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(54) **Title:** ELECTRONIC DARTBOARD

(57) **Abstract:** An electronic dartboard, piercable or non piercable that includes dart targets that light up, and the dartboard including the target material can conduct, transfer and transmit light, the dartboard and target material can also emit and reflect light into the atmosphere, or allow light to pass by the targets and dartboard material structure, the dartboard can have any number of targets, any shape of targets and board and any game pattern can be utilized, the dartboard components that make up the dartboard can be of any design and number and can be made from any suitable elements or materials, any source of electrical or other power can be utilized to operate the dartboard or satisfy the functional requirements for the game to be played, any means of lighting the dart targets can be used not just electricity, the power source needed to operate the board can be manually generated or power generated by electricity or any other power source.

ELECTRONIC DARTBOARD

This invention relates to an electonic dartboard.

Electronic dartboards are quite commonly used to play dart games,and usually comprise of an electonic mechanism that is situated behind the dartboard playing surface member.The electronic mechanism detects the landed dart,which penetrates the playing surface area,and the score for hitting a particular target is then recorded electronically on a panel which can be situated seperately from the dartboard,however the score panel and dartboard will be connected together via an electronic mechanism.

Electronic Dartboards however restrict the dart players to using a particular type of dart,that has been specifically designed to effectively locate into the specially designed playing surface of the dartboard,with the dart point activating the electronic score mechanism.

According to the present invention there is provided an Electronic Dartboard, comprising a dartboard body which can be piercable or non pierceable and to indicate which target the thrown dart has landed into,the targets emitt light, reflect light,can be luminous or illuminated.The light can be provided by the target material fibres or an integral light source possibly situated within the target frames and shining onto the playing area of the occupied targets,and to achieve this,bulbs can be used or light strips,including diodes fillaments and other means of providing light.The light source can also be povided by electrical equipmenmt,which is non integral or seperate from the dartboard. Optic fibres can be used for target material and to provide the target light. An electrical control box can be used to relay electricity, possibly light and other from the light source to the targets To activate or trigger the electrical mechanisms used to ultimately light up the dart targets,target buttons,or electronic eye equipmnent can be deployed,the target buttons are situated or placed within the target area,or can also be

external or seperate from the dartboard apparatus,as can the electronic eye equipment.The target light buttons can also be situated outside the target areas but on the remaining playing surface area,and this can also apply to the electronic eye equipment.The target material that emitts light can be other than than optic_fibres.The target buttons can be pressed manually or can activate or move by the impact of a thrown dart landing onto or into the button area,and the electronic eye system is activated by a dart landing or passing the target apperture.

A specific embodiement of the invention will now be described by way of example with reference to the accompanying drawing in which

Fig 1, shows in perspective,the dartboard body fitted to the wall,and the electronic control box fitted also to the wall and positioned below the dartboard body.

Fig 2,Illustrates an enlarged front view of one of the target frames,and showing the fibre targets,the electronic buttons and the electronic eyes.

Fig 3,Illustrates a section view A A,which is taken through the centre of the target electronic button assembly.

Fig 4,shows a perspective view of one target frame,which is seperated from the dartboard body,the frame includes three seperate target appertures.

Reffering to the drawing fig 4,target light push button 33, can be pushed in the direction of arrow c, and electrical contact 33,can connect to its corresponding electrical contact,and ultimately,switch on the light 30,fig 4,this arrangement can exist in each individual target area,and 33,can alternatively be used to initialy to activate optic fibres 5,with the fibres being part of the target fibres.The optic fibres can light up the target to indicate to the player that he or she occupies the lit up target area.The button 33,can be a blade shape, which should provide more strength to the movable button.The blade or button is housed in the target frame 4,and slides in the apperture 34, formed through frame 4, the target frame.

Reffering to the drawing the Electronic Dartboard comprises a dartboard target body 1,an electrical control box 2,and both are secured to the wall 3:4 includes 16 target frames that are pressed into the dartboard body 1,and 5,are the optic fibres which form the centre playing area of the 48,individual target areas 6.The optic fibres,are also part of the manually or dart impact operated buttons or switches 7,which can move in and out slightly,in order to switch the targets 6,optic fibre 5,target lights on or off.

8 are the Electronic eye detectors,which detect the dart landing into a particular dart target 6.9 are the electric lights which illuminate the target areas 6,in target frames 3,and 10 are the colour selection control electric buttons of which there are 6 different button colours,which when pressed provide 6 different light colours,for each of the individual targets.11 is the button switch to activate the electric target buttons or switches 7,12 is the button switch used to activate the electric light bulbs,light strips,diodes or other light means 9,and button switch 13 is used to activate the dart electronic eye detectors 8.14 is the wire loop used to fix the dartboard to the wall,and 15 is a nail which is used to hang the dartboard onto.16 are the sheaths that cover and protect the optic fibres that connect tne targets 6,to the electronic control box 2.17 to 24 are parts or components belonging to the switch or target buttons assembly 28.17 is the button or switch sheath,18 isthe return spring 20,and electrical contact 19,retainer plate that provides for the opening and closing of the target button 7, 21 and 22 are the positioning and retainer plates for the button assembly 28,with 23 being the screws to hold 18 and 7 together and 24,is the return spring 20,location cavity.25 is the electrical transmission wire 29,contact,with 26,being the electrical wire retainer screws.,27,is the electrical transmission wire sheath,and 29,is the transmission wire terminal.30,being the electric light bulb,light strip,diodes or other,and 31 is the opposing target edge to the light apparatus 30,with 31 containing the electric eye. 31 is the target frame 4,target 6,periphery edge. To understand the next 22 lines of the text no reference need be made to the drawings.

