Title of the invention: <u>Same or Better Non Fungible Token.</u> (SorB NFT)

Cross-reference to any related applications:

Background of the invention

A Non Fungible Token 'NFT' is an electronic representation of a real world asset (RWA) or assets (RWAs), that is used to describe that asset / those assets in an agreed manner and is then locked using cryptography. Accurate electronic representation of an underlying tangible asset is useful across many fields and has played a significant role in allowing the finance and sale of assets in electronic format both in traditional markets and now within Distributed Ledger Technology and Blockchain communities. For high value inventory items, issuing a NFT for each item you currently own may be cost effective, but for lower cost or consumable items that face large amounts of turnover, the cost of issuing a NFT for each item becomes prohibitive and issuing a traditional NFT for a fixed group of items means it must be burnt (destroyed) everytime an item is recognized as no longer being a valid member of the NFT's group - e.g.: is sold or damaged during transit or similar. The need arises for an adapted NFT that still provides surety about the underlying items described yet allows controlled flexibility for the purposes of stock turnover.

Summary of the invention

A traditional NFT describes a single or group of items so that they can be identified accurately amongst other similar items and allows the current owner to assign various rights electronically to all or part of that item to others. A Same-or-Better NFT 'SorB NFT' allows the application of a single NFT to a flexible but verified set of inventory.

A SorB NFT describes single or multiple asset lines or Stock Keeper Units (SKUs) by agreed upon physical attributes such as, but not limited to a SKU level identifying code that describes the manufacturer and the product or both. The SorB NFT also prescribes a verified source that it trusts to provide current data about the levels and values of the SKUs included in the SorB NFT. This allows the issuer of the SorB NFT to cycle through inventory without having to continuously destroy and reissue NFT's. Creating and destroying a NFT incurs the costs associated with the recording of the NFT's state on a blockchain or distributed ledger making a SorB NFT desirable across all inventory items because turnover is inevitable.

A SorB NFT requires the issuer or an independent third party to verify that the inventory levels as described by the issued SorB NFT remain available, but if inventory is sold, then it can be replaced by the 'same' item or a 'better' item in accordance with the description contained in the NFT. In practice this allows an issuer to keep a reservoir of inventory, sell their product and then replenished it before the amount being held drops below that described within the SorB NFT. The replacement items must be the same as those they replace or better, where better

conforms to the requirements stipulated in the original description that has been cryptographically locked into the SorB NFT on issuance.

An example of an application of 'or better' is a SorB NFT that cycles through product with an expiration date. In this case, one of the describing attributes is the sum of each expiration date for each unique product line described. The verifying system would then allow the sale of units of that inventory line until the described value was met. At this point the SorB NFT would move into arrears if any more items are sold unless the inventory under the terms of the SorB NFT is replenished. Upon replacement, the expiration date of each item is checked by the verifier to: a) ensure that each new expiration date conforms to any minimum required within the descriptor, b) that the sum of the days left prior to expiration of all items now covered by the SorB NFT is equal to or greater than the sum of the days left prior to expiration before the exchange takes place, and c) that the new standard deviation of the data set generated by the original expiration compared to that generated from the new data set that includes any left over original stock and the replacement stock does not exceed a set deviation from the mean. This calculation prevents borrowers from creating a SorB NFT which represents a set of products with distant expiration dates (and hence, plenty of time to sell the product) and then cycling the original content out and replacing it with less valuable, near to expiration product thus reducing the effective value of the SorB NFT.

Another implementation of <u>Same or Better Non Fungible Token</u> utilizes the current price of an item, allowing replenishment of linked to stock to counter price discounting. During the cycling of stock, the <u>Same or Better Non Fungible Token</u> can be programmed to require the current, or an update to the average rolling historic price over a specified period of days, for each SKU. If price reductions or increases have come into effect that vary the value of the underlying inventory assets the contract can calculate how many extra or fewer items must be added in order to match the initial issuing value.

