

WHAT IS CLAIMED IS:

1. A composite structure comprising:
an inner stack comprising a plurality of inserts stacked on top of each other;
an outer ring annularly surrounding the inner stack; and
a separator disposed between the outer ring and the inner stack separating the outer ring from the inner stack and separating the plurality of inserts from each other.
2. The composite structure of claim 1, wherein the separator comprises a separator wall disposed between the outer ring and the inner stack, and defining an interior area housing the inner stack, the separator wall having an outer face and an inner face.
3. The composite structure of claim 2, wherein the separator comprises at least one divider disposed within the interior area.
4. The composite structure of claim 3, wherein the at least one divider separates the plurality of inserts from each other.
5. The composite structure of claim 2, wherein the inner face of the separator wall comprises at least one recess.
6. The composite structure of any one of claims 1 to 5, wherein the separator comprises a polymeric, metallic, semi-metallic, glass, ceramic, or composite material.
7. The composite structure of any one of claims 1 to 6, wherein the separator comprises a dielectric material.
8. The composite structure of any one of claims 1 to 6, wherein the separator comprises a conductive material.
9. The composite structure of any one of claims 1 to 6, wherein the separator comprises a semi-conductive material.

10. The composite structure of any one of claims 1 to 9, wherein an outer circumferential surface of each of the plurality of inserts comprises at least one recess.
11. The composite structure of any one of claims 1 to 9, wherein an inner circumferential surface of the outer ring comprises at least one recess.
12. The composite structure of any one of claims 1 to 9, wherein the plurality of inserts and the separator are locked together by at least one recess formed in an outer circumferential surface of the plurality of inserts.
13. The composite structure of any one of claims 1 to 9, wherein the separator and the outer ring are locked together by at least one recess formed in an outer circumferential surface of separator.
14. The composite structure of any one of claims 1 to 9, wherein the separator and the outer ring are locked together by at least one recess formed in an inner circumferential surface of the outer ring.
15. The composite structure of claim 1, wherein the separator comprises at least one divider comprising at least one aperture and separating the plurality of inserts and defining a void between the plurality of inserts.
16. The composite structure of claim 15, wherein the at least one divider comprises at least one protrusion extending to at least one outer surface of the inner stack.
17. The composite structure of any one of claims 1 to 16, wherein the separator is marked with at least one figure or symbol.
18. The composite structure of any one of claims 1 to 17, wherein at least one insert is marked with at least one figure or symbol.
19. The composite structure of any one of claims 1 to 18, wherein the separator comprises particles in micro or nano scale.

20. The composite structure of any one of claims 1 to 19, wherein the separator is transparent.
21. The composite structure of any one of claims 1 to 19, wherein the separator is translucent or opaque.
22. The composite structure of any one of claims 1 to 19, wherein the separator is colorless.
23. The composite structure of any one of claims 1 to 19, wherein the separator is colored.
24. The composite structure of any one of claims 1 to 23, wherein the composite structure is a coin.
25. The composite structure of any one of claims 1 to 23, wherein the composite structure is a coin blank.
26. The composite structure of any one of claims 1 to 23, wherein the composite structure is a medal.
27. The composite structure of any one of claims 1 to 23, wherein the composite structure is a token.
28. The composite structure of any one of claims 1 to 23, wherein the composite structure is a chip.
29. The composite structure of any one of claims 1 to 23, wherein the composite structure is a gaming chip.
30. The composite structure of any one of claims 1 to 23, wherein the composite structure is a medallion.

31. The composite structure of any one of claims 1 to 23, wherein the separator varies in cross-sectional area.

32. The composite structure of any one of claims 1 to 23, wherein the separator comprises a major axis and at least one minor axis and defines a circular aperture.

33. The composite structure of any one of claims 1 to 23, wherein the separator comprises a major axis and at least one minor axis and defines a non-circular aperture.

34. A method for authenticating a composite structure with separator comprising:
setting at least one pre-determined reference standard frequency-dependent capacitance or conductivity value range for at least one of:

a first and a second stacked insert;

a first insert and an outer ring; and

a second insert and the outer ring;

measuring at least one measured frequency-dependent capacitance or conductivity value between at least one of:

a first and a second stacked insert;

a first insert and an outer ring; and

a second insert and the outer ring;

comparing the at least one measured frequency-dependent capacitance or conductivity value to the corresponding pre-determined reference standard range; and

authenticating the composite structure if the measured frequency-dependent capacitance or conductivity values falls within the pre-determined reference standard range.

35. A method for manufacturing a composite structure comprising:
stacking a plurality of inserts on top of each other to form an inner stack;
disposing a separator between the plurality of inserts for separating the plurality of inserts from each other and annularly surrounding the inner stack annularly surrounding the inner stack and separator with an outer ring to form a pre-assembly, the pre-assembly having opposite first and second sides;
arranging the pre-assembly on a die, the die having a first engraving for impressing upon the first side of the pre-assembly; and

applying pressure to the pre-assembly with a press, the press having a second die with a second engraving for simultaneously striking and stamping the pre-assembly and producing the composite structure.