In order for the Electronic Dartboard to function as a whole certain mechanical and electrical functions or conditions need apply.One set of conditions would provide the dartboard user with manual and dart impact activated target buttons, where when operated would cause the playing and target surface materials to emitt light,or activate target light bulbs,strip lights,electrically operated diodes and other lighting components including external light sources,which are external from the dartboard,but all of which would provide light to the target playing surfaces.The light will enable the player to see which target his or her dart has landed into or is occupying,alternatively an electric eye can be incorporated to again activate the playing surface light materials such as fibre optics or other light emitting materials,and other light source emissions such as light bulbs,light strips,diodes and other.The electric eye is used to detect which targets the darts have landed into.Thirdly an electric light can be used to illuminate or shine onto the target,and to operate the appropriate target light,both the above method of target buttons and electric eyes can be deployed.Various colours of light can be provided by pressing the colour code buttons, providing each player with a different light colour.

Reffering to the drawing,Fig 1,shows a perspective view of the electronic dartboard,and the electrical relay box,with the dartboard body being 1,Fig 1,and the electrical relay control box box being 2,Fig 1.The dartboard body houses quite a number of components,which are visible in Fig 1,and such components are 4,which are sixteen target frames,with three target appertures in each frame 4,giving forty eight targets on the dartboard. Also each target in each target frame incorporates a target button 7,Fig 1,further to this,and inside the target button or switch,there are optic fibres 5,so the button switch and the optic fibres are housed in target areas 6.Added to this there are electronic eyes 8,whichare located on the inside of the target frame 4,apperture,and there are also light bulbs,strip lights9,which can contain fillaments,neon particles,electric diodes,plus other light emitting apparatus. Further to this

Fig 1,shows various electrical buttons and optic fibre,and electrical cable connections.

Target buttons can be used to provide or activate ultimately a target light,and the electronic button assembly 28,Fig 3, which includes various components or parts working in unison is housed in the dartboard body 1,Fig 1.When these parts are operated they can provide a target display light to all of the forty eight targets.The target button assembly is fully illustrated in Fig 3,section drawing.To operate the target buttons 7,Figs 1,2 and 3,the dart player throws a dart to land within any of the sixteen dart target frames 4,Figs 1 and 2.If the dart target appertures 6,Figs 1 to 4 are piercable,the dart will penetrate the target 6,and remain held in the target,so when the player has thrown all the allocated amount of darts into the dartboard the player can then of course see which targets 6,the dart has landed into.The player will then need to record which targets are occupied,so this can be done by pressing each target button 7,in each target that a dart has landed into.On pressing a target button,the button switch 7,Figs 1,2 and 3 will slide or move slightly towards the back of the dartboard in the direction of arrow B Fig 1.When contact is made between the two electrical contacts 19 Fig 3,a switch in the electronic control box 2, Fig 1,will be activated via electrical terminal 29,and in turn the optic fibres 5,Figs 1,2 and 3,will become live or activated and transmitt or emitt light to the surface of the occupied target 6,and on reaching the target surface the light emitted from the optic fibres will be seen by the dart players,and this particular target will then remain lit until the game is finished.The player can then of course repeat this on each of his or her turns,and can maintain a visual record or light display showing all the targets which are occupied.The target optic fibres 5,are held inside the tubular switch or button 7, and move together with the switch or button 7 on pressing.The fibre optics 5, of course provide the central target fibres which can accomodate the thrown dart,so the fibre optics provide two uses,one,is to supply a target light,and two is to provide target fibre material.Alternatively the target buttons can be used to switch on light bulb,or strip light 30,which can also be an electric diode or other light emitting apparatus,which

in turn will illuminate or shine onto the target to provide a lit up target.On pressing the occupied target button an electrical signal will be transmitted via the control box 2, Fig 1,and a further electrical signal will activate the light emitting components which can be of many various types,or any components capable of emitting light. 33,fig 4,is an alternative target light push button switch,housed in frame target frame 4, Electronic eye systems can be used in order to provide or activate a target light source.The target body target frames 4,Figs 1,2 and 3 house the electronic eye systems 8,Figs1, 2,and 4.The electronic eyes 8,can activate light bulbs 30,Fig 4,with the electric eye dart detector being situated on the opposite frame edge 31,to the bulb accomodating edge 30,so when a dart lands into any of the targets 6,the electronic eye 8,is activated and in turn activates,any of the selected light emitting components,such as bulbs or other,and this occurs via the electrical control box 2,Fig 1,which in turn switches on the light emission mechanisms,which will provide light which will shine onto or illuminate the target areas 6,with the light then reflecting off the targets,which can then be seen by the players thus providing a means to determine which of the targets each of the players would occupy.The occupied target of course remaining lit for the duration of the game.On landing a dart into any of the targets 6,appertures,a light wave and electrical signal will be connected to an electrical switch,which may include electrical terminals,electrical points or any other electrical conveyance components,so that electric ity will or can be transmitted to the target light emitting components,such as light bulbs or other.Alternatively the electronic eye can be used to activate fibre optics 7,Figs, 1,2 and 3,but without the use of target button assembly 28. The fibre optics can be set rigidly into the target material and thus cancelling the need for electronic buttons,with the light of course being emitted from the fibre optics on the dartboard playing surface.

