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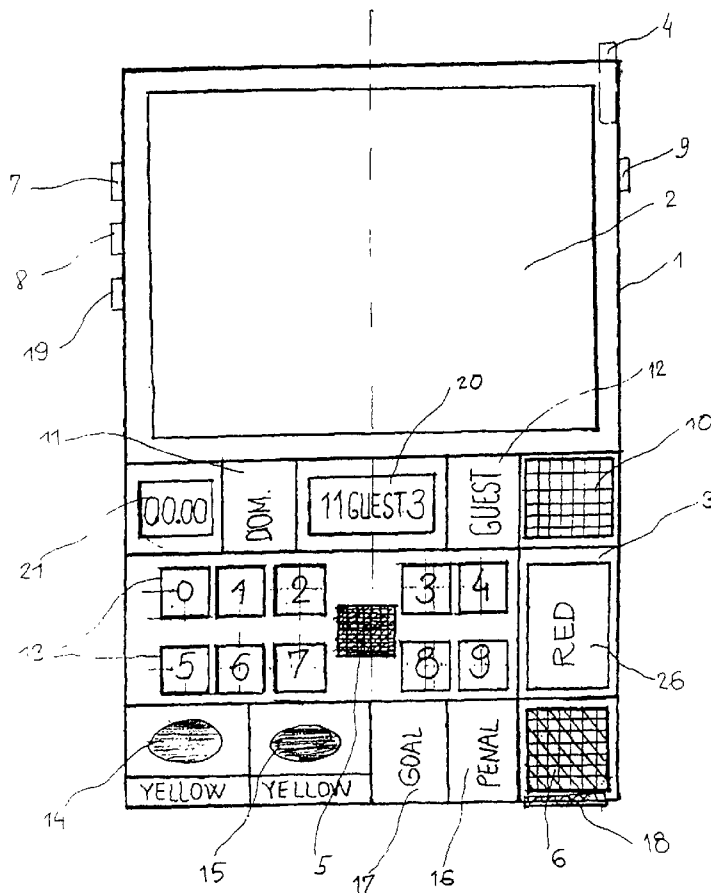
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(54) Title: COMPUTER DEVICE FOR SPORT GAME REFEREES



(57) Abstract: The invention "COMPUTER DEVICE FOR SPORT GAME REFEREES" contains: support frame construction device, device display, keyboard, antenna - receiver, hold button, microphone, switch on - off, switching on time measuring, switching on additional time, loud speaker, button - player - guest, keyboard - numbers, button - hard playing, button - unsportmanlike behavior, button penal, button - goal (point), plough for energy charging, button for invalidating fails inputs, display - dress number, guest/domestic, number of light fouls, display - electronic time measurer, button - foul for exclusion. It is included in informative communication network which contains: referee computer devices, signal emitters - linesman flags, fourth referee monitor, central computer - server, protocol table computer, stadium monitor, press seats at the stadium, press conference room, internet global network input, television direct broadcasting, internal television at the stadium, betting places and organizers of sport lotteries.



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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## COMPUTER DEVICE FOR SPORT GAME REFEREES

### DESCRIPTION OF THE INVENTION

#### Field of technique on which the invention

The invention is in relation to the field of computer devices for special applications, in order to make easier the work, to minimize and annul the possible mistakes, to make shorter the time need for manual evidence and to memorize the input data through the process of following and arbitrage of sport games in various sport disciplines. In accordance with the International Patent Classification (IPC), the invention could be classified in the sections of every day human necessities and physics, in the classes A 63 B 71/00, game and sport equipment - devices for the presentation of the results of games and sport players, and in the class G 06 F, electrical digital data processing.

#### Tehcnical problem that will be solved by the invention

This invention is solving the technical problem of evidence, memorization and information of the referee and other subjects interesting in, on the spot and out the place of the sport game match. The invention is solving the problem of unjustified loosing time in interruptions during the evidence of some fouls, notifying some points of the game (goals and goal shots, for example in the soccer), change of the players, some discipline measures (reminds and exclusions), judged penalties, interruptions and etc. This invention is solving the problem of communication among referees in some game, as well as the communication between the central data processing computer of the game and the computers at the protocol table, playing field monitor, press conference room, press places on the playing field, betting places (organizers of the sport forecasting and lotteries), internal radio television, external radio television and authorized television houses for game broadcasting as well as direct access to the internet global network. The invention is solving the problem of fast data comparison between those of the protocol recording table and those of the referee, as well as the fast preparation of the protocol after the end of the game.

