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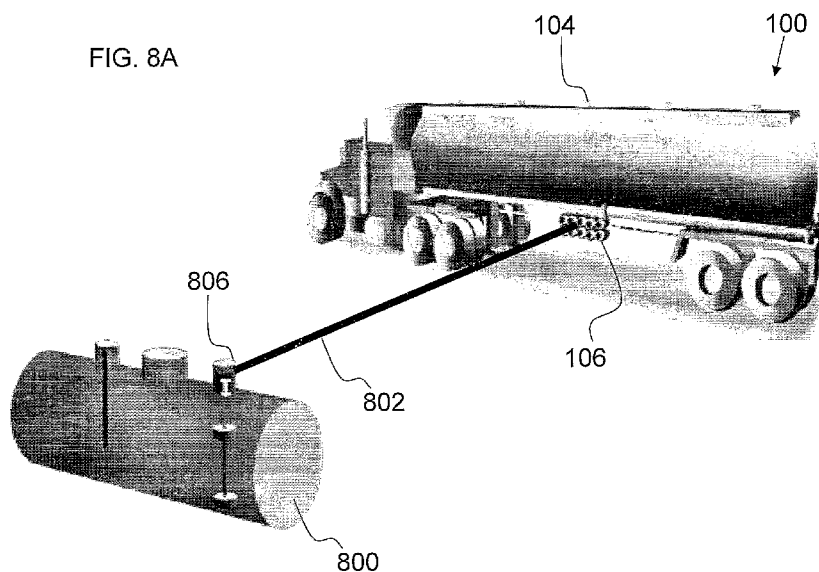
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(54) Title: SYSTEM AND METHOD FOR SECURING FUEL SUPPLY CHAIN DELIVERY PROCESS WITH A RFID ELECTRONIC SEAL

FIG. 8A



(57) Abstract: A system and method for protecting the fuel supply chain process with an electronic seal.

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AMENDED CLAIMS

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What is claimed is:

1. A system for detecting unauthorized access to a container, the container featuring an opening, the system comprising an electronic seal, wherein said electronic seal detects access to the opening and wherein said electronic seal further comprises a transmitter for transmitting information regarding said access; and wherein said opening features a cover, and wherein said electronic seal comprises a first component comprising an RFID tag or reader, for being attached to or integrally formed with said cover and a second component comprising an RFID tag or reader for being attached to or integrally formed with a body of the container about said opening, such that when a distance between said first and second components exceeds a maximum distance, said transmitter transmits said information regarding access; and wherein said first component RFID tag or reader corresponds to said second component RFID tag or reader.

2. The system of claim 1 wherein said RFID reader and RFID tag are individually encased in a protective shell that protects them from tampering.

3. The protective shell of claim 2 wherein said shell is manufactured from tamperproof material chosen from the group consisting of metal, metal alloys, and steel.

4. The protective shell of claim 2 wherein said shell is provided in the form of a male and female connectors may be coupled by fitting one into the other.

5. The protective shell of claim 2 wherein said male and female connectors are individually embedded with said RFID tag and reader.

6. The system of claim 1 further comprising a GPS system.

7. The system of claim 6 wherein said GPS system provide for defining specific locations or areas where the electronic seal may be broken in an authorized manner.

8. The system of claim 1, wherein the container is a tank on a tanker truck.

9. The system of claim 8, wherein said tanker comprises a plurality of compartments.

10. The system of claim 9 wherein said RFID tag is stably connected to a compartment cover, and said RFID reader is stably connected to a compartment body.

11. The system of claim 1 wherein communication between RFID tag and RFID reader is secure.

12. The system of claim 6 wherein the GPS system tracks the tanker truck movements.

13. The system of claim 6 wherein GPS system communicates an unsealing code to said RFID components.

14. The system of claim 1 wherein RFID system is equipped with an encrypted security coding chosen from the group consisting of DES, AES, asymmetric encoding or antispoofing.

