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(71) Applicant: **Weinblatt, Lee S.**
797 Winthrop Road
Teaneck New Jersey 07666(US)

(72) Inventor: **Weinblatt, Lee S.**
797 Winthrop Road
Teaneck New Jersey 07666(US)

(74) Representative: **Beresford, Keith Denis Lewis et al**
BERESFORD & Co. 2-5 Warwick Court High Holbornorn
London WC1R 5DJ(GB)

(54) Method and apparatus for monitoring effectiveness of advertising.

(57) A system for monitoring the exposure of a consumer to advertisements in the print, radio and television media in an automated manner. Likewise, the purchasing habits of the same consumer are monitored in, for example, a supermarket, also in an automated manner. The record of purchased items and the results of monitoring the exposure by the consumer to advertisements are combined to obtain an analysis correlating the advertisements to which the consumer was exposed with the goods eventually purchased by the same consumer.

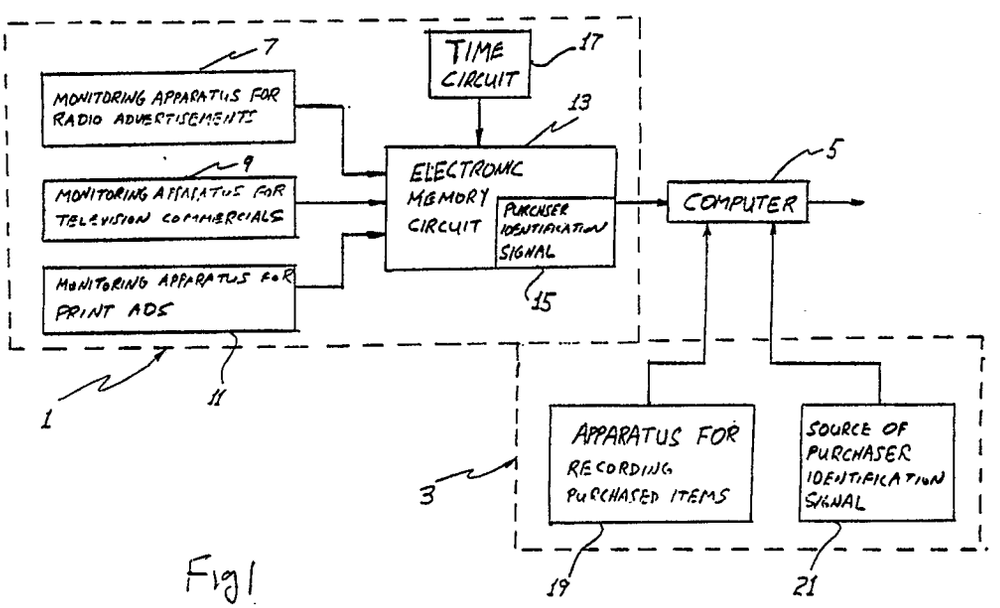

Fig1

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METHOD AND APPARATUS FOR MONITORING EFFECTIVENESS OF ADVERTISING

This invention is directed to a technique for monitoring the purchasing behaviour of consumers selected as test subjects to ascertain what impact, if any, advertising has had on them and, more particularly, to correlate the print, radio and television commercials to which a consumer has actually been exposed with the purchases made by the consumer.

Huge sums of money are spent each year on advertising. Advertisers wish to know whether that money is well spent, and that depends, of course, on whether the consumer purchased the advertised product. Attempts have been made in the past to elicit from customers how their purchasing habits have been affected by advertisements. One widely used technique is to contact consumers at random, either by phone or in person, to conduct an interview which includes questions on what products they have purchased and what advertisements they have seen. However, this interview technique is prone to error because (a) it relies on memory recall which can be less than accurate,particularly after a certain amount of time has elapsed, and (b) the consumer being interviewed can perhaps be biased to answer one way or another depending on the interests represented by the interviewer and the manner in which the questions are presented. Various automated techniques exist for monitoring viewer exposure to television commercials. This approach may increase the monitoring accuracy because it does not involve a dependence on memory recall of the consumer. However, for determining the purchasing behaviour of the same consumer, the interview technique is again utilised, and with the same deficiencies.