All the above calculations can be completed within the smart contract itself, autonomously, or the data can be prepared by a source trusted by all involved parties and presented to the <u>Same or Better Non Fungible Token.</u>

An issuer may choose to create single SKU SorB NFT's or compounded SorB NFTs. For Compounded SorB NFTs the multiple SKUs are all described and then a minimum number or value required and expiration value per SKU defined. An issuer may also stack multiple SorB NFTs. If the stacked SorB involves an 'or better' calculation rule then the verifier will place the least valuable (in our example shortest expiration) in the first Sorb NFT and then issue further SorBs to allow the inventory holding to be divided into tranches or layers. Inventory is then cycled out by the verifying party by removing the least valuable first (first in, first out). Similarly, as multiple counterparties may participate in the partial ownership of each Sorb NFT, the first to commit funds would receive returns from the most valuable Sorb NFT (first in, last out).

Brief description of the drawings

Figures 1A describes the decision making process of issuing single or multiple <u>Same or Better Non Fungible Token.</u> and the calculation process necessary to order multiple tokens of the same SKU

Figure 2A describes the calculations needed to issue a <u>Same or Better Non Fungible Token.</u> based on preset constraints

Figure 3A describes the process and re-calculations needed when real world assets are sold and replaced with other 'like for like assets' or 'better for like assets' as stock is used and replenished.

Detailed description of the drawings

Figure 1A

Data about the real world assets to be represented by a cryptographically lockable electronic file is ascertained from a "Source of Truth" database or databases (Fig 1A - 102) by requesting and receiving a list of the unique identifying product codes and / or their product identifiers for each item and any other information considered useful for the accurate identification of the real world asset (Fig 1A - 104). The entire data set can be locked in a single <u>Same or Better Non Fungible Token</u> (Fig 1A - 106) or sorted by category, for example; make, model, manufacturer (Fig 1A - 110) to identify similar units herein referred to as stock keeper units - i.e.: units that can be considered to be interchangeable / like for like, but may have different production dates and come from different batches. This allows the data to be analyzed and the decision made on whether one <u>Same or Better Non Fungible Token</u> (SorB NFT) will be issued for each SKU or multiple Sorb NFTs are required to further subdivide the SKU into tranches (Fig 1A - 112). Tranches are useful for multiple reasons, for example, large inventory holdings where treasury departments may wish to borrow against their <u>Same or Better Non Fungible Token</u> and want to present an instrument of a certain total consideration or product count as the underlying asset. If these multiple Sorb NFTs are required, each separate stock keeper unit must be ordered to allow ranking from shortest to longest expiration date(Fig 1A - 116 - 118), summed to give a total value days to expiration value, the mean and standard deviation calculated . With this base data captured and understood it can be decided if a single <u>Same Or Better Non Fungible Token</u> will be issued for each SKU (Fig 1B - 110) Each issued <u>Same Or Better Non Fungible Token</u> then takes a hierarchical order within its SKU, where the most valuable represents the items furthest from expiration and the least valuable are the items closest to expiration (Fig 1B - 112).

Figure 2A

Each <u>Same Or Better Non Fungible Token</u> can now be constructed. First the maximum Acceptable Absolute Deviation from the Mean is set and compared to the initial Mean Absolute Deviation of the data set provided ensuring the described disbursement of the dataset's

expiration dates is within acceptable limits. (Fig 2A - 200 and 202) If it is not, then the oldest expiration date must be discarded (Fig 2A - 204) and the process repeated until within the required range (Fig 2A - 206) - this removal of aged stock reduces the overall deviation. When all criteria are met the SorB NFT can be issued recording each metadata item (Fig 2a - 208) which may include the price, total consideration value, number of items, current absolute deviation from the Mean, maximum absolute deviation from the mean, average expiration total expiration value, a wait time for how long to pause before recalculation and an end date expiration for the Same Or Better Non Fungible Token. The Same Or Better Non Fungible Token is now cryptographically locked ready for disbursement to a distributed ledger, blockchain or trusted centralized system.

