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(54) **Electronic detection system for detecting antitheft and/or identification labels**

(57) An electronic system for detecting antitheft and/or identification labels, comprising a number of electronic antitheft and/or identification labels which can operatively be attached to goods to be secured or registered or can be worn by a person or animal to be registered and/or identified, transmitting and receiving means for generating an electromagnetic interrogation field in a detection zone and for detecting one of the labels which is located in the interrogation field, characterized in that the system is further provided with measuring means for measuring a Q factor and/or a resonance frequency of one of the labels and/or for measuring a Q factor and/or resonance frequency of an environment of the detection zone.

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Description

[0001] The invention relates to an electronic detection system for detecting antitheft and/or identification labels and/or for deactivating such labels, comprising at least one such label which can be attached to a product to be secured or registered or can be worn by a person or animal to be registered and/or identified, wherein the label is provided with a resonant circuit, wherein the system is further provided with transmitting and receiving means for generating an electromagnetic interrogation field in a detection zone and for detecting the label when the resonant circuit of the label responds when it is located in the interrogation field and/or a deactivation unit for generating an electromagnetic deactivation field in a deactivation zone for deactivating the label.

[0002] Such a system is, for instance, used in stores and libraries to prevent theft and is, for instance, known from European patent application EP 0 736 850 A1.

[0003] The invention contemplates improving the system such that the system can offer extra application possibilities to a user which are important within the framework of the use of antitheft and/or identification labels.

[0004] To this end, the system according to the invention is characterized in that the system is further provided with measuring means for measuring a value of a magnitude of a Q factor and optionally a resonance frequency.

[0005] The measuring means of the system offer various surprising possibilities which can be important to a user of the system.

[0006] Thus, with the system, a quality check of the antitheft and/or identification labels can now be carried out by determining the Q factor and optionally the resonance frequency of the label with the measuring means. The latter may be desired if a user of the system wishes to get an idea of a quality distribution of the antitheft and/or identification labels. The Q factor and the resonance frequency of the labels indicate the quality of the labels to a high extent and are known from the field. Here, determining or measuring the quality factor Q is understood to mean determining a quantitative value of the quality factor Q, that is, determining a measure for a magnitude of the quality factor Q. Here, determining or measuring the resonance frequency f_0 is understood to mean determining a quantitative value of the resonance frequency f_0, that is, determining a measure for a magnitude of the resonance frequency f_0. It preferably holds true that the measuring means are designed for measuring the Q factor and optionally the resonance frequency of the label in the deactivation zone. By carrying out this measurement in the deactivation zone, a good idea of the quality distribution of antitheft labels can be obtained since most antitheft labels pass this zone before being deactivated.

[0007] It particularly holds true that the measuring means use the electromagnetic deactivation field of the deactivation unit. It further preferably holds true that the measuring means at least in part use the deactivation unit. It particularly holds true that the deactivation unit is designed for transmitting a first electromagnetic deactivation field with a relatively low power for making the label respond when it is located in the first deactivation field, for detecting a label when it responds in the first electromagnetic deactivation field and for transmitting a second electromagnetic deactivation field with a relatively high power when the label has been detected with the first electromagnetic deactivation field so that the label is deactivated. Here, it preferably holds true that the measuring means determine the Q factor and optionally the resonance frequency of the label when the deactivation unit has detected the label and before the deactivation unit has deactivated the label.

[0008] In case of antitheft, the measurement can advantageously be carried out in the detection zone, as already indicated hereinabove. However, it is also possible that the measuring means are designed for measuring the Q factor and optionally the resonance frequency of the label in the detection zone. This can be important when the label is an identification label which does not pass any deactivation zone.

[0009] Also, according to a special further elaboration of the system according to the invention, with the aid of the system, the influence of an environment of the system on the operation of the system can now be taken into account by determining the value of the magnitude of the Q factor and optionally the resonance frequency of an environment of the system. On the basis of these data, the system could be adjusted, optionally automatically. It preferably holds true that the measuring means are designed for measuring the Q factor and optionally the resonance frequency of an environment of the detection zone. It particularly holds true that the system is designed for adjusting a characteristic of a filter of the receiving means on the basis of a measured Q factor and optionally a resonance frequency of the environment of the detection zone. If particular resonance frequencies emerge from the measured Q factor and optionally the resonance frequency of the environment, signals from the environment at these frequencies which are possibly interfering in measurements can be suppressed by means of the filter.

[0010] A special embodiment of the system according to the invention is characterized in that the measuring means at least in part use the electromagnetic interrogation field. The advantage of this is that no separate field needs to be generated for carrying out the measurements. The system becomes easy to manufacture and therefore inexpensive.

[0011] Further, an embodiment of the system according to the invention is characterized in that the measuring means at least in part use the transmitting and receiving means. The advantage of this is that the measuring means do not need to be provided with their own transmitting and/or receiving means for generating and monitoring an electromagnetic field for measuring a Q factor and optionally a resonance frequency of one of the labels and/or for measuring a Q factor and optionally a resonance frequency of one of an environment of the detection zone.

[0012] Further, a special embodiment of the system according to the invention is characterized in that the system is further provided with data storage means for storing data about the Q factors and optionally the resonance frequencies determined of labels. Such a use of storage means in the system has the advantage that the measuring data can be compared with one another. This makes it, for instance, possible to produce a signal if recently measured Q factors and optionally resonance frequencies deviate too much from priorly measured Q factors and optionally resonance frequencies. A defect of the measuring means and/or the respective label can thus be discovered and repaired sooner.

