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(54) **Method and arrangement for communicating vehicle data**

Verfahren und Gerät zur Ermittlung von Fahrzeugsdaten

Procédé et appareil de transmission de données du véhicule

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Description

[0001] The invention relates to a communication method and an arrangement for communicating vehicular driving data. The invention is particularly applicable to communicating weight measurements and other driving data of a vehicle.

[0002] In the prior art vehicle weighing methods, the vehicle is stopped and the driving data is fed, typically by means of a telecommunication board and/or a key-board, e.g. into a weighing system. Finally, a document is printed regarding the weighing results and other data of a vehicle. Even if the driving data were transferred without a stop, the stopping is still unavoidable as the weighing instrument typically prints out a document which is needed in the vehicle for example for a customer or the authorities.

[0003] Further, relating to a communication of information, a moving vehicle identification system is known from the prior art, where an information is exchanged by means of transmitted RF signals between a fixed location interrogator and a vehicle transponder moving in the vicinity of the interrogator. Such system is disclosed, for example in U.S. Pat. No 5,196,846.

[0004] The prior art solutions involve substantial drawbacks. Stopping for weighing and picking up a document always takes time and hinders other traffic. Moreover, non-scheduled stops increase fuel consumption, especially in heavy-duty vehicles, and may also cause hazardous situations. Furthermore, relating to a communication of information, the prior art solutions are limited to change data only in the vicinity of the reading point, such as interrogator.

[0005] It is an object of the present invention to alleviate or eliminate the above drawbacks associated with prior art solutions. The present inventive method and arrangement can be used for transferring the driving data into a weighing system without stops. In addition, the vehicle can be weighed and the weighing result and driving data can be compiled into a document, which can be transferred to the vehicle automatically, without stops. Alternatively, the weighing results can be transferred to a vehicle and a document can be compiled in an on-board computer on the basis of the weighing results and the driving data already existing on board. Both the driver of a vehicle and other appropriate parties can obtain desired driving and weighing data, without having to stop the vehicle.

[0006] All the above benefits associated with a solution of the invention are preferably achievable by means of an embodiment, wherein the on-board computer of a vehicle is used for transmitting driving data to a weighing party by way of a wireless communication link. The weighing party receives the driving data, performs a weighing, and compiles a document about the weighing and the driving data. After this, the weighing party transmits the document to the on-board computer by way of a wireless communication link. Alternatively, the weigh-

ing party does not process all driving data associated with the document, but the on-board computer compiles a document by using driving data stored in its memory.

[0007] A method for communicating vehicular data, wherein a vehicle is weighed by a weighing party, is characterized in that the weighing data is transmitted by the weighing party to an on-board computer located in the vehicle to be weighed, the weighing data being received by a mobile communicator being in communication with the on-board computer to compile a document based on said received weighing data and driving data stored in the on-board computer.

[0008] The invention relates also to a method for communicating vehicular data, wherein a vehicle is weighed by a weighing party, which is characterized in that an on-board computer located in the vehicle to be weighed being in communication with a mobile communicator transmits driving data stored in the on-board computer to the weighing party via the mobile communicator by way of the communication link, and the weighing party composes a document regarding the driving data and a weighing result and transmits said document to the on-board computer by way of the communication link.

[0009] Further the invention relates to a method for communicating vehicular data, which is characterized in that an on-board computer located in the vehicle to be weighed transmits driving data to a weighing party by a mobile communicator being in communication with the on-board computer and a weighing party judges a necessity of weighing on the basis of the transmitted driving data.

[0010] Further the invention relates to an arrangement for communicating vehicular data, the arrangement comprising a weighing party and a vehicle to be weighed by the weighing party, which is characterized in that the weighing party is adapted to receive driving data sent from an on-board computer located in the vehicle via a mobile communicator by way of the communication link, and the weighing party is further adapted to compose a document regarding the driving data and a weighing result and transmit said document to the on-board computer by way of the communication link.

[0011] Further the invention relates to an arrangement for communicating vehicular data, the arrangement comprising a weighing party and a vehicle to be weighed by the weighing party, which is characterized in that an on-board computer being in communication with a mobile communicator and located in the vehicle is adapted to receive weighing data from the weighing party via the mobile communicator by way of the communication link, and the on-board computer is further adapted to compose a document regarding driving data stored in the on-board computer and received weighing data.

[0012] The invention relates also to an arrangement for communicating vehicular data, the arrangement comprising a weighing party and a vehicle to be weighed by the weighing party, which is characterized in that the

weighing party is adapted to receive driving data sent from an on-board computer located in the vehicle via a mobile communicator by way of the communication link, and the weighing party is further adapted to judge the necessity of weighing on the basis of the received driving data.

[0013] Preferred embodiments of the invention are set forth in the non-independent claims.

[0014] Some preferred embodiments of the invention will now be described in more detail with reference to the accompanying drawings.

Fig. 1A shows a flowchart regarding one preferred embodiment for a method of the invention, wherein an on-board computer produces a document.

Fig. 1B shows a flowchart regarding a second preferred embodiment for a method of the invention, wherein an on-board computer produces a document.

Fig. 2 shows a flowchart regarding a third preferred embodiment for a method of the invention, wherein the weighing is performed in compliance with driving data.

Fig. 3 shows a block diagram regarding one preferred embodiment 30 of the invention.

Fig. 4 shows a block diagram regarding a second preferred embodiment 40 of the invention.

[0015] A sequence 100 in fig. 1A is used for identifying a weighing party from a vehicle. This is followed by establishing a communication link between an on-board computer and the weighing party in a sequence 110. A sequence 120 is used for transmitting driving data to the weighing party, followed by weighing the vehicle in a sequence 130. The digital signature of the on-board computer may also be transmitted. After the reception of a weighing result, a document is composed about the driving data and the weighing result in a sequence 140. Finally, the document is transmitted to the on-board computer in a sequence 150. The digital signature of the weighing party can be transmitted as well.

