(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 989 913 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
02.03.2016 Bulletin 2016/09

(21) Application number: **13882643.3**

(22) Date of filing: **01.07.2013**

(51) Int Cl.:
A41B 9/00 *(2006.01)*

(86) International application number:
PCT/UA2013/000066

(87) International publication number:
WO 2014/175848 (30.10.2014 Gazette 2014/44)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(30) Priority: **22.04.2013 UA 2013005171 U**

(71) Applicant: **Tachko, Aleksander Viktorovich**
Kiev 02094 (UA)

(72) Inventor: **Tachko, Aleksander Viktorovich**
Kiev 02094 (UA)

(74) Representative: **Spengler, Robert**
Küfergasse 11
89073 Ulm (DE)

(54) COOLING TRUNKS FOR A BATH HOUSE

(57) *Use:* in the designs of men's special purpose underwear for temporary stay in premises with high temperature conditions, for example, when visiting the baths and saunas.

Essence: cooling underpants for baths consist of belt, front and rear parts, interconnected by side seams. Underpants have additional panel forming with the front part a pocket-type cavity. Additional panel is executed in a trapezoid shape, the smaller base of which is fixed in the area of the bottom seam joining the front and rear parts. The large trapeze surface faces towards the belt and is provided with an elastic band. In the bottom part of the underpants' cavity there is a container with an opening for filling the cooling agent configured in shape of the bottom part of the underpants' additional panel.

Technical advantages: improved ergonomic features; simplicity of filling and removal of the coolant of the container; versatility.

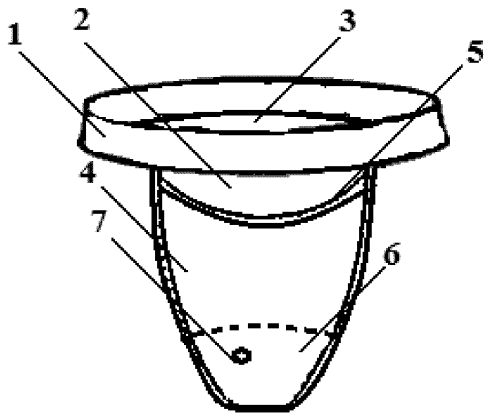

Fig. 1

EP 2 989 913 A1

Description

[0001] The invention relates to the field of light industry, in particular, to the design and manufacture of men's underwear of special purpose and can be used during a temporary stay in rooms with high temperature conditions, for example, when visiting the baths and saunas.

[0002] It is known that the reproductive system of men is quite sensitive to high temperatures. It is found that the skin temperature, as the temperature of blood entering and flowing from the area of the reproductive glands (testes), normally 3.5-5.0 °C lower than the temperature of other organs. Overheating of the scrotum is very dangerous for men's health, because it leads to disruption of reproductive function. Especially it concerns considerable high-temperature influence, which occurs when visiting a bath or a sauna. Raising the temperature of the testes adversely affects the reproductive ability of men - the condition of male reproductive system after only 1.0-1.5 hour stay in the sauna is equivalent to sterility.

[0003] There are medical underpants of elastic wind- and water-permeable material, the front and rear parts of which are connected on the sides and bottom between the stepping cutouts, and thus consist of the outer and inner walls arranged at a short distance from one another, forming between them a hermetic cavity filled with thermal insulation material [see patent of Ukraine No. 6079 U on class A41D 7/00, published on 15.04.2005].

[0004] This technical solution provides thermal insulation of the body area directly contacting with underpants, thus avoiding overheating. However, a drawback of the known technical solution is the difficulty in manufacturing due to product's multilayer structure and poor ergonomic characteristics - waterproof surface of the underpants is unpleasant and breaks the aesthetics and comfort of taking the bath.

[0005] This drawback is partially removed in the known insulating underpants made of air- and water-permeable flexible material and having a reverse side protector with open or closed cells are filled with air and disposed at a distance from each other [see patent of Ukraine No. 10515 U on class A41D 7/00, published 15.11.2005 in Bull. No. 11].

[0006] This design of underpants, due to the presence of cells, provides a distance between the material of underpants and body, and by this a thermal insulating effect is achieved. However, the disadvantage is not just an inconvenience, but inefficient use of underpants during a visit to the sauna or bath. These insulating underpants really help to maintain a certain temperature and can protect their wearer from hypothermia, but in the case of significant overheating they unlikely can help (due to insufficient insulating properties of air in the cells). Another disadvantage of the known technical solution, as well as the previous analog, should be considered the fact that the insulation occurs over the entire area of the body under the underpants, reducing the health benefits of saunas for this part of the body. Protection against overheating should be local - only the area of the scrotum, so as the thermal effect on the penis, on the contrary, is desirable because it provides dilation of blood vessels and thereby contributes to a better erection.

[0007] The closest in its essence and attainable effect, taken as a prototype, are the underpants for men of trunks-type, consisting of belt and front and rear parts interconnected by side seams and also contain additional panel forming with the front part the pocket-type cavity, wherein the front, adjacent to the body part has a slit for bringing out the genitals into said pocket [see International application No. 92/18021 A1 on class A41D 9/02, published on 29.10.1992].