[0013] Further, a special embodiment of the system according to the invention is characterized in that the system is further provided with data processing means for, for instance statistically, processing data about the Q factors and optionally resonance frequencies determined of labels. By processing data, it is, for instance, possible to determine whether there is a certain percentage of the labels which percentage of the labels does not meet the predetermined quality requirements.

[0014] Above-mentioned and other embodiments of the invention will now be described in more detail with references to the Figures, in which:

Fig. 1 schematically shows a first embodiment of the system according to the invention;
Fig. 2 schematically shows a second embodiment of the system according to the invention;
Fig. 3a schematically shows a first part of a third embodiment of the system according to the invention;
Fig. 3b schematically shows a first embodiment of a second part of the system according to Fig. 3a; and
Fig. 3c schematically shows a second embodiment of a second part of the system according to Fig. 3a.

[0015] Fig. 1 shows a schematic overview of a first embodiment of an electronic detection system 1 for detecting antitheft and/or identification labels comprising at least one such label 2 which can be attached to a product 4 to be secured or registered or can be worn by a person or animal 4 to be registered and/or identified. The label 2 is a label known per se which is provided with a resonant circuit. The system 1 is further provided with transmitting and receiving means 6 for generating an electromagnetic interrogation field in a detection zone 8 for detecting the label 2 when the resonant circuit of the label responds when it is located in the interrogation field.

[0016] In case of antitheft labels, the detection zone 8 may, for instance, be located at an exit of a store. In case of identification labels for persons, the zone may, for instance, be located at an office entrance and in case of identification labels for animals, the zone 8 may be located in predetermined positions in, for instance, a farm.

[0017] In this example, the transmitting and receiving means 6 are provided with transmitting means 10 and receiving means 12. The transmitting means 10 are provided with a first transmitter 14 and a transmitting antenna 16 connected with the first transmitter 14. The transmitter 14 comprises a filter 18 which partly determines the frequency or bandwidth of the interrogation field. In the proximity of the detection zone 8, the receiving means 12 are also located, provided with a first receiver 20 and a receiving antenna 22 connected with each other. The receiver 20 is provided with a filter 24 which partly determines a receiving frequency and a receiving bandwidth. The transmitter 14 and the receiver 20 are each connected with a control unit 26 of the system 1.

[0018] The system 1 is further provided with measuring means 27 for measuring a Q factor Q and/or resonance frequency f_0. The measuring means 27 comprises a second transmitter 28 and a second receiver 30. The measuring means 27 are further provided with signal processing means 32 which are connected with the second transmitter 28 and the second receiver 30. The second transmitter 28 and the second receiver 30 are further connected with the transmitting antenna 16 and the receiving antenna 22, respectively, which are therefore, each at least partly, part of the measuring means 27. The system is further provided with data storage means and data processing means 34 connected with the signal processing means 32. In this example, these data storage means and data processing means 34 are formed by a computer 34.

[0019] If the label 2 is located in the detection zone 8, the resonant circuit of the label will react by starting to resonate. This response is received with the aid of the receiving means 12 in a known manner. The receiving means 12 pass this detected response on to the control unit 26. The control unit detects, for instance, an identification code transmitted by the label 2 when the label 2 is an identification label. If the detection of an antitheft label 2 is involved, the control unit can generate an (audio and/or visual) alarm signal.

[0020] The signal processing means 32 then realize that, with the aid of the second transmitter 28 and the transmitting antenna 16, an electromagnetic signal is transmitted for determining a quality factor Q and/or resonance frequency f_0 of the label 2 in a manner known per se. Here, determining or measuring the quality factor Q is understood to mean determining a quantitative value of the quality factor Q, i.e. determining a measure for the magnitude of the quality factor Q. Here, determining or measuring the resonance frequency f_0 is understood to mean determining a quantitative value of the resonance frequency fo, i.e. determining a measure for the magnitude of the resonance frequency f_0. Particularly if an identification label is involved, it is useful that the measuring means 27 are designed for measuring the Q factor and/or the resonance frequency of the label in the detection zone. This is because this is a position where the labels will regularly be located.

[0021] For measuring the Q factor and/or the resonance frequency, a frequency-swept electromagnetic signal or a pulsed signal can be transmitted, for instance with the aid of the second transmitter 28. The response to this signal from the label 2 is received with the aid of the second receiver 30 and the second receiving antenna 22 and passed on to the signal processing means 32. Then the signal processing means determine the quality factor Q and/or resonance frequency f_0 of the label 2 in a manner known per se.

[0022] So, in this example, the measuring means are designed for measuring the Q factor and/or the resonance frequency of the label in the detection zone.

[0023] In this example, this measurement with the aid of measuring means 27 is partly made possible by the positions of the antennas 16 and 22 used by the second transmitter 28 and the second receiver 30.

[0024] It is further possible that the computer 34 is designed for, for instance statistically, processing data about the Q factors and/or resonance frequencies determined of labels. By processing data in such a manner, it is for instance possible to determine whether there is a certain percentage of the labels which does not meet the predetermined quality requirements. Also, these data can be stored in the computer 34.

[0025] Further, completely analogous to what has been described hereinabove, it is possible to measure the Q factor and/or the resonance frequency of an environment of the detection zone with the measuring means 27. In this example, this is partly made possible by the positions of the antennas 16 and 22 used by the second transmitter 28 and the second receiver 30.

[0026] In use, the measuring means 27, the Q factor and/or the resonance frequency f_0 of the environment of the detection zone 8 can determine when, for instance, no label 2 is detected by the control unit 26. The control unit passes this on to the signal processing means 32. Then these means 'know' that no label is present and that thus, with the aid of the measuring means, a Q factor and/or resonance frequency of an environment of the detection zone is detected (assuming that the zone itself is empty). The signal processing means 32 then activate the second transmitter 28 as discussed hereinabove.