[0016] Fig. 1B illustrates a method of the invention, wherein a document is composed in an on-board computer. In a sequence 105, an approaching vehicle is identified by a weighing party. This can be carried out by means of a communication link between the vehicle and the weighing party, or the weighing party may comprise a camera for detecting the license plate number of an approaching vehicle. The individualizing identification of a vehicle is not always necessary, but it may be sufficient that the individualizing information be only stored in an on-board computer and the weighing result is transferred to a vehicle, which has crossed the weighing device, without identifying the same.

[0017] In a sequence 115, the vehicle is weighed by the weighing party. This is followed by establishing a communication link between the weighing party and the on-board computer in a sequence 125 and by transmitting the weighing data to the on-board computer, a sequence 135. After this, the on-board computer reads the driving data stored in its memory, a sequence 145, and composes a document on the basis of the driving data and the weighing data in a sequence 155. The composed document can be printed out and/or transferred further to control/monitoring systems external of the vehicle.

[0018] Thus, in the first of the two foregoing embodiments, a document along with driving data was composed by a weighing party and the document was transferred in its entirety to an on-board computer, while in the second embodiment, it was principally the weighing data that was transferred to an on-board computer and a document was composed in the on-board computer by exploiting the driving data stored in the on-board computer. Along with these two embodiments, it is of course possible to apply combined solutions, wherein some of the driving data for a document is also obtained from the weighing party and some is picked up from the memory of the on-board computer. Furthermore, in all foregoing embodiments, it is possible to use vehicle identification conducted by a weighing party and/or identification of a weighing party conducted by an on-board computer. These identification actions may be based e.g. on wireless communication, camera identification, or manual input of data.

[0019] In some preferred embodiments of the invention, the driving data contains information relating to cargo, customer, destination, supplier, supplier's account information, carrier, carrier's operating license, carrier's account information, carrier's schedules, vehicle, vehicle speed, amount of fuel, driver's logbook, vehicle's number of axles, total weight, total length, total width, engine temperature, vehicle's year model, kilometers driven, driver, driver's criminal record, driver's operating license, axle weight, registration number, and/or driver's and/or on-board computer's PIN (Personal Identification Number) and/or the digital signature of an on-board computer.

[0020] It is obvious that the driving data can be used for the determination of a vehicle's load. For example, the amount of fuel can be used for correcting the tare weight of a vehicle.

[0021] It is likewise obvious that, in a number of preferred embodiments, the vehicle can be a motorcycle, a passenger car, a truck and/or a bus or a train.

[0022] In several inventive embodiments, the communication of both driving data and a document is conducted in a wireless fashion. Some preferred embodiments of the invention make use of GSM (Global System for Mobile Communications), UMTS (Universal Mobile Telecommunications Service), CDMA (Code Division Multiple Access), WCDMA (Wideband Code Division Multi-

ple Access), Bluetooth, Iridium, Inmarsat, TelDesic, TCP/IP and/or IrDA (infrared) wireless communication links.

[0023] Fig. 2 shows an inventive embodiment, wherein a sequence 200 is used for identifying a vehicle. In a sequence 210, a communication is established with the vehicle's on-board computer. This is followed by requesting driving data in a sequence 220. After the on-board computer has supplied the driving data, the necessity of weighing is judged in a sequence 230. If the weighing is deemed necessary, the vehicle is called for weighing in a sequence 240. If this is not necessary, the on-board computer is supplied with a document about the request in a sequence 250.

[0024] The present embodiment 20 is very well applicable to routine traffic control. For example, it is often quite unnecessary to weigh vehicles with a load clearly below the overload restrictions.

[0025] In some preferred embodiments, a transmission is kept on continuously either by a weighing party and/or an on-board computer at a given frequency for identifying a vehicle and/or a weighing party. A camera can also be used for identifying both a vehicle and a weighing party.

[0026] In fig. 3, an on-board computer 310 is preferably in communication with a weighing party 320. The weighing party 320 is preferably in communication with an authority party 340 and/or a weighing service provider 300. Communication links 312, 323, 324 are preferably GSM, UMTS, CDMA, WCDMA, Bluetooth, Iridium, Inmarsat, TelDesic, TCP/IP and/or IrDA wireless communication connections. They can also be fixed telephone connections, with the exception of the link 312.

[0027] The weighing party 320 comprises preferably a computer hooked up with a mobile communicator. In one typical preferred embodiment of the invention, the weighing party 320 comprises a mobile communicator and a PC (personal computer), an Apple Macintosh computer, and/or any computer solution based on Microsoft CE and/or Sybase operating system. The weighing party 320 may also comprise a camera and/or a video camera. The weighing party may also comprise a weighing display, stop lights and/or a gate. These are controlled preferably on the basis of vehicular data.

[0028] In some embodiments, the on-board computer 310 is likewise designed as a mobile communicator and/or a combination including a mobile communicator and a PC (personal computer), an Apple Macintosh computer, and/or any computer solution based on Microsoft CE and/or Sybase operating system. The on-board computer 310 may also comprise a camera and/or a video camera.

[0029] The weighing party 320 is preferably set up in communication with an authority party 340, such as police or a customs authority. Hence, the authorities are capable of real-time monitoring the observance or violation of traffic and overload regulations. The weighing service provider 330 is also preferably in communication

323 with the weighing party. In some embodiments, the weighing service provider 330 is preferably capable of telechecking the weighing party 320 for its action and documents. In addition, the software updates and tele-diagnosing faults can be handled by way of the communication link 323.

[0030] Fig. 4 illustrates the inventive arrangement in reference to its operation in a larger scale. Both the weighing service provider 330 and the authority party 340 can be preferably in communication with each other by way of a link 425. Thus, the authorities 340 are able to request updated information from the weighing service provider 330 and to transmit information, say about wanted vehicles, to the weighing service provider 330. The weighing service provider 330 and the authority party 340 are both preferably in communication with a control party 450. The control party 450 is preferably located in the Internet and comprises, for example, the factory register of a vehicle manufacturer. The thus obtained driving data and weighing result can be checked for validity from several sources.

[0031] In several preferred embodiments, the weighing party 320 may also be fitted with traffic lights, gates, and/or weighing displays. The invention is particularly well applicable to performing weighings at border stations and to monitoring traffic flow. In both instances, the invention offers major advantages as the vehicle need not be stopped.

