Claims:

1. A method of forming a porous sintered metal body by additive manufacturing steps, the method comprising:

forming a layer on a surface, the layer comprising feedstock that contains metal particles;

at portions of the layer, selectively forming solidified feedstock comprising the metal particles and solid polymer, the portions containing from 20 to 50 percent of the metal particles by volume;

forming a second layer over the layer that contains the solidified feedstock, the second layer comprising feedstock that contains metal particles;

at portions of the second layer, selectively forming solidified feedstock comprising the metal particles and solid polymer, the portions containing from 20 to 50 percent of the metal particles by volume; and

sintering the metal particles of the portions to form a porous sintered metal body containing from 20 to 50 percent metal particles by volume.

~~2. The method of claim 1, further comprising separating the solidified feedstock from feedstock that remains after forming the solidified feedstock.~~

~~3. The method of claim 1 or 2, wherein the metal particles have an apparent density below 2.0 grams per cubic centimeter.~~

~~4. The method of any of claims 1 through 3, wherein the metal particles have a relative apparent density in a range from 5 to 35 percent of a theoretical density of the particles.~~

~~5~~2. The method of claim 1, wherein the feedstock comprises the metal particles and pore forming polymer particles.

~~6~~3. The method of claim ~~5~~1 or claim 2, further comprising forming the solidified feedstock by selectively applying liquid polymeric binder to the portions of the layer or the second layer and allowing the liquid polymeric binder to solidify.

74. The method of claim 52, further comprising forming the solidified feedstock by selectively applying electromagnetic energy onto the portions of the layer or the second layer to cause the pore-forming polymer particles to melt.

85. The method of any of claims 1 through 4, wherein the feedstock composition comprises the metal particles and curable liquid polymer.

96. The method of claim 85, further comprising forming the solidified feedstock by selectively applying electromagnetic energy to the portions of the layer or the second layer to cause the curable liquid polymer to cure.

107. The method of any of claims 1 through 4, wherein the feedstock comprises at least 95 weight percent metal particles.

118. The method of claim 107, further comprising forming the solidified feedstock by selectively applying liquid polymeric binder onto the portions of the layer or the second layer and allowing or causing the liquid polymeric binder to solidify.

129. The method of any of claims 1 through 118, further comprising:

forming a multi-layer solidified feedstock composite comprising multiple layers of solidified feedstock, by:

forming additional layers over the second layer, each additional layer comprising feedstock that contains metal particles;

at portions of each additional layer, selectively forming solidified feedstock comprising the metal particles in solid polymer, the portions containing from 20 to 50 percent metal particles by volume, and

separating the multi-layer solid body from feedstock of the layers.

~~13. The method of any of claims 1 through 12, wherein the porous sintered metal body is an annular filter membrane having a shape comprising a three-dimensional tube.~~

~~14. The method of claim 13, wherein the tube has a circular cross-section when viewed in a direction of an axis of the tube.~~

~~15. The method of claim 13, wherein the tube has a non-circular cross-section when viewed in a direction of an axis of the tube.~~

~~16. The method of any of claims 1 through 13, wherein the porous sintered metal body is a three-dimensional non-tubular filter membrane.~~

~~17~~10. A feedstock composition comprising:

from 50 to 80 percent by volume curable liquid polymeric binder, and

from 20 to 50 percent by volume metal particles having a relative apparent density in a range from 5 to 35 percent of a theoretical density of the particles, based on total volume of the feedstock composition.

~~18~~11. A feedstock composition comprising:

solid pore-forming polymer particles, and

from 20 to 50 percent by volume metal particles having a relative apparent density in a range from 5 to 35 percent of a theoretical density of the particles, based on total volume of the feedstock composition.

~~19~~12. The feedstock composition of claim ~~17~~10 or ~~18~~11, wherein the metal particles are dendritic or fibrous and have an apparent density below 2.0 grams per cubic centimeter.

~~20~~13. A porous sintered metal body formed by an additive manufacturing method and comprising sintered metal particles and having a porosity in a range from 50 to 80 percent.

~~21. The body of claim 20, wherein the particles are dendritic particles.~~

~~22~~14. The porous sintered body of claim ~~20~~13, wherein the particles are fibrous particles.

~~23. The body of any of claims 20 through 22 having a multi-layer structure that is visible using an optical microscope.~~