Instead of having such an elaborate switch asembly 28,fig 3, a simple combination of frame button switch 33,combined with light emitting components 30,via,again,electrical contacts, could be used,or 33,together with 5,which are the target optics,

The dartboard mentioned in this patent,contains or could contain, targets that are oblong in shape,but could also be any other shape.This dartboard has three targets to each individual target frame,but there could be any amount of targets to each frame.The target frames or groups are individually spaced, but they could all be adjacent.All the targets in the target frames with three targets are the same size,however all the three targets in the frame could be a different size, or two of the three targets could be the same size,and the remaining target could be smaller than the two that are the same,or one target could be larger than the remaining two that are the same.

The target light emitting components can be secured anywhere on the dartboard,or external to the dartboard,they can be secured within cavities,that are attached to the dartboard frames or are moulded within the frames, or secured to other locators within or attached to the target frame.Any form of light emitting components can be used to light up the targets and any method other than target buttons and electric eyes can be used to trigger off the reguired signals,in order to light up the target lights.Any form of light emission can be used to light up the dart targets,and any form of light emitting components.The dartboard can be pierceable or non pierceable, which includes all forms of piercable and non piercable dartboards.Any types of darts that are suitable to many boards can be used to play the game. The targets in this patent, comprise of 16 target frames,but any amount of frames could be used,and there are four horizontal,and four vertical target rows on this dartboard,but any amount of vertical or horizontal rows could be used.

I will describe a particular target arrangement that I may find particularly usefull,and the technical details may be unique and claimable,and the target arrangement details follows.

Several Individually spaced or adjacently joined dart target frames or sets.Each frame has four adjacently joined or seperately spaced targets,and the four targets can be a mixed selection or variety of sizes and shapes.

All the four targets within the same set,can be the same size and can be the same shape,or be a mixture of varying shapes.

The four targets within the same set can have,three targets of the same size,with the one remaining target of the set being of a different size than its partnering three targets,with the shape of the targets being the same or varied.Also a combination of four targets of the same set comprising,two targets of the same size,with both the remaining targets in the same set being different in size to each other,and both a different size to the partnering two targets of the same set and these four targets may or may not vary in shape.Lastly, again a set of four targets,where two targets can be of the same size,and the partnering two targets in the same set, are again the same size as each other,but being different in size to the other two targets,in the same set,again the targets in this set could be the same shape,or variably shaped.

All the target frames on the dartboard could all be identical, or could vary in shape,as could the targets in the frames.

All the target frames on the dartboard could all be identical in size,as could the targets in the frames.

The concept of targets lighting up on a dartboard,applies to dartboards where darts are physically propelled into dartboards or computer image dartboards,plus any other apparatus,where dartboards are used or dartboard images of any kind are also used.Any kind of manual,or electronic mechanisms or relays of any kind can be used to transmitt,electrical or other types of signals including light,in order to activate and relay the neccessary signals from the source to the lit up dart targets. There can be any amount of targets on the dart board,and therefore any amount of lit up targets.

On lighting the target,the light can be emitted or transferred from the target and directly into the atmosphere,or as with computer,images or other electronic imaging equipment,the target image is passed through a screen,and the light from

the screen is again emitted or transferred directly into the atmosphere.Alternatively the light is shone onto the target and reflects off the target and again directly into the atmosphere,with the target being of course the actual dartboard target. Further light can be emitted from lighting components within the target frames,with the light from the frames indicating which target is occupied,and the light does not need to shine onto the targets,but can shine into the atmosphere directly,also the same would apply to lighting c components which can be placed outside the target area,but would be near enough to the targets for the darts players to see which target the light was indicating to be occupied. Another means used to provide power or electricity to the dartboard or dartboard lights would be by a clockwork generator the generator power could be generated by winding up the generator,manually or otherwise. The generator could be wound up via a clockwork mechanism,using rotation or other means to turn a connecting key,handle or other ways to grip or hold the clockwork generator winding attachments. Any other type of manually operated generator can be used to provide electricity or any other type of power to the dartboard and its integral or detached components. which in turn would provide lit up dart targets or other dartboard features. The clockwork and other generator possible generator mechanisms can be made from plastic,metal, such as brass,copper,steel and other metals, and electrical insulating materials, and further to these many other materials can be used.

Another feature of the dartboard can be using the whole of the individual targets,or the whole of the target frames as electronic buttons, so the target piercable or non piercable material,including or excluding the target frame or frames would be used to trigger off the electrical components. Although six colour buttons 10 are shown in fig 1,many other buttons or other means of providing a large colour range of lit up targets can be used.

The materials used to manufacture this dartboard can vary widely,however some of the materials that may possibly be used are mentioned below.