[0027] The measuring signal may, for instance, again comprise a pulse signal or a frequency sweep and may be superposed on the interrogation field. Also, the interrogation field can be switched off during the transmission of the measuring signal. With the aid of the receiving antenna 22, the second receiver 30 feeds receiving signals to the signal processing means 32. On the basis of the receiving signals coming from the receiver 20, the signal processing means 32 determine the Q factor and/or the resonance frequency f_0 of the environment in a manner known per se. The measured Q factor and/or resonance frequency f_0 can be passed on to the computer 34. Of course, situations are conceivable in which an environment of the detection zone coincidentally responds in a similar manner as a detection label. In that case, no distinction can be made between environment and label, but, at least apparently, continuously a label will be detected. This will attract the notice of a user who can take appropriate measures then.

[0028] Further, in this example, the computer is in connection with the control unit 26. The filters 18 and 24 of the transmitting means 2 and the receiving means 8, respectively, are also in connection with the control unit 26 for adjusting the frequency characteristic of the filters 7 and 13.

[0029] If the measured Q factor and/or resonance frequency f_0 of the environment can have an interfering effect on the security of the goods, consequently the transmitting means 10 and/or the receiving means 12 can be adjusted by the control unit 26 on the basis of the information about the Q factor and/or the resonance frequency f_0 of the environment of the detection zone 8 received from the signal processing means 32, for instance by adjusting a characteristic of the filter 18 or the filter 24 of the transmitting means 2 and/or the receiving means 8. Besides the filters, other settings of the transmitting and receiving means can be adjusted, such as the output of the transmitting means, the sensitivity of the receiving means, etc.

[0030] It is possible to integrate the first and second transmitter 14, 28 into one transmitter 36 which carries out both the function of the first transmitter 14 and the function of the second transmitter 28. It is also possible to integrate the first and second receiver 20, 30 into one receiver 38 which carries out both the function of the first receiver 20 and the function of the second receiver 30. With use of the integrated transmitter 36, in this embodiment of the system according to the invention, for determining the Q factor and/or the resonance frequency f_0 of the label 2 or of the environment, use can be made of the electromagnetic interrogation field generated by the integrated transmitter 36. This field can then, for instance, have a pulsed or frequency-swept design for determining the Q factor and/or resonance frequency. Then the interrogation field and the measuring signal are integrated as well. In other words, the measuring means use the interrogation field. Further, for instance the control unit 26, the signal processing means 32 and the computer 34 can be integrated, indicated in Fig. 1 by the dotted box 40. The integrated computer 40 can then, for instance, determine and store the Q factor and/or the resonance frequency f_0. The integrated computer 40 can also collect a large number of measuring signals from the environment or from a label for determining the Q factor and/or the resonance frequency f_0 of the environment or of a label on the basis of these measuring signals.

[0031] Fig. 2 schematically shows a second embodiment of a system 1 according to the invention. Here, in Fig. 1 and Fig. 2, corresponding parts are provided with the same reference symbols. In the system 1 according to Fig. 2, the measuring means 27 are provided with a separate transmitting antenna 40 and a separate receiving antenna 42 which take over the function of the antennas 16 and 22 for determining the Q factor and/or the resonance frequency f_0 and are, to this end, connected with the second transmitter 28 and the second receiver 30, respectively. In this example, the antennas 40, 42 can be arranged freely with respect to the transmitting and receiving antenna 6, 12. The antennas 40, 42 are, however, arranged such that the measuring means are designed for measuring the Q factor and/or the resonance frequency of an environment of the detection zone and for measuring the Q factor and/or the resonance frequency of the label in the detection zone.

[0032] The operation of this embodiment further corresponds with the operation of the system according to Fig. 1. An advantage of the system according to Fig. 2 is that the measuring means 27 can simply be added to an existing system for detecting antitheft and/or identification labels as an add-on kit.

[0033] Figs. 3a and 3b show a third embodiment of a detection system 1 according to the invention. Here, Fig. 3a shows a first part 1.1 of the system for detecting antitheft labels and Fig. 3b shows a second part 1.2 of the system for deactivating antitheft labels. In Figs. 1, 3a and 3b, corresponding parts are indicated by the same reference symbols. Thus, Fig. 3a shows the transmitting means 10, provided with the first transmitter 14 and the transmitting antenna 16 which is connected with the first transmitter 14. Fig. 3a further shows the receiving means 12, provided with the first receiver 20 and the receiving antenna 22 which are connected with each other. The first transmitter 14 further comprises the filter 18 and the second transmitter 20 comprises the filter 24. In use in a store, the parts shown in Fig. 3a may, for instance, be arranged near the exit of a store or near a passage from one department to another department of the store.

[0034] Fig. 3b schematically shows the second part 1.2 of the system which comprises a deactivation unit 50 known per se. In use of the detection system in a store, such a deactivation unit 50 is usually located near a checkout. The deactivation unit 50 is designed for generating a deactivation field in a deactivation zone 52 for deactivating the label 2. After deactivation, it will no longer be possible to detect the label with the aid of the first part 1.1 of the system in the detection zone 8 as being an active label. The deactivation unit 50 is provided with a transmitting and receiving antenna 54, a deactivation transmitter 56 and a deactivation receiver 58, where the deactivation transmitter 56 and the deactivation receiver 58 are each connected with the transmitting and receiving antenna. The deactivation transmitter 56 and the deactivation receiver 58 are further each connected with a control apparatus 60. The system 1 is further provided with the measuring means 27 which are, in this example, provided with the second transmitter 28, the second receiver 30 and a common transmitting and receiving antenna 40, 42 which is connected with the second transmitter 28 and the second receiver 30. The second transmitter 28 and the second receiver 30 are each connected with the signal processing means 32 which are in turn connected with the control apparatus 60.