It is highly desirable for many advertisers to ascertain the relative advantages of utilising one or another of the print, radio and television media, or a combination thereof. Information Research, Inc. of Chicago, Illinois offers a service known as BehaviorScan. A test group of consumers is selected, each of whom is provided with an ID card. The television set of each household in the test group is connected to a cable TV service through which special test commercials are transmitted only to that test group. Special publications and mail containing the test advertisements are directed to this test group. Also, stores in which the consumers in the test group shop are controlled in terms of product placement, price, displays, etc. Then, the products purchased by the test group participants are recorded and identified for each participant by handing the ID card to the cashier at the checkout counter. This technique provides indeterminate results because all that is known therefrom is that the advertisement was made available to the household. However, the televised commerical could have been broadcast when no one was home. Broadcasting a commercial to a household does not mean that any of its members will necessarily see it, let alone the decision-making member on the product purchases. Likewise, putting an advertisement circular in a mailbox does not mean it will be read. Consequently, a great deal of uncertainty remains in reaching any conclusion based on results obtained from such testing.

The present invention is aimed at providing an apparatus and method for measuring the effectiveness or impact of advertising in which the above deficiencies and uncertainties have been substantially reduced or eliminated. In one aspect, the invention provides such an apparatus comprising means for detecting signals generated while a consumer is exposed to advertisements in each of a plurality of media, such as print ads, radio advertisements and television commercials, means to associate said detected signals with identification signals indicative of the identity of the consumer, means to generate signals recording items purchased and to associate said signals recording items purchased with signals indicative of the identity of the consumer purchasing, and means for combining said signals to provide output signals associating the items purchased with the exposure to said advertisements.

The term "exposed" as used throughout this specification is used in the sense of locating the consumer who is a participant in the test in such close proximity to the advertisement that the probability of the advertisement having a mental impact is high. This requires that, for example, the radio advertisement monitoring system provide not only information about when the advertisement was broadcast or even that the consumer was in the same house as the radio set when the commercial was broadcast, but that the consumer was within a relatively small distance of the radio set at that time. The same relatively stringent requirements are applied to television commercial monitoring and print ad monitoring before it can be said that the consumer has been "exposed" to it.

Thus, the invention provides an automated system in which accurate and reliable results may be generated. Prior art techniques in commerical use for monitoring consumer exposure to the print and radio media have not been automated. Consequently, the prior art, including BahviorScan, suffers from the resultant inaccuracies in monitoring advertising exposure in such media. In the invention, however, the combining of the results from

automated monitoring of the three media with automated monitoring of the consumer purchasing habits results in errors being minimised, and analysis of the results is facilitated in terms of speed, flexibility and value. As to the value of analysing such results, the advertiser has the possibility of actually measuring the relationship between a selected amount of advertising in each of the available media and the eventual product purchases of the advertised product. A marketing plan as to relative expenditures in each of the advertising media can be tried and perfected in a limited test market, and the results then extrapolated to develop a national sales forecast based on applying the same marketing plan nationally. Also, various elements of the marketing plan can be varied by modifying the frequency, duration, content, time, slot, placement etc. of advertisements in each medium as well as in one medium relative to the others, with the results learned from monitoring the product purchases being correlated to each such modification to determine its impact. This is thus a powerful tool in terms of maximising the value obtained from advertising expenditures. Furthermore, measurements can be taken of purchasing habits affected by traditional, and relatively expensive, advertising methods in the print, radio and television media in comparison with the impact on purchasing habits of promotional, and relatively cheaper, campaigns utilising, for example, in-store displays, coupons and price reductions in order to determine which is the more cost effective in certain markets.

Other utilisations, applications and advantages can be readily envisioned for the technique of the invention which provides the advertiser with such a great deal of information that can be relied upon for accuracy. However, no such technique has been made available previously.

Thus, the present invention provides a technique for accurately and reliably associating the purchasing habits of consumers with the advertising to which each such consumer has been actually exposed.

The present invention further provides automated monitoring of consumer exposure to advertising in a given medium, and combines it with automated monitoring of subsequent purchasing habits of the same consumer.

Further, results obtained from monitoring consumer exposure to advertising in a plurality of media may be combined. This facilitates testing of the relative impact of varying the advertising approach in one medium relative to the others.

One embodiment of the present invention provides an apparatus for measuring the effectiveness of print, radio and television advertising on purchasing behaviour of a consumer comprising means for automatically monitoring advertisements to which the consumer is exposed, including (a) first means for detecting signals generated while the consumer is exposed to a print ad to generate a first signal indicative of such exposure, (b) second means for detecting signals generated while the consumer is exposed to a radio advertisement to generate a second signal indicative of such exposure; and (c) third means for detecting signals generated while the consumer is exposed to a television commercial to generate a third signal indicative of such exposure. A fourth means is provided to produce a fourth signal for recording the items purchased by the consumer. A fifth means produces an identification signal uniquely assigned to the consumer. A further means combines the first, second, third and fourth signals with the identification signal to associate a consumer to whom a particular identification signal was assigned (a) with the advertisement relatived to the first, second and third signals, and (b) with the items related to the fourth signal, whereby the purchasing behavious of the consumer can be correlated to the advertisements to which such consumer was exposed.