To make the dartboard body,which includes the playing surface various types of fibre can be used,which can be pig bristle, wood fibres,plastic fibres,and other fibre material.Wood or paper plus cork and other materials are acceptable,including fibre optics.All the above materials can be used to make a piercable dartboard and a non piercable dartboard,however non piercable dartboards can also be made from magnetic material, or have hook and loop playing surface material plus other commonly used materials.The dartboard mentioned above is shown in perspective in 1,fig 1.The dartboard also includes an electrical control box,which are usually made from metal, plastic and electrical insulating material,plus other materials, and the control box is 2,fig 2.The target frames 4,can be made from plastic,metal such as steel,brass and other suitable materials,and the target switches can be made from,metal, plastic and other materials. 8,are the electyronic eye detect ors,which can be made from toughned glass,plastic and other substances,9,are the lights which can be toghned glass metal plastic and other suitable materials. The parts in the switch assembly can be,metal,such as copper,steel,chromium,brass,gold, and other metals,also plastic and electrical insulating material and other suitable materials. The parts in the switch assembly are 1,5,6,7,17 to 29,and 30 is the light emitting bulb,made from toughned glass or other suitable light emitting materials, 32 is the light guard,which can be moulded into the target frame,or attached to the target frame.33 ,is a target button which is attached or housed by the target frames,and can be plastic metal or other materials.

The light emitted or provided by the dart targets can be of any colour. Any shape of dartboard can be used to play on, and any size of dartboard can be used also.
The targets or target frames include individual targets or target groups,and these can be utilised on any dartboard, and would include adjacent and non adjacent target symbols. Adjacent and non adjacent target symbols refers to targets where the symbols are adjacent or non adjacent to other target symbols,that are included in the target arrangement. Any of the targets or target frames used on any particular dartboard can be of any shape and any size.
The targets can be arranged in rows or columns or situated and again arranged in any position relative to each other, so this means that any game pattern can be utilised. The targets can be either fitted to the dartboard or be seperated from the dartboard.
Any materials or elements,including suitable elements can be used for making the dartboard and its integral or detached components needed to provide a dartboard with a lit up target, with the components existing between the electrical or other source matter or element, and the light emitted or reflected from the target or targets.
The targets can be lit up by any means possible whether by electrical means or other. Any components or suitably designed components can be used to make the dartboards mentioned in this patent. Reference is made to lit up targets or target,but the feature of the targets lighting up,also includes any dartboard material which constitutes part of the playing surface of the dartboard,such as non target areas.
Any amount of target buttons can be used on the target areas and offthe target areas,such as the remaining playing surface of the dartboard. There can also be any amount of buttons used on the control box,with the buttons used to select a particular colour, used to light up the playing surface of the dartboard. The sizes of target symbols used in the dartboard in Fig 1,are 32 sq mm,34 sq mm and 36 sq mm, but they can be any size or any suitable size. The target frames can also comprise of two targets, which are the same size,or one target being larger than the other.

Any design of target button can be utilised and the target buttons can be placed anywhere within the target area or outside the target area,or can be part of the target frame .The target buttons can also be reffered to as light activators,such as any shape or size of activator. The target buttons are push button operated but they can be pulled ,turned or switched,such as switches are ,and again the same would apply to light activators, and any kind of movement by the light activators ,to light up the dartboard targets can be deployed.
This patent covers dartboards where the darts are propelled into the dartboard by being thrown physically by the player or propelled by other means such as a gun or other mechanical device.Also this patent covers or protects any mechanical device ,including manually operated generators or electrically operated generators or light transmission or emmision devices, electrical transmission or conduction devices or components, that can be utilised between the electrical power source light transmission source or any other light producing source ,and the dartboard playing surface and or targets.
Emission oror light release from the playing surface of the dartboard including target areas and areas surrounding the targets can include light that is shone onto the playing surface,which illuminates and reflects back off the playing surface to show a lit up target area and or playing surface area ,light can also be transmitted through the solid structure of some target or playing surface materials such as transparent plastic ,opalescent plastic and opaque plastic and any other suitable materials that can transmitt and emit light and is suitable for dartboard use. Tubular fibres will allow light to pass through the hole that is usually in the fibre centre ,and resulting in the light being emitted on the dartboard playing surface .Light can also pass or transfer through the playing surface by travelling alongside and through the atmosphere that surrounds the target fibres or material on the dartboard playing surface.The light emitted from the dartboard playing surface can be any colour .All the components used in these dartboards can be made from any elements or suitable matter.All the components used in making this or these dartboards can be of any suitable design,which will fullfill their function requirements.

Fig 5 illustrates an electrical circuit diagram showing electrical wires or components that can be utilised to light up the dartboard targets.35 to 43 Fig 5 shows the electrical circuit mechanism,and using a battery as the electrical source. 44 to 48 shows the wires and terminals that can be used when a to touch sensitive target button or other component is used as the electrical source .Where the source 35 is a battery ,the terminals 38 and 39 will connect whenthe target button 7 FIG 3 is pushed ,38 and 39 are of course connected to terminals 19 and 27 Fig 3 or terminals 38 and 39 can be terminals 19 and 27.When terminals 38 and 39 are closed ,electrical power is drawn from the battery ,and electricity is conducted along wires 36 and 37 ,with the electricity in wires 36 and 37 passing through two coils43 and 40,with the coils of course increasing the power of the electrical current .Terminals 40 and 41 are activated ,and in turn the target light 42 is lit. In the touch sensitive device 44 and 45 are terminals are activated or connected when touched by a human finger or other bodily parts .To connect the circuit moisture conducts electricity from 44 to 45 thus activating an electrical circuit that will light up the target .Static electricity may also be utilised to connect terminals 44 and 45 if this was proved to be possible.The electrical circuit diagram Fig 5 shows two different electrical circuits one for battery use and the other for human touch sensitivity,however any source of electricity or power can be used.