[0035] The operation of the system 1.2 is as follows. For instance, an employee of a store who wishes to deactivate the label 2 attached to the product 4 positions the product with the label in the deactivation zone 52. With the aid of the deactivation transmitter 56 and the antenna 54, a first electromagnetic deactivation field is transmitted with a relatively low power for making the label respond when it is located in the first deactivation field. The first deactivation field may, for instance, correspond to the above-discussed interrogation field. With the aid of the deactivation receiver 58 and the antenna 54, a response from the label is received in a manner known per se. A receiving signal from the deactivation receiver 58 is fed to the control unit 60. If the control unit 60 detects that a label is present in the deactivation zone 52, it sends a confirmation signal to the signal processing means 32. As a response to the confirmation signal, the signal processing means 32 activate the second transmitter 28 for transmitting the above-mentioned measuring signal partly with the aid of the antenna 40, 42. The second receiver 30 receives a response from the label to the measuring signal with the aid of the antenna 40, 42. The receiving signal from the second receiver is fed to the signal processing means for determining the Q factor and/or the resonance frequency of the label on the basis of this receiving signal, as discussed hereinabove. After the Q factor and/or the resonance frequency of the label has thus been determined, the control apparatus 60 activates the deactivation transmitter 56 for transmitting a second electromagnetic deactivation field with, in this example, a relatively high power so that the label is deactivated. So, in this example, it holds true that the measuring means determine the Q factor and/or the resonance frequency of the label when the deactivation unit has detected the label and before the deactivation unit has deactivated the label.

[0036] Deactivation may take place in that the resonant circuit is damaged by the high power of the second deactivation field. A part of a coil of the resonant circuit may, for instance, melt. However, it is also possible for the deactivation field to comprise a code for deactivating the label. To this end, the label may, for instance, be provided with a chip coupled with the resonant circuit which recognizes the code and deactivates the label.

[0037] After deactivation of the label in the above-mentioned manner, the customer can leave the store with the product 4 via the detection zone 8 shown in Fig. 3a without the antitheft system of Fig. 3a responding to the label 2 attached to the product 4.

[0038] It is possible that, after a first fixed time after the presence of the label in the zone 52 has been detected, the control unit activates the measuring means 27 for determining the Q factor and/or resonance frequency of the label 2 and that, after a second fixed time after the first fixed time, the control unit activates the deactivation transmitter for deactivating the label.

[0039] It is noted that the measuring means 27 can also determine the Q factor and/or resonance frequency continuously. The measuring signal is transmitted continuously. So, as soon as a label responds to the measuring signal, the Q factor and/or resonance frequency of the label is determined. After the signal processing means have determined the Q factor and/or the resonance frequency, the signal processing means 32 can pass this on to the control means 60. Then the control means 60 can activate the deactivation transmitter 56 for deactivating the label. The deactivation receiver 58 can then be omitted because the second receiver is also used for detecting the presence of the label in the deactivation zone.

[0040] It is further noted that, here, the measuring means can again be designed as an add-on kit which is added to the deactivation unit 50 known per se. Then, the antenna 40, 42 only needs to be positioned such that the Q factor and/or resonance frequency of a label located in the deactivation zone can be determined with the measuring means 27.

[0041] It is also possible that the deactivation unit and the measuring means are wholly or partly integrated with each other. Thus, the deactivation transmitter 56 and the second transmitter 28 can be integrated into a transmitter 62. Also, the deactivation receiver 58 and the second receiver 30 can be integrated into a receiver 64.

[0042] All this is shown in Fig. 3b. Fig 3c also shows this, while, in addition, the antennas 54, 40, 42 are integrated into one antenna. The operation of the apparatus according to Fig. 3c is completely analogous to the operation as discussed with reference to Fig. 3b. In a nutshell, this entails that the control means 26 activate the transmitter 62 for transmitting the first deactivation field. The label 2 located in the deactivation zone responds to this first deactivation field. The receiver 64 receives the response from the label and passes this on to the control apparatus 26. The control apparatus 26 passes this on to the signal processing means 32 which then activate the transmitter 62 for transmitting the measuring signal. The label responds to the measuring signal. This response is received by the receiver 64. On the basis of the response received from the label 2 to the measuring signal, the signal processing means 32 determine the Q factor and/or the resonance frequency f_0 of the label. Then, the control unit realizes that, with the transmitter 62, the second deactivation signal is transmitted for deactivating the label.

[0043] In each of the above-described embodiments, the first deactivation field can also act as a measuring signal, for instance when it is frequency-swept or when it has a pulsed design. In other words, the measuring signal can also serve as a first deactivation signal. The label then responds to the first deactivation field/measuring signal. On the basis of the reception of the response from the label to the first deactivation field/measuring signal, the Q factor and/or the resonance frequency of the label can then be determined. Further, then the second deactivation field can be transmitted for deactivating the label 2. The control unit 26 then realizes that, after a response of the label 2 to the first deactivation field/measuring signal has been received (on the basis of which response the Q factor and/or resonance frequency of the label 2 can be determined), the second deactivation field is then transmitted for deactivating the label 2.

[0044] In Fig. 3b and in Fig. 3c, the computer 34 can also be connected with the signal processing means 32. The signal processing means 32 can pass the Q factor and/or the resonance frequency f_0 on to the computer 34. After a large number of such measurements, the computer 34 can show a statistical distribution of the measured Q factor and/or the resonance frequency f_0. Further, the signal processing means 32, the control means 60 and/or the computer 34 can be integrated into a unit.

