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REPLACED

AIR SEPARATION METHOD & APPARATUS

ABSTRACT

An air separation method and apparatus in which air is separated by a low temperature rectification process having cooling and rectification stages for cooling air to a temperature suitable for its rectification and for distilling or fractionating the air into fractions enriched in components of the air, respectively. A process stream flowing between the cooling and distillation stages is either partially warmed or cooled and is then expanded in a turboexpander to produce a refrigerant stream. The refrigeration is recovered within the cooling stage and after the refrigerant stream has fully warmed, the refrigerant stream is drawn at subatmospheric pressure by a blower or the like and is then discharged at or above atmospheric pressure. The drawing of the air at subatmospheric pressure increases the turboexpander pressure ratio to in turn increase the amount of refrigeration that is supplied.

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