Fabrication of Metallic (SN)(x) Films

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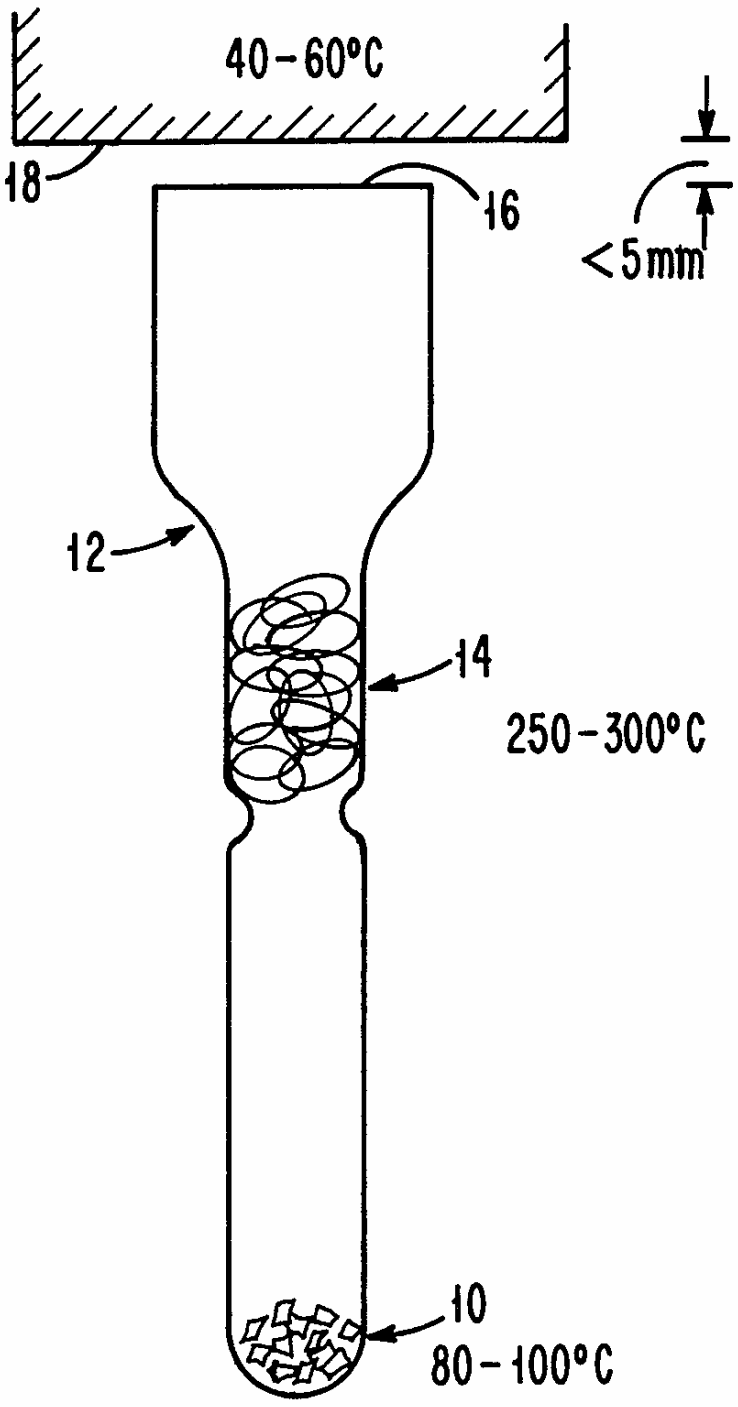
A metallic (SN)(x) film having increased conductivity is fabricated with the system shown in the drawing. In contrast to all previously fabricated films of (SN)(x), these films exhibit a metallic temperature dependence of the conductivity, i.e., the conductivity increases monotonically with decreasing temperature.

In an evacuated chamber having a pressure of 10/-5/ to 10/-6/ torr, S(4)N(4) powder 10 is heated in a quartz vessel 12 to a temperature of 80-100 degrees C. The S(4)N(4) vapor that is formed rises and passes through silver wool 14 which has a temperature of 250-300 degrees C. The resultant vapor leaves the end 16 of the quartz vessel 12 and forms a metallic film (not shown) on the substrate 18 which is maintained at a critical temperature of 40-60 degrees C. The distance between the end 16 of the vessel 12 and the substrate 18 is critical and must be less than 5 mm.



(SN) x shown