

An Improved Token

Field of the Invention

[0001] This invention relates to wagering tokens, otherwise known as gambling chips or plaques, and in particular it relates to their manufacture, and the use of RFID devices to provide each chip or plaque with a unique identifier.

Background of the Invention

[0002] There is significant demand for wagering tokens colloquially known as gambling chips or plaques. Wagering tokens are used in all gaming venues and gambling establishments and are available to punters in a wide range of values. It is essential that the *bona fides* of the collection of chips used in gaming venues and gambling establishments is rigorously monitored to ensure that only genuine gaming venues and gambling establishments wagering tokens are being used. There is a high propensity for criminals to attempt to cheat the gaming venues and gambling establishments by using counterfeit tokens. To attempt to guard against this, gaming venues and gambling establishments deploy sophisticated anti-counterfeit measures at each of the gambling tables within the gaming venues and gambling establishments. Each token deployed by the gaming venues and gambling establishments includes a unique registration code embedded electronically into the token, and each token is registered electronically within the gaming venues and gambling establishment's chip monitoring system. Electronic readers are used at gambling tables, and at other points as chips move around the gaming venues and gambling establishments, and alert flags are raised if any non-authentic chip is detected.

[0003] The most common way chips are given a unique identifier is by embedding an RFID device into each chip. These are relatively cheap and small enough to be embedded into the wagering token and enable remote contactless sensing of the unique identifier code of each RFID device. The other advantage is that many RFID devices, and therefore many wagering tokens, can be scanned simultaneously. This is a perfect solution as many chips circulate through the tables and at other locations around the gaming venues and gambling establishments during the course of the day's operations. One of the problems with the use of RFID devices is that to date these have been typically physically adhered to a surface either

upon, via a wagering token label, or within the body of the token. If the RFID device is adhered to the token via the label etc, then often the RFID device is specially designed so that any attempt to tamper with the label, or the device itself, causes permanent physical damage to the device which thereby renders it inoperative. This is not 100% effective, as it gives fraudsters and other criminals access to the device, and it requires the use of specially modified RFID devices.

[0004] The integrity of a wagering token is significantly improved by encapsulating the RFID device within the body of the token itself. This prevents fraudsters from gaining physical access to the RFID device without destroying the token itself. The problem associated with embedding RFID tokens is that to date they are typically adhered to a surface within the structure of the wagering token to hold it in place as the token is manufactured. This is an extra step, and increases the manufacturing cost for the token.

[0005] It is therefore an object of the present invention to provide a wagering token including an RFID device that at least ameliorates the abovementioned problems.

Disclosure of the Invention

[0006] Accordingly, in one form, the present invention is a wagering token including a base portion, and an RFID device, and an upper portion. The base portion has an inner portion that is recessed, thereby creating an inner sidewall near the periphery of the base portion. The RFID device is of the type that is planar and adapted to be placed within the recessed portion without adhesive, and lay flat upon it. The upper portion is dimensioned to closely fit within the inner sidewall of the base portion, and to substantially fill the remainder of the recessed inner concentric portion, to thereby form an assembly there between, and thereby clamp and encapsulate the RFID device within the assembly.

[0007] Preferably, the base portion includes a raised ring that is formed in the recessed portion, offset inwardly from the inner sidewall.

[0008] Preferably, the raised ring is dimensioned so that it physically retains the RFID token within it in a central portion of the wagering token.

[0009] Preferably, the base portion includes a ring shaped recess on its underside surface that is adapted to receive the raised ring, and the portion of the underside surface that is bounded by the ring shaped recess is dimensioned to account for the thickness of the RFID token so that when it the upper portion is fully fitted in the base portion, the upper portion sits flush with the inner sidewall.

[0010] Preferably, the base portion includes a second raised ring that is formed on the base portion's underside.

[0011] Preferably, the top portion includes a third raised ring that is formed on the upper portion's topmost side.

[0012] Preferably, the second and third raised rings are adapted to receive a respective label within it.

[0013] Preferably, each respective label is adapted to fill the internal space defined within the second and third raised rings so that each respective label sits flush with the top of its respective raised ring.

[0014] Preferably, the base and top portions include a plurality of raised projections on the base portion's underside and top portion's topmost side, wherein the plurality of raised projections are spaced around the periphery of the token in the space between the outer wall of the respective second and third raised rings.

[0015] Preferably, each raised projection rises to the same height as its respective raised ring.

[0016] Preferably, the base portion includes at least one lug on the inner sidewall.

[0017] Preferably, the upper portion includes at least one notch that is adapted to interact with the at least one lug to thereby orientate the upper portion with respect to the base portion.

[0018] Preferably, an over-moulding is applied to the assembly, and the over-moulding operation locks the assembly together.

[0019] Preferably, the over-moulding has a top and bottom surface on opposite sides of the token.

[0020] Preferably, the over-moulding process provides sufficient clamp force so that it holds the assembly firmly together to ensure that none of the over-moulding material makes any ingress into the portion of the assembly containing the RFID device.

[0021] Preferably, the top and bottom surfaces finish flush with the tops of each raised projection and the top of the second and third raised rings respectively.

Brief Description of the Drawings

[0022] Figures 1 and 2 are an isometric view looking from the top of the base portion.

[0023] Figures 3 and 4 are an isometric view showing the placement of an RFID device into the base portion during token assembly.

[0024] Figure 5 is an isometric view looking from the top of the top portion being fitted to the bottom portion and encapsulating the RFID device during the manufacturing process.

[0025] Figure 6 shows the assembled bottom and top portions.

[0026] Figures 7 and 8 show the final stages of the token manufacture.

[0027] Figure 9 shows the finished product.