[0045] It is also possible that the system 1 does not comprise the subsystem 1.1 and is thus only provided with the system 1.2 according to Fig. 3a or 3b.

[0046] The label detection system of Figs. 1, 2 and 3a may be designed as the absorption system known per se but also as the transmission system known per se.

[0047] Such variants are within the framework of the invention as defined by the claims.

Claims

1. An electronic system for detecting antitheft and/or identification labels and/or for deactivating such labels, comprising at least one such label which can be attached to a product to be secured or registered or can be worn by a person or animal to be registered and/or identified, wherein the label is provided with a resonant circuit, wherein the system is further provided with transmitting and receiving means for generating an electromagnetic interrogation field in a detection zone and for detecting the label when the resonant circuit of the label responds when it is located in the interrogation field and/or a deactivation unit for generating an electromagnetic deactivation field in a deactivation zone for deactivating the label, **characterized in that** the system is further provided with measuring means for determining a measure for the magnitude of a Q factor and optionally a resonance frequency.

2. An electronic detection system according to claim 1, **characterized in that** the measuring means are designed for measuring the Q factor and optionally the resonance frequency of the label in the deactivation zone.

3. An electronic detection system according to claim 2, **characterized in that** the measuring means determine the Q factor and optionally the resonance frequency of the label in the deactivation zone before the deactivation unit deactivates the label.

4. An electronic detection system according to any one of the preceding claims 2 or 3, **characterized in that** the measuring means use the electromagnetic deactivation field of the deactivation unit.

5. An electronic detection system according to any one of the preceding claims 2-4, **characterized in that** the measuring means at least in part use the deactivation unit.

6. An electronic detection system according to any one of the preceding claims 2-5, **characterized in that** the measuring means at least in part use antennas of the deactivation unit.

7. An electronic detection system according to any one of the preceding claims 2-6, **characterized in that**, for deactivating at least one of the labels, the power of the electromagnetic deactivation field can at least temporarily be so high that, if the label is introduced into the deactivation zone while the deactivation unit transmits the electromagnetic deactivation field, the label is damaged and thus deactivated.

8. An electronic detection system according to any one of the preceding claims 2-7, **characterized in that** the deactivation unit is designed for transmitting a first electromagnetic deactivation field with a relatively low power for making the label respond when it is located in the first deactivation field, for detecting the label when it responds in the first electromagnetic deactivation field and for transmitting a second electromagnetic deactivation field with a relatively high power when the label has been detected with the first electromagnetic deactivation field so that the label is deactivated.

9. An electronic detection system according to claims 2-8, **characterized in that** the measuring means determine the Q factor and optionally the resonance frequency of the label when the deactivation unit has detected the label and before the deactivation unit has deactivated the label.

10. An electronic detection system according to any one of the preceding claims, **characterized in that** the electromagnetic deactivation field comprises a command for deactivating the label.

11. An electronic detection system according to any one of the preceding claims, **characterized in that** the measuring means are designed for measuring the Q factor and optionally the resonance frequency of an environment of the detection zone.

12. An electronic detection system according to any one of the preceding claims, **characterized in that** the measuring means are designed for measuring the Q factor and optionally the resonance frequency of the label in the detection zone.

13. An electronic detection system according to any one of the preceding claims, **characterized in that** the measuring means at least in part use the electromagnetic interrogation field.

14. An electronic detection system according to any one of the preceding claims, **characterized in that** the measuring means at least in part use the transmitting and receiving means.

15. An electronic detection system according to any one of the preceding claims, **characterized in that** the measuring means at least in part use antennas of the transmitting and receiving means.

16. An electronic detection system according to any one of the preceding claims 2 or 12, **characterized in that** the system is further provided with data storage means for storing data about Q factors and optionally the resonance frequencies determined of labels.

17. An electronic detection system according to any one of the preceding claims 2 or 12, **characterized in that** the system is further provided with data processing means for, for instance statistically, processing data about Q factors and optionally the resonance frequencies determined of labels.

18. An electronic detection system according to claim 11, **characterized in that** the system is designed for adjusting the transmitting and receiving means on the basis of a measured Q factor and optionally the resonance frequency of the environment of the detection zone.

19. An electronic detection system according to claim 18, **characterized in that** the system is designed for adjusting a characteristic of a filter of the receiving means on the basis of a measured Q factor and optionally the resonance frequency of the environment of the detection zone.

20. An electronic detection system according to any one of the preceding claims 18 or 19, **characterized in that** the system is designed for adjusting a characteristic of a filter of the transmitting means on the basis of a measured Q factor and optionally the resonance frequency of the environment of the detection zone.

21. An electronic detection system according to any one of the preceding claims, **characterized in that** at least a number of the labels are provided with an identification code transmitted by these labels when these labels are located in the interrogation field.