Another embodiment of the present invention is directed to an apparatus for measuring the relative effectiveness of advertising in a plurality of media on the purchasing behaviour of each participant in a test group of consumers. A means is provided for automatically monitoring advertisements in a plurality of media to which the test group of consumers is exposed, and another means identifies which of the monitored advertisements to which said test group of consumers is exposed is associated with each consumer in the test group, means to record the items purchased by the test group of consumers. A further means identifies which of the recorded items purchased by the test group of consumers is associated with each of the respective consumers in the test group. Another means combines the monitored advertisements and the recorded items for each of the respective consumers in the test group.

Yet another embodiment of the invention is directed to a method for measuring the relative effectiveness of advertising in a plurality of media on the purchasing behaviour of each participant in a test group of consumers, comprising the steps of automatically monitoring advertisements in a plurality of media to which the test group of consumers is exposed, identifying which of the monitored advertisements to which the test group of consumers is exposed is associated with each consumer in the test group, recording the items purchased by the test group of consumers, identifying which of the recorded items purchased by the test group, and combining the monitored advertisements and the recorded items for each of the respective consum-

ers in the test group.

Still another embodiment of the present invention is directed to a method for measuring the impact of modifying a characteristic of an advertisement in one of a plurality of media in which a product is being advertised, comprising the steps of (a) advertising a product in a plurality of media, each medium having an advertisement with preselected characteristics such as content, duration, time slot, frequency, and geographic location, (b) automatically monitoring the exposure to such advertisements by a test group of consumers, (c) determining the products purchased by the test group of consumers subsequent to being exposed to the advertisements, (d) correlating the advertisements to which each of the consumers was monitored as being exposed with the items purchased by each of the respective consumers, (e) modifying a characteristic of the advertisement-with-preselected-characteristics in at least one of said media, and (f) repeating steps (b), (c) and (d).

The invention is described further, by way of example, with reference to the accompanying drawings, in which:

Fig. 1 is a block diagram of an apparatus according to a preferred embodiment of the invention; and

Fig. 2 is a block diagram of a preferred form of part of the apparatus of Fig. 1.

It is desirable to monitor the exposure of a consumer who has been selected as a test subject under realistic rather than artificial conditions. Consequently, the testing environment is not that of a test laboratory but, rather, any location to which the consumer is likely to go during a regular day. This includes, of course, the home and other similarly common and normal sites for one's daily activities. Otherwise, it is felt that the test results may be skewed due to the artificial conditions to which the conusmer would be subjected. It is also preferable to minimise contact of the consumer with testing personnel, and this is done by automating the monitoring process.

In order to automate monitoring of the conusmer on his daily routine, it is necessary to provide him/her with an apparatus that can do the requisite monitoring while not restricting his/her movement or being so obtrusive as to somehow affect the testing. This is particularly so with respect to any apparatus which monitors exposure to radio advertisements and print ads which are likely to occur away from the house in contrast to television exposure which is most likley to occur in the house. Thus, the apparatus for monitoring the radio and print media is preferably portable and is such as to be conveniently worn on the person of the consumer. For television commercials, on the other hand, this is less important because an apparatus could effectively be used which is installed in the home.

Figure 1 depicts generally within a box 1 defined by broken lines a system for monitoring consumer exposure to the various types of advertisements, including print, radio and television media. The monitoring results are combined with information obtained from purchase recordal apparatus 3 for processing and analysis in computer 5. Thus, data collected from monitoring system 1, having as a part thereof a code uniquely assigned to a particular consumer, is input to computer 5 along with data collected by purchase recordal apparatus 3 which is also associated with a code identifying a particular consumer. Computer 5 organises the data so that information obtained from monitoring system 1 is suitably associated with data obtained from purchase recordal apparatus 3 for each individual consumer based on the assigned code. Computer 5 then produces an output showing the relationship of the monitored exposure to advertisements with respect to the purchased items. Computer 5 can be programmed in a conventional, well known manner to output this relationship in any desired form, such as tabulated or graphical.