#### Prior art

In the prior art of the technique, as unique auxiliary devices for the referees on the sport games are presented: whistles, referee notes, pencils, yellow and red cartons, rest watches, and linesman flags as well as line table monitors showing the numbers of the players who are getting in or out the game (fourth referee).

. During the game, the referee measures the time, registers the player changes, notes judged discipline measures (notifying number of the player, is he guest or domestic, the time of made foul, registers executed goals or the kind of foul or penalty) for example penal, foul, yellow carton - because of the hard start or unsportsmanlike reaction and red  
5 carton - exclusion from the game.

At each brake of the game, there is notification of unnecessary loosing of time for all manual registrations and notifications which have to be done by the referee. Such kind of registration and evidence results very often with slower sport game, registration mistakes (human factor) and loosing control over the game because of the concentration on the  
10 notification, belated and not adequate information given to the game viewers at the stadium or in the sport hall as well as to those who are watching the game on television or are included in the internet. It is exposing to danger the basic concept of the game: entertainment and developing sport spirit as well as financial effects depending on the visitors at the stadium or interest expressed by television houses for game broadcasting.

15 After the end of the game there is comparison of the referee data to the data of the team representatives and delegates afterward there is coming protocol signification. The protocol is undersigning by referees, representatives of the teams (domestic or guest) and delegates. Sometimes, this signification process is lasting one hour, and very often, it is coming to some disputes and misunderstandings, because of intentionally or unintentionally  
20 mistakes, made by some participants in the game controlling process.

### **Discription of the invention**

In order of that, this invention to be described in the best way, it will be very useful to look at the next three figures which are included in the application. In Figure 1 is showed the appearance of the device in front sight. In the figure are given the positions that are  
25 presenting:

1. Support frame construction device,
2. Device display,
3. Keyboard,
4. Antenna - receiver,
- 30 5. Hold button,
6. Microphone,
7. Switch on - off,

8. Switching on time measuring,
9. Switching on additional time,
10. Loud speaker,
11. Button - player - guest,
- 5 12. Keyboard - numbers,
13. Button - hard playing,
14. Button - unsportsmanlike behavior,
16. Button - penal,
17. Button - goal (point),
- 10 18. Plough for energy charging,
19. Button for invalidating fail inputs,
20. Display - dress number, guest/domestic, number of light fouls,
21. Display - electronic time measurer,
26. Button - foul for exclusion.
- 15 In Figure 2 is shown front sight of the device, where the positions have the next meaning:
  22. Security button - holder,
  23. Battery place,
  24. Insert memory card place,
  - 20 25. Back side of the display 2.
- In Figure 3 is shown the communication informative network where there is connected the referee computer device. The numbers of the positions have the next meanings:
  1. Referee computer devices,
  - 25 2. Signal emitters - linesman flags,
  3. Forth referee monitor,
  4. Central computer - server,
  5. Protocol table computer,
  6. Stadium monitor,
  - 30 7. Press seats at the stadium,
  8. Press conference room,
  9. Internet global network input,

10. Television direct broadcasting,
11. Internal television at the stadium,
12. Betting places - organizers of sport lotteries,

The frame construction 1 is made of steel, and it keeps together the compositions, under-compositions and elements from plastic masses and composites. The display 2 is  
5 made of arm Plexiglas or glass, with possibility its backside to be bigger than the frontal one.

On the keyboard 3 are disposed buttons, pos. 13, which contain figures from 0 to 9, and through which is possible to make combination to the figure 99.

10 On the composition - keyboard 3 are disposed another buttons, too. The antenna 4 serves to receive signals from the central computer and from the emitter built up into the linesman flags. The central part of the keyboard 3 is occupied by the button-holder 5, ergonomic put in the middle of the device because of device holding assurance. At the bottom - right is put the microphone 6, that serves to announce the reason for judged foul  
15 and to transmit directly these words through the stadium loud speakers and to the stadium big monitor.

