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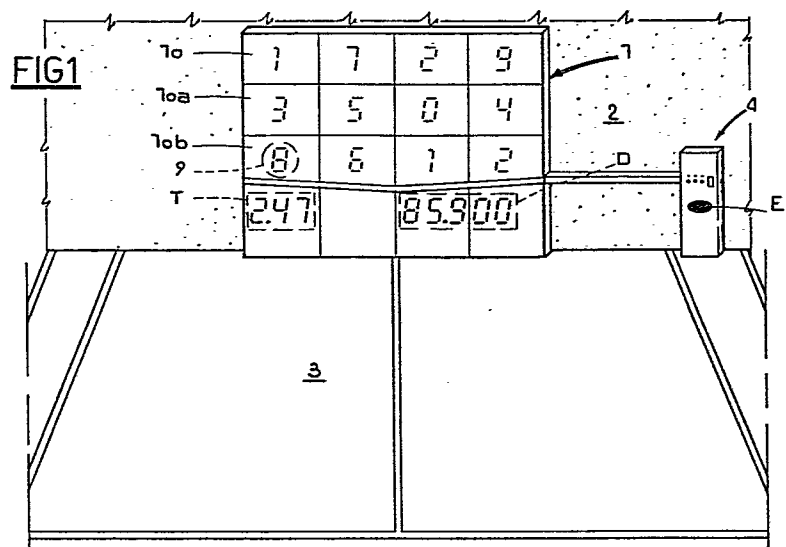
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(54) Device for playing the game of wall tennis.

(57) The device utilizes a specially prepared background surface 1 constituted by a plurality of sectors 10, side by side but separate one from the other, that define a lower area representing the space occupied by the net, and an upper area for acknowledging and signalling the shot, each of the said sectors being formed by a pair of external rebound panels 6-6' in between which is sandwiched a support base 5 provided with a housing 7 designed to accommodate a shot sensor element 8 and an element 9 for displaying the number of points applicable to the said sector, connected to logic means MP for varying, without following any set rules and after each shot has been acknowledged, the score value ascribed to each sector.



Device for playing the game of wall tennis

In most tennis clubs there is a "rebound wall" either built expressly for the purpose or forming part of the existing brickwork, that enables the game of tennis to be practiced without a fellow player having to be present.

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Moreover, teachers recommend the game of wall tennis since it allows the intensity of play to be greater than in matches, and this is because when two persons are playing, in addition to the shots played being less frequent, there is a very great amount of "dead time". However, despite the indisputable advantages of wall tennis, the game only has a small following because, in the long run, it is boring and is thus not much liked by the type of player who wants his or her adversary to be an active opponent.

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In the field of tennis, devices are known that allow the game to be practiced by a person by him or herself, one of these being, for example, the device disclosed in U.S. Patent No. 3,215,432 that consists of a plurality of sectors that have to be placed transversely above the area occupied by the net in order to form a similar plurality of zones which define, when hit, different types of shots; the said zones being movable to enable the ball that strikes them to be picked out of a rear net. The said device is, thus, particularly suitable for practicing special shots, such as the act of serving the ball.

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Another solution is outlined in U.S. Patent No. 2,087,575 and this consists in a one player game where half a court is equipped, on the ground, with a plurality of separate sectors that are given different score values depending upon their position, and these cause, when hit by the ball tossed by the player, the corresponding number of points

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to be illuminated on a vertical score board placed at the back of the court. The number of points is fixed a priori and is in no way variable. Furthermore, this game has a ball delivery device which sends, at predetermined intervals of time, a ball towards the player who only has to worry about returning it, not about a rebound since this does not take place.

A tennis training and rating apparatus is also known, disclosed in U.S. Patent No. 4,116,437, comprising a plurality of targets that extend horizontally and define a plurality of zones above the net to which different score values are ascribed, the said zones being connected to counting means. At the back of the said device, placed in the region of the net, there is a ball delivery machine which, at predetermined intervals of time, tosses a ball into the area of the player, and he or she has to try to hit the target zones as quickly as possible since provision is also made for a device with which the response speed is measured, the score being quantified compatibly with the ball response speed.

Again in this case, the only thing the player has to worry about is to hit (and send in the right direction) the balls delivered in succession by the machine, without bothering about any balls that may rebound. Here again the score value given to the various target zones is fixed or, at the most, can only be modified as a function of the response speed.

The essential object of the invention is to create a device that is able to animate the known game of wall tennis by rendering "active" the specially prepared background surface from which rebounds the ball hit in succession by the player.

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Another object of the invention is to create a device in which the various sectors in the specially prepared ball rebound background surface adopt different score values after each shot made, the purpose of this being to simulate the game played by or the position of the opponent, and thus to keep the player amused.