Turning now with more specificity to the detailed configuration of monitoring system 1, it includes apparatus 7 for measuring the exposure of a consumer test subject to radio advertisements. Such an apparatus is disclosed in USP 4,718,106 issued January 5, 1988 to the present inventor. That patent is hereby incorporated by reference. Briefly, this patent discloses an apparatus that can be incorporated into a wristwatch. It includes a microphone for picking up audible signals from a radio set. A particular survey code signal is periodically transmitted by the radio station and subsequently audibly reproduced by the radio set to be picked up by the microphone. The microphone outputs a resulting signal to a detection circuit which has been preset to produce an output signal only when the particular survey code signal is detected. Such an "event" is stored in an electronic memory together with the associated time. The microphone and its associated circuitry have a sensitivity set such that the survey code signal will be detected and processed only if the consumer is within a relatively short distance from the radio. Thus, it is possible to determine when (i.e. from the recorded time) the consumer was listening to that particular radio station (i.e. from the recordal of an "event" based on a signal transmitted only by that station). By combining this knowledge with the time during which a particular advertisement was being broadcast by the radio station, it is possible to determine that the consumer was exposed to it.

The television commercial monitoring appara-

tus 9 can be implemented as disclosed in USP 4,695,879 issued September 22, 1987 to the same inventor. That patent is hereby incorporated by reference. Briefly, it discloses an apparatus coupled to the television tuner which keeps a record of the channels being viewed throughout the day. A detected is worn by the viewer on the head and includes a receiver responsive to signals emitted from a transmitter installed near or on the television set. The receiver is directional so that it responds only when the head of the viewer is aimed substantially toward the television set. When the receiver detects a signal from the transmitter, it in turn emits is identification code to circuitry which records the event, and that can also be located on the television set. Thus, the event of having the viewer aiming his head at a television set at any particular time is combined with information on what channel is being viewed at the same time to provide an indication of exposure of the viewer to that particular channel. If it is known what advertisement was being broadcast at that particular time on that particular channel, it can be determined that the viewer was "exposed" to it by virtue of having his head aimed at the television set.

Another approach for monitoring exposure to television commercials is a variation of that described above with respect to the radio advertising monitoring apparatus 7. In particular, the consumer/viewer test subject can be provided with circuitry incorporated, for example, into a wristwatch. That circuitry would include a detector responsive to a code signal transmitted by the television station, for example, and in response only thereto a signal source in the television set would be activated. The resulting emitted signal from the signal source is detected by circuitry in the wristwatch and recorded as an "event" along with the time at which is occurred, and it indicates "exposure" because the consumer was within a short distance from the set when it was tuned at that time to the channel transmitting the code signal (and therefore advertisements) of interest. All that information would be stored in memory incorporated within the wristwatch.

Print ad monitoring apparatus 11 can be implemented utilising the apparatus illustrated in Fig. 2 which shows a transmitting unit 100 formed on a card which is slipped into a magazine (or other publication) and a receiving unit 150 carried by the consumer, for example in a wristwatch. The transmitting unit 100 includes an activatable transmitter 117, and a communication antenna 119. Antenna 119 detects signals and provides these as an input to transmitter 117. Antenna 119 also functions to emit signals provided to it from transmitter 117. Activatable transmitter 117 is of a type which responds to an activiting signal by transmitting a specific signal or code. The activating signal must also be of a particular kind in terms of type and amplitude in order to activate the transmitter 117. Thus, transmitter 117 normally is in a passive, non-transmitting mode. It only transmits its code upon detecting the activating signal. The transmission time is of a relatively short duration. One example of such a device is a microchip available from Destron/IDI in Colorado, and described in the February 1989 issue of the Journal "Popular Mechanics". It does not require a battery to power transmitter 117. The circuitry of transmitter 117 is apparently such that it picks up power from the transmitted activating signal in a sort of "resonant response". Consequently, a battery is not needed.

The miniature size of transmitting unit 100 lends itself to being inserted easily within a magazine. Moreover, the non-transmitting mode in which transmitter 117 is normally kept means that magazines can be opened even in a radiation-sensitive environment without the risk of interference will result from the additive effects of transmissions from a plurality of transmitters. This is because only that device(s) will be activated, even in a setting with a plurality of opened magazines having unit 100 therein, which is (are) being read by subject(s) who is (are) wearing the receiving unit capable of activating transmitters 117 (as explained below).

Since any one location (such as on board an aircraft) is likely to have one, or at most very few such subjects, the amplitude of such radiation, even if added, would remain low. Moreover, even if a plurality of transmitters 117 were to be activated in one location, since transmitter 117 is not of the continuous type, the highly unlikely coincidence would have to occur that the transmissions from each device (see below for greater detail) would occur simultaneously.

