SIMPLIFIED OPERATIONAL DESCRIPTION OF THE INVENTION

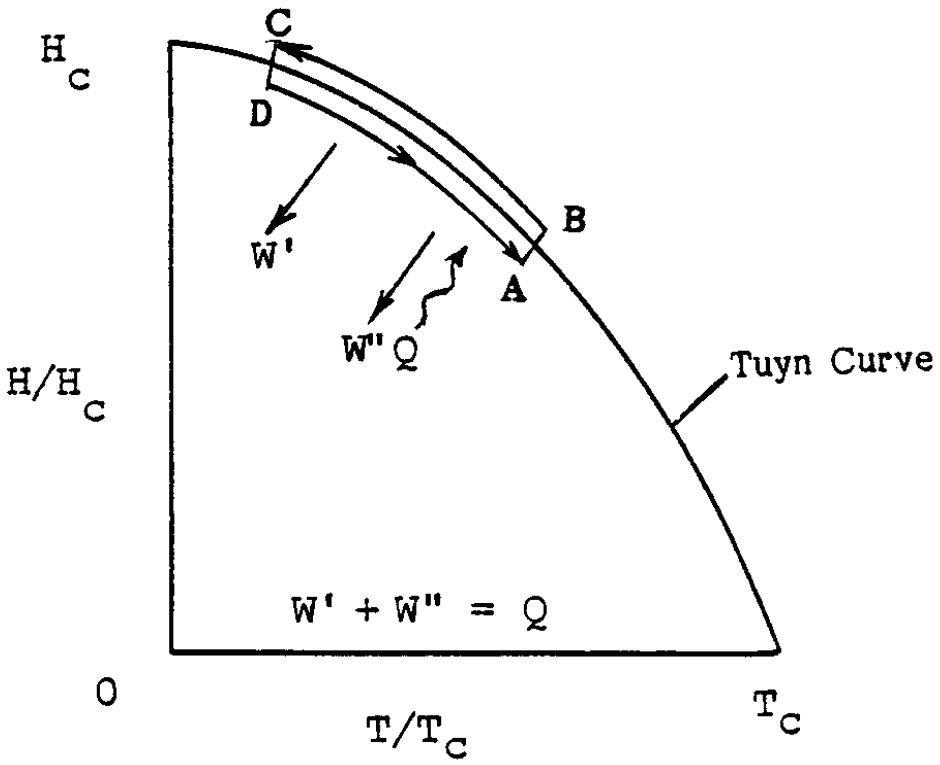
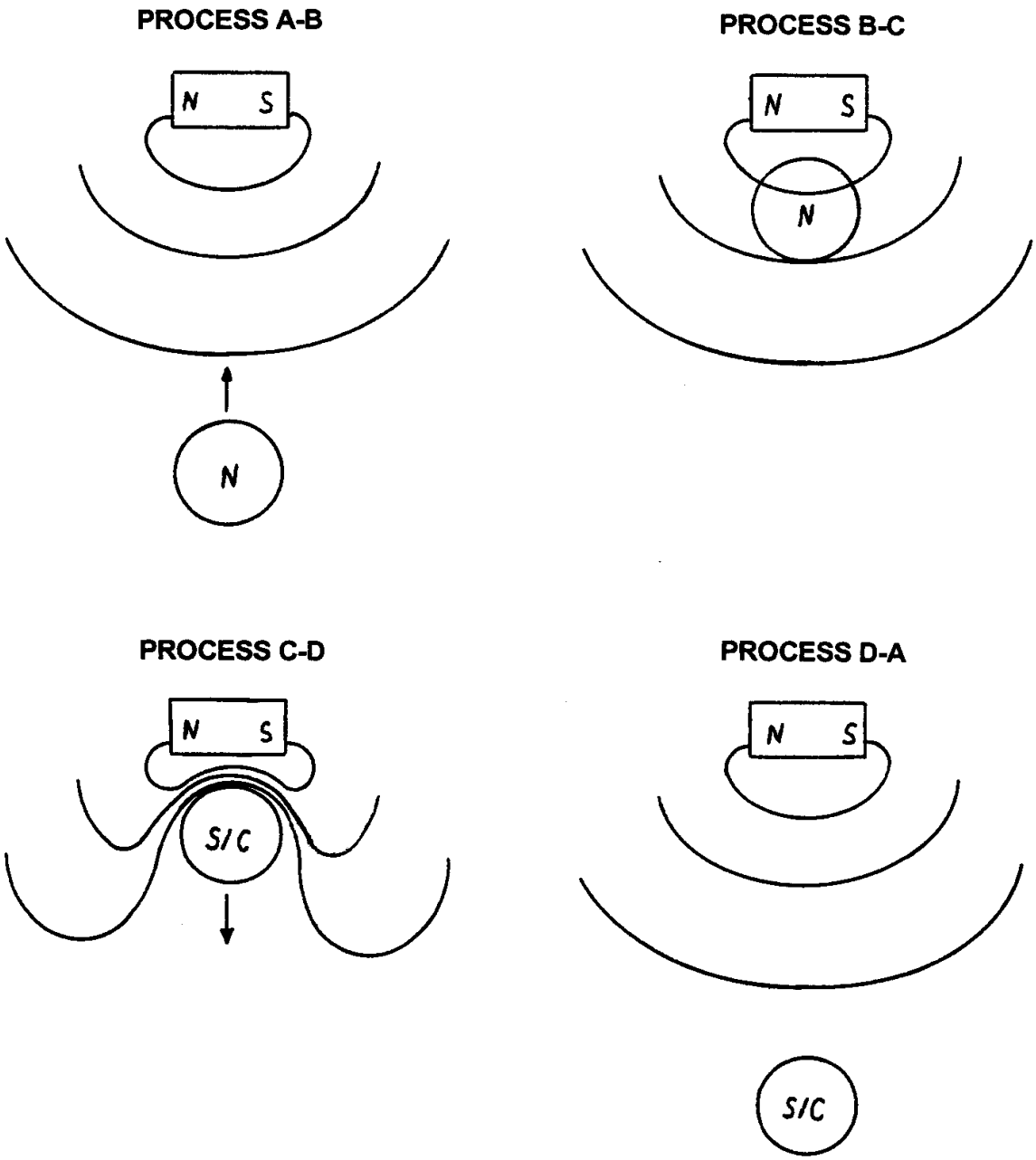


