

LOG OF MEETING
DIRECTORATE FOR ENGINEERING SCIENCES

SUBJECT: Electrocution and Fire Safety Technology by Nevo Industries, Ltd.

DATE OF MEETING: September 18, 1997

PLACE OF MEETING: East West Towers, Room 612

LOG ENTRY SOURCE: Doug Lee, ESEE

COMMISSION ATTENDEES:

Andrew Stadnik, ES
William King, ESEE
Doug Lee, ESEE
Aaron Banerjee, ESEE
Sheela Kadambi, ESEE
Anna Luo, ESEE
Carolyn Meiers, ESHF
Bob Ochsman, ESHF

NON-COMMISSION ATTENDEES:

Isaac Nevo, Nevo Industries, Ltd.
Haim Nevo, Nevo Industries, Ltd.
Alex Cohen, Consumer
Steven Vastagh, National Electrical Manufacturers Association
Dora Carter, National Electrical Safety Foundation

SUMMARY OF MEETING:

Mr. Isaac Nevo and Mr. Haim Nevo presented two products for electrocution and fire safety, the ground protector and the Safe-Loop system. These products were designed for homes in Israel where the electrical system uses 230 VAC. Nevo Industries, Ltd. is currently introducing their safety technology to GFCI and circuit breaker manufacturers in the United States. Mr. Haim Nevo demonstrated prototype products that were modified for use in the United States. Mr. Stadnik and Mr. King described the role of the CPSC and the processes involving the National Electrical Code and voluntary standards organizations.

The ground protector uses comparators to monitor the integrity of the ground to an electrical appliance. The device can sound an alarm, light indicator lights, and/or interrupt power to the circuit when a fault is detected. The device is U.S. patented and has 8 qualities for monitoring the condition of the ground. These qualities, a schematic, optional features, and actual usages are outlined in the enclosed presentation package.

The Safe-Loop system is similar to the Smart House system in the United States in requiring special wiring when the house is constructed. The Safe-Loop system combines the electrical outlets, lighting, and power switches to limit supply power to

CPSA 6 (b)(1) Cleared
11/12/97
No Mfrs/PrvtLbrs of
Products Identified
Excepted by
Firms Notified,
Comments Processed. *Atkinson*



the receptacle or the main board until a switch turns power on to an appliance or an appliance is plugged into a receptacle. The patent-pending, Safe-Loop system uses a unique electronic circuit operating as a virtual ground replacing the need for grounding. The system operation is described in the presentation package.

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Date: 04.11.1997
To: US Consumer Product Safety Commission
Attn.: Todd A. Stevenson.
Fax No: 00-1-301-5040127
From: Haim Nevo
Fax No:

RE: Meeting Summary September 18, 1997 Electroaction & fire safety. Our comments.

As your request here are our comments for the meeting summary.

Our comments related to the "Safe Loop" description.

1. The "safe loop" system gives us the possibility to work without ground conductors and without the need of grounding at all.
2. The "safe loop" system working with virtual ground that has no relationship or contact to the natural conduct in the net system.
3. The system became more safety as the isolation between the virtual ground and the natural conduct increased.
4. This system canceling the phenomena of short circuit between live conduct (phase) and any metal body of any instrument.
5. With the safe loop system you have the ability to touch live conduct (phase) without getting any filling of electric shock and in the same time the protecting system will activate.
6. The "safe loop system" operate in:
 - a. Ac network where the natural conduct grounded.
 - b. Ac network where the natural conduct isolated.
 - c. Dc systems.
7. I hope that this comments and description for the safe loop are clear now.
8. Looking forward hearing from you soon.

Best regards
Haim Nevo

NEVO INDUSTRIES LTD.

Haim Nevo
President

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NEVO INDUSTRIES LTD

Information kit.

The vision

r & d and manufacturing of products
based on thecnology that prevents major
malfunctions wich cause, electrification
and fire.