From the left side of the device - up, are three buttons. The button 7 serves to switch on and off the device, the button 8 serves to switch on the electronic time measurer, while the button 19, serves to invalidate the fail input order into device. From the right side - up,  
20 there is button 9, which switching on means input of the additional time that has to be done by tipping on one or more buttons, pos.13.

Right - up on the keyboard 3 is put the speaker 10, which serves to give information when some of the linesmen is sending information for judged foul through the emitters 2, in Fig. 3. This speaker is whistling loud, causing attention to the main referee, in the case he is  
25 not in position to see lifted linesman flag. This speaker will be switch on one minute before the end of the half time (or some other part of game) and one minute before the end of the game. Each of all these data is transmitted into the device by the central computer - server, pos. 4, in Fig.3.

To judge a foul to domestic or guest player it has to be pressing the button 11 or 12  
30 respectively. By pressing the figures on pos.13 it will be marked the numbers of domestic or guest player dresses. The button 14 has to be pressed when it is judged hard start, and 15 when it is judged unsportslikeman behavior. After the pressing it is automatically changing

the color of the display in yellow. In the case, any of these buttons 14 or 15, to be pressed twice during the game lasting and in combination for the same domestic or guest player, the color of the display automatically will be changed into red ("red carton"). If the foul - penal is judged, the button 16 has to be pressed, afterwards one specially prepared audio visual effect shall be activated and transmitted through the stadium loud speakers and on the big stadium monitor, as well as to the other units from the network in Fig.3.

The device is charged with energy through the jack 18, at least one hour in the last 24 hours before refereeing the game. It has to be switch on through one adapter of 1, 5, 3 or 6 volts net line to 220 or 110 volts net line.

The button 19 is pressed when one unwilling mistake has been made, after that it has to be invalidate.

If it is necessary to follow some light fouls, they could be shown on the display 20, where it is showed the number of the player dress, is he domestic or guest, and which foul in order is judged. On the display 21 is showing the time from the begging of the game.

The button 26 has to be press in the case of exclusion of some player, where it is possible one specially prepared audio visual effect to be activated, which will be transmitted through the stadium loud speakers while on the stadium big monitor the name of the excluded player would be written.

In Fig. 2 it is still presented the security button 22, which is connected in one "AND" input function with all other buttons. This function provides assurance from unexpected, unintentionally or occasionally touched button from the front side of the device. If any of the buttons from the front side should be pressed, from the backside it has to be holding on the button 22. Through the jack 23, before the game starting, the memorized card could be inserted. In this card are input all necessary data about the players and the game. This card has to be withdrawn from the device after the signification of the official protocol and to be given to the organizer of the game cycle while the device is belonging to the referee.

The secure work of the device is facilitated by the continuing charge with energy what is doing by the batteries placed in the room 24.

With purpose of seeing judgement of yellow or red carton for the both, the public at the stadium and the players, the display 4 is made with possibility of double side visibility

provided that on its back side 25, in Fig.2 is presenting the same color as it is on the front side pos.2, in Fig.1.

Because of increasing the game attractiveness and more interesting entertainment, and because of the following of the game by the side of more factors, the computer device is included in one informative communication network, showed in Fig.3. As it could be seen, the device 1, changes information with the central computer - server 4, and receives information from the emitters built up in the linesman flags 2. In the central computer - server are flowing the information from the fourth referee - change of the players, where from an information is emitting towards protocol table computer 5, the big stadium monitor 6, press places at the stadium 7, press conference room 8, input in the internet global network 9, game direct television broadcasting 10, internal television at the stadium 11, betting places - organizers of the sport lottery, 12.

The maximum dimensions of the device are 100mm x150mm x 10mm, and the minimum ones 90mm x110mm x5mm.

The device could be used in the next known sport games: soccer, handball, water polo, ice hockey, grass hockey, volleyball, basketball, football, baseball and other team sport games.

### **An example of device using in the game: soccer**

Before the beginning of the game, the memorize card through the plough 23 is inserted in the device by the side of the organizer of the cycle game and the device is given to the referee. The sides for the teams are determined and the device is switched on by pressing the button 7, and switching on the time measurer 8. On the display 21 the time started to be displayed.

