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(21) International Application Number: PCT/US87/00634 (22) International Filing Date: 26 March 1987 (26.03.87) (31) Priority Application Number: 845,251 (32) Priority Date: 28 March 1986 (28.03.86) (33) Priority Country: US (60) Parent Application or Grant (63) Related by Continuation US 845,251 (CIP) Filed on 28 March 1986 (28.03.86) (71)(72) Applicant and Inventor: SHACKNAI, Jonah [US/ US]; 1747 Pennsylvania Avenue, N.W. #950, Wash- ington, DC 20006 (US).		(74) Agents: BRETSCHNEIDER, Barry, E. et al.; Wegner & Bretschneider, P.O. Box 18218, Washington, DC 20036 (US). (81) Designated States: AT (European patent), BE (Euro- pean patent), CH (European patent), DE (European patent), FR (European patent), GB (European pa- tent), IT (European patent), JP, LU (European pa- tent), NL (European patent), SE (European patent), US. Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	
(54) Title: PROPHYLAXIS METHOD AND COMPOSITION THEREFOR			
(57) Abstract			
A toilet seat cleansing unit including a pressurized container housing a toilet seat aerosol composition capable of being ejected at a distance of from about six inches to two feet from the pressurized container. The aerosol composition used is suitable for prophylaxis against infections of persons coming into time direct physical contact with the toilet seat. Such an aerosol composition includes an aqueous lower alkanol solution with up to about 4.0 percent by weight of Chlorhexidine gluconate. Upon administration of the aerosol composition to the toilet seat, the germs capable of otherwise topically infecting the person at the point of bodily contact with the toilet seat are rendered ineffective.			

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PROPHYLAXIS METHOD AND COMPOSITION THEREFORFIELD OF THE INVENTION

This invention relates to the field of medicine and more specifically to a method and composition for prevention of disease encountered in public washroom facilities.

BACKGROUND OF THE INVENTION

Disinfectants have been known for many years, with a primary object of household sanitation in modern society being to keep restroom surfaces, and particularly those associated with the toilet, free from germs that can cause infection of a person coming into skin contact, typically when seated on a toilet.

Numerous products and compositions are well known in the art for the purpose of providing such safety and freedom from infection, with antiseptic cleaners having been provided and well known in the art. As an example of such a known compound that has disinfectant properties may be mentioned the hexamethylenebisbiguanide compound known as Chlorhexidine gluconate which is typically administered to a surface in a four percent solution in a mild, sudsing base which is adjusted to a pH of from about 5.0 to about 6.5, and used in that form to treat skin.

Certain long chain linear polyunsaturated acids, aldehydes and primary alcohols are proposed as effective for topical treatment as a virucide for herpes lesions in Revici et al, U.S. Patent 4,513,008 granted April 23, 1985. Prevention of the spread of the virus is suggested by incorporating such compounds in a hand cream or lotion for use by physicians, or in fluids used to kill virus on examining tables, instruments, gloves, towels and other surfaces. (col. 5, line 65 - col. 6, line 3).

Martin, U.S. Patent 4,469,614, granted September 4, 1984, teaches a chemical disinfectant and sterilant that includes glutaraldehyde, o-phenyl phenol, p-tert-amyl phenol, benzotriazole and a large number of other specific

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ingredients. Martin teaches that his composition may be used on contaminated dental or surgical instruments, or as a "secondary" use by dilution as a hand disinfectant. (col. 2, lines 3-6).

5 Prussin, U.S. Patent 4,364,515, granted December 21, 1982, teaches a water-in-air emulsion or suspension as an improvement in aerosol compositions which are stated as generally used for bath and body powders, make-up powders, foot powders, personal deodorant and antiperspirant powders, 10 and a variety of other uses. (column 2, lines 18-18). Prussin teaches the use of hydrophobic metal oxides, particularly silane treated silicas (column 2, lines 28-0).

Reinchr et al., U.S. Patent 4,357,476, granted November 2, 1982, teach nonadienylamines and related compounds as 15 suitable for combatting microorganisms, particularly in "material protection" (column 32, line 40) and to protect "organic substrates" (column 32, line 43). Protection of industrial products is stated as including glues, binders, paints and a variety of other things, and also as a 20 disinfective for plastics. Plastics are also included in a list of materials that can be protected, including plastics to be used for foot mats, bathroom curtains, toilet seats, foot grids in swimming pools, wall coverings and the like. (column 33, lines 4-10). The Reinchr et al. patent discloses that the 25 compounds may be included in an aqueous solution or dispersion with appropriate surface-active agent. (column 33, line 55). There is also a generic listing of the use of the composition in either a liquid form or aerosol. (column 33, line 54).