A further object of the invention is to create a specially prepared background surface that is able to return the ball in a suitably dampened way so as to allow the player to make his or her shots with the same force as when two persons are playing, that is to say, without there being too fast a come-back as is generally the case with wall tennis.

These and other objects too are all attained with the device forming the subject of the invention, characterized by the fact that it comprises : a specially prepared background surface constituted by a plurality of sectors, side by side but separate one from the other, that define a lower area representing the space occupied by the net, and an upper area for acknowledging and signalling the shot, each of the said sectors being constituted by a pair of external panels, the front one of which is for the rebound of the ball, in between which is sandwiched a base made of material able to dampen the shots played, each sector of at least the upper area being provided with an element for displaying the number of points applicable thereto, connected to logic means for varying, after each shot has been acknowledged, the score value ascribed to each sector, and each sector of at least the upper area being provided, moreover, with a microphone shot sensor able to supply an electrical operating signal only once a predetermined threshold value defined by the shot against the panel has been exceeded, the said sensor being connected to the said logic

means which, furthermore, are connected to a display timer.

Further characteristics and advantages of the device forming the subject of the invention will now be described in greater detail with reference to one practical form of embodiment, illustrated purely as an unlimited example on the accompanying drawings, in which :

- 10 - Figure 1 shows, diagrammatically in a perspective view, the device in question in the utilization position;
- Figure 2 shows, in a block diagram, the sensor and the display elements, and also the processing means employed in the described device;
- 15 - Figure 3 shows, in a diagrammatic view, a section of one of the sectors that constitute the specially prepared background surface of the device.

With reference to the above listed figures, shown globally at 1 is one of the fundamental elements of the device forming the subject of the invention, constituted by a vertical specially prepared background surface fixable to a rear support wall 2 and composed of a plurality of sectors 10, 10a ... 10n, of which the height of the bottom row is such as to define a lower area representing the space occupied by the tennis court net, while the remaining sectors define areas destined to acknowledge the shot and to assign the player a number of points that varies according to the position, or to the major or minor distance from the net, or preferably, as stated below, that varies without following any set rules.

Shown diagrammatically at 3 in Figure 1 is half a tennis court.

35 Each sector (see Figure 3) is constituted by a front, trans-

parent, panel 6 made of rigid material that forms the actual surface hit by the ball, and this is placed resting on an underneath base 5, made for example of polystyrene foam, sandwiched in between the said panel 6 and a corresponding rear panel 6'. The said panels, preferably joined one to the other along their outermost edges, as can be seen in Figure 3, and constituting, as stated, one of the aforementioned sectors, are then hung from the wall using known means that are not described herein.

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In the base 5 of all the panels, with the exception of those in the lower net area, there is a housing 7 inside which are accommodated a sensor element 8 for detecting the impact of the ball against the panel and a display element 9 on which are shown the number of points applicable to the sector concerned.

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The sensor element 8, in the preferred form of embodiment, is constituted by an electroacoustical transducer, to wit a microphone, which (see Figure 2) is connected to an amplification circuit A wired to the supply AL. The output signal from the said amplification circuit goes into a comparator C where the logic state of the output signal is changed only once a given threshold value, predetermined to suit the characteristics of the entire circuit, has been exceeded, and then the signal is sent to the input of logic means MP.

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The said means, which process the signals coming from the various sectors 10, 10a ... 10n, have their output connected, through a coder F, to the display element 9 of each sector, as well as to an element D that displays the score, to a display timer T (placed out of preference in the region of the bottom area that constitutes the net, as can clearly be seen in Figure 1), and to a loudspeaker E which

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furnishes an acoustical notification of particular situations arising during the game. The input of the logic means is connected to the box G into which coins or counters are inserted.

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At the beginning of each game the device is prepared for action by the box G and, consequently, the timer T starts to count backwards and the display elements 9 are energized to suit either a pre-established or a random logic.

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Each time a panel is hit, the logic means modify, at this point, preferably not based on any set rules, the score value of all the panels, with this being shown on the display element 9, while the number of points is constantly

15 updated on the element D on which the score is displayed.

In this way, the specially prepared background surface adopts an active aspect with the points for the various sectors revised in succession, and the player is compelled, first of all, to find the panel with the highest number of points and, then, to aim his or her shot at that particular sector so as to bring the final score as high as possible. This means that the device in question succeeds in enlivening the game of wall tennis and that instead of the player finding the game inert and passive, he or she plays against active "vivacious" panels which, to a certain extent, constitute a human opponent because of the unforeseeable allocation of points for the various sectors.

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A precise simulation of a game played with a human opponent is also forthcoming due to the special sandwich conformation of the various sectors which, thanks to the adoption of a polystyrene foam base, causes the ball to rebound in a controlled or slightly dampened fashion so as

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to allow the player to give his or her shots a force comparable with that in the conventional two player game and, at the same time, to get a suitable response.