claims

1,

An electronic dartboard ,piercable or non piercable that includes dart targets that light up,and the dartboard including the target material can conduct,transfer and transmitt light,the dartboard and target material can also emitt and reflect light into the atmosphere,or allow light to pass by the targets and dartboard material structure,the dartboard can have any number of targets,any shape of targets and board and any game pattern can be utilised,the dartboard components that make up the dartboard can be of any design and number and can be made from any suitable elements or materials,any source of electrical or other power can be utilised to operate the dartboard or satisfy the functional requirements for the game to be played,any means of lighting the dart targets can be used not just electricity,the power source needed to operate the board can be manually generated or power generated by electricity or any other power source,

2,

An electronic dartboard having target buttons or other light activators,positioned within the target areas or outside the target areas,

3,

An electronic dartboard where light can be shone onto the targets by using bulbs,light emitting diodes or other means.the bulbs and diodes can be situated or fixed within the target frame material or positioned outside of the target frame material

4,

An electronic dartboard where the dartboard and target material structure can be hollow or solid,and optic fibres can be used,

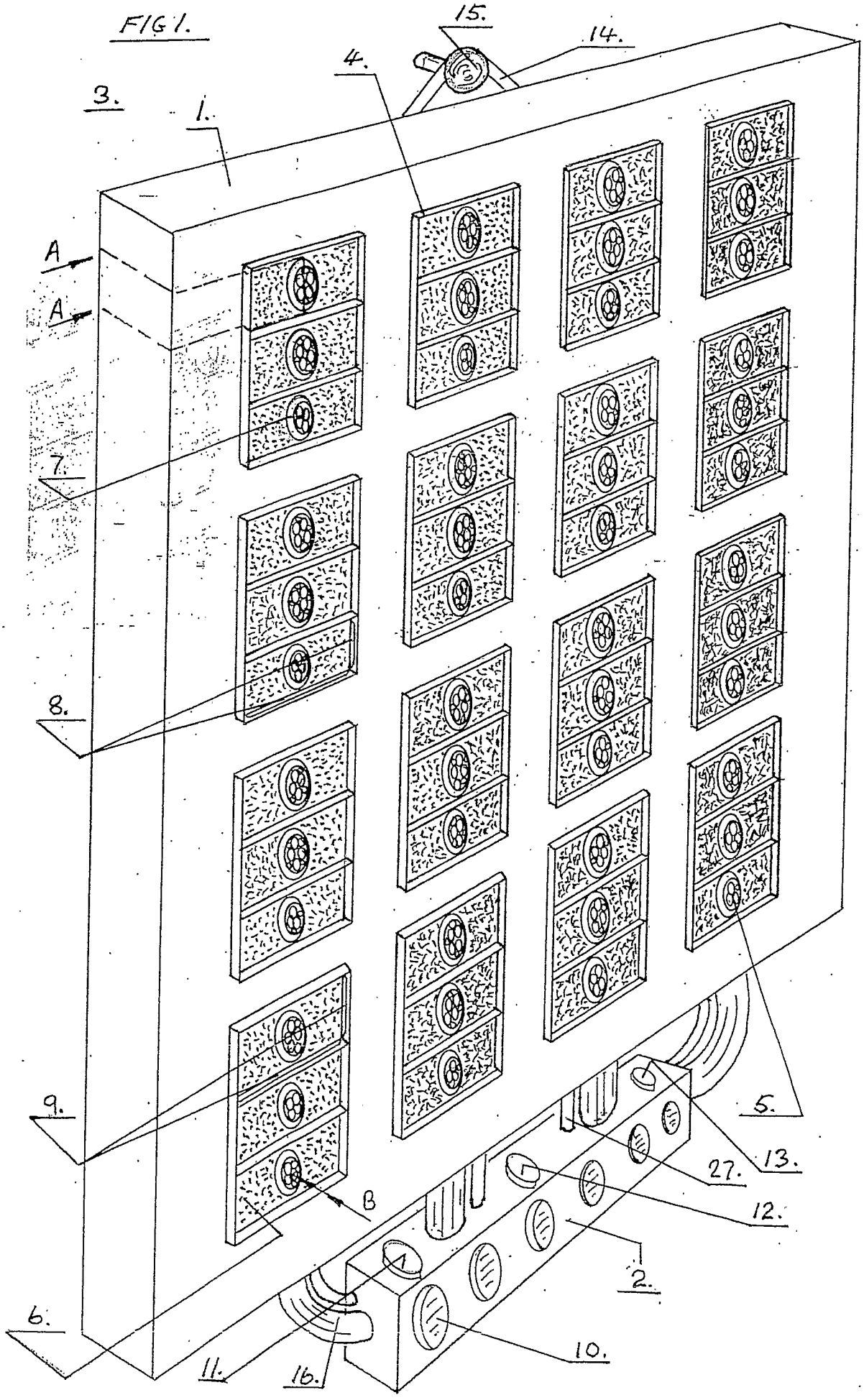
5,

An electronic dartboard where the target lights can be activated by an electronic eye,and the electronic eye or eyes can be positioned within the structure of the target frames ,or outside the target frame structure,

6,

An electronic dartboard having colour selectors with which to select the colour of target light,and the targets can be any colour,

FIG 1.