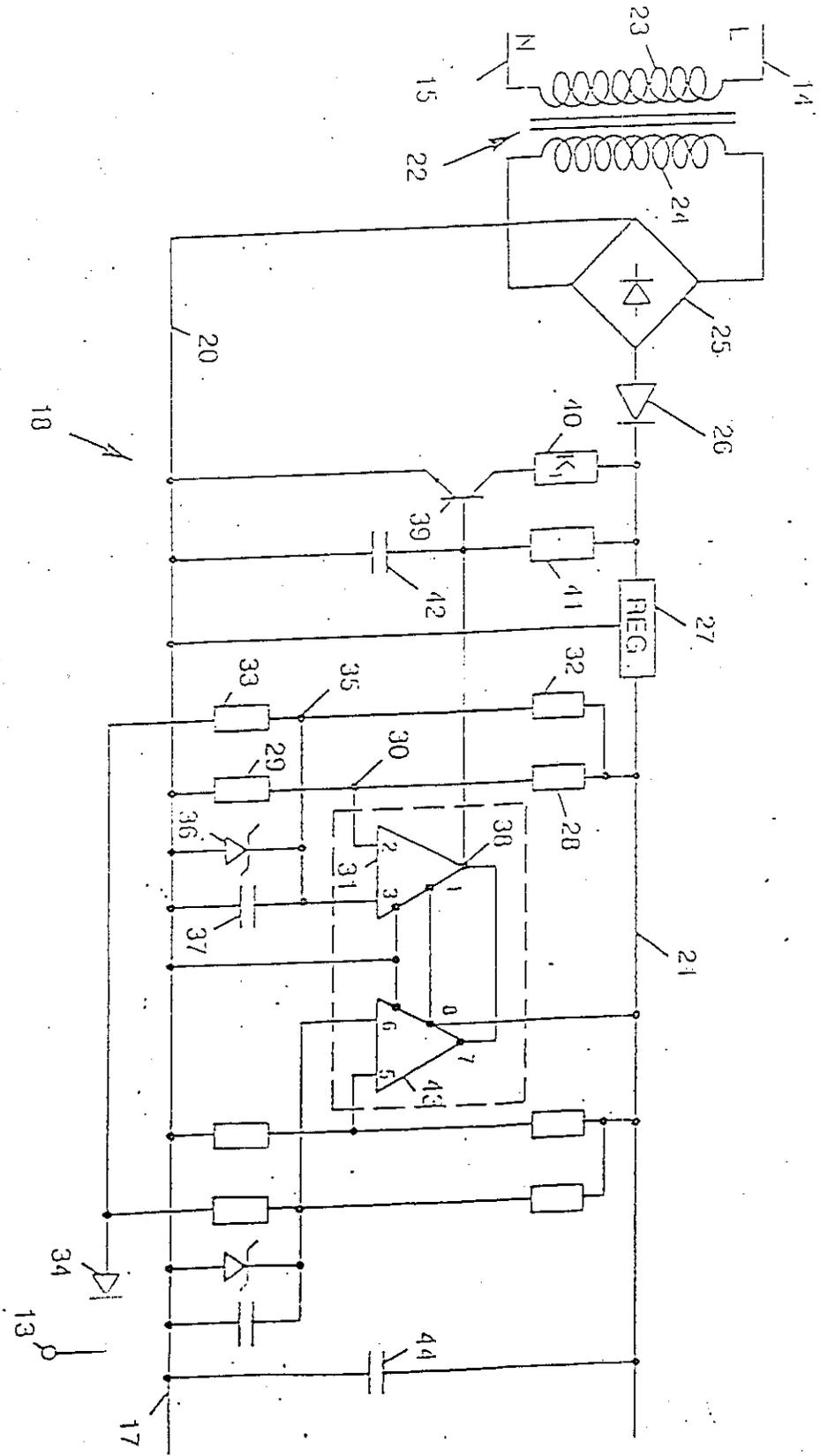
Product lines

1. The ground protector.
2. The Safe-Loop system.

The Ground Protector Qualities.

1. Delayed turn on after current interruption - provides protection against high voltage developed on the lines during the first milliseconds after the power recovery. The device can also be integrater with an electronic lightning arrest.
2. Detecting faults of the grounding system and providing an alert permits continues operation with faulty grounding as long as no dangeruos situations develop.
 - A. Full open of the ground connection.
 - B. Resistance on the ground connection.
3. Detecting dangerous faults and cutting the power off dangerous faults are:
 - A. Change in the potential between the phase line and zero line.
 - B. Appearance of voltage on the ground line.
 - C. Full open on the zero connection
 - D. Unstable zero.
 - E. Unbalanced output of a transformer.

The ground protector electronic principle.



The ground protector options.

1. A safety controlling and monitoring product for the electrical appliance.
2. Integrated with circuit breaker gfci.
3. A standalone device that could be operate by circuit breaker, contactor, or tripcoil.
4. A costume made device with less qualities, or with more alerting options.