[0032] The invention has been described above with reference to the enclosed embodiments. However, it is obvious that the invention is not limited to just those, but encompasses all embodiments falling within the scope of the inventive concept and the annexed claims.

Claims

1. A method for communicating vehicular data, wherein a vehicle is weighed (130) by a weighing party (320), **characterized in that**
 - the weighing data is transmitted (150) by the weighing party (320) to an on-board computer (310) located in the vehicle to be weighed, and
 - the weighing data being received by a mobile communicator being in communication with the on-board computer (310) to compile a document based on said received weighing data and driving data stored in the on-board computer (310).
2. A method for communicating vehicular data, wherein a vehicle is weighed (130) by a weighing party (320), **characterized in that**
 - an on-board computer (310) located in the vehicle to be weighed being in communication with a mobile communicator transmits driving

data stored in the on-board computer to the weighing party (320) via the mobile communicator by way of the communication link (312), and

- the weighing party (320) composes a document regarding the driving data and a weighing result (140) and transmits said document to the on-board computer (310) by way (150) of the communication link (312).

3. A method for communicating vehicular data, characterized in that

- an on-board computer (310) located in the vehicle to be weighed transmits (120) driving data to a weighing party (320) by a mobile communicator being in communication with the on-board computer and
- a weighing party (200) judges a necessity (230) of weighing on the basis of the transmitted driving data.

4. A method as set forth in any of claims 1-3 wherein the driving data comprises information relating to cargo, customer, destination, supplier, supplier's account information, carrier, carrier's operating license, carrier's account information, carrier's schedules, vehicle, vehicle speed, amount of fuel, driver's logbook, vehicle's number of axles, total weight, total length, total width, engine temperature, vehicle's year model, kilometers driven, driver, driver's criminal record, driver's operating license, axle weight, registration number, and/or driver's and/or on-board computer's PIN and/or the digital signature of an on-board computer.

5. A method as set forth in any of the claims 1-3 wherein said on-board computer (310) is a PC, an Apple Macintosh computer, or any computer solution based on Microsoft CE and/or Sybase operating system.

6. A method as set forth in any of the preceding claims wherein said weighing party (320) comprises weighing instruments, a mobile communicator and a PC, an Apple Macintosh computer, or any computer solution based on Microsoft CE and/or Sybase operating system being in communication with the mobile communicator.

7. A method as set forth in any of the preceding claims wherein the weighing party (320), a weighing service provider (330), an authority party (340), and a control party (450) are in communication with each other by way of communication links (323, 324, 425, 435, 445).

8. An arrangement for communicating vehicular data,

the arrangement comprising a weighing party (320) and a vehicle to be weighed by the weighing party (320), **characterized in that**

- the weighing party (320) is adapted to receive driving data sent from an on-board computer (310) located in the vehicle via a mobile communicator by way of the communication link (312), and
- the weighing party (320) is further adapted to compose a document regarding the driving data and a weighing result (140) and transmit said document to the on-board computer (310) by way (150) of the communication link (312).

9. An arrangement as set forth in claim 8 wherein the on-board computer (310) is adapted to transmit driving data to the weighing party (320) by way of the communication link (312).

10. An arrangement for communicating vehicular data, the arrangement comprising a weighing party (320) and a vehicle to be weighed by the weighing party (320), characterized in that

- an on-board computer being in communication with a mobile communicator and located in the vehicle is adapted to receive weighing data from the weighing party (320) via the mobile communicator by way of the communication link (312), and
- the on-board computer is further adapted to compose a document regarding driving data stored in the on-board computer and received weighing data (140).

11. An arrangement for communicating vehicular data, the arrangement comprising a weighing party (320) and a vehicle to be weighed by the weighing party (320), characterized in that

- the weighing party (320) is adapted to receive driving data sent from an on-board computer (310) located in the vehicle via a mobile communicator by way of the communication link (312), and
- the weighing party (320) is further adapted to judge the necessity of weighing on the basis of the received driving data.

12. An arrangement as set forth in any of claims 8-11 wherein the weighing party (320) comprises at least one set of traffic lights, a gate and/or a weighing display.

13. An arrangement as set forth in claim 12 wherein said traffic lights and/or gate are adapted to be controlled on the basis of vehicular data.

14. An arrangement as set forth in any of claims 8-13 wherein the arrangement comprises communication links (323, 324, 425, 435, 445) between the weighing party (320), a weighing service provider (330) and a control party (450) for transferring vehicular data by way of the communication links.

Patentansprüche

1. Verfahren für den Austausch von Fahrzeugdaten, wobei ein Fahrzeug von einer Wiegepartei (320) gewogen wird (130), **dadurch gekennzeichnet, dass**

die Wiegedaten von der Wiegepartei (320) zu einem bordeigenen Computer (310), der sich in dem zu wiegenden Fahrzeug befindet, übermittelt werden (150), und

die Wiegedaten von einer mobilen Kommunikationseinrichtung, die mit dem bordeigenen Computer (310) kommuniziert, empfangen werden, um auf der Grundlage der empfangenen Wiegedaten und von im bordeigenen Computer (310) gespeicherten Fahrdaten ein Dokument zu erstellen.

2. Verfahren für den Austausch von Fahrzeugdaten, wobei ein Fahrzeug von einer Wiegepartei (320) gewogen wird (130), **dadurch gekennzeichnet, dass**

ein bordeigener Computer (310), der sich in dem zu wiegenden Fahrzeug befindet und mit einer mobilen Kommunikationseinrichtung kommuniziert, Fahrdaten, die in dem bordeigenen Computer gespeichert sind, über die mobile Kommunikationseinrichtung mittels der Kommunikationsverbindung (312) zur Wiegepartei (320) übermittelt, und

die Wiegepartei (320) in Bezug auf die Fahrdaten und ein Wiegeergebnis (140) ein Dokument erstellt und dieses Dokument mittels der Kommunikationsverbindung (312) zum bordeigenen Computer (310) übermittelt (150).