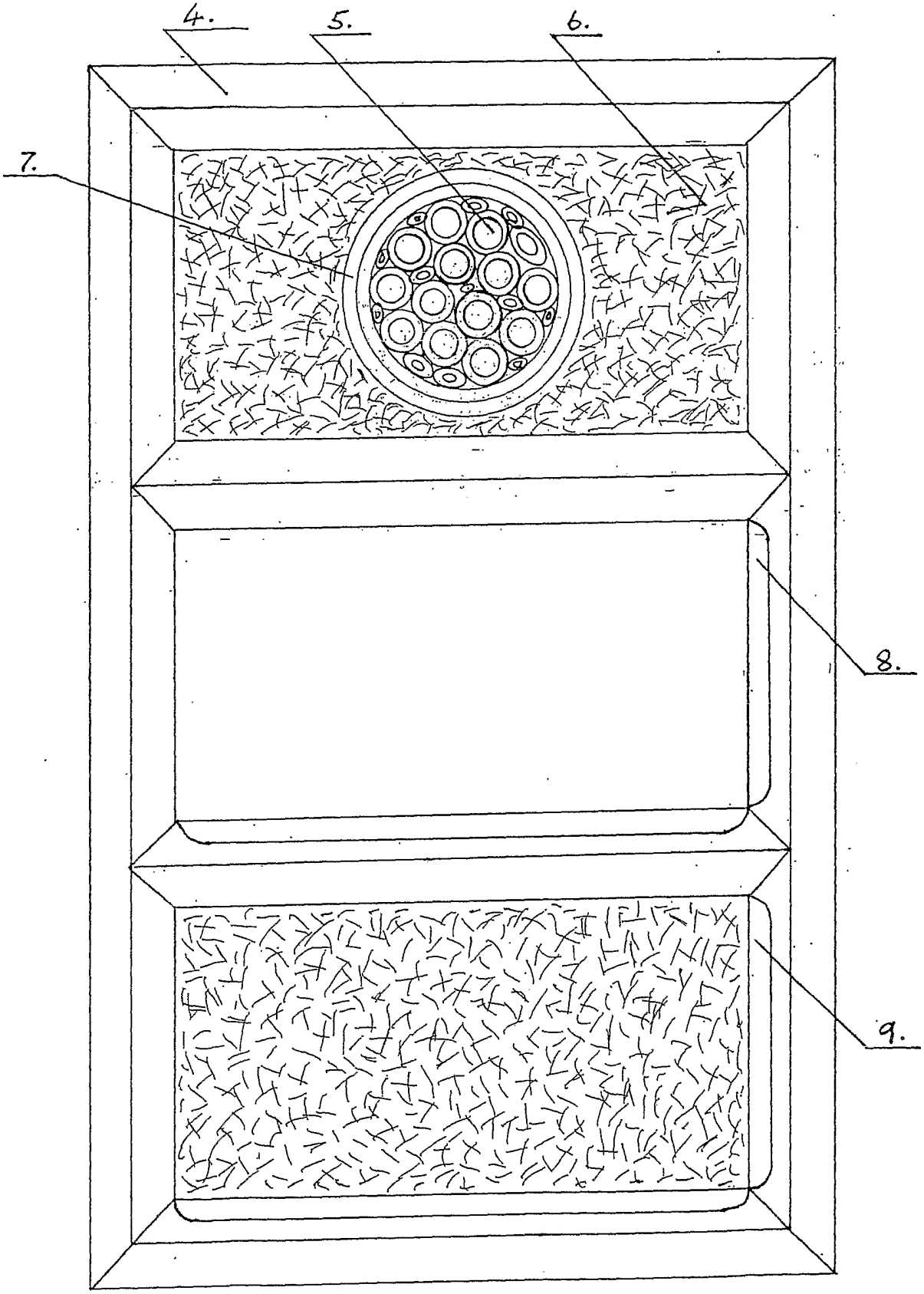
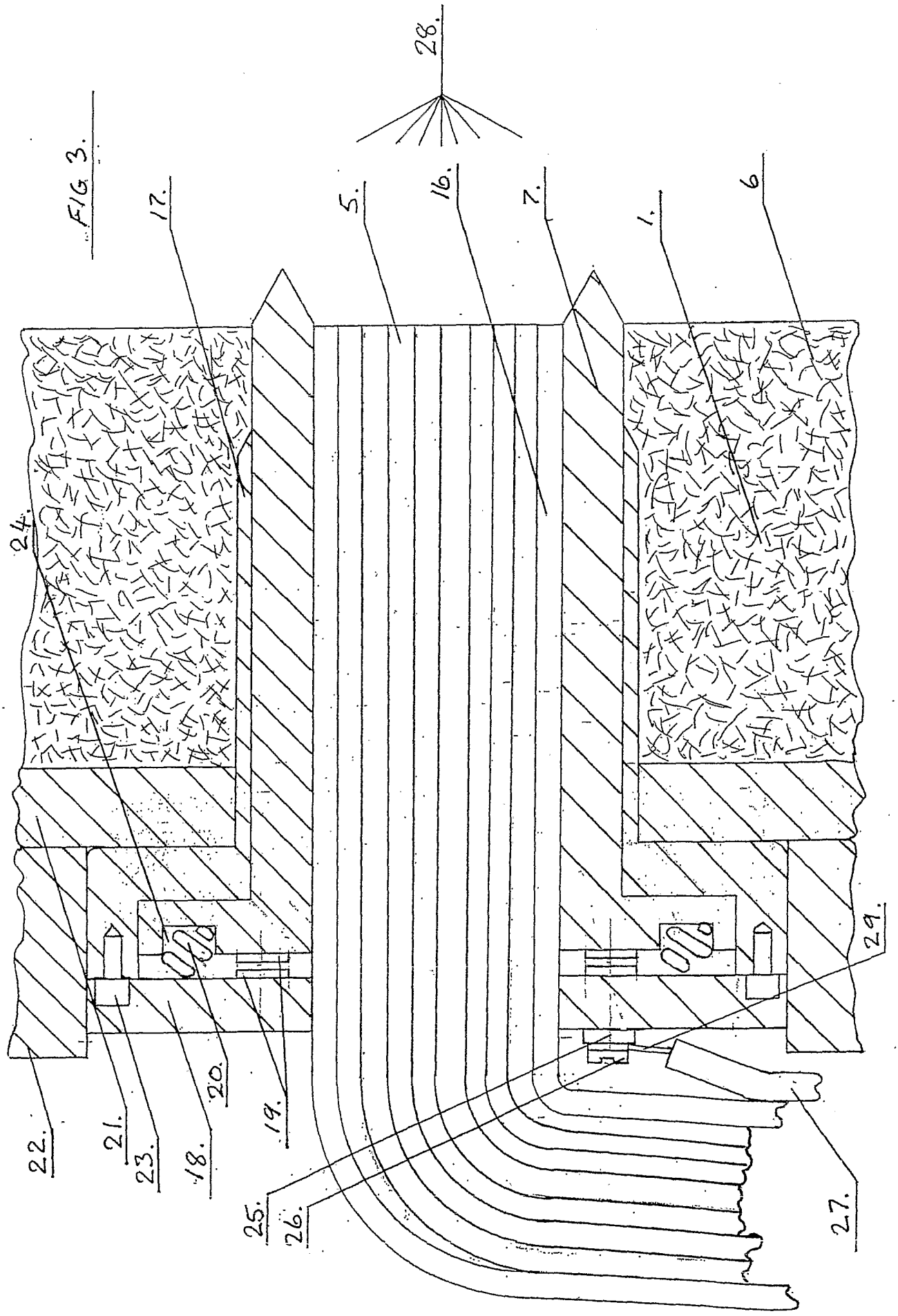