Receiving unit 150 consists of an activating portion and a receiving portion. The activating portion includes a transmitter 151 coupled to transmitting antenna 153. Transmitter 151 is of a low level, cyclical type and is powered by a battery (not shown) such as would be contained within a wristwatch. Duration of the cyclical signal components is selected to minimise battery drain while enabling attainment of the desired functions. In particular, the transmitted signal is set so that its ON time matches that which activatable transmitter 117 requires to trigger transmission therefrom. Also, the amplitude of the signal emitted from transmitting antenna 153 is set so that it matches the sensitivity of activatable transmitter 117 within a space of a preselected distance. The transmitting amplitude and the sensitivity are selected to set a relatively small maximum distance between transmitting unit 150 and receiving unit 100 in order for activatable

transmitter 117 to be triggered. This is to prevent a signal from a transmitter 151 which is distant from transmitter 117 from setting the latter off. Otherwise, an erroneous indication of readership may result. The OFF time should be made as long as possible to minimise battery drain. However, if a timing function is desired to determine the length of time the magazine was opened, a long OFF time would produce somewhat inaccurate results. The user would set this parameter based on the degree of acceptable accuracy in a particular application to which this invention is put. In particular, such a timing function could be implemented by counting the number of signals received from transmitter 117. Thus, if the interval between outputs from transmitter 117 is set at one minute, a count of 3 pulses represents a reading period of two minutes.

Thus, when transmitter 151 comes within a certain maximum distance from transmitter 117, the latter will emit a signal which has been set as unique to the magazine in which it has been inserted. When the unique signal is emitted from activatable transmitter 117, it is detected by receiving antenna 121 in receiver unit 150. (Of course, the same antenna can double as both receiving antenna 121 and transmitting antenna 153). This signal is then processed by receiver 123 and input memory 127. How this is done is described in detail in connection with the circuitry of U.S. Patent No. 4,659,314 to the same inventor, the contents of which are hereby incorporated herein by reference. Suffice it to say, that each detection of a signal from activatable transmitter 117 is considered as an event which is stored in memory 127 to indicate that the magazine has been opened and read. The number of such events can also be used to determine the length of reading time.

Alternatively, print ad monitoring apparatus 11 may be implemented as described in the above mentioned US patent 4,659,314 in which the insert card carries a battery operated transmitter and a switch instead of the activatable transmitter 117.

When the magazine is opened, the transmitter will be automattically switched on to energise the transmitter. The resulting emitted signal is picked up by suitable circuitry as an "event" indicative of exposure of the conusmer to the magazine and the add of interest.

Monitoring system 1 is shown in the drawing as including electronic memory circuit 13 in which the information from apparatuses 7, 9 and 11 is stored. Thus, the data in circuit 13 contains measurements made in each of the radio, television and print media of the exposure by the consumer to advertisements. Circuit 13 has been depicted as a separate data storage device for the sake of convenience, clarity and ease of explanation. However, it should be understood that each of systems 7, 9 and 11 can likewise have an individual electronic memory circuit incorporated therein from which the data can be provided directly to computer 5. In fact, this is the case for each of the specific implementations discussed above. However, it should be understood that each of those implementations was disclosed in the patent document as an individual monitoring unit. It is clearly not necessary to have individual storage devices when the three monitoring systems are combined in a single unit. Thus, for example, if the monitoring for the three advertisement media is incorporated into, for example, a wristwatch, the wristwatch will have only one electronic memory circuit 13 into which data from all the monitoring systems is stored. On the other hand, should individual monitoring systems be preferred for a particular application, each can have its own storage device. Then, as stated above, the data from each such storage device is directly down-loaded into computer 5 without a further intervening memory circuit 13.

Monitoring system 1 is, as has been explained above, associated with a particular consumer. That consumer test subject is identified by a uniquely assigned code. The code constitutes a purchaser identification signal. The monitoring system 1 is provided with that code, for example, stored within memory circuit 13. When the information in memory circuit 13 is down loaded to computer 5, the purchaser identification signal is also input in association with it to computer 5. Thus, all the data obtained from monitoring system 1 is uniquely identified with the particular consumer to which that code had been assigned.

Monitoring system 1 is also depicted in the drawing as having a time circuit 17. As events are detected indicative of exposure by the consumer test subject to a particular advertisement, this event can be associated with a particular time that is obtained from time circuit 17. If the apparatus is incorporated into a wristwatch, the source for such a signal is readily available. Otherwise, a specialised circuit for providing a time signal is provided. It should be understood that each of systems 7, 9 and 11 can be provided with an individual time circuit, much as has been pointed out above with respect to the electronic memory circuit 13. However, a single time circuit 17 for all of monitoring system 1 has been depicted in the drawing for, again, ease and clarity of explanation.