Schleppnik, U.S. Patent 4,310,512, granted December 4, 30 1979, discloses treatment of offensive odors with a combination of a perfume and fragrances.

DETAILED DESCRIPTION OF THE INVENTION

While the treatment of the skin is well known to remove germs, an object of the present invention is to provide a

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method of keeping a toilet surface germ-free.

It is a further object of the invention to provide a means for keeping toilet seats and other surfaces in public restrooms germ-free. Typically an airport washroom facility is used numerous times by all types of persons over the course of a day and between cleaning by airport personnel. It is highly desirable to provide the traveller with a convenient means of sanitizing washroom surfaces in such public facilities, without the need to carry cleaning fluids, cloths, and other items necessary to provide safety from infection.

In accordance with a first aspect of the invention, there is provided a toilet seat cleansing unit which comprises a pressurized container housing a toilet seat aerosol composition capable of being ejected at a distance of from about six inches to two feet from said pressurized container, said aerosol composition being suitable for prophylaxis against infections of persons coming into time direct physical contact with said toilet seat, said aerosol composition comprising an aqueous lower alkanol solution with up to about 4.0 percent by weight of Chlorhexidine gluconate, whereby upon administration of said aerosol composition to said toilet seat there are rendered ineffective germs capable of otherwise topically infecting the person at the point of bodily contact with said toilet seat.

In accordance with a preferred aspect of the invention, the lower alkanol is isopropyl alcohol. Alternatively, in accordance with yet another preferred aspect of the present invention, said lower alkanol is ethanol. A mixture of about one part isopropyl alcohol and one part ethanol forms yet a further aspect of the invention.

In a preferred embodiment, said Chlorhexidine gluconate is present in an amount of about 0.1 to 3.0 percent by weight of said lower alkanol.

In accordance with a second aspect of the present

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invention there is provided a method of prevention of infection of a person through direct skin contact of said person to a germ-containing surface in a washroom facility, which comprises applying a coating of an aerosol composition over said germ-containing surface at the point of expected skin contact therewith, said aerosol composition being suitable for prophylaxis against infections of persons coming into time direct physical contact with said germ-containing surface, said aerosol composition comprising an aqueous lower alkanol solution with up to about 4.0 percent by weight of Chlorhexidine gluconate, whereby upon administration of said aerosol composition to said germ-containing surface there are rendered ineffective germs capable of otherwise topically infecting the person at the point of bodily contact with said germ-containing surface.

In accordance with a more preferred embodiment of this second aspect of the present invention there is provided a method of prevention of infection of a person through direct skin contact of said person to a toilet seat, which comprises applying a coating of an aerosol composition over said toilet seat at the point of expected skin contact therewith, said aerosol composition being suitable for prophylaxis against infections of persons coming into time direct physical contact with said toilet seat, said aerosol composition comprising an aqueous lower alkanol solution with up to about 4.0 percent by weight of Chlorhexidine gluconate, whereby upon administration of said aerosol composition to said toilet seat there are rendered ineffective germs capable of otherwise topically infecting the person at the point of bodily contact with said toilet seat.

In accordance with a further aspect of the present invention there is provided a purse- or pocket-sized cleansing unit which contains a pressurized toilet seat aerosol composition capable of being ejected at a distance of from

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about six inches to two feet from said pressurized container, said aerosol composition being suitable for prophylaxis against infections of persons coming into time direct physical contact with said toilet seat, said aerosol composition containing a disinfectant, whereby upon administration of said aerosol composition to said toilet seat there are rendered ineffective germs capable of otherwise topically infecting the person at the point of bodily contact with said toilet seat.

The following examples illustrate the invention:

EXAMPLE I

An aerosol composition is prepared with a 4 percent Chlorhexidine gluconate in an ethanol solution, together with conventional aerosol spray adjuvants, to provide a spray to be administered to a toilet seat from a distance of about eight to ten inches. A brief spray of this aerosol composition instantly kills the usual bathroom germs that are found on toilet seats.

EXAMPLE II

An aerosol composition is prepared with a 3 percent Chlorhexidine gluconate in an alkanol mixture of one half isopropyl alcohol and one half ethanol solution, together with conventional aerosol spray adjuvants, to provide a spray to be administered to a toilet seat from a distance of about eight to ten inches. A brief spray of this aerosol composition instantly kills the usual bathroom germs that are found on toilet seats.