3. Verfahren für den Austausch von Fahrzeugdaten, **dadurch gekennzeichnet, dass**

ein bordeigener Computer (310), der sich in dem zu wiegenden Fahrzeug befindet, Fahrdaten mittels einer mobilen Kommunikationseinrichtung, die mit dem bordeigenen Computer kommuniziert, zu einer Wiegepartei (320) übermittelt, und

eine Wiegepartei (200) eine Notwendigkeit (230) des Wiegens auf der Grundlage der übermittelten Fahrdaten beurteilt.

4. Verfahren nach irgendeinem der Ansprüche 1 bis 3, wobei die Fahrdaten Informationen bezüglich der Ladung, des Kunden, des Ziels, des Lieferanten, der Lieferantenkontoinformation, des Frachtunternehmens, der Betriebserlaubnis des Frachtunternehmens,

der Kontoinformation des Frachtunternehmens, der Fahrpläne des Frachtunternehmens, des Fahrzeugs, der Fahrzeuggeschwindigkeit, der Kraftstoffmenge, des Fahrerlogbuches, der Anzahl der Achsen des Fahrzeugs, des Gesamtgewichts, der Gesamtlänge, der Gesamtbreite, der Maschinentemperatur, des Fahrzeugbaujahres, der gefahrenen Kilometer, des Fahrers, des polizeilichen Führungszeugnisses des Fahrers, der Betriebserlaubnis des Fahrers, des Achsgewichts, des amtlichen Kennzeichens, und/oder der PIN des Fahrers und/oder des bordeigenen Computers und/oder der digitalen Signatur eines bordeigenen Computers umfassen.

5. Verfahren nach irgendeinem der Ansprüche 1 bis 3, wobei der bordeigene Computer (310) ein PC, ein Apple-Macintosh-Computer oder irgendeine Computerlösung auf der Grundlage des Betriebssystems Microsoft CE und/oder Sybase ist.

6. Verfahren nach irgendeinem der vorangehenden Ansprüche, wobei die Wiegepartei (320) Wiegegeräte, eine mobile Kommunikationseinrichtung und einen PC, einen Apple-Macintosh-Computer oder irgendeine Computerlösung auf der Grundlage des Betriebssystems Microsoft CE und/oder Sybase, die mit der mobilen Kommunikationseinrichtung kommunizieren, umfasst.

7. Verfahren nach irgendeinem der vorangehenden Ansprüche, wobei die Wiegepartei (320), ein Wiegedienstleister (330), eine Behördenpartei (340) und eine Kontrollpartei (450) über Kommunikationsverbindungen (323, 324, 425, 435, 445) miteinander kommunizieren.

8. Anordnung für den Austausch von Fahrzeugdaten, wobei die Anordnung eine Wiegepartei (320) und ein von der Wiegepartei (320) zu wiegendes Fahrzeug umfasst, **dadurch gekennzeichnet, dass**

die Wiegepartei (320) dafür ausgelegt ist, Fahrdaten zu empfangen, die von einem im Fahrzeug angeordneten bordeigenen Computer (310) mittels der Kommunikationsverbindung (312) über eine mobile Kommunikationseinrichtung übermittelt werden, und

die Wiegepartei (320) ferner dafür ausgelegt ist, in Bezug auf die Fahrdaten und ein Wiegeergebnis (140) ein Dokument zu erstellen und das Dokument mittels der Kommunikationsverbindung (312) zum bordeigenen Computer (310) zu übermitteln (150).

9. Anordnung nach Anspruch 8, wobei der bordeigene Computer (310) dafür ausgelegt ist, Fahrdaten mittels der Kommunikationsverbindung (312) zur Wiegepartei (320) zu übermitteln.

10. Anordnung für den Austausch von Fahrzeugdaten, wobei die Anordnung eine Wiegepartei (320) und ein von der Wiegepartei (320) zu wiegendes Fahrzeug umfasst, **dadurch gekennzeichnet, dass** ein bordeigener Computer, der mit einer mobilen Kommunikationseinrichtung kommuniziert und im Fahrzeug angeordnet ist, dafür ausgelegt ist, Wiegedaten von der Wiegepartei (320) mittels der Kommunikationsverbindung (312) über die mobile Kommunikationseinrichtung zu empfangen, und der bordeigene Computer ferner dafür ausgelegt ist, in Bezug auf die im bordeigenen Computer gespeicherten Fahrdaten und die empfangenen Wiegedaten (140) ein Dokument zu erstellen.
11. Anordnung für den Austausch von Fahrzeugdaten, wobei die Anordnung eine Wiegepartei (320) und ein von der Wiegepartei (320) zu wiegendes Fahrzeug umfasst, **dadurch gekennzeichnet, dass** die Wiegepartei (320) dafür ausgelegt ist, Fahrdaten zu empfangen, die von einem im Fahrzeug angeordneten bordeigenen Computer (310) mittels der Kommunikationsverbindung (312) über eine mobile Kommunikationseinrichtung übermittelt werden, und die Wiegepartei (320) ferner dafür ausgelegt ist, die Notwendigkeit des Wiegens auf der Grundlage der empfangenen Fahrdaten zu beurteilen.
12. Anordnung nach irgendeinem der Ansprüche 8 bis 11, wobei die Wiegepartei (320) wenigstens einen Satz von Verkehrsampeln, eine Schranke und/oder eine Wiegeanzeige umfasst.
13. Anordnung nach Anspruch 12, wobei die Verkehrsampeln und/oder die Schranke dafür ausgelegt sind, auf der Grundlage der Fahrzeugdaten gesteuert zu werden.
14. Anordnung nach irgendeinem der Ansprüche 8 bis 13, wobei die Anordnung Kommunikationsverbindungen (323, 324, 425, 435, 445) zwischen der Wiegepartei (320), dem Wiegedienstanbieter (330) und der Kontrollpartei (450) umfasst, um Fahrzeugdaten mittels der Kommunikationsverbindungen zu übertragen.