Figure 1

Figure 1 is an "H-T space" phase diagram for a "Coherent Magneto-Caloric Effect Process Cycle" applied to a "coherent superconductor," including labeled locations for process steps discussed below. Superconductors above a critical field H_c and critical temperature T_c are in the normal phase, and below those values are in the superconductive phase. The critical field is maximum at absolute zero and gets smaller with increasing temperature. A plot of critical field versus critical temperature is known as the "Tuyn" curve.



Process A to B: A superconductor in the superconductive phase is moved slightly toward a bar magnet, resulting in crossing of the Tuyn curve from the superconductive phase to the normal phase.

Process B to C: The phase change (Process A to B) results in the superconductor cooling because of a latent heat evolution during an "adiabatic magnetization". Simultaneously, the superconductor is moved closer to the bar magnet, thereby placing it in a higher magnetic field. There is no work done to move the superconductor to the higher magnetic field since the magnetic field freely passes through the superconductor.

Process C to D: The superconductor is moved slightly away from the bar magnet, resulting in crossing of the Tuyn curve from the normal phase to the superconductive phase accompanied by expulsion of the

magnetic field from the superconductor, an event known as the "Meissner Effect".

Process D to A: The phase change (Process C to D) results in the superconductor heating during an adiabatic demagnetization. Simultaneously, the superconductor is moved away from the bar magnet, thereby placing it in a lower magnetic field. Work is output because the magnetic field pushes upon the superconductor as it moves away from the bar magnet. Heat is supplied from the outside to heat the superconductor so that the superconductor reaches the temperature at the beginning, whereupon the process cycle completes. The heat input equals the work output.