EXAMPLE III

An aerosol composition is prepared with a 2 percent Chlorhexidine gluconate in an ethanol solution, together with conventional aerosol spray adjuvants, to provide a spray to be administered to a toilet seat from a distance of about eight to ten inches. A brief spray of this aerosol composition instantly kills the usual bathroom germs that are found on toilet seats.

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EXAMPLE IV

5 An aerosol composition is prepared with a 4 percent Chlorhexidine gluconate in an isopropanol solution, together with conventional aerosol spray adjuvants, to provide a spray to be administered to a toilet seat from a distance of about eight to ten inches. A brief spray of this aerosol composition instantly kills the usual bathroom germs that are found on toilet seats.

EXAMPLE V

10 An aerosol composition is prepared with a 1 percent Chlorhexidine gluconate in an ethanol solution, together with conventional aerosol spray adjuvants, to provide a spray to be administered to a toilet seat from a distance of about eight to ten inches. A brief spray of this aerosol composition
15 instantly kills the usual bathroom germs that are found on toilet seats.

EXAMPLE VI

An aerosol composition of Example 1 is useful for killing germs on surfaces where they proliferate. Such an aerosol
20 composition is sprayed onto a surface contaminated with Staphylococcus aureus. The composition kills the germ and, thus, provides a surface free from the germ such that bodily contact with the surface is undertaken without fear of germicidal contamination.

25 EXAMPLE VII

An aerosol composition of Example 2 is useful for killing germs on surfaces where they proliferate. Such an aerosol composition is sprayed onto a surface contaminated with Pseudomonas aeruginosa. The composition kills the germ and,
30 thus, provides a surface free from the germ such that bodily contact with the surface is undertaken without fear of germicidal contamination.

EXAMPLE VIII

An aerosol composition of Example 3 is useful for killing

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germs on surfaces where they proliferate. Such an aerosol composition is sprayed onto a surface contaminated with Salmonella choleraesuis. The composition kills the germ and, thus, provides a surface free from the germ such that bodily contact with the surface is undertaken without fear of germicidal contamination.

EXAMPLE IX

An aerosol composition of Example 4 is useful for killing viruses on surfaces where they proliferate. Such an aerosol composition is sprayed onto a surface contaminated with Herpes simplex virus type I. The composition kills the virus and, thus, provides a surface free from the virus such that bodily contact with the surface is undertaken without fear of virucidal contamination.

EXAMPLE X

An aerosol composition of Example 5 is useful for killing viruses on surfaces where they proliferate. Such an aerosol composition is sprayed onto a surface contaminated with Herpes simplex virus type II. The composition kills the virus and, thus, provides a surface free from the virus such that bodily contact with the surface is undertaken without fear of virucidal contamination.

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WHAT IS CLAIMED IS:

1. A toilet seat cleansing unit which comprises a pressurized container housing a toilet seat aerosol composition capable of being ejected at a distance of from about six inches to two feet from said pressurized container, said aerosol composition being suitable for prophylaxis against infections of persons coming into direct physical contact with said toilet seat, said aerosol composition comprising an aqueous lower alkanol solution with up to about 4.0 percent by weight of Chlorhexidine gluconate, whereby upon administration of said aerosol composition to said toilet seat there are rendered ineffective germs capable of otherwise topically infecting the person at the point of bodily contact with said toilet seat.

2. A toilet seat cleansing unit containing an aerosol composition of claim 1, wherein said lower alkanol is isopropyl alcohol.

3. A toilet seat cleansing unit containing an aerosol composition of claim 1, wherein said lower alkanol is ethanol.

4. A toilet seat cleansing unit containing an aerosol composition of claim 1, wherein said lower alkanol is a mixture of about one part isopropyl alcohol and one part ethanol.

5. A toilet seat cleansing unit containing an aerosol composition of claim 1, wherein said Chlorhexidine gluconate is present in amount of about 0.1 to 3.0 percent by weight of said lower alkanol.

6. A method of prevention of infection of a person through direct skin contact of said person to a germ-containing surface in a washroom facility, which comprises applying a coating of an aerosol composition over said germ-containing surface at the point of expected skin contact therewith, said aerosol composition being suitable for prophylaxis against infections of persons coming into direct

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physical contact with said germ-containing surface, said aerosol composition comprising an aqueous lower alkanol solution with up to about 4.0 percent by weight of Chlorhexidine gluconate, whereby upon administration of said aerosol composition to said germ-containing surface there are rendered ineffective germs capable of otherwise topically infecting the person at the point of bodily contact with said germ-containing surface.