Purchase recordal apparatus 13 includes a suitable apparatus 19 for sensing, identifying, and storing information on all the items purchased by the consumer test subject. For example, the sensing and identifying equipment for the items can be that typically used at a supermarket check-out counter, such as a laser bar code scanner coupled to a computer. The scanner detects a bar code

printed on the purchased item which is used to identify the item itself. However, in addition to the sensing and identification functions, it is necessary to store the purchased items in association with some identification of the consumer who has done the purchasing. For this purpose, a signal source 21 is provided which inputs a purchaser identification signal in association with the purchased items. Of course, the purchaser identification signal is the unique code assigned to the consumer purchasing the items being sensed, identified and stored by apparatus 19. One implementation for source 21 is an activatable transmitter of the type described above with reference to Fig. 2. This would be positioned at the check-out counter. A transmitter worn by the consumer would trigger the activatable transmitter which consequently outputs a commensurate signal identifying the consumer in accordance therewith. That identification signal would be input to the computer along with the record from apparatus 19 of the purchased items.

With the overall arrangement of the invention as described above, it can readily be seen that accurate and reliable information is obtained on the actual exposure of a consumer to advertisements in the print, radio, and television media. Thus, it is not necessary to rely on memory recall or other less than reliable and accurate techniques. The measurements of exposure of the consumer to advertisements are electronically recorded and, at given times, downloaded to a computer. That information is combined with other information obtained from, for example, a supermarket that provides data on the purchasing habits of the same consumer. By suitably programming computer 5 in a manner readily apparent to one with ordinary skill in the art, an output can be obtained correlating the actual purchases of the consumer with the advertisements to which that same conusmer was exposed.

Although a preferred embodiment of the present invention has been described in detail above, various modifications thereto will be readily apparent. All such modifications are included with the scope of the present invention as defined by the following claims.

Claims

1. Apparatus for measuring the effectiveness of print, radio and television advertising on purchasing behaviour of a consumer comprising:
means for automatically monitoring advertisements to which said consumer is exposed, including
first means for detecting signals generated while the consumer is exposed to a print ad to generate a first signal indicative of such exposure;
second means for detecting signals generated while the conusmer is exposed to a radio advertisement to generate a second signal indicative of such exposure;
third means for detecting signals generated while the consumer is exposed to a television commercial to generate a third signal indicative of such exposure; and
four means to produce a fourth signal for recording the items purchased by the consumer;
fifth means for producing an identification signal uniquely assigned to said consumer; and
means for combining said first, second, third and fourth signals with the identification signal to associate a consumer to whom a particular identification signal was assigned a) with the advertisement related to said first, second and third signals, and b) with the items related to said fourth signal, whereby the purchasing behaviour of the consumer can be correlated to the advertisements to which such consumer was exposed.

2. The apparatus of claim 1, wherein said means for automatically monitoring avertisements comprises means for storing the first, second and third signals.

3. The apparatus of claim 2, wherein the means for automatically monitoring advertisements comprises means for providing a time indication to be stored with, respectively, said first, second and third signals.

4. The apparatus of claim 1, wherein the means for automatically monitoring advertisements comprises a sixth means for producing an identification signal uniquely assigned to said consumer.

5. Apparatus for measuring the relative effectiveness of advertising in a plurality of media on the purchasing behaviour of each participant in a test group of consumers, comprising:
means for automatically monitoring advertisements in a plurality of media to which said test group of consumers is exposed,
means for identifying which of the monitored advertisements to which said test group of consumers is exposed is associated with each consumer in said test group,
means to record the items purchased by said test group of consumers,
means to identify which of the recorded items purchased by the test group of customers is associated with each respective consumer in said test group, and means for combining the monitored advertisements and the recorded items for each of the respective consumers in the test group.

6. A method for measuring the relative effectiveness of advertising in a plurality of media on the purchasing behaviour of each participant in a test group of consumers, comprising the steps of:
automatically monitoring advertisements in a plural-

ity of media to which said test group of consumers is exposed,
identifying which of the monitored advertisements to which said test group of consumers is exposed is associated with each consumer in said test group,
recording the items purchased by said test group of consumers,
identifying which of the recorded items purchased by the test group of consumers is associated with each consumer in said test group, and
combining the monitored advertisements and the recorded items for each of the respective consumers in the test group.

7. A method for measuring the impact of modifying a characteristic of an advertisement in one of a plurality of media in which a product is being advertised, comprising the steps of:

(a) advertising a product in a plurality of media, each medium having an advertisement with preselected characteristics such as content, duration, time slot, frequency and geographic location,
(b) automatically monitoring the exposure to such advertisements by a test group of consumers,
(c) determining the products purchased by said test group of consumers subsequent to being exposed to said advertisements,
(d) correlating the advertisements to which each of the consumers was monitored as being exposed with the items purchased by each respective consumers,
(e) modifying a characteristic of said advertisement-with-preselected characteristics in at least one of said media, and
(f) repeating steps (b), (c) and (d).