FIG 2.

FIG 3.



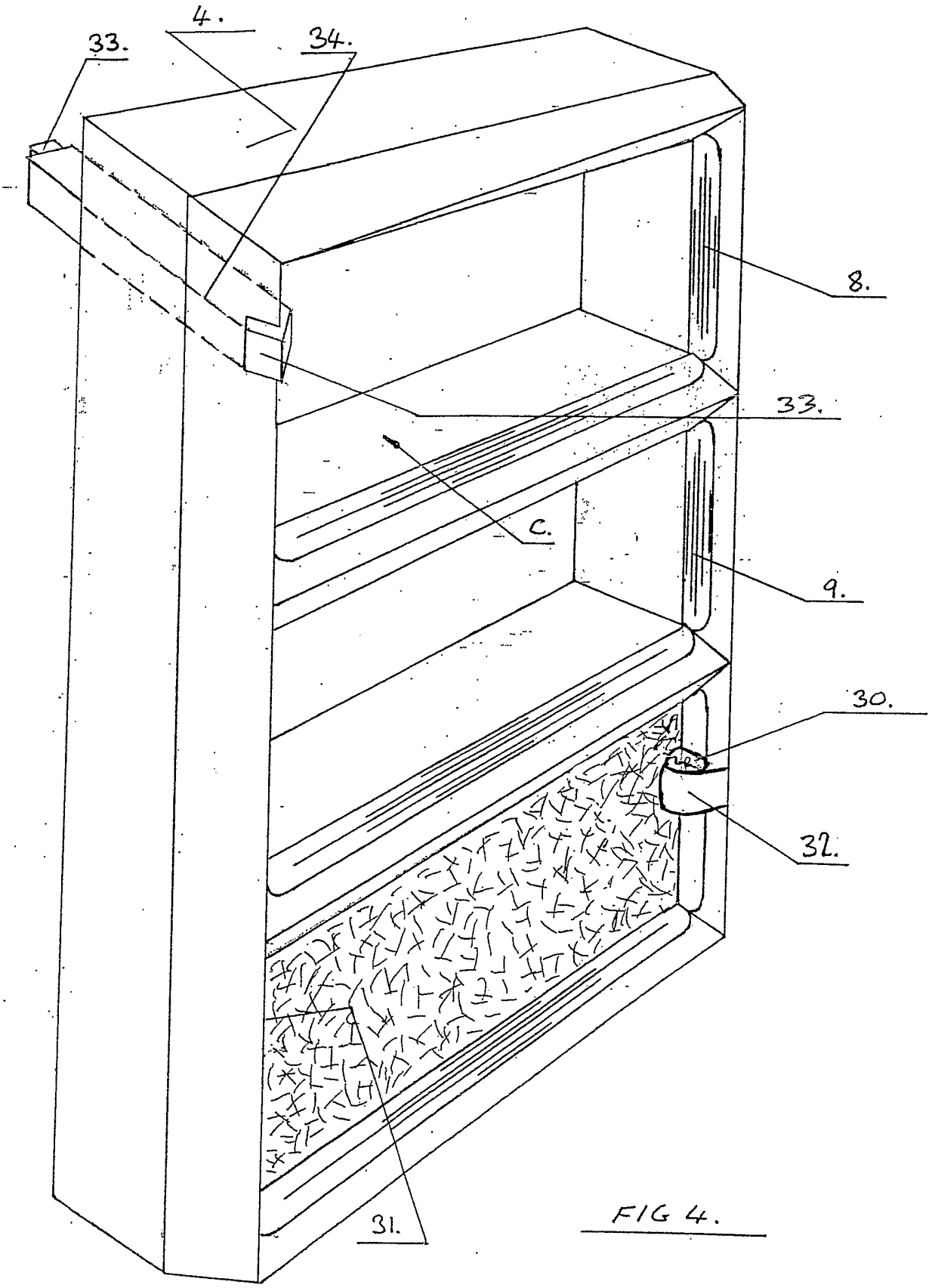


FIG 4.