Figure 3A

After the specified Wait Time has passed (Fig 3a - 300) the end date expiration of Same Or Better Non Fungible Token is checked and if the expiration date has not passed (Fig 3a - 302) the process of calculating the changes to the underlying stock data represented by each Same Or Better Non Fungible Token separately and collectively can proceed. Updated data must be retrieved from the source of truths or truths (Fig 3a - 304) , and the stock allocated so that the absolute deviation from the mean and total days to expiration can be recalculated (Fig 3a - 306). If the new total days to expiration is greater than the previous cycles days to expiration after sold inventory has been replaced, the absolute deviation from the mean has not deteriorated (Fig 3a - 310)and the final count of inventory and or the total consideration represented by the SorB is the same or greater than the previous cycle (Fig 3a - 312), or if valued by average sales price, the consideration of all like for like items is the same or increased based on historic sales data, then the Same Or Better Non Fungible Token can be maintained for another cycle and its underlying data set locked by a new cryptographic hash function (Fig 3a - 318).

If the total days to expiration or the absolute mean has deteriorated then the item closest to expiration must be removed until within limits (Fig 3a - 308). If the count of inventory has fallen to below the minimum threshold after this process then additional inventory must be assigned into the dataset for this Same Or Better Non Fungible Token (Fig 3a - 314). If no more inventory is available for allocation then this Same Or Better Non Fungible Token is no longer valid, it must be burnt/destroyed to prevent its use as a representation of its underlying dataset. The inventory that is then released can be used to fill the required datasets of other Same Or Better Non Fungible Token's or to create a new, lower value Same Or Better Non Fungible Token.

If multiple Same or Better Non Fungible Tokens are issued within a SKU then the ordered hierarchy by expiration is used to fill each token and each token within a SKU must have the same preset maximum variation from the mean for its standard deviation away from the average expiration age of the grouped items represented by those Non Fungible Tokens. Tokens can then be ordered from longest average expiration to shortest average expiration allowing the system to cycle out the stock from each Non Fungible token in an orderly first in first out manner. This ensures that when stock is replaced the systems can calculate the new total expiration value, the standard deviation from the mean and ensure that the shared rules within

the <u>Same or Better Non Fungible Token.</u> have been met and that therefore the inventory represented is like for like and the expiration dates have improved or been maintained to the satisfaction of the <u>Same or Better Non Fungible Token's</u> rule set - i.e.: each token has gained or maintained intrinsic value by the cycling of its underlying real world asset and that this has been achieved fairly in an order understood by all participants.

Claims *[Instructions for this section:*
https://www.ipwatchdog.com/2016/12/10/patent-drafting-anatomy-patent-claim/id=75575/]

An electronic representation of a real world physical asset(s) (Same or Better Non Fungible Token - SorB NFT) that is used to describe that asset / those assets in an agreed manner where comprised SorB NFTs allow for the sale and replacement of like for like or like for better assets, where said like for better assets are comparable to the assets they replace in all aspects other than possibly having a longer duration until expiration than the asset which they intend to replace; where the agreed parameters of said <u>Same Or Better Non Fungible Token</u> is locked using cryptography, thus granting a capability allowing the issuer of said <u>Same Or Better Non Fungible Token</u> or an independent third party to verify that the inventory levels as described by the issued <u>Same Or Better Non Fungible Token</u> remain available, but if inventory is sold, then it can be replaced by the 'same' item or a 'better' item in accordance with the description contained in said <u>Same Or Better Non Fungible Token</u>.

It is further claimed that an adaptation of this invention is the ability to allow a variable value for the number of units from which the <u>Same Or Better Non Fungible Token</u> represents within each cycle as long as the calculated consideration for the data set captured or represented by the <u>Same Or Better Non Fungible Token</u> remains the same or more than when originally issued.

Abstract

This invention allows the electronic representation of inventory real world assets on a rolling basis, taking into account inflows and outflows through sales and resupply without requiring each individual item to have its own electronic non fungible token but instead grouping like for like items together but ensuring either the count, and or consideration and or age profile of the the underlying assets remain the same or greater than the original issuance. This reduces the cost of issuing electronic representations of inventory and protects the integrity of the non fungible token as it further prevents degradation of value by exchanging items with longer expiration for items for shorter expiration.