8. Detecting apparatus comprising a plurality of means each for detecting signals generated in association with advertisements in a plurality of repsective different media, means for providing stored signals indicative of the reception of said detected signals and means for associating said stored signals with identification signals indicative of a consumer exposed to the advertisements associated with said detected signals.

9. Purchase recordal apparatus comprising means for storing signals identifying items purchased, means for receiving transmitted radiation containing signals indicative of the identity of a purchaser, and means for storing said signals indicative of the items purchased in association with identity signals received at the time of purchase.

10. Data processing apparatus for use in association with the apparatus of claims 8 and 9 comprising means for receiving said stored signals from each of said apparatus, and means to associate said signals indicative of exposure to an advertisement with said signals indicative of items purchased utilising said signals indicative of consumer identity.

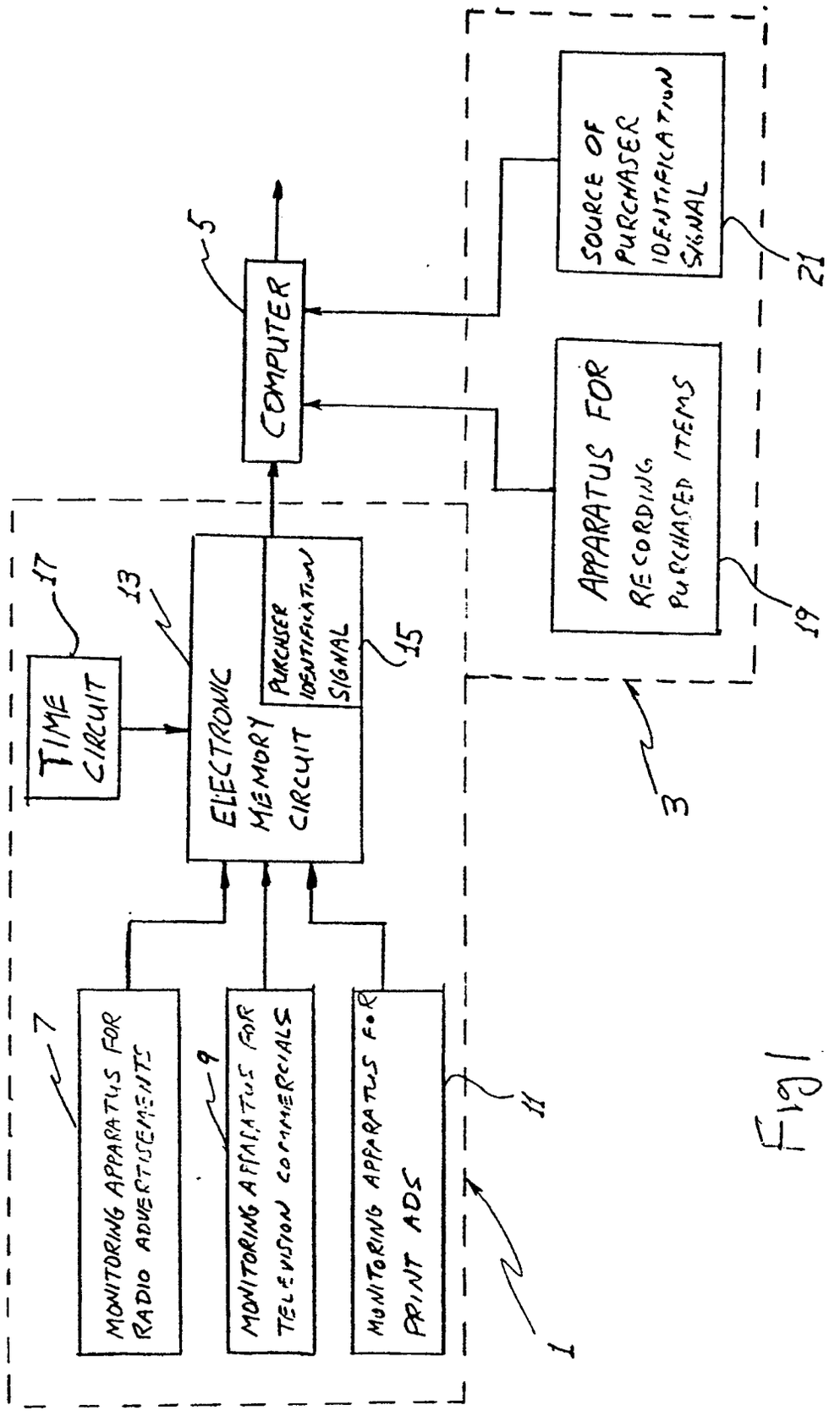
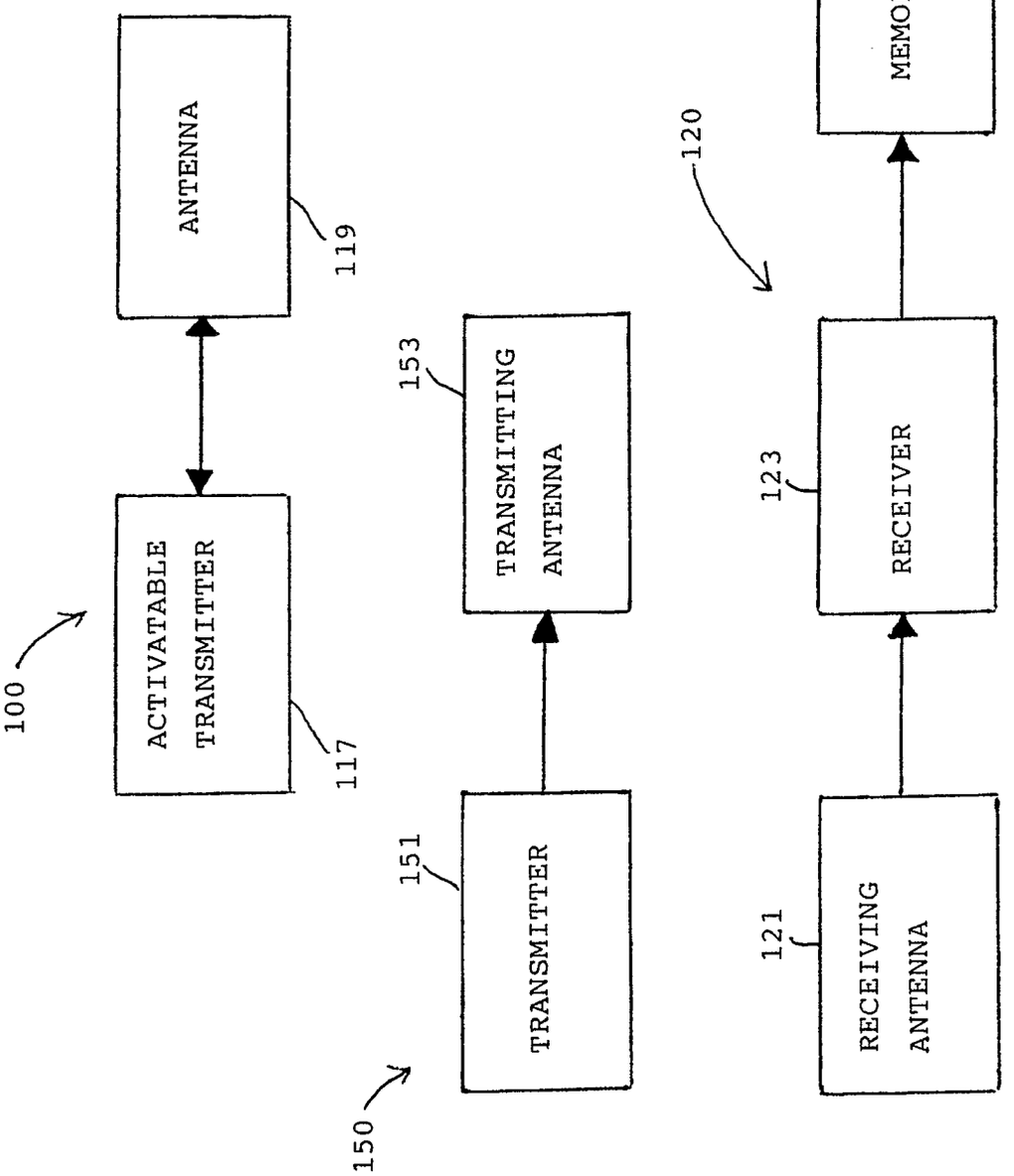

MONITORING APPARATUS FOR RADIO ADVERTISEMENTS
7
MONITORING APPARATUS FOR TELEVISION COMMERCIALS
9
MONITORING APPARATUS FOR PRINT ADS
11
1
ELECTRONIC MEMORY CIRCUIT
13
PURCHASER IDENTIFICATION SIGNAL
15
TIME CIRCUIT
17
COMPUTER
5
APPARATUS FOR RECORDING PURCHASED ITEMS
19
SOURCE OF PURCHASER IDENTIFICATION SIGNAL
21
3

Fig 1

Fig 2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ANTENNA
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150
TRANSMITTER
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TRANSMITTING ANTENNA
153
120
RECEIVING ANTENNA
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RECEIVER
123
MEMORY
127