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- 2 those claims appropriate to the UK (in the language of the proceedings),
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1 European Patent Number

0264565

2 Name

Bayerische Rundfunkwerbung GmbH

Address

Arnulfstrasse 42
W-8000 Munich 2,
Germany

3 European Patent Bulletin Date:

13 11 1991
Day Month Year

4 Name of Agent (if any)

BAILEY WALSH & CO

Agent's Patent Office
ADP number (if known)

224001

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LS1 2SD

6 Signature:

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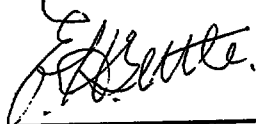
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CERTIFICATE

I, EDWARD HENRY SETTLE of Elektriciteitsstraat 29 bus 1301, 2800 Mechelen, Belgium do hereby declare that I am conversant with the English and German languages and I certify to the best of my knowledge and belief that the attached is a true translation of the accompanying Specification in German relating to European Patent No. 0264565 (Application No. 87111790.9 in the name of Bayerische Rundfunkwerbung GmbH.

Dated this 17th. day of May 1991.



EDWARD HENRY SETTLE

The invention relates to a method according to the superimposed concept of the Patent Claim 1. Such a method is known from the Journal, "Funkschau", Number 6, 1985, Pages 53 to 56.

From this item of literature it is known to separate the teletextdata transmitted cyclically in the video signal and, collected according to teletext pages intermediately store in a page intermediate storer. As the page intermediate storer has only a small capacity of two or four pages only certain teletext pages are intermediately stored the numbers of which have been entered previously in a page number storer by the user. If these entered page numbers are not present in the cycle or in a considered cycle section the teletext page concerned cannot be found so that the searching procedure is continued uninterrupted. In such case the user does not know whether the waiting time was too short or whether the desired teletext page was missing in the cycle. Furthermore the area reserved therefor in the page intermediate storer remains unused. The same disadvantage occurs when the user presses the "Next Page" key in order to indicate the next page from his preprogrammed page sequence.

The problem of the invention consists in improving a method of the aforementioned type to the extent that unnecessary waiting times in the selecting of the desired and at any given time "next" teletext page are avoided and all storage places of the page intermediate storer are optimally used.

This problem is solved according to the invention by the characterising features of patent claim 1 which shorten substantially the search procedures in the prior art and ensure additionally a continuing changing of each storage place of the page intermediate storer.

Advantageous further developments of the method according to the invention follow from the sub-claims.

The invention will be explained in more detail with reference to the drawings:

Fig. 1 shows the contents of a special teletext page which shows all teletext pages occurring in the cycle or cycle section, whereby individual pages are provided with special identifications;

Fig. 2 shows a sequence of page numbers which, proceeding from an instantaneously selected page, are selectable by pressing special selector keys.

Fig. 3 shows a block circuit diagram of a teletext receiver operating according to the method according to the invention;

Fig. 4 shows a diagrammatic representation of an extension of the embodiment according to Fig. 1 with several special teletext pages separated for page numbers, sub page (multiple page) - numbers and page titles and

Fig. 5 shows a diagrammatic view of a television receiver on which are indicated the titles for the guidance of the user in according with the embodiment according to Fig. 4.

In Fig. 1 is illustrated the contents of a special teletext page which is conveniently transmitted in the cycle and is chosen and selected automatically in the receiver side teletext decoder. As is seen from Fig. 1 the numbers of the pages (to which can also be counted multiple pages) appearing in a teletext cycle or cycle section are listed continuously in a table consisting of 40 columns and 20 rows. Thereby the page numbers #410, #430, #440, #500 are marked with a jump

identification "1" whereby these marked pages represent the first page of a group of pages belonging together with regard to contents, for example, program reference pages for a certain calendar day. As the page #440 is a multiple page consisting of the pages #440/1 and #440/2, deviating from the other pages of the example considered, it is not marked with the jump identification "1" but with the jump identification "B". In the example of Fig. 1 the following groupwise arrangement applies:

#410, #411, #412	Program reference pages for the broadcasting date 01.01.1987 of the ARO program whereby the single pages #411, #412 and #413 are marked by the identification "+".
#430, #431, #432	Program reference pages for the broadcasting date 02.01.1987 of the ARD program.
#440/1, #441, #442, #442 #443/1, #443/2, #443/3, #443/4	Program reference pages for the broadcasting date 03.01.1987 of the ARD program where the multiplex page #443 is marked by the identification "d".
#500	Program reference page for the broadcasting date 01.01.1987 of the ZDF program.