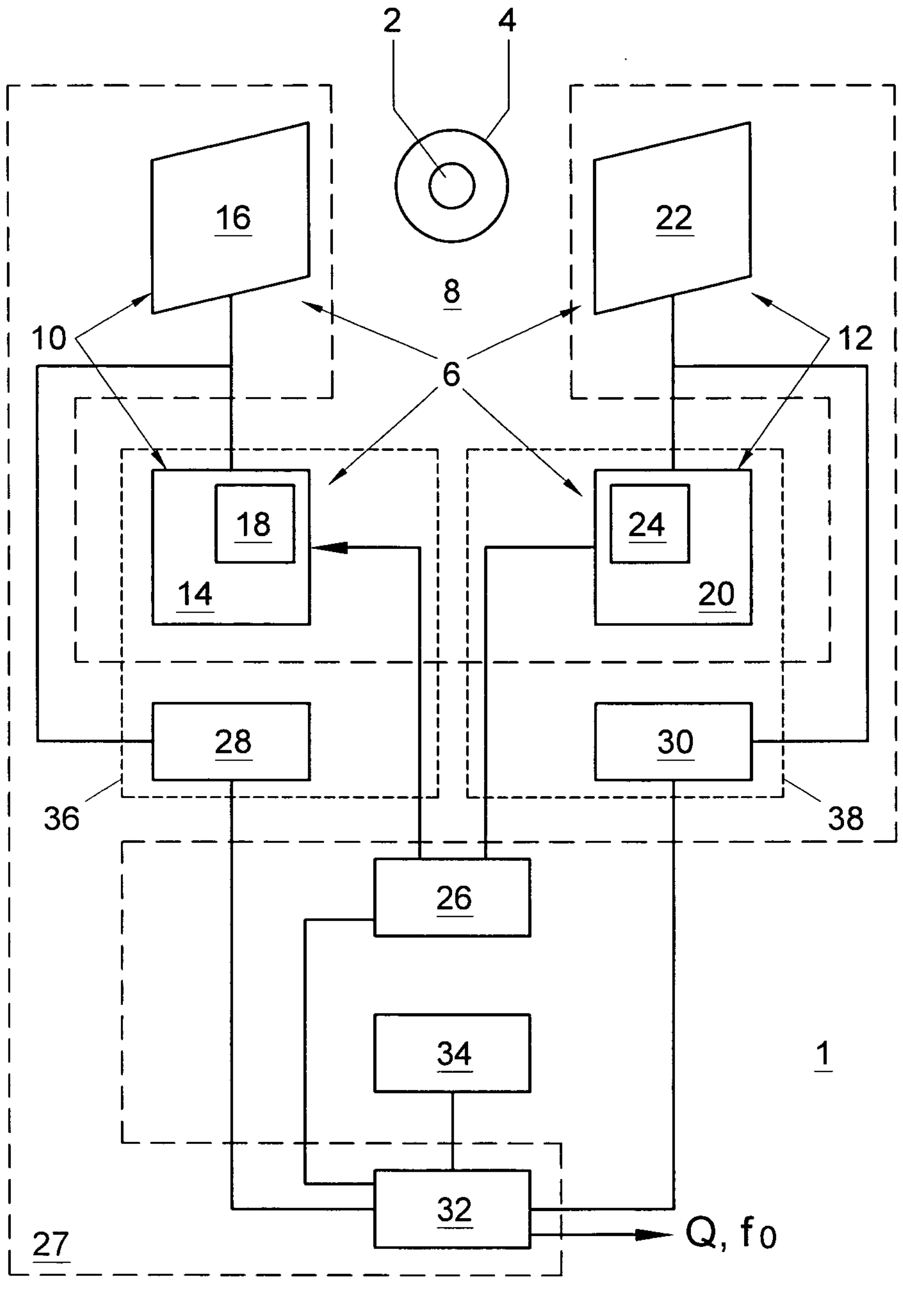

Fig. 1

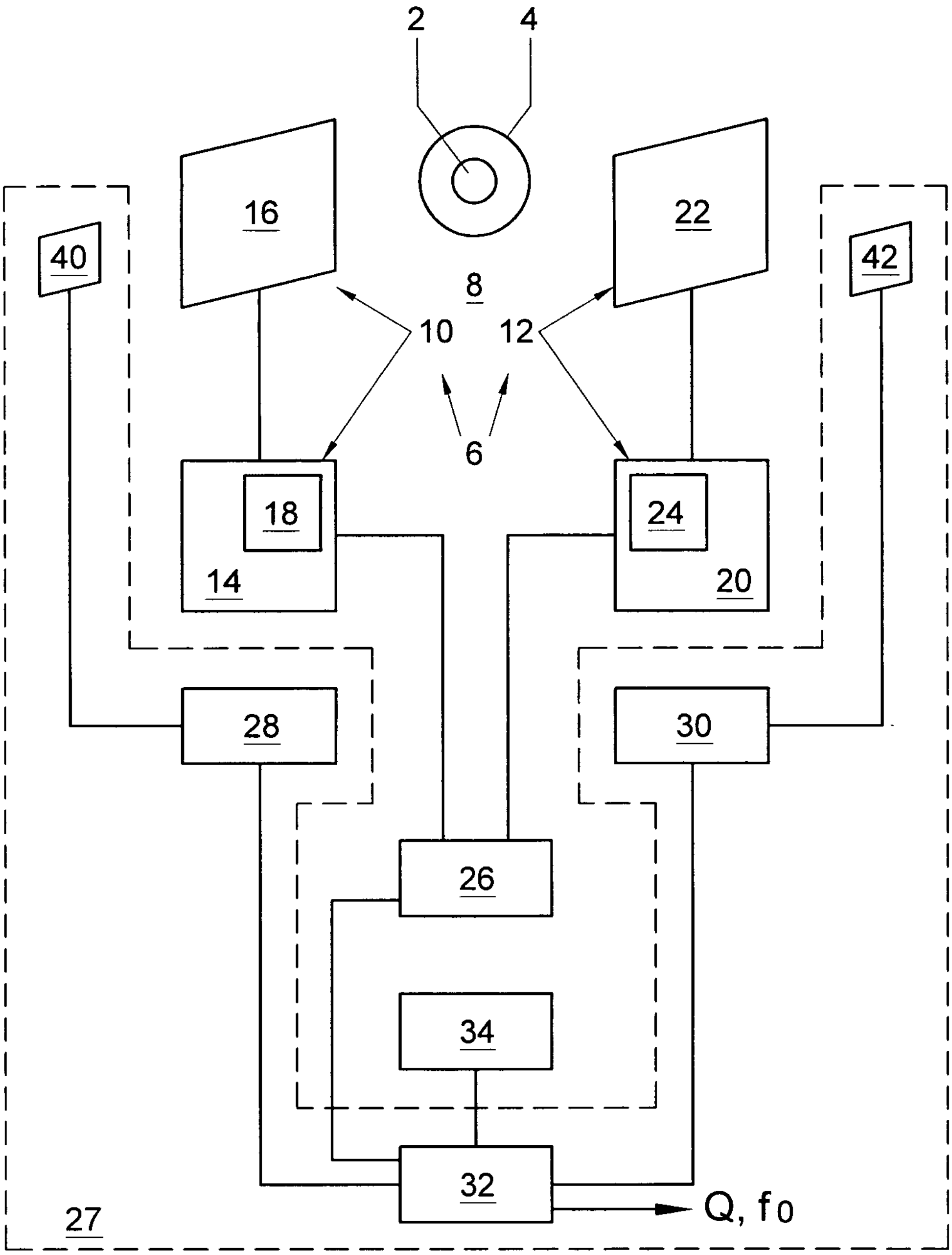

