed & William Alvin Pennington Assignors to: Carrier Corporation August 16, 1949 Application filed: May 10, 1946	Syracuse, NY Fayetteville, NY Syracuse, NY Corporation of, DE
	<i>Process for producing increased refrigeration</i>	

REISSUED REFRIGERATION PATENTS:

- Re. 1,265 Henry Migeon Wolcottville, CT
 Assignee of: Jean Louis Baudelot Harancourt, France
 January 28, 1862
 (see patent No. 25,992 dated November 1, 1859)
 Improvement in process of cooling beer and other liquids
- Re. 1,960 Benjamin M. Nyce Cleveland, OH
 May 16, 1865
 (see patent No. 21,977 dated November 2, 1858)
 Improvement in preserving fruits and other perishable substances
- Re. 2,036 Benjamin M. Nyce Cleveland, OH
 July 25, 1865
 (see patent No. 31,977 dated November 2, 1858)
 Improvement in houses for preserving fruit, & c.
- Re. 2,037 Benjamin M. Nyce Cleveland, OH
 July 25, 1865
 (see patent No. 21,977 dated November 2, 1858)
 Improvement in preserving fruits and other perishable substances
- Re. 4,437 Edwin D. Brainard Albany, NY
 June 27, 1871
 (see patent No. 73,292 dated January 14, 1868)
 Improvement in the construction of ice-chambers, refrigerating-chambers, & c.
- Re. 4,806 Joel A. H. Ellis Springfield, VT
 March 12, 1872
 (see patent No. 108,574 dated October 25, 1870)
 Improvement in steam and gas engines
- Re. 4,992 Samuel B. Martin & San Francisco, CA
 John M. Beath

July 16, 1872
(see patent No. 127,180 dated May 28, 1872)

Improvement in ice-machines

Re. 5,201 William A. Royce Newburg, NY
December 24, 1872
(see patent No. 17,394 dated May 26, 1857)
Improvement in machinery for compressing gaseous bodies

Re. 5,202 William A. Royce Newburg, NY
December 24, 1872
(see patent No. 17,394 dated May 26, 1857)
Improvement in machinery for compressing gaseous bodies

Re. 5,288 Ferdinand Philippe Edouard Carre St. Pierre Les
Nemours
Assignor of part interest to: Jean B. J. Mignon &
Henri S. Rouart Paris, France
February 18, 1873
(see patent No. 30,201 dated October 2, 1860)
Improvement in the manufacture of ice

Re. 5,772 Benjamin M. Nyce Cleveland, OH
February 24, 1874
Application filed: September 29, 1873
(see patent No. 21,977 dated November 2, 1858)
Improvement in refrigerator-buildings

Re. 5,786 Azel S. Lyman New York,
NY
Assignor by mesne assignments to: Stephen Cutter
March 10, 1874
Application filed: July 15, 1872
(see patent No. 14,510 dated March 25, 1856)
Improvement in methods of cooling and ventilating rooms

Re. 7,383 David Smith San Francisco, CA
Assignor of part interest to: C. W. M. Smith
November 7, 1876
Application filed: April 26, 1876

(see patent No. 173,357 dated February 8, 1876)

Improvement in ice-machines

Re. 8,109 John L. Alberger Buffalo, NY
February 26, 1878
Application filed: March 22, 1877
(see patent No. 39,456 dated August 11, 1863)

Improvement in refrigerating apparatus

Re. 8,455 Albert Albertson Jersey City, NJ
Assignor by mesne assignment to: himself, Simon
B. Hunt, & Francis E. Pinto
October 15, 1878
Application filed: September 25, 1878
(see patent No. 115,409 dated May 30, 1871)

Improvement in methods of and apparatus for manufacturing ice

Re. 8,919 Francis V. De Coppet New Orleans, LA
September 30, 1879
Application filed: May 31, 1878
(see patent No. 156,056 dated October 20, 1874)

Improvement in processes and apparatus for making ice

Re. 10,221 Raoul Pierre Pictet Geneva, Switzerland
Assignor to: Pictet Artificial Ice Company, (Limited)
New York
October 24, 1882
Application filed: October 2, 1882
(see patent No. 187,413 dated February 13, 1877)

Process of producing artificial cold by means of anhydrous sulphurous oxide

Re. 10,283 Ossian Guthrie Chicago, IL
February 6, 1883
Application filed: January 15, 1883
(see patent No. 250,235 dated November 29, 1881)

Facilitating the congelation of water, & c.

Re. 10,522 Charles P. G. Linde Wiesbaden, Prussia, Germany
Assignor to: Frederick W. Wolf Chicago, IL
September 16, 1884

Application filed: July 31, 1884
(see patent No. 228,364 dated June 1, 1880)

Refrigerating and ice-making apparatus

Re. 15,591 Jay Grant De Remer Greenwich, CT
May 1, 1923
Application filed: March 23, 1923
(see patent No. 1,373,174 dated March 29, 1921)

Refrigerating apparatus

Re. 19,008 Constance Lane West Detroit, MI
Assignor by mesne assignments to: Crosley Radio
Corporation Cincinnati, OH
Corporation of, OH
November 21, 1933
Application filed: September 21, 1933
(see patent No. 1,898,922 dated February 21, 1933)

Refrigerating unit

Re. 19,265 Thomas Midgley, Jr., Worthington, OH
Albert L. Henne & Columbus, OH
Robert R. McNary Dayton, OH
August 7, 1934
Application filed: May 28, 1934
(see patent No. 1,833,847 dated November 24, 1931)

Heat transfer