In the transmission of the special teletext page according to Fig. 1 only those of the 20 rows are transmitted which have entries; that is, in the example of Fig. 1 only the rows No. 8, No. 9 and No. 11 are transmitted. Due to the matrix-like listing of the table according to Fig. 1 the numbers of a page is given by the associated column number and the

transmitted row number. The identifications "+", "1", "B" and "d" are transmitted in ordinary writing.

The groupwise correlation renders it possible, as illustrated in Fig. 2 either by pressing a key "Next Page" within a group of program reference pages "to skim further through the pages" or by pressing a key "Jump" to select directly the first page of the next group.

In Fig. 3 a block circuit diagram of a teletext receiver is illustrated which operates according to the method in accordance with the invention. The teletext data are separated from the video signal in a separating stage 10 and combined to individual pages. Each page is led via the outlet lead 11 to a gate circuit 30 which feeds the fed page via a reading lead 31 to the page intermediate storer 40 if a control circuit 50 still to be explained in more detail, supplies a release signal to an outlet lead 51 of the gate circuit 30. Furthermore the control circuit 50 effects via a further outlet lead 52 an addressing of the page intermediate storer 40 for the reading in procedure. The selecting procedure of the page intermediate storer 40 is likewise effected under the control of the control circuit 50 via a third output lead 53.

The page numbers of the teletext pages appearing on the lead are fed to the control circuit 50 via a lead 21 from a page number uncoupling circuit 20. In addition to this the uncoupling circuit 20 detects the number of each videotext page fed by the lead 11 via a branch lead 12. Furthermore, the control circuit 50 is connected to the input 70 operated by the user which input has a keyboard 71 for the input of the desired page numbers as well as a key 72 inscribed with "Next Page" and a further key 74 with "Jump". The desired page number is fed to the control apparatus via a lead 711

whilst the command "Next Page" or "Jump" arrives via the lead 721 and 741 respectively to the control circuit 50. If that separate page with the data for the page numbers arrives then it is automatically fed to the page intermediate storer 40. The data of this page are transmitted via the data reading lead 54 to the control 50 which ascertains the page numbers and is filed in a page number storer 60 which is connected via a bidirectional bus 61, to the control circuit 50.

Let it be assumed that the user, for example, by operating the keyboard 71 has selected the page number 100. After operating the "Next Page" key, the control circuit 50 - proceeding from the immediately selected page number - ascertains the next following page number in the page number storer 60, namely, the page 410 (see also Fig. 1 and Fig. 2). As soon as this page appears in the cycle which is communicated to the control circuit 50 from the uncoupling circuit there appears on the output lead 51 a release signal for the gate circuit 30 whereupon the page 410 is filed via the lead 31 into the storer place number 1 of the page intermediate storer 40. The addressing on the storer place number 1 is effected, as already mentioned, under the control of the control circuit 50 via the output lead 52. After reading in is effected, the control circuit 50 produces via the output lead 53 a selection command for the storer place number 1 whereupon the page with the number 410 is selected via the bus 41 from the page intermediate storer 40 on a processor 73 which presents the page number 100 as video signal with the components R.G.B and S, for example, on the picture screen of a television receiver.

The control circuit 50 furthermore after the user's wish has taken place for the page number 410, carries out an automatic depositing of the remaining storage places number 2, number 3 and number 4 of the pages intermediate storer 40 with the

following pages corresponding to the page number storer. As next following page number, in the page number storer 60 the page number 411 is found and consequently in the manner already described after its appearance in the cycle intermediately stored on the storer place number 2. Procedure is correspondingly, with the next pages.

Everytime the user "turns over pages" by operating the key 72 there will be selected by the control circuit 50 the respective next storer place which on the basis of the aforescribed reading in procedure is verified with the respective "next" page with regard to the contents.

In this way it is ensured that the user can also positively "turn over pages". Should the case arise that the user "turns over pages" so rapidly that the next page concerned present in the cycle has not yet appeared in the cycle and is filed in the page intermediate storer 40 the control circuit 50 can operate via a lead 54 an indicator 73 on the input 70 which requests the user to wait.

With the operation of the key 72 "Next Page" the storage place for the already selected page is free which then with again the next page present in the cycle and not yet intermediately stored is filled.

With the aid of the method according to the invention furthermore so called multiple pages can more easily be intermediately stored and selected. And indeed the control circuit 50 shows from the page number storer 60 whether and as the case may be how many multiple pages are present in the cycle and can accordingly influence the searching and loading procedure for the page intermediate storer 40 such that gradually all pages of a multiple page set are intermediately stored.

Upon operation of the key 74 "Jump" a similar procedure runs as with operation of the "Next Page" key.

After operation of the "Jump" key, the control circuit 50 - proceeding for the immediately selected page number - ascertains the next following page number in the page number storer 60 which is provided with a jump identification. If the page concerned is not yet present in the page intermediate storer 40, an entering of this page in the page intermediate storer 40 is effected as soon as it appears in the cycle. After reading in is effected the page is shown on the picture screen.