Fig. 2

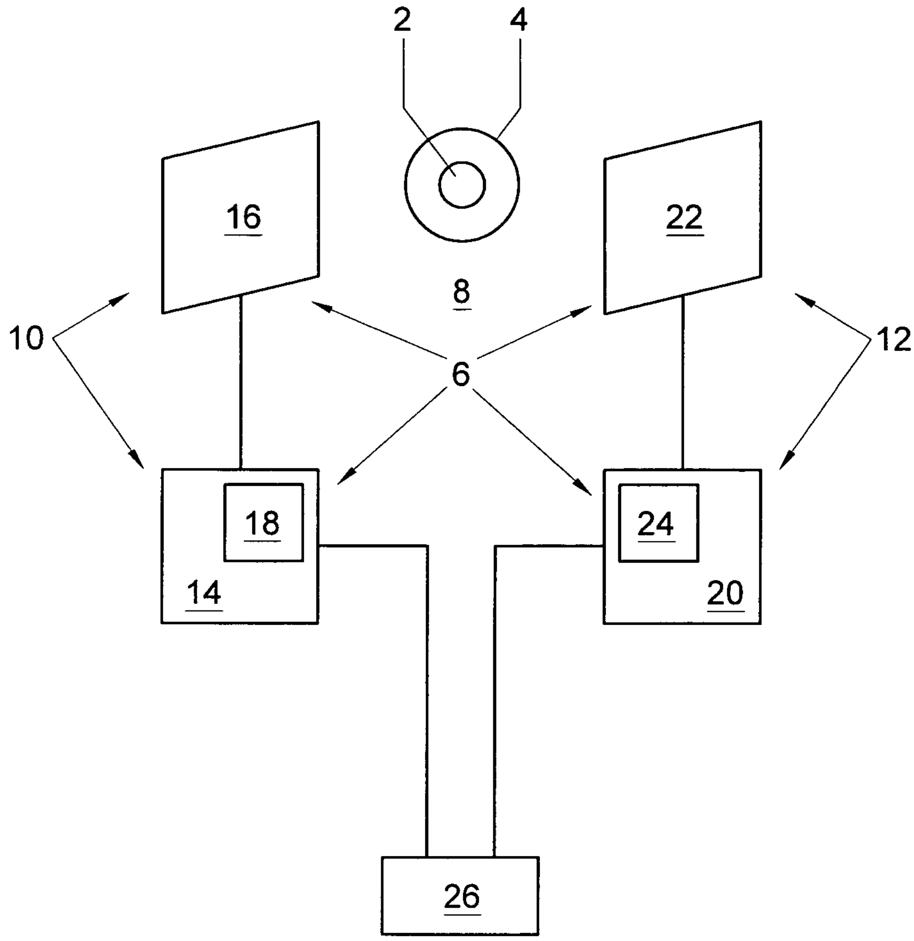

Fig. 3a