[0028] Figure 10 is a sectional side view of a preferred embodiment of the present invention

[0029] Figure 11 is an isometric view of another embodiment of the base portion of the present invention.

[0030] Figure 12 to 13 show an exploded view of another embodiment of the present invention.

Detailed Description of the Preferred Embodiments

[0031] Turning firstly to Figure 1, we are shown a base portion 1 of a wagering token. The base portion 1 is shown as disk shaped in this embodiment by way of example, but any shape may be included in the present invention, including rectangular plaque shapes. In this top isometric view of the base portion 1 we can see the recessed portion 3 defined by the inner sidewall 5. There is a RFID device retention ring 7 concentrically located. In this example, four orientation lugs 9 are shown.

[0032] In Figure 2, we are shown that the base portion 1 also includes four external lugs 11. As shown, these extend outwardly from the periphery of the base portion 1. Optionally, each external lug 11 may include a third colour 13.

[0033] In Figure 3 and 4 we can see that the RFID device retention ring 7 defines a recess 17. The RFID device 15 is a thin disk like device as shown and is designed to be loosely placed inside the recess 17. Note that no adhesive is necessary to attach the RFID device to the recess 17. The RFID device 15 is merely placed inside the recess and is retained in a substantially concentric position via the interactions with the inside walls of the RFID device retention ring 7.

[0034] In Figure 5, we are shown the top portion 19. The top portion 19 has a set of matching notches 21 that engage with the orientation lugs 9 in the base portion. The interaction of the lugs and notches ensures that the top 19 and bottom 1 portions are correctly aligned with respect to one another. In this view we can see that the topmost surface of the top portion 19 has four diamond shaped raised projections. Each of the projections 19 is the same height and corresponds to the height of the third raised ring 25. The third raised ring 25 defines another recess 29 that is dimensioned to receive a label. Please note that the projections 19 are shown as diamond shape by way of example only. Other shapes, including lettering or numbering, may be used to denote the value of the chip, or the name of the gaming venues and gambling establishments etc.

[0035] In Figures 6 and 7, we can see the assembly 31 of the lower portion 1 and the upper portion 19. We can see that the upper portion 19 is dimensioned to fit neatly flush inside the base portion 1. Please note that the lowermost face of the base portion has a similar profile to

the combination of the top and base portions as shown in this illustration. The lowermost face also includes four projections and the second raised ring 25.

[0036] After the assembly 31 is completed, the assembly 31 is then locked together by an over-mould cover 33. We can see that the over-mould cover 33 is flush with each of the raised projections 23, the third raised ring 25 and each of the four external lugs 11. The same occurs on the lowermost face.

[0037] In Figures 8 and 9 we can see that a label 35 is then inserted inside the recesses created by the second and third raised rings. Here only the third raised ring 29 is shown.

[0038] In Figure 10, we are shown a sectional side view of a preferred embodiment of the present invention. It can be easily seen how the loosely placed RFID token 15 is encapsulated by the interlocking of the top 19 and bottom 1 portions.

[0039] In Figure 11, we are shown an alternative embodiment of the base portion 1. In this embodiment, we are shown a substantially square post 37 in the centre of the base portion 1. The post 37 has a corresponding square profile that matches the shape of a hole located in the centre of the RFID device 15. In other words, the RFID device 15 is adapted to be placed upon the post 37. This provides a positive location and orientation for the RFID device 15 and support in the centre of base portion 1 and 19 during over-moulding of the 'Cover' 33.

[0040] In Figures 12 to 14, we are shown yet another embodiment of the present invention. In this variant, the post 37 integrated in the base portion 1 is circular. The corresponding hole 39 in the RFID 15 sits upon the post 37. Again, no adhesive is used to attach the RFID chip to the base portion 1. The top portion 19 fits within the base portion 1. Labels 35 are applied. The token is then over-moulded to complete the assembly.

[0041] The foregoing was a discussion of just one preferred embodiment of the present invention. In other embodiments, the top portion 19 may interference fit into the base portion 1 in order to be held in place, or in another arrangement, the top portion 19 may "snap" into engagement with the base portion 1 via inter-engagement means moulded into each portion. An adhesive may be used to hold the two portions together prior to the over-moulding operation. In other embodiments, the two portions may be joined together via plastic welding

means, including ultrasonic plastic welding.

[0042] Prior art manufacture of gambling chips and plaques incorporating RFID tokens have included the step of adhering the RFID token either externally, typically via a label, or to an internal surface. As mentioned previously, having the RFID token externally applied is less desirable because it is easier for a person to tamper with the label and get direct access to the RFID token. Having the RFID token encapsulated within the body of the chip or plaque is more desirable from a security perspective. By removing the need for adhesive, and having features within the internal shape of the components of the chip or plaque that interact and retain and support the chip without adhesive provides the chip or plaque with high degree of security and easier and less expensive manufacturing costs.

[0043] Further to this, the over-moulding process incorporated in the present invention provides a substantially tamper resistant chip or plaque that has desired hand feel by a user, weight and sound characteristics that are desirable to gaming venues and gambling establishments operators.

[0044] While the above description includes the preferred embodiments of the invention, it is to be understood that many variations, alterations, modifications and/or additions may be introduced into the constructions and arrangements of parts previously described without departing from the essential features or the spirit or ambit of the invention.

[0045] It will be also understood that where the word “comprise”, and variations such as “comprises” and “comprising”, are used in this specification, unless the context requires otherwise such use is intended to imply the inclusion of a stated feature or features but is not to be taken as excluding the presence of other feature or features.

[0046] The reference to any prior art in this specification is not, and should not be taken as, an acknowledgment or any form of suggestion that such prior art forms part of the common general knowledge.