Revendications

1. Procédé de communication de données de véhicule, dans lequel un véhicule est pesé (130) par une partie de pesée (320), **caractérisé en ce que**
- les données de pesée sont transmises (150) par la partie de pesée (320) à un ordinateur embarqué (310) situé dans le véhicule à peser, et

- les données de pesée sont reçues par un communicateur mobile en communication avec l'ordinateur embarqué (310) afin de compiler un document basé sur lesdites données de pesée reçues, et les données de conduite sont stockées dans l'ordinateur embarqué (310).
2. Procédé de communication de données de véhicule, dans lequel un véhicule est pesé (130) par une partie de pesée (320), **caractérisé en ce que**
- un ordinateur embarqué (310) situé dans le véhicule à peser et en communication avec un communicateur mobile transmet les données de conduite stockées sur l'ordinateur embarqué à la partie de pesée (320) via le communicateur mobile, à l'aide de la liaison de communication (312), et
 - la partie de pesée (320) compose un document relatif aux données de conduite et au résultat de la pesée (140), et transmet ledit document à l'ordinateur embarqué (310) à l'aide (150) de la liaison de communication (312).
3. Procédé de communication de données de véhicule, **caractérisé en ce que**
- un ordinateur embarqué (310) situé dans le véhicule à peser transmet (120) des données de conduite à une partie de pesée (320) à l'aide d'un communicateur mobile en communication avec l'ordinateur embarqué, et
 - une partie de pesée (200) juge une nécessité (230) de pesée sur la base des données de conduite transmises.
4. Procédé selon l'une quelconque des revendications 1 à 3, dans lequel les données de conduite comprennent des informations relatives au chargement, au client, à la destination, au fournisseur, au compte du fournisseur, au transporteur, à la licence d'exploitation du transporteur, au compte du transporteur, au planning du transporteur, au véhicule, à la vitesse du véhicule, à la quantité de carburant, au journal de bord du conducteur, au nombre d'essieux du véhicule, au poids total, à la longueur totale, à la largeur totale, à la température du moteur, au modèle du véhicule, au nombre de kilomètres parcourus, au conducteur, au casier judiciaire du conducteur, à la licence d'exploitation du conducteur, au poids des essieux, au numéro d'immatriculation, et/ou au numéro d'identification personnel de l'ordinateur du conducteur et/ou de l'ordinateur embarqué, et/ou à la signature numérique d'un ordinateur embarqué.
5. Procédé selon l'une quelconque des revendications 1 à 3, dans lequel ledit ordinateur embarqué (310)

est un PC, un ordinateur Apple Macintosh, ou n'importe quelle solution informatique basée sur un système d'exploitation Microsoft CE et/ou Sybase.

6. Procédé selon l'une quelconque des revendications précédentes, dans lequel ladite partie de pesée (320) comprend des instruments de pesée, un communicateur mobile et un PC, un ordinateur Apple Macintosh, ou n'importe quelle solution informatique basée sur un système d'exploitation Microsoft CE et/ou Sybase en communication avec le communicateur mobile. 5
7. Procédé selon l'une quelconque des revendications précédentes, dans lequel la partie de pesée (320), un prestataire de services de pesée (330), une partie d'autorité (340), et une partie de contrôle (450) sont en communication les uns avec les autres à l'aide de liaisons de communication (323, 324, 425, 435, 445). 10
8. Ensemble de communication de données de véhicule, l'ensemble comprenant une partie de pesée (320) et un véhicule à peser à l'aide de la partie de pesée (320), **caractérisé en ce que**
 - la partie de pesée (320) est adaptée pour recevoir des données de conduite envoyées par un ordinateur embarqué (310) situé dans le véhicule via un communicateur mobile à l'aide de la liaison de communication (312), et 15
 - la partie de pesée (320) est en outre adaptée pour composer un document relatif aux données de conduite et à un résultat de pesée (140), et pour transmettre ledit document à l'ordinateur embarqué (310) à l'aide (150) de la liaison de communication (312). 20
9. Ensemble selon la revendication 8, dans lequel l'ordinateur embarqué (310) est adapté pour transmettre des données de conduite à la partie de pesée (320) à l'aide de la liaison de communication (312). 25
10. Ensemble de communication de données de véhicule, l'ensemble comprenant une partie de pesée (320) et un véhicule à peser à l'aide de la partie de pesée (320), **caractérisé en ce que**
 - un ordinateur embarqué en communication avec un communicateur mobile et situé dans le véhicule est adapté pour recevoir des données de pesée de la part de la partie de pesée (320) via le communicateur mobile à l'aide de la liaison de communication (312), et 30
 - l'ordinateur embarqué est en outre adapté pour composer un document relatif aux données de conduite stockées dans l'ordinateur embarqué et aux données de pesée reçues (140). 35

11. Ensemble de communication de données de véhicule, l'ensemble comprenant une partie de pesée (320) et un véhicule à peser à l'aide de la partie de pesée (320), **caractérisé en ce que**

- la partie de pesée (320) est adaptée pour recevoir des données de conduite envoyées par un ordinateur embarqué (310) situé dans le véhicule via un communicateur mobile à l'aide de la liaison de communication (312), et
- la partie de pesée (320) est en outre adaptée pour juger la nécessité d'une pesée sur la base des données de conduite reçues.

12. Ensemble selon l'une quelconque des revendications 8 à 11, dans lequel la partie de pesée (320) comprend au moins un ensemble de signaux lumineux, une barrière et/ou un afficheur de pesée. 40

13. Ensemble selon la revendication 12, dans lequel lesdits signaux lumineux et/ou la barrière sont adaptés pour être contrôlés sur la base des données du véhicule. 45

14. Ensemble selon l'une quelconque des revendications 8 à 13, dans lequel l'ensemble comprend des liaisons de communication (323, 324, 425, 435, 445) entre la partie de pesée (320), un prestataire de services de pesée (330) et la partie de contrôle (450), afin de transférer les données de véhicule à l'aide des liaisons de communication. 50