[0008] The main drawback of the prototype is the lack of a tangible thermal insulation (cooling) effect. The known underpants in some extent really can protect the inguinal area from minor overheating by placing the male genitalia in a special "pocket". However, in the known technical solution, thermal insulation is provided only for the part of the genital - given the shape and location of the slit in the front part of the underpants. This "pocket" is only for the penis, scrotum remains in contact with the crotch, so it is overheated even because of inter-skin contact, not to mention the high temperature impact when visiting baths.

[0009] Also, a significant drawback of the known technical solution is the presence of the above slit in front part of the said underpants. As already mentioned, this solution is completely ineffective when used in the design of underpants for baths. In addition, the presence of unusual for most men slit creates certain inconveniences when using the product, and creates a number of specific requirements for the geometry of the product and the characteristics of fabrics at manufacturing - specified slit should be wide enough not to compress the root of the penis, and sufficiently elastic to avoid the content of "pocket" falling back.

[0010] Another significant disadvantage of the known underpants is imperfect form of the additional panel, in particular fact that the said panel is attached to the front part of the article with the side seams. It essentially limits the possibilities regarding the selection of models of underpants' base.

[0011] The basis of the invention implies the task to improve the ergonomic properties of underpants without complicating their design through achieving physiologically optimal temperature in the scrotum while man visiting the baths (saunas) by improving the shape of the article and the introducing an element into design, performing a cooling effect in this area.

[0012] This object is achieved by the fact that in the cooling underpants for men of trunks-type, consisting of a belt, front and rear parts interconnected by side seams and having an extension panel that forms a front part of a cavity in the form of a pocket, according to the proposal, additional panel is made in the form of trapeze, a smaller base of which is fixed in the zone of the bottom seam joining the front and rear parts, and a large surface of

trapeze faces towards the belt and is provided with an elastic band, while in the bottom of cavity there is a container with an opening for filling the cooling agent, configured in the form of additional bottom panel of underpants.

[0013] As cooling agent, tepid water is proposed to use, which firstly has a high heat capacity, and secondly, is neutral to the body and, thirdly, it is always in unlimited quantity in a bath. However, this does not exclude the use of any other substance, such as emulsion, suspension, gel, etc.

[0014] Furthermore, according to the proposal, a coolant container is made of soft flexible waterproof material.

[0015] The proposed form of the additional panel allows using it at any design of currently known models of underpants, including type of strings, tanga and other widely used in baths.

[0016] Processing edge of additional panel with elastic band excludes falling out of the container with a cooling agent. However, it is not the only possible solution in principle. The other known means can also be used - buttons, hooks, zippers and others. The pocket formed, in addition to its direct purpose, may serve for keeping some small items such as condoms.

[0017] Execution of container for the cooling agent in the form of bottom part of underpants' additional panel, made of soft flexible material provides ergonomic design. Said container is naturally designed so that can be easily removed from the space between the front part of the underpants and their additional panel. However, it may be stationary construction element, which does not alter the consumer properties of the article in general.

[0018] Availability of opening in the container makes it possible to fill the latter with a cooling agent, for example, water, an unlimited number of times immediately before using the underpants that provides the convenience of use.

[0019] Thus, the totality of the essential features of the proposed solution concerning the men's cooling underpants for baths, obtained due to design changes, provides the required technical result.

[0020] Further essence of the proposed technical solution is explained in conjunction with illustrative material, which shows a general view of the proposed men's cooling underpants for baths.

[0021] Proposed underpants consist of belt 1, front 2 and rear 3 parts, interconnected by side seams and provide additional panel 4, forming with the front part 2 a pocket-type cavity. Additional panel 4 is provided with an elastic band 5. In the bottom part of the cavity there is a container 6 with opening 7 for filling the cooling agent configured in the form of the bottom part of the additional panel 4.

[0022] The proposed cooling underpants are used as follows. A man shall wear underpants before visiting the baths or sauna, for example, in the locker room. Immediately prior to the baths session, a man fills a container 6 with any available cooling agent, such as tepid water, and places it into the space between the front part of underpants fitting to genitals 2 and additional panel 4, positioning it directly under the scrotum. Thereafter baths can be enjoyed without the risk for men's health - water contained in the container 6, as a rule, does not have time to warm up to unsafe temperatures and thus enables maintenance of temperature mode of inguinal zone.

[0023] It should be noted that the scope of the proposed use of underpants is not limited to baths. They can be successfully used by representatives of some professions in which protection against high temperatures is not provided by protective uniform. It applies, for example, to cooks of hot shop, bakery workers, metallurgists and others. The proposed design of underpants is able to protect from the 'targeted' (at waist level) infrared radiation from plates, ovens, stoves, blast and open-hearth furnaces, convectors, adversely affecting the male reproductive organs.