15. The system of claim 1 producing a signal when said RFID tag and RFID reader are within a threshold distance.

16. The system of claim 15 wherein said signal is transmitted to higher processing center.

17. The system of claim 1, wherein said RFID tag is coupled to a receiving tank.

18. The system of claim 1 adapted for the delivery of a flowing fluid wherein said system further comprises a receiving tank for receiving said flowing fluid and a delivery hose providing for facilitating and transferring said flowing fluid from said container to said receiving tank; and wherein said receiving tank comprises an RFID tag or reader corresponding to said second component RFID tag or reader.

19. The system of claim 18 wherein said delivery hose mediates communication between said second component RFID tag or reader and said receiving tank RFID tag or reader for delivery identification.

20. The system of claim 18 wherein said receiving tank RFID tag or reader are chosen from the group consisting of an RFID tag or reader comprising an integrated antenna and an antenna-less RFID tag or reader.

21. A method for securing the supply chain of a flowing fluid comprising:

- a. decoupling an electronic seal of claim 1 comprising removing a container cover from an associated delivery container opening therein exposing said delivery container opening; and
- b. loading said flowing fluid from a supply source to said delivery container through said delivery container opening via a delivery pipe; and
- c. wherein said supply source delivers said flowing fluid to said container through said delivery container opening following RFID authentication and communication between said delivery container opening and said supply source delivery pipe ; and
- d. wherein delivery of said flowing fluid is completed through said delivery container opening said electronic seal over said delivery container opening is re-set by specifically associating a delivery container cover over its corresponding delivery container opening forming said a container specific electronic seal; and
- e. communicating the status of said electronic seal during transport of said flowing fluid from said supply source to an intended delivery site; and .
- f. communicating a deactivation code to said electronic seal when reaching an authorized location; and

- g. deactivating said electronic seal to allow for delivery of said flowing fluid at said intended delivery site to an intended receiving container and wherein once completing said delivery process said electronic seal is reestablished over said container opening and container cover.
22. The method of claim 21 (g) further comprising
- a. coupling said delivery pipe between said delivery container and said receiving container; and
 - b. wherein said delivery container and said receiving container are in communication via respective RFID tag and reader positioned between said delivering said flowing fluid.
23. The method of claim 22 wherein said communication is mediated by a delivery hose.
24. The method of claim 21 (c) wherein said RFID authentication communication further facilitates information exchange between said RFID tag and reader.
25. The information exchange of claim 23 chosen from the group consisting of fuel type, volume, pipe number, date and time, destination, and authorized locations.
26. The method of claim 21 (c) wherein said RFID authentication comprises communication between said delivery pipe comprising an RFID tag and said delivery container opening comprising a RFID reader.
27. The method of claim 21 wherein said container specific electronic seal comprises coupling a RFID reader and RFID tag over said container opening and cover over a threshold distance.
28. The method of claim 21 (e) wherein said status communication is facilitated through a GPS system.
29. The method of claim 21 (f) wherein said GPS system identifies a location for authorized uncoupling of said electronic seals.

30. The method of claim 29 wherein said GPS system communicates a deactivation code within said authorized destination.

31. The method of claim 29 wherein said deactivation code is communicated using a communication protocol chosen from the group consisting of SMS, GPS, email, cellular, RF, wired, wireless, optical, IR and US.

32. The method of claim 29 wherein said deactivation code is communicated in time dependent manner.

33. The method of claim 21 (g) wherein said authorization is limited to at least one or a combination of variables chosen from the group consisting of personnel, location, time, delivery time and date.

34. The system of claim 15 wherein said threshold distance is determined by a proximity antenna.

35. The system of claim 1 producing a signal when said RFID tag and RFID reader exceed said threshold distance.

36. The system of claim 1 wherein said first component RFID tag or reader and said second component RFID tag or reader form said electronic seal mediated with a proximity antenna.

Statement under Article 19(1)

The claims of International Application No PCT/IL2008/001504 were amended to better distinguish the claimed subject matter from the background art. The amendment includes adding claims. No new matter has been added.