The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method of treating the surface of an article consisting in placing said workpiece into an electroplating bath containing an electrolyte, rotating said article within said bath, suspending grains of relatively hard material in said electrolyte, co-depositing metal and said grains upon said article, bonding said grains to said article and to each other by the deposition of metal thereupon, and recirculating said electrolyte containing said grains through said tank in such manner that said grains are brought into contact with said article.

2. A method of treating the surface of an article, consisting of placing said article in an electroplating bath having an electrolyte, electrodepositing a resistant composite coating upon said surface by mixing grains of material comminuted in form and resistant to heat, wear and corrosion, such as aluminum oxide, silicon oxide, iron oxide, tungsten carbide, diamonds, metallics and other minerals or ceramics to said electrolyte, recirculating said electrolyte with said grains through said bath and over said surface, and co-depositing said grains and metal upon said surface of article to form a resistant coating.

3. The method of coating an article which comprises making said article a cathode in an electroplating bath, continuously flowing past said article an electroplating electrolyte having suspended therein particles which are substantially insoluble in said electrolyte, continuously moving said article while in said electrolyte to cause continuous shedding of unadhered particles from the surface of said article during such movement while said article is being electroplated within said bath, withdrawing electrolyte and particles from said bath, reintroducing controlled amounts of the withdrawn electrolyte and particles back into the bath to thereby control the concentration of additive particles in said bath, and continuing the steps of electrolyte flow, article movement, shedding, and electrolyte withdrawal until a uniform dispersion of discrete particles within an electroplated matrix is built up on the article.

4. The method of coating an article which comprises making said article a cathode in an electroplating bath, continuously flowing past said article an electroplating electrolyte having suspended therein particles which are substantially insoluble in said electrolyte, continuously rotating said article while in said electrolyte to cause continuous shedding of unadhered particles from the surface of said article during such rotation while said article is being electroplated within said bath, withdrawing electrolyte and particles from said bath, reintroducing controlled amounts of the withdrawn electrolyte and particles back into the bath to thereby control the concentration of additive particles in said bath, and continuing the steps of electrolyte flow, article rotation, shedding, and electrolyte withdrawal until a uniform dispersion of discrete particles within an electroplated matrix is built up on the article.

5. The method of coating an article which comprises making said article a cathode in an electroplating bath, continuously flowing past said article an electroplating electrolyte having suspended therein particles which are substantially insoluble in said electrolyte, continuously moving said article while in said electrolyte to cause continuous shedding of unadhered particles from the surface of said article during such movement while said article is being electroplated within said bath, withdrawing electrolyte and particles from said bath, reintroducing controlled amounts of the withdrawn electrolyte and particles back into the bath below the surface of the electrolyte in said bath, and continuing the steps of electrolyte flow, article movement, shedding, and electrolyte withdrawal until a uniform dispersion of discrete particles within an electroplated matrix is built up on the article.

6. In the method of depositing a coating of discrete additive particles in an electroplated matrix in which the article to be coated is made the cathode in an electroplating electrolyte and insoluble particles are settled by gravity onto the surface of said article during electrodeposition of metal from said electrolyte onto said surface in an electroplating zone, the improvement which comprises continuously withdrawing electrolyte and additive particles dispersed therein from the electroplating zone and continually recirculating the particles dispersed in said electrolyte back into the electroplating zone for further settling of the particles therethrough.