The Ground protector actual uses.

1. A safety controlling and monitoring product for the electrical appliance.
2. A Ground Monitor and alert device for communications hubs missile command vehicle ect.
3. A device that monitor the zero line ground quality in the transformer.

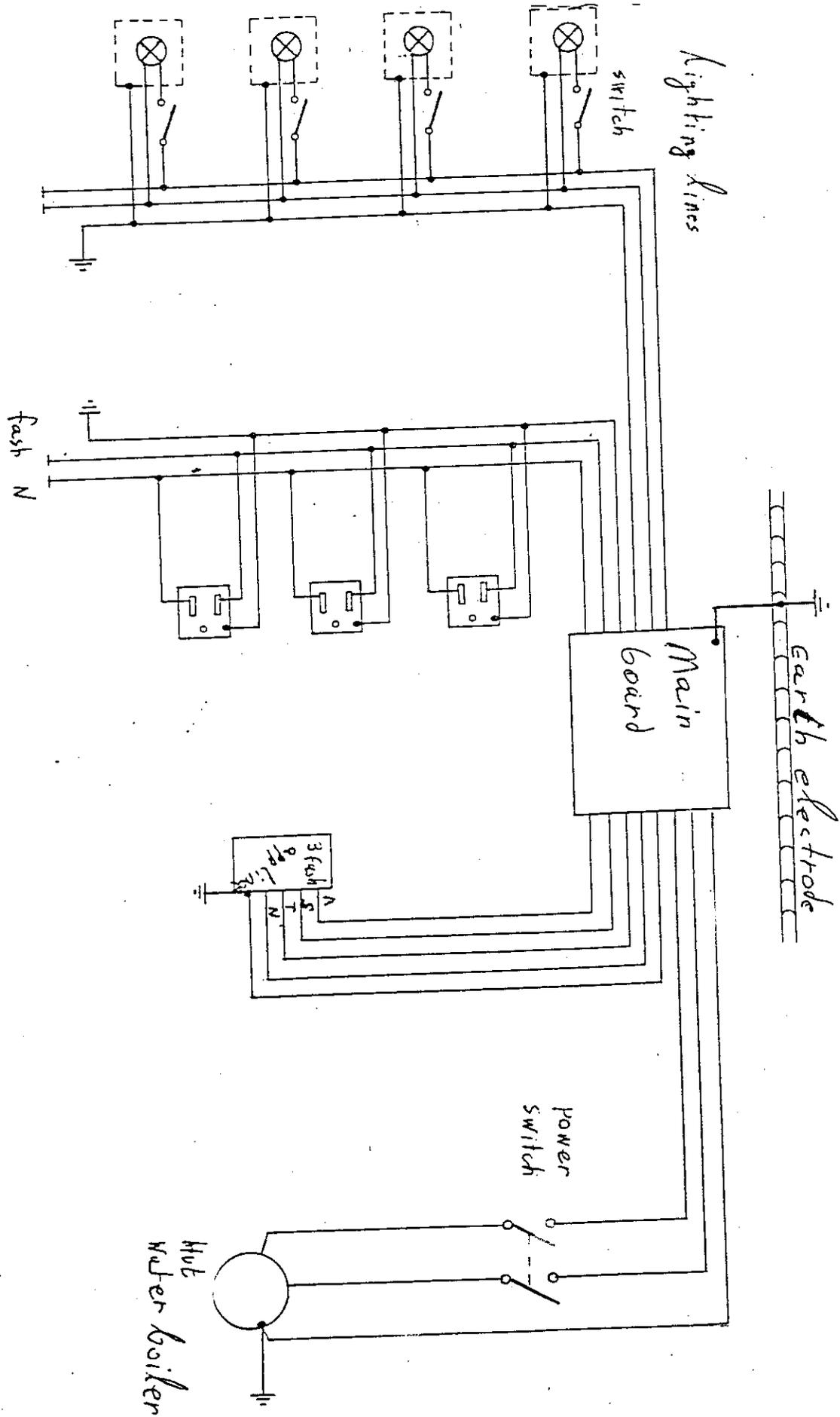
The Safe-Loop system

The Safe-Loop system combined electrical outlets, lighting and power switches.