Proceeding from this to the page number of the jumped page an automatic depositing of the remaining storage places of the page intermediate storer 40 with the following pages corresponding to the page number storer 60 takes place.

It may be expedient to keep ready a certain area of the page intermediate storer 40 only for pages which - proceeding from the already selected page number - can be directly selected upon operation of the "Jump" key. With this variation an automatic depositing of this special area with pages which - proceeding from the already selected page - are provided with a jump identification. Upon operation of the key "Jump", the next storage place from this certain storage area is selected and shown on the picture screen.

From the foregoing it is clear that the method according to the invention uses optimally the capacity of the page intermediate storer 40 of, for example, 4 or 8 pages and the user acquires the possibility, with the shortest waiting time of carrying out a "further turning over of pages" in the pages of a teletext cycle or teletext cycle section much the

same as in a journal. With a pressure on the "Jump" key, one after the other the respective first page of a group of pages coherent as regards contents can be directly selected. By pressure on the key "Next Page", the pages of a group can be selected one after the other.

An extension of the embodiment according to Fig. 1 is illustrated with reference to Fig. 4.

A separate teletext page is used for the purpose of marking with identifications all pages appearing in the teletext cycle or cycle section. Besides the jump identifications for a group of pages correlated as regards contents (Fig. 1) a further jump identification for a subject area with several group coherent as regards contents is used. Further identifications are provided for sub-titles and program reference pages.

A second teletext page contains markings for all immediately transmitted multiple pages with special identifications for the number of sub pages.

A further teletext page is used for additional information, for example, for titles or special codes with which the corresponding pages can be directly selected without knowledge of the page number.

Fig. 5 shows by way of example how titles from the additional information table for user guidance from the decoder can be shown on the picture screen. The information line shows on the left the region "ARD" to which the just selected page "ARD program - today" belongs. Next to it is indicated the next group "Program - tomorrow" which can be obtained with the jump key. Completely to the right in the information line of the decoder the next region "Program - preview - ZDF"

is indicated which can be directly jumped to with pressing of the corresponding "Region Key".

**PATENT CLAIMS**

1. Method for receiving teletext data repeating in a cycle or in a cycle section which data are contained in a television signal in which the teletext data are separated from the television signal, the data belonging respectively to one teletext page are collected and the teletext pages so combined are intermediately stored whereby page numbers of teletext pages are filed in a page number storer and the page number selected by the user is compared with the filed page numbers and with positive comparison result the desired teletext page in the cycle or cycle section is searched for and - if present - after finding is stored in a page intermediate storer and whereby furthermore on operating a "next page" key the next storage place in the page intermediate storer is selected and the storer content concerning the "next teletext page" is indicated, characterised by the following method steps:

- a) in the page number storer the numbers of all teletext pages actually present in the cycle or cycle section are filed whereby these page numbers are removed from a table which is transmitted and received as special teletext page;
- b) in dependence on the choice of a certain teletext page by the user it is determined by comparison with the page numbers stored in the method step a) whether the page number of the desired teletext page is actually present in the cycle or a cycle section whereby only then when the actual presence of the number of the desired teletext page is ascertained is the searching procedure initiated and



- c) proceeding from the page number of the desired teletext page, by further comparison with the page numbers filed in the page number storer it is ascertained whether the numerically following page number is actually present in the cycle or cycle section whereby only when the actual presence of the page number concerned is ascertained is the searching procedure initiated and the teletext page found, is filed in the next following storage place of the page intermediate storer which is indicated upon operation of the "Next Page" key.

2. Method according to claim 1, characterised in that in the case of the appearance of multiple pages in the cycle or cycle section their sub page numbers are transmitted as a table within a further separate teletext page.

3. Method according to claim 1 or 2, characterised by the following further method steps:

- d) Jump identifications which mark respectively the page number of the first page of an associated group of teletext pages are taken up, received and intermediately stored in the table and
- e) in dependence on the choice of a desired teletext page by the user, on a jump command of the user the next page number especially marked by a jump identification is searched for in the cycle and indicates the teletext page concerned after storing.

4. Method according to claim 3, characterised by the following further method steps:

- f) Proceeding from the page number of the desired



teletext page the next page numbers especially marked by a jump identification are automatically searched for in the cycle or cycle section, intermediately stored on the free storage places and reproduced upon a jump command of the user.

5. Method according to one of the claims 1 to 4, characterised in that within a third separate teletext page at least for a part the title appertaining to the page numbers transmitted in the first table are transmitted in ordinary writing which are reproduced upon selection of the page number concerned.