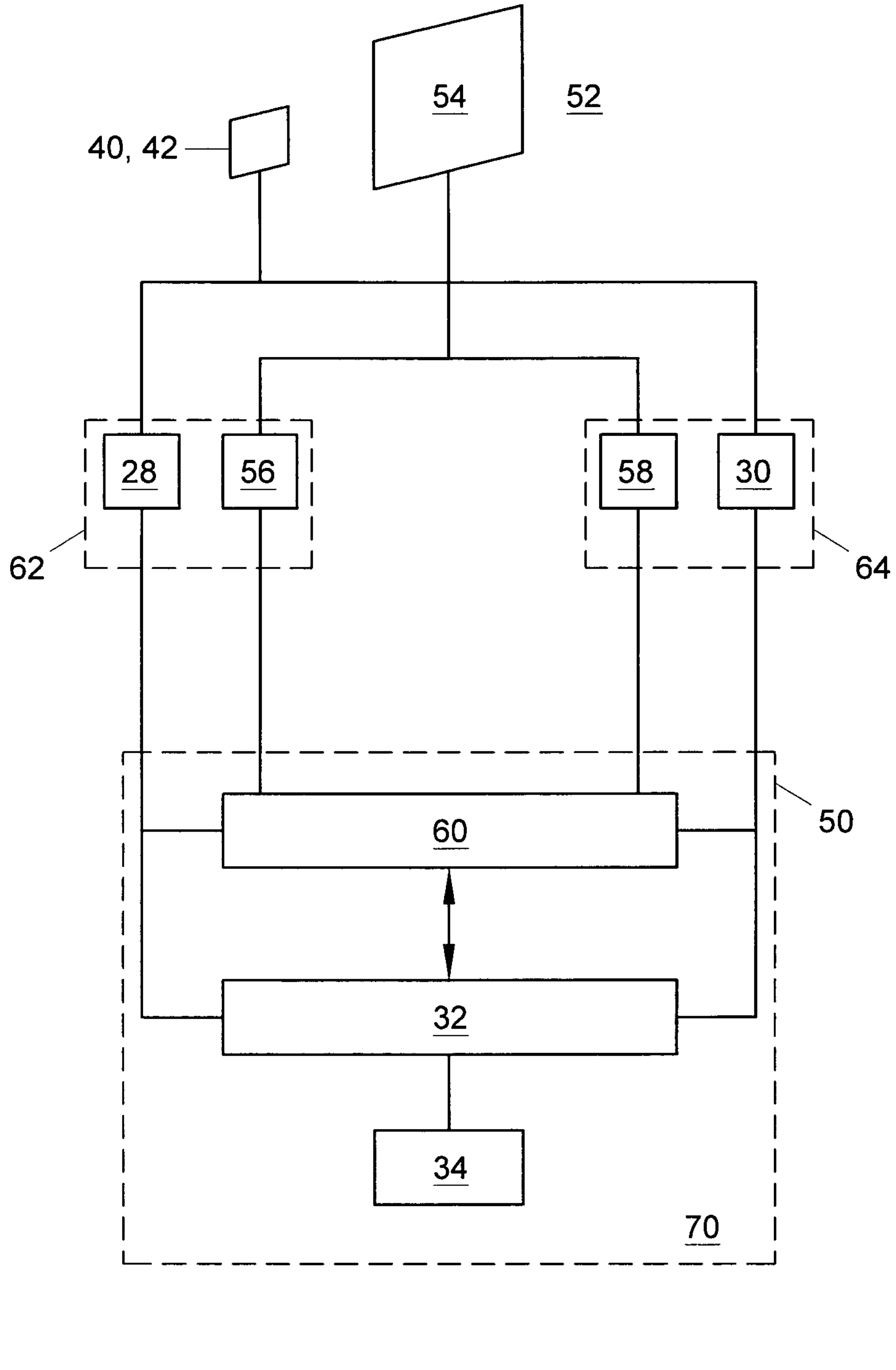

Fig. 3b

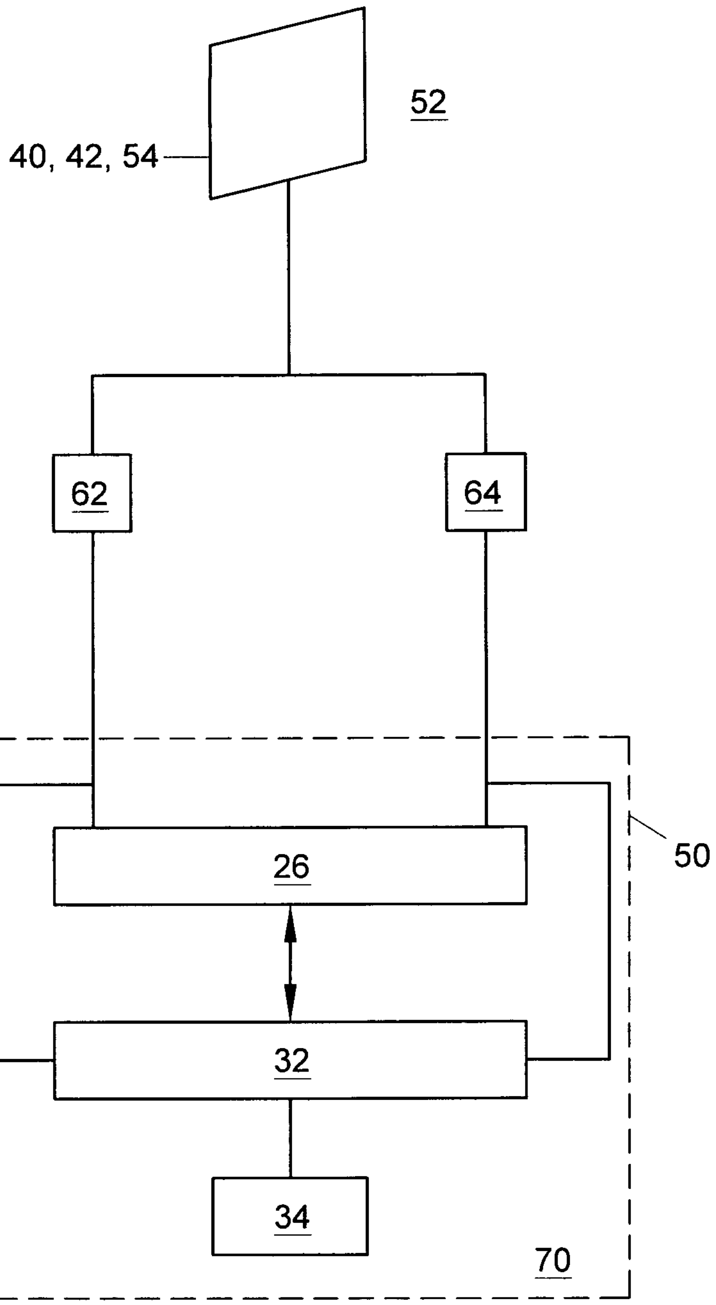

Fig. 3c