If, for example, the player number 5 from the domestic team makes foul of hard start or unsportslikeman behavior, the referee, holding the device in hand with pressed button 22, Fig.2, with the middle finger, is pressing in the same time one of the button 14 or 15, by thumb, the display 2 is yellowing by the both sides, and follows one audio visual effect. Immediately after that, he presses the button 11 and the number of the player dress 5 from the pos. 13. The information from the central computer - server, 4, Fig.3, will be transmitted towards the big stadium monitor and towards the all units from the fig.3.

If the same player, during the game, get another yellow carton, the display will automatically be transformed into red color that means red carton, and automatically



follows audiovisual effect at the stadium. The player no. 5 is leaving the game while his name and dress number is shown on the big stadium monitor.

If the coach of the domestic team likes to change somebody, he informs the fourth referee. He prepares the line table display 3, Fig.3, and informs the central computer-server 5 4, which signalizes to the main referee through the speaker 10, built in the device.

If the player 5 has made some light foul, then it is possible one record providing that on the display 20, it will be displayed "5 DOMESTIC 1", which means that the player number 5 from the domestic team had made one light foul. This is one possibility for eventual change of the rules in the soccer game.

10 If the referee, from some reasons, makes decision to prolong the game for 5 minutes, he will press the button 9 and the number 5 from the position 13, after what he will pronounce through the microphone 6: " prolongation for five minutes!" (There is possibility of audiovisual effect as introduction to the announcement). Through the central computer - server, this announcement will be transmitted toward the big stadium monitor 15 and the all rest units including in the network.

One minutes before the end of the game, through the loud speaker 10, Fig.1, by the central computer - server (or determined software solution in the device), the referee is reminded that it is close the end of the game and that (if there is prolongation) the stadium has to be informed for prolongation in the way described above.

20 Using this device, there is possibility for automatically announcement of the end of the game in the moment of time expiring, in combination with audio and visual effects. At the end of the game, the referee switches off the device by pressing the button 7.

Immediately, the referee is going towards the protocol table 5, Fig.3, providing that the data already put in the central computer are printed on the list "protocol", while the 25 relevant persons, like representative of the domestic team, delegate, representative of the guest team, referee, the both linesmen and the fourth referee, are undersigning the protocol. If there is no declarations and appeals, the entire work about completion of the protocol is finishing for five minutes. In the protocol were automatically put: the shooters of the goals, changes of the players, reminded players with yellow cartons and the excluded players, too.

30

### PATENT CLAIMS

1. The invention "COMPUTER DEVICE FOR SPORT GAME REFEREES " is characterized by that it contains: support frame construction device, device display, keyboard, antenna - receiver, hold button, microphone, switch on - off, switching on time  
5 measuring, switching on additional time, loud speaker, button - player - guest, keyboard - numbers, button - hard playing, button - unsportsmanlike behavior, button - penal, button - goal (point), plough for energy charging, button for invalidating fails inputs, display - dress number, guest/domestic, number of light fouls, display - electronic time measurer, button - foul for exclusion.

10 2. The invention from the claim 1 is characterized by it is included in informative communication network which contains : referee computer devices, signal emitters - linesman flags, fourth referee monitor, central computer - server, protocol table computer, stadium monitor, press seats at the stadium, press conference room, internet global network input, television direct broadcasting, internal television at the stadium,  
15 betting places - organizers of sport lotteries.

3. The invention from the claims 1 and 2 is characterized by that the front side is divided in two entities: display and keyboard, where are put the buttons for evidence and signal of the team wherefrom the maker of the foul is coming, the buttons 11 and 12, ,  
20 button – holding place 5, the buttons for hard fouls 14 or unsportmanlike behavior 15, the button for judged penal 16, the button for executed goal 17 and the button for judged exclusion from the game 26.

4. The invention from the claims 1 and 2 is characterized by that the right side from the keyboard 3, down is put the microphone 6, and up is put loud speaker 10.

5. The invention from the claims 1 and 2 is characterized by that except the  
25 buttons for device switching on and off and time measurer, there is a button for switching on the additional time – prolongation of the game 9, by which pressing on the display 21 automatically in the central computer it will be evidenced the prolongation of the time for the game.