7. A method of prevention of infection of a person through direct skin contact of said person to a germ-containing surface in a washroom facility of claim 6, wherein said lower alkanol is isopropyl alcohol.

8. A method of prevention of infection of a person through direct skin contact of said person to a germ-containing surface in a washroom facility of claim 6, wherein said lower alkanol is ethanol.

9. A method of prevention of infection of a person through direct skin contact of said person to a germ-containing surface in a washroom facility of claim 6, wherein said lower alkanol is a mixture of about one part isopropyl alcohol and one part ethanol.

10. A method of prevention of infection of a person through direct skin contact of said person to a germ-containing surface in a washroom facility of claim 6, wherein said Chlorhexidine gluconate is present in an amount of about 0.1 to 3.0 percent by weight of said lower alkanol.

11. A method of prevention of infection of a person through direct skin contact of said person to a toilet seat, which comprises applying a coating of an aerosol composition over said toilet seat at the point of expected skin contact therewith, said aerosol composition being suitable for prophylaxis against infections of persons coming into time direct physical contact with said toilet seat, said aerosol composition comprising an aqueous lower alkanol solution with

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up to about 4.0 percent by weight of Chlorhexidine gluconate, whereby upon administration of said aerosol composition to said toilet seat there are rendered ineffective germs capable of otherwise topically infecting the person at the point of
5 bodily contact with said toilet seat.

12. A method of prevention of infection of a person through direct skin contact of said person to a toilet seat of claim 11, wherein said lower alkanol is isopropyl alcohol.

13. A method of prevention of infection of a person
10 through direct skin contact of said person to a toilet seat of claim 11, wherein said lower alkanol is ethanol.

14. A method of prevention of infection of a person through direct skin contact of said person to a toilet seat of claim 11, wherein said lower alkanol is a mixture of about one
15 part isopropyl alcohol and one part ethanol.

15. A method of prevention of infection of a person through direct skin contact of said person to a germ-containing surface in a washroom facility of claim 11, wherein said Chlorhexidine gluconate is present in an amount of about
20 0.1 to 3.0 percent by weight of said lower alkanol.

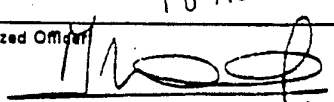
16. A purse- or pocket-sized cleansing unit which contains a pressurized toilet seat aerosol composition capable of being ejected at a distance of from about six inches to two feet from said pressurized container, said aerosol composition
25 being suitable for prophylaxis against infections of persons coming into time direct physical contact with said toilet seat, said aerosol composition containing a disinfectant, whereby upon administration of said aerosol composition to said toilet seat there are rendered ineffective germs capable
30 of otherwise topically infecting the person at the point of bodily contact with said toilet seat.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 87/00634

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
4 A 01 N 47/44; A 01 N 25/06; A 01 L 2/22; //		
IPC: (A 01 N 47/44, 31:02)		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
IPC ⁴	A 01 N A 61 L	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ⁹	Citation of Document, ¹¹ with Indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	BE, A, 893125 (C. GILLIARD et al.) 30 August 1982 see the whole document --	1-16
Y	EP, A1, 0132038 (RIZLA LTD) 23 January 1985 see page 1, line 2 - page 2, line 6, page 3, lines 20-28; claims --	1-16
Y	AU, A, 254337 (PARCO CHEMICALS) 27 September 1962 see the whole document --	1-16
X	EP, A1, 0099209 (SURGIKOS INC.) 25 January 1984 see page 2, lines 11-21; page 3, lines 19-36; page 5, line 19 - page 6, line 10; example 4; page 14, lines 10-26; claims	1-5
A		6-16

¹⁰ * Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "A" document member of the same patent family		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search 16th July 1987		Date of Mailing of this International Search Report 10 AUG 1987
International Searching Authority EUROPEAN PATENT OFFICE		Signature of Authorized Officer M. VAN MOL 

ANNEX T. THE INTERNATIONAL SEARCH REPORT ON

INTERNATIONAL APPLICATION NO. PCT/US 87/00634 (SA 16784)

This Annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on 31/07/87

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
BE-A- 893125	30/08/82	None	
EP-A- 0132038	23/01/85	GB-A,B 2141343 AU-A- 2919284	19/12/84 13/12/84
AU-A- 254337		None	
EP-A- 0099209	25/01/84	GB-A- 2122900	25/01/84

For more details about this annex :
see Official Journal of the European Patent Office, No. 12/82