Technology Advantages

1. The electrical current between the main board and the electrical outlet or lighting units. Is supply only! When needed:
 - A: When electrical appliance as been stable connection to the outlet and when “on” command, has been given.
 - B: When a light switch has been operated.
2. In the Safe-Loop system, we don't use the ground line, instead of that in any outlet, switch, or group of them, we use a unique electronic circuit that operate as virtual grounding.
The device is assembled in the outlet or the main board.
3. Sparking development has prevented in the switches and the electrical outlets.
4. Shortcuts between body and phase cannot develop in the system even if there is a direct touch.

The current electrical net.



The "Safe Loop system".

Today, protection from electricity damages and conflagrations are done by using a grounding conductor, which functions as a defense conductor by making a junction at a certain point with a N (null) conductor.

The junction point can be on the transformer band of the system, on the consumer's electrical control box, and there are countries today where the N point and the N conductor function also as protection conductors. We do not wish to specify the advantages and the disadvantages of every system, but one thing is clear - The Ohm resistance between the null grounding point of the transformer and the final point which we use to ground the device must add up to a few Ohms, or a few dozen Ohms (depending on the grounding system).

In all of these states, with the development of leakage at different levels, or development of full short circuits, we are completely dependent on the quality of the failure circuit (failures in the loop).

Any fault in that loop, for any reason, endangers the user (electrocution), endangers property, and causes danger of conflagration.

In this protection system, we are completely dependent on circumstances, for which we have no consecutive information about their regularity, and the consumer has no control whatsoever on their quality and regularity.

Furthermore, there are situations when the system, instead of protecting us - endangers us. That is, the protection conductor changes into an electrifying conductor.

In this system, there are situations in which we cause electric currents of high power and non-negligible voltage to flow into the ground.

It is obvious that the quality of the protection is the main cause of the faults. Furthermore, we are dependent on the quality of the soil, the climate, the humidity in the air, and the underground water pipe system which turns into an electrode, which is often used as a main grounding conductor.

Due to soil types such as sand, rock and the dryness of the soil, we are compelled to disperse electrodes and different substances so as to get acceptable continuity and resistance.

The interesting thing, is that in the massive use of this protection system, we have no monitoring and we count on luck.

Up to this day, as far as we know, no serious investigation has been done as to what happens to the structure of the earth, the plant roots, the subadjacent life, the quality of the underground water, and dozens of more situations and ecological obstacles.

It is possible that as a result of this situation, we could find out, one day, that we are responsible for irreversible damage. It is better to check and cancel out this situation as soon as possible.

The Ground protector cancels the need for all the above. That is, the consumer is protected by the device without the need for physical contact between the device he is using, and the star point of the transformer.

How the system operates:

The system of The Safe-Loop is built on an electronic monitoring device which continuously checks the voltage in the supply of the facility. With the appearance of voltage of 0.005A (or any other power level chosen), accompanied with voltage of 12V in the supply of the facility - The facility would be immediately cut off from the supply.

This sensitivity level would be possible since in every socket or every device in the facility a separate Safe-Loop would be installed so that every device supplied in the facility would give a different protection. That is, the supply to the devices would be phase conductors and null conductors only. Therefore, there will not be an accumulation of leakage in the protection in the panel, and the protection in the panel would be only for direct contact between the phase and the mass of the facility.

That is, if a boy were to stick his finger in the socket and touch the phase, and a current of over 0.005A were to pass through his body, the protection would be activated immediately.

In this system there will not be a short circuit between the phase and the soil, because there is no connection to the N of the transformer. A short circuit cannot develop; any contact between the electric phase and the human body will disconnect the system immediately without the side effects that are the usual result of a short circuit.

Advantages

Complete safe disconnection of the facility from those of other consumers.

Complete safe disconnection from the outer electric system.

Cancellation of the need to ground the facility and ground the foundations.

Cancellation of the need for neutralization.

Cancellation of the need for electrodes, or any other measure to improve the quality of the grounding.

Cancellation of the need for a potential comparison band.

Cancellation of the dependence on the quality of the soil.

Cancellation of the need for a cut-off switch.

Cancellation of the causes for conflagration.

Cancellation of the need for expensive equipment against high short-circuit currents.

Safe activation of movable equipment, for purposes of work, without the need to check the status of the grounding.

Easy work in sites with temporary electric supplies and other situations which do not have a solution today.

Option for production

1. Adaptor.
2. Socket.
3. Plug.
4. Multiple protection.