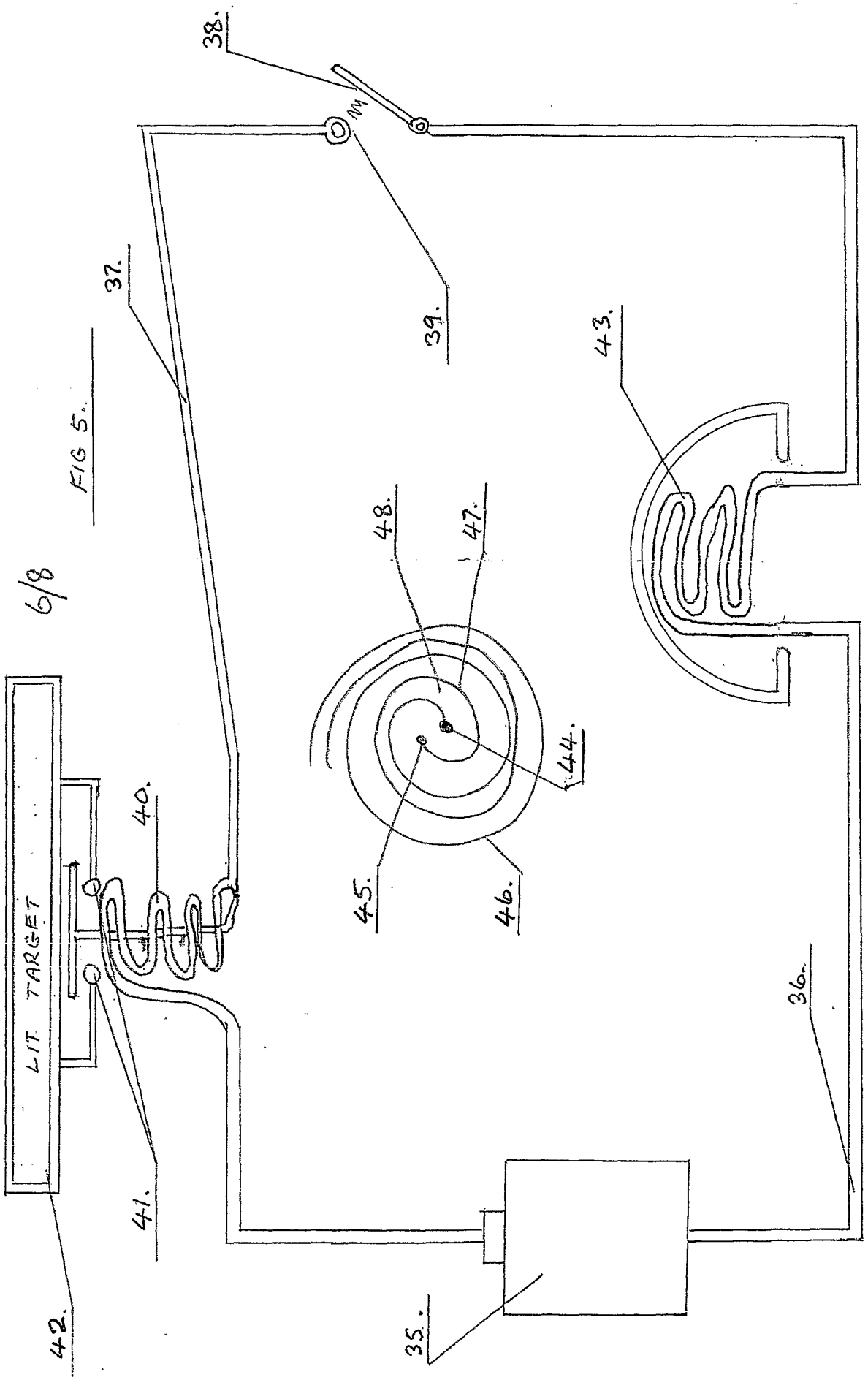


FIG 5.

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