- 5 In one variant to the foregoing, the sectors corresponding to the bottom area that represents the net can also be rendered active to penalize and give a loss of points for shots that go into the net.
- 10 The device according to the invention can, in the practical form of embodiment thereof, differ physically from what has been described above and, in particular, numerous modifications of a practical nature may be made without in any way deviating from the framework of protection afforded
- 15 thereto.

Claims:

1. Device for playing the game of wall tennis, characterized by the fact that it comprises : a specially prepared background surface 1 constituted by a plurality of sectors 10, side by side but separate one from the other, that define a lower area representing the space occupied by the net, and an upper area for acknowledging and signalling the shot, each of the said sectors being constituted by a pair of external panels 6 and 6', the front one of which is for the rebound of the ball, in between which is sandwiched a base 5 made of material able to dampen the shots played, each sector of at least the upper area being provided with an element 9 for displaying the number of points applicable thereto, connected to logic means MP for varying, after each shot has been acknowledged, the score value ascribed to each sector, and each sector of at least the upper area being provided, moreover, with a microphone shot sensor 8 able to supply an electrical operating signal only once a predetermined threshold value defined by the shot against the panel has been exceeded, the said sensor being connected to the said logic means which, furthermore, are connected to a display timer T.

2. Device according to the preceding claim, characterized by the fact that the said display element 9 is connected to logic means MP for varying, without following any set rules and after each shot has been acknowledged, the score value ascribed to each sector.

3. Device according to Claim 1, characterized by the fact that the various sectors corresponding to the lower area representing the space occupied by the net, are rendered active and are given a loss of points.