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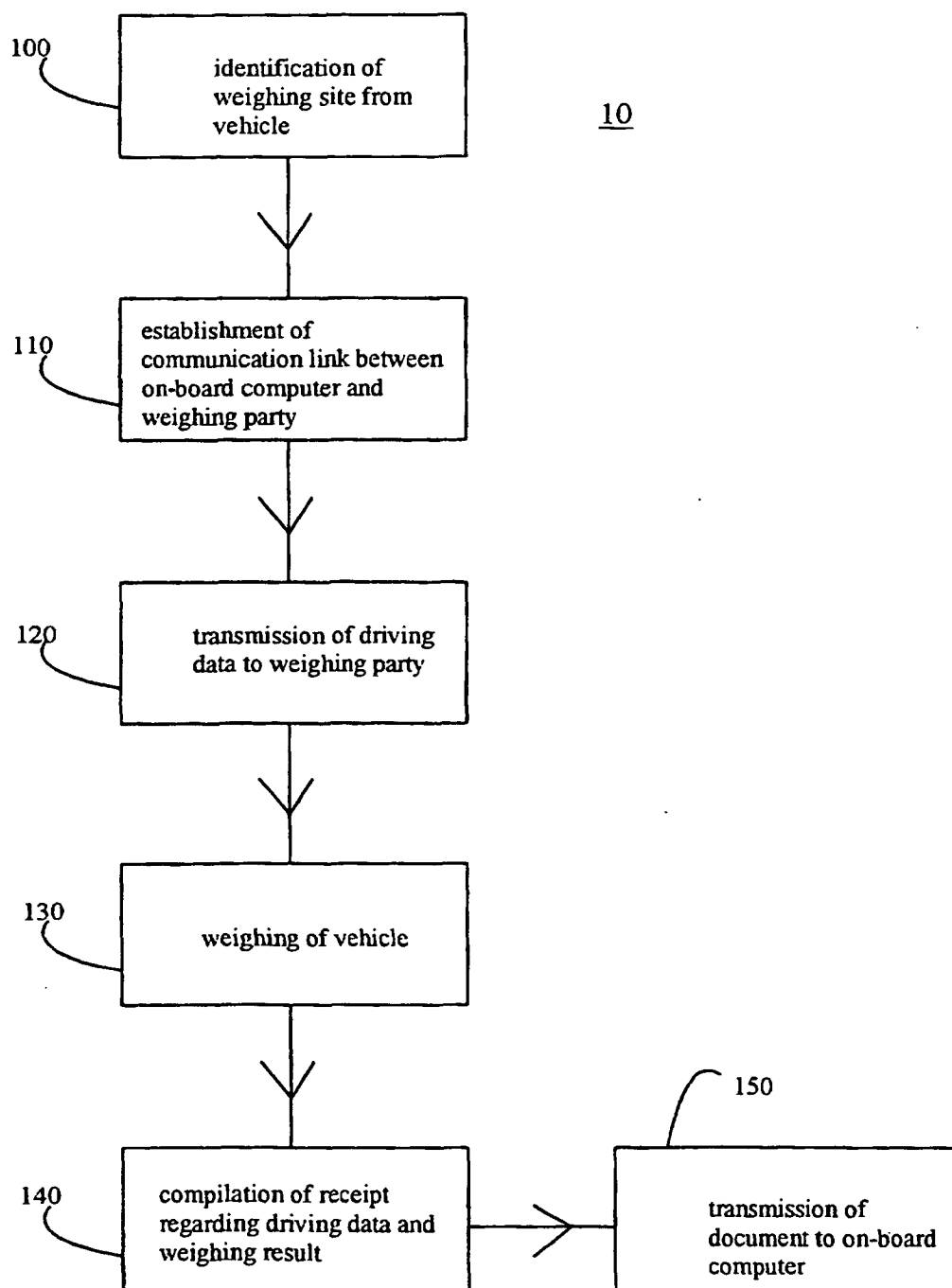