6. The invention from the claims 1 and 2 is characterized by that there is  
30 security button 22 which should be pressed each time when the input of the data through the keyboard front side has to be put into function.

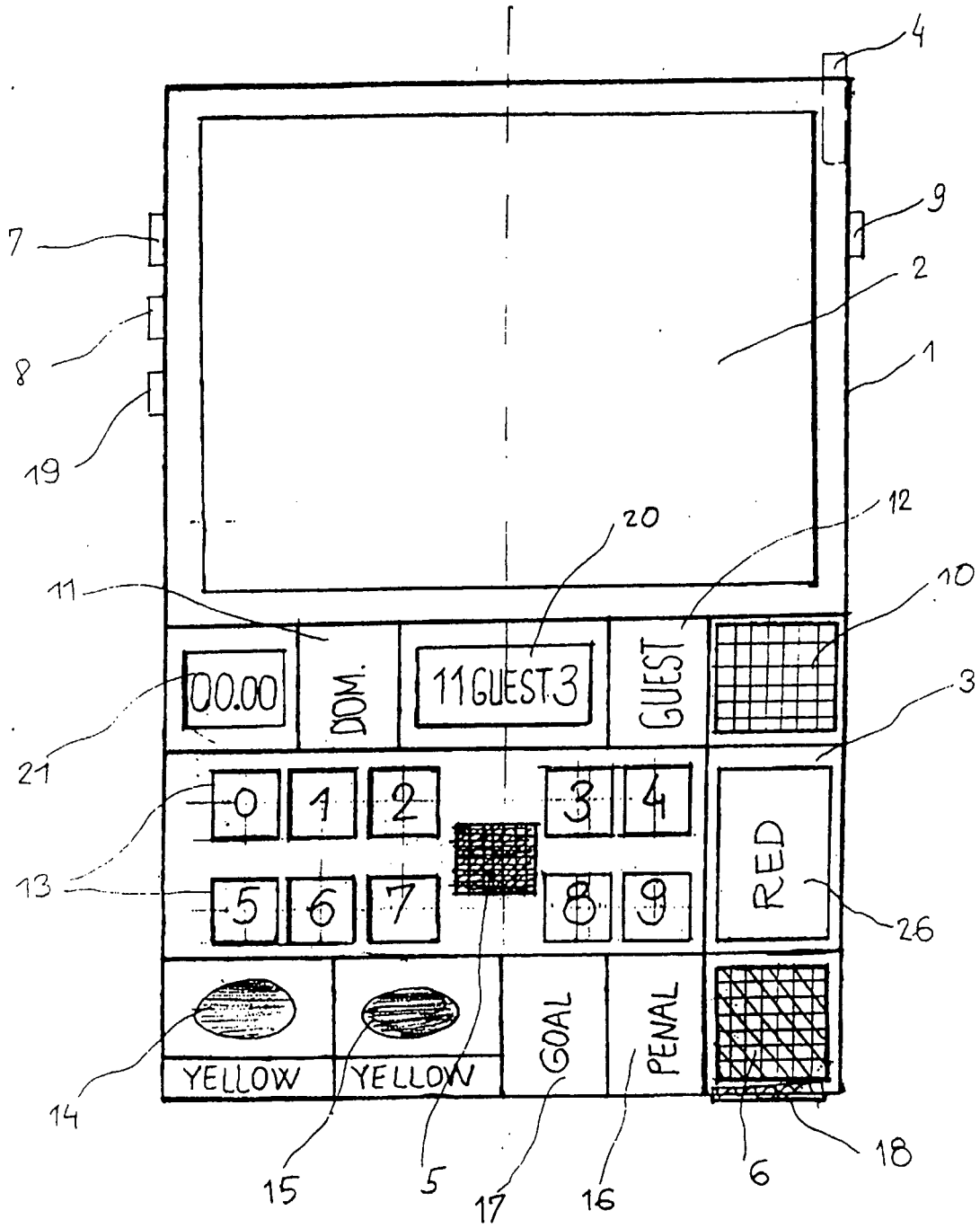


Fig. 1

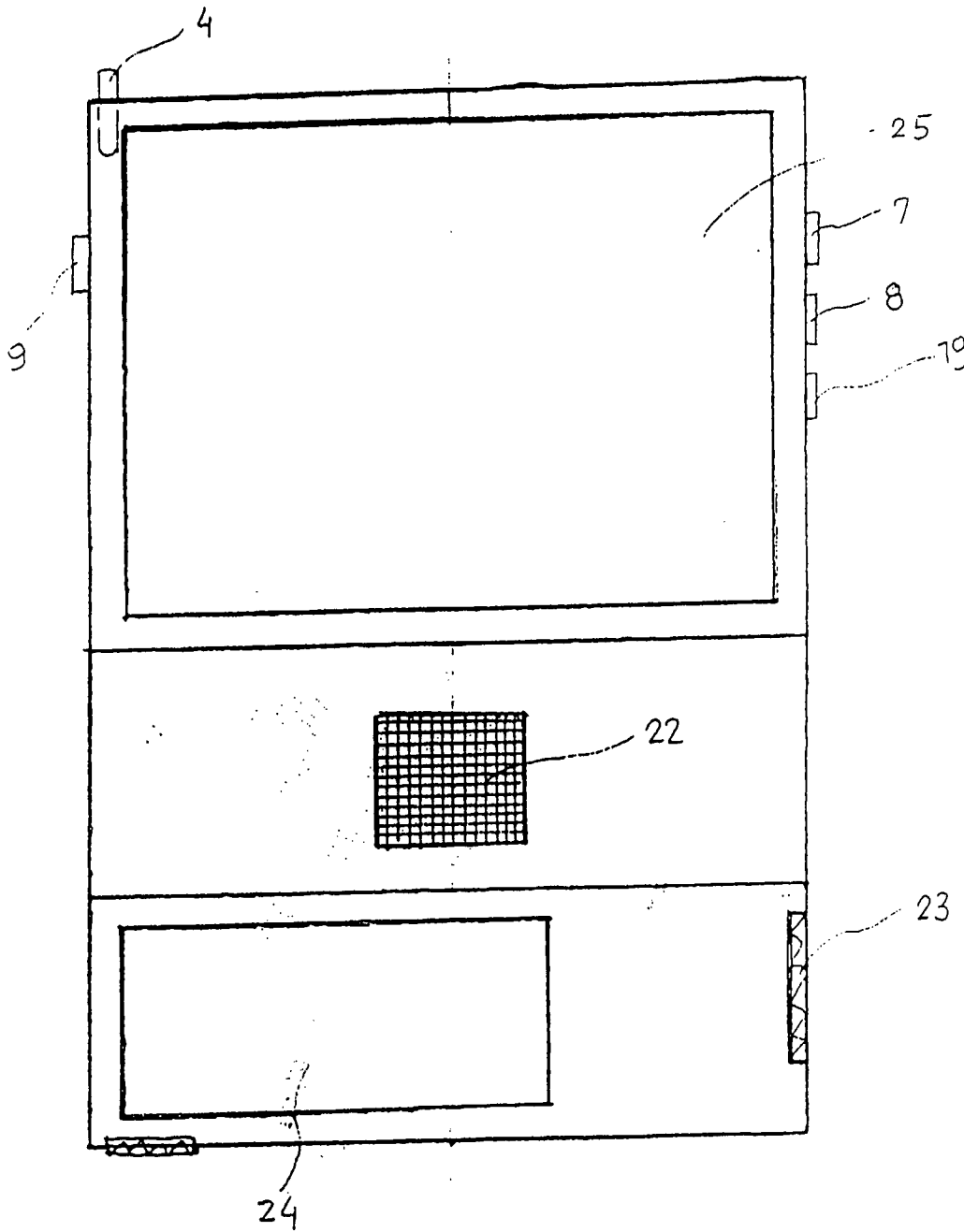


Fig. 2

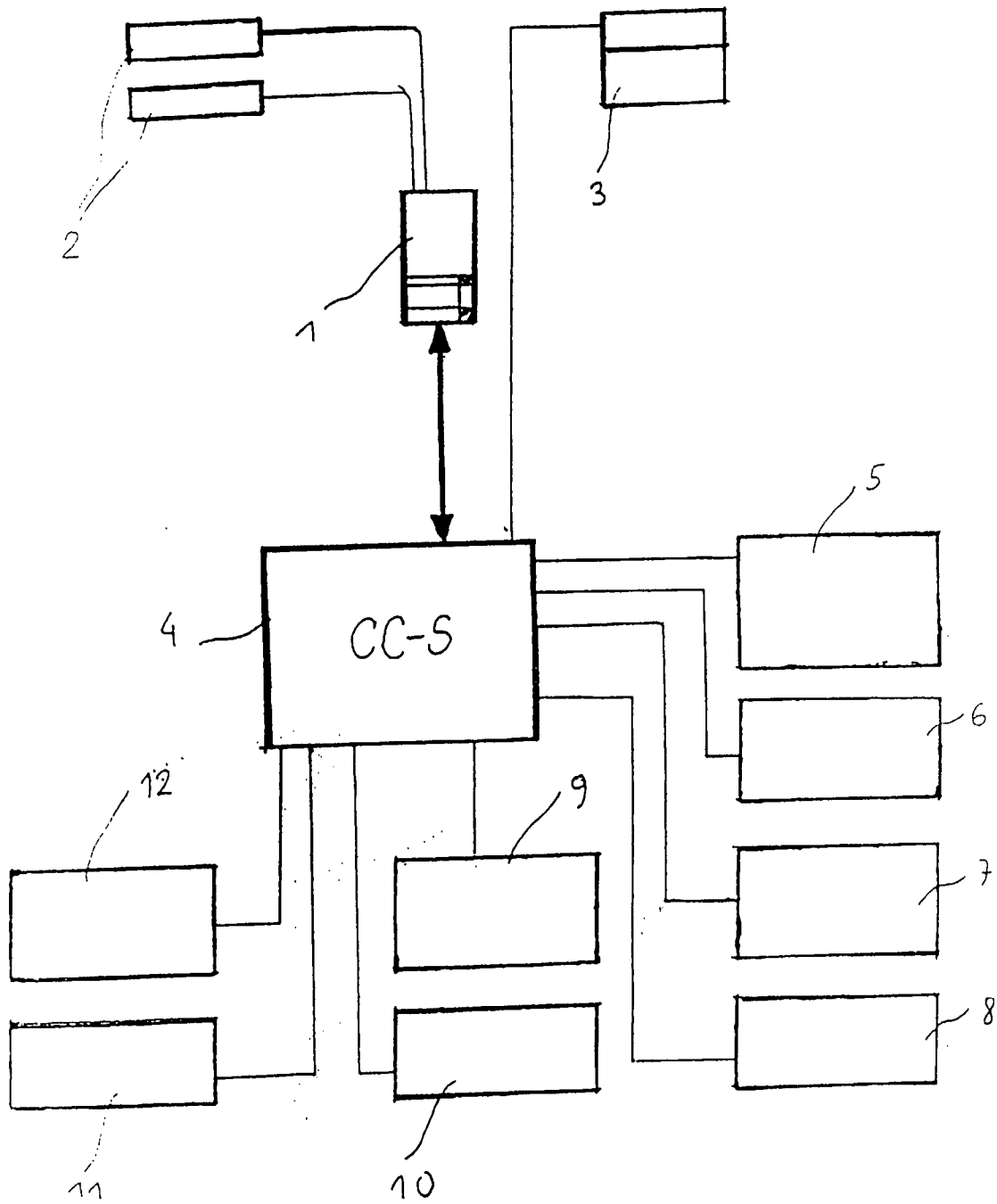


Fig. 3

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/MK 02/00002

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A63B71/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A63B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 745 029 A (GARCIA MANUEL) 28 April 1998 (1998-04-28) column 4, line 15 - line 53; figures 1,2 ---	1-6
X	DE 198 22 668 A (TRAUB ALWIN) 25 November 1999 (1999-11-25) column 1, line 52 -column 2, line 36; figure 2 ---	1,2,4-6
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X	US 5 377 982 A (VILLARREAL JR OSCAR) 3 January 1995 (1995-01-03) column 1, line 48 -column 2, line 11; claim 1; figure 1 -----	1-4



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents :

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- \*&\* document member of the same patent family

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