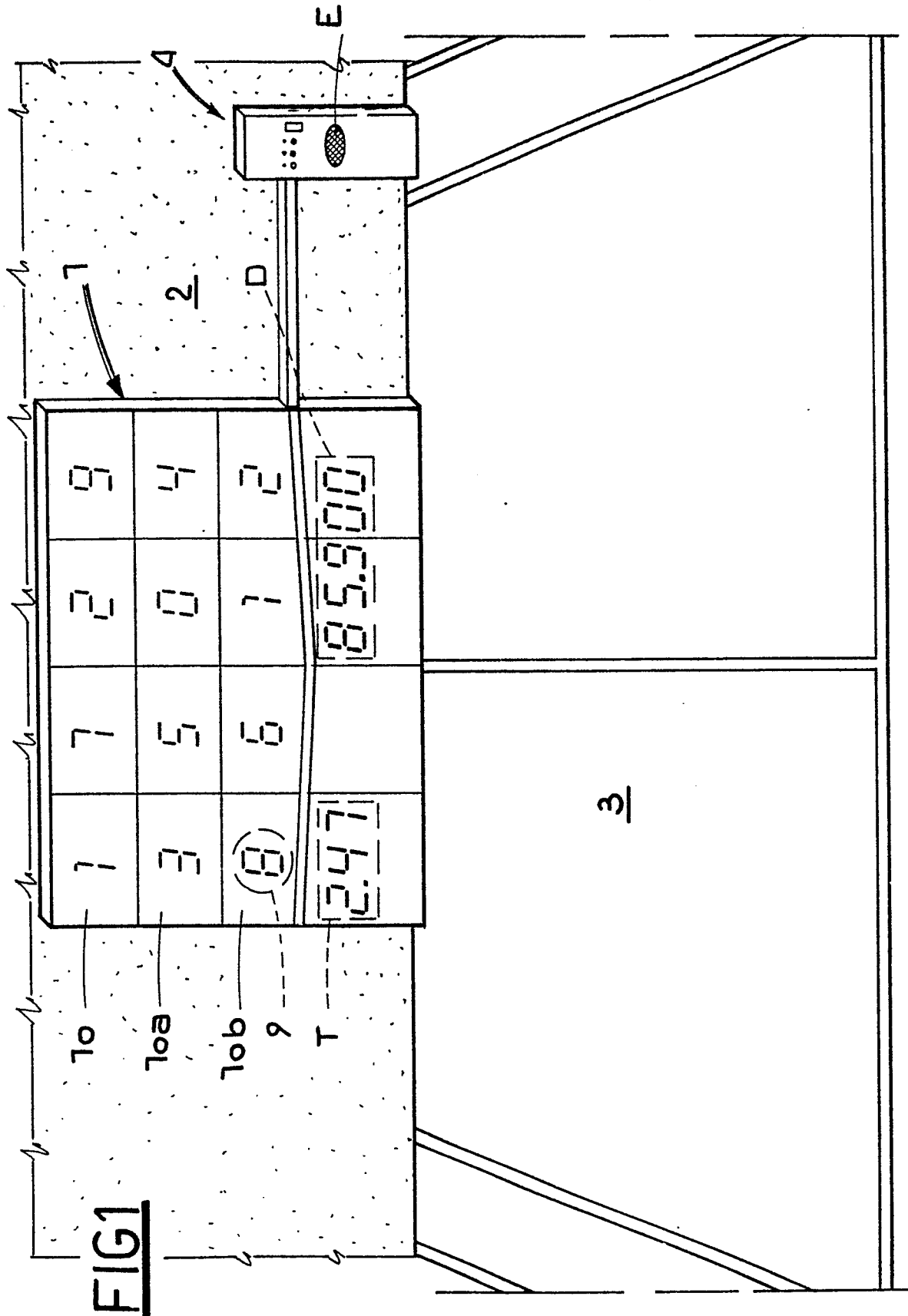


FIG2

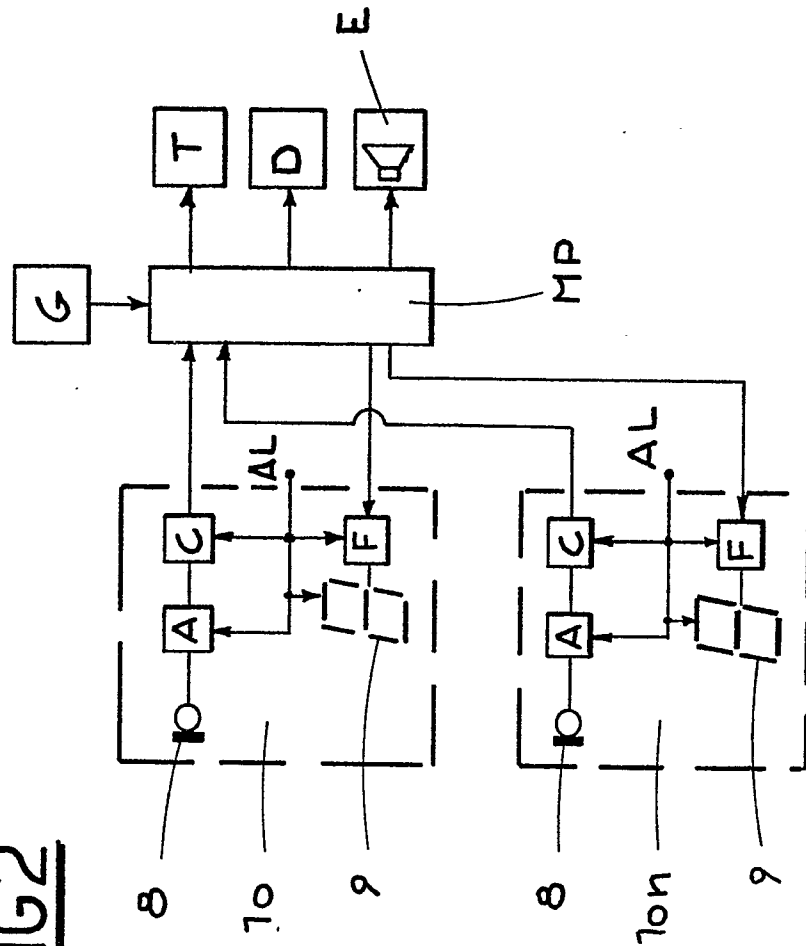
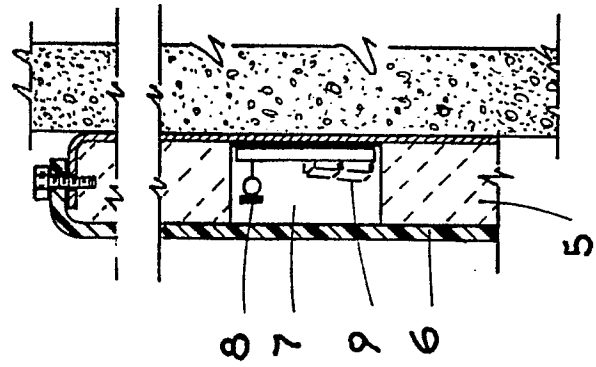


FIG3





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
P,X	US-A-4 309 032 (W.P.FACIUS) *The whole document*	1,2	A 63 B 69/00 A 63 B 63/00
X	--- GB-A-1 461 691 (J.M.BARBOZA) *The whole document*	1,2	
D,A	--- US-A-2 087 575 (N.LITTELL et al.)		
D,A	--- US-A-3 215 432 (R.H.LEE)		
D,A	--- US-A-4 116 437 (JOHNSON) -----		
			TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
			A 63 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 16-03-1983	Examiner FERGUSON J.R.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	