FIG. 1A

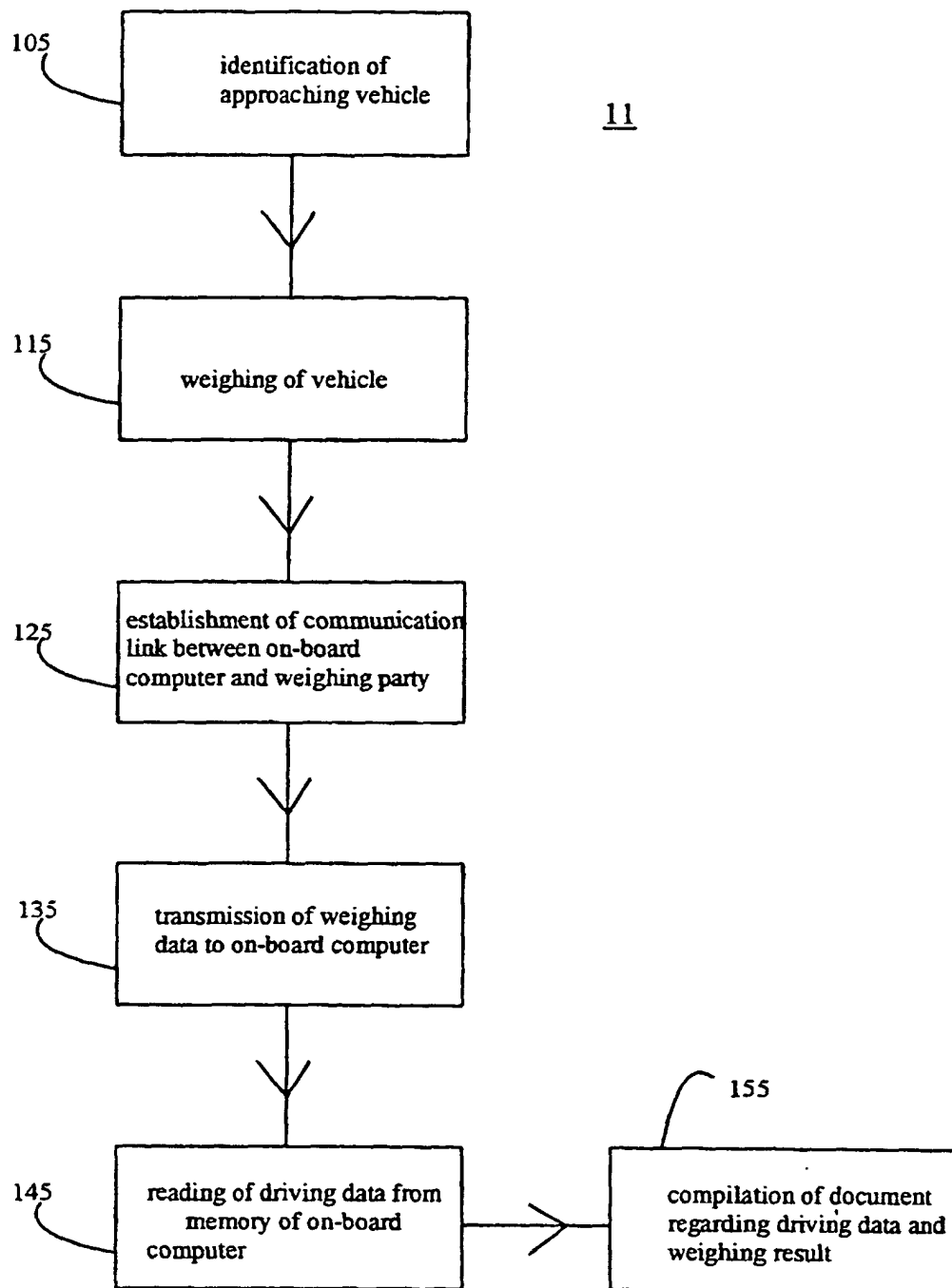


FIG. 1B

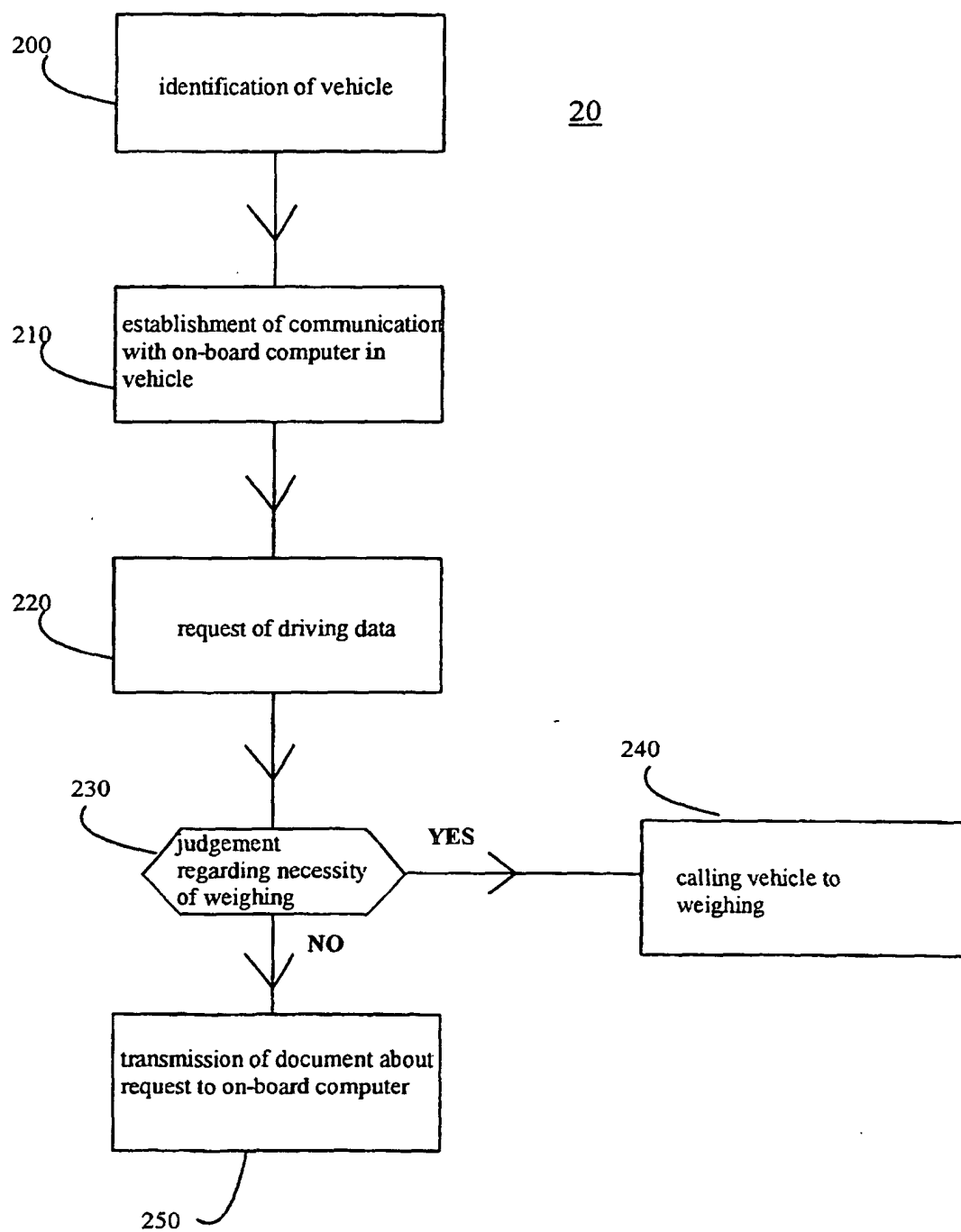


FIG. 2

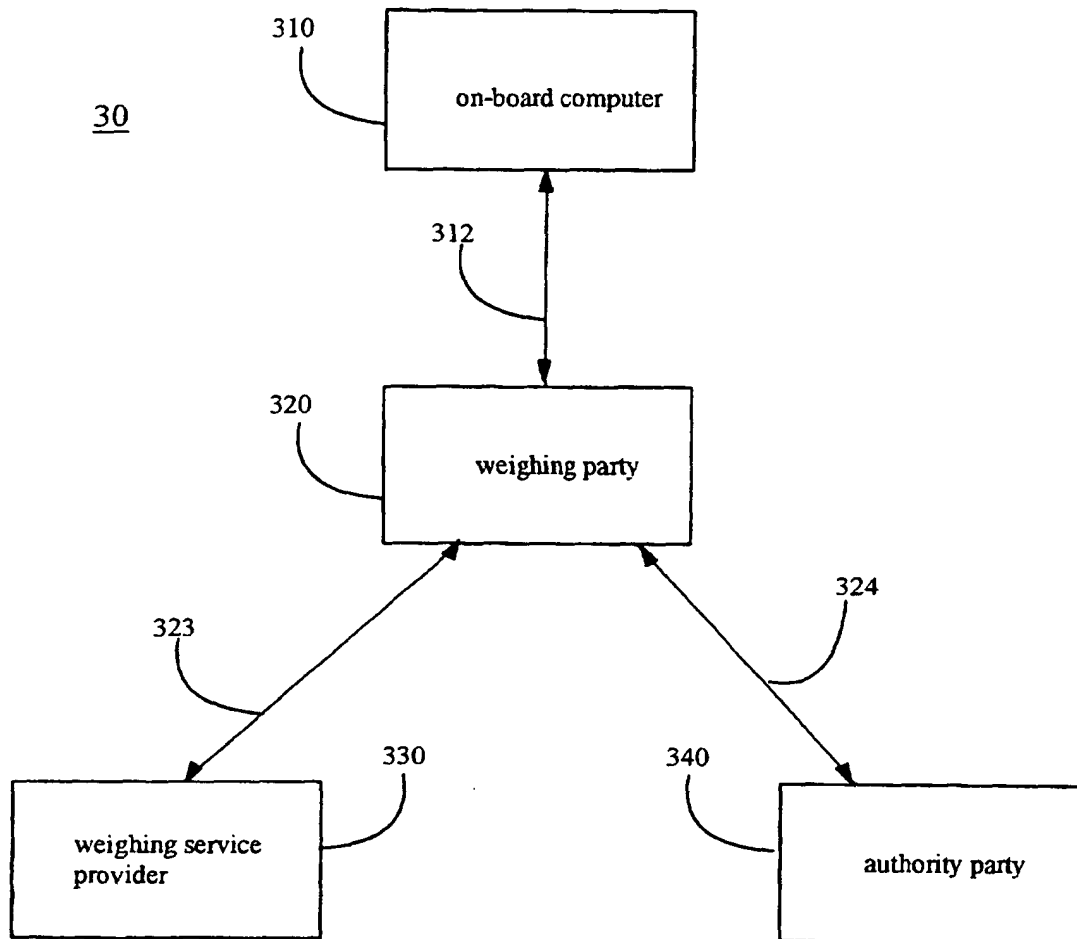


FIG. 3

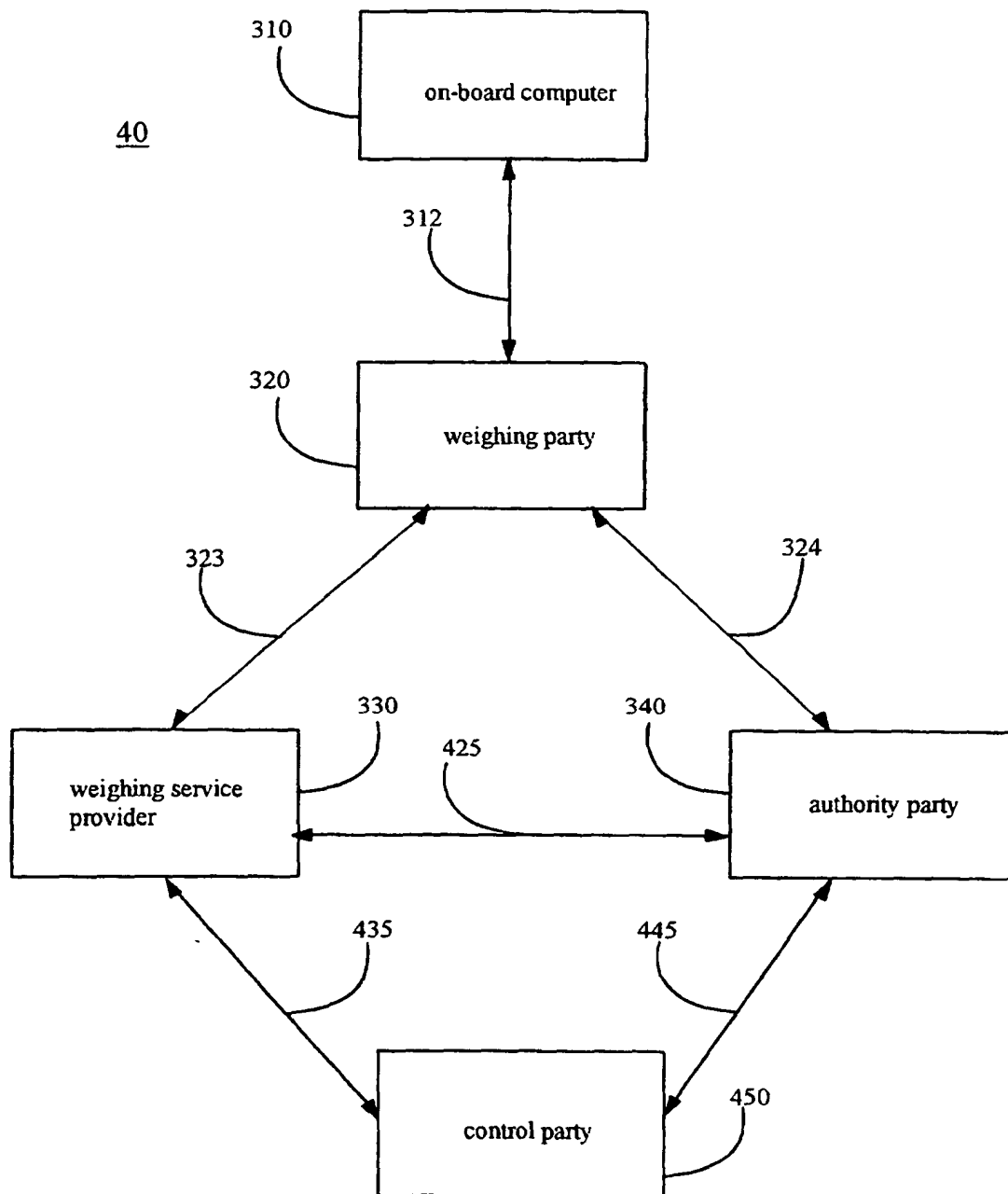


FIG. 4