[0024] The claimed technical solution was tested in practice. The proposed cooling underpants for baths do not contain in its composition a single structural element or material which cannot be implemented at the present stage of development of science and technology, particularly in the field of light industry, therefore, are suitable for industrial applications, have the technical and other advantages over conventional counterparts, which confirms the possibility of achieving a technical result of the claimed subject. In the known sources of patent and other scientific and technical information, there are no revealed designs and samples of insulating underpants for baths with the set of essential features referred in proposal, therefore, the proposed technical solution meets the criterion of "novelty", and therefore can get legal protection.

[0025] The essential difference of the proposed technical solution from known ones is that the additional panel is trapeze-shaped, the smaller base of which is fixed in the area of the bottom seam joining the front and rear parts, and large trapeze base faces towards the belt and is provided with an elastic band, and that in the bottom of cavity between the additional panel and the front part of the underpants there is a container made of soft flexible material with an opening for filling the cooling agent, for example with water, made in the form of bottom part of the underpants' additional panel. The indicated differences, in the aggregate, can significantly improve the ergonomic features of the underpants. None of the known underpants' designs can simultaneously possess all the above properties, since they do not contain in their composition the totality of the essential features claimed.

[0026] The technical advantages of the proposed technical solution, as compared to the prototype, include the following:

- ensuring physiologically optimum temperature for the male reproductive organs due to the presence of the container with a cooling agent in the design;
- improved ergonomic features due to improvements in shape of the article;

- simplicity of filling and removal of the coolant of the container;
- versatility by allowing the use underpants also without cooling container.

[0027] Social benefits from the implementation of the proposed technical solution, as compared with the prototype, are obtained by convenience of cooling underpants.

[0028] Medical effect of the introduction of the proposed technical solution, as compared with the prototype is obtained by maintaining reproductive function of men, regardless of the frequency and duration of visit baths and saunas.

[0029] After the description of the proposed technical solution, persons skilled in this art should be apparent that all of the above is merely illustrative, and not limiting, being presented by this example of specific performance. Numerous possible options for implementation of the proposed cooling underpants for baths may vary depending on the wishes of the users, and, of course, within the scope of one of the conventional and natural approaches in this field of knowledge, and considered as ones within the boundaries of the scope of the proposed technical solution.

[0030] The quintessence of the proposed technical solution is the presence in underpants' construction of the container of special design with a cooling agent, made in form of the bottom part of improved trapezoidal additional panel of the underpants with free-end elastic band to prevent falling out of the said container. And namely this circumstance allows the proposed design of the cooling underpants to acquire above mentioned and other advantages. Using a combination of individual components from the totality claimed, of course, limits the range of the benefits listed above, and cannot be considered as new technical solutions in the field of knowledge, as any other designs, such as those described, no longer require any creativity from designers and engineers and cannot be considered the results of their creative activity or new intellectual property, subject to protection with title documents.

Claims

1. Cooling underpants for baths consisting of a belt, front and rear parts interconnected by side seams and having additional panel forming with the front part the cavity in the form of a pocket, **characterized in that** the additional panel is executed in the form of a trapeze, the smaller base of which is fixed in the area of the bottom seam joining the front and rear parts, and the large trapeze surface faces towards the belt and is provided with an elastic band, while in the bottom of cavity there is a container with an opening for filling the cooling agent, configured in the form of the bottom part of underpants' additional panel.

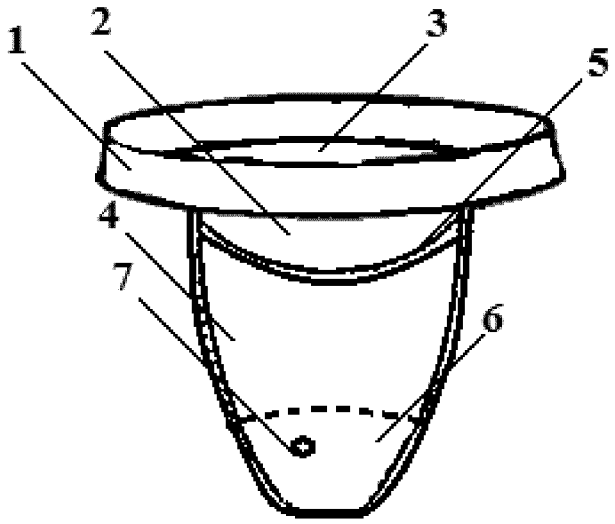

Fig. 1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/UA 2013/000066

A. CLASSIFICATION OF SUBJECT MATTER
A41B 9/00 *(2006.01)*

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)

A41B 9/00, 9/02, A41D 7/00

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 practicable, search terms used)

PatSearch (RUPTO internal), Esp@cenet, PAJ, USPTO, Information Retrieval System of FIPS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 1992/018021 A1 (SHIN JEONG YIL et al.) 29.10.1992, abstract, fig. 1	1
Y	US 2012/031 1758 AI (DOLLFACE DESIGNS, LLC) 13.12.2012, fig. 1-3, the claims	1
Y	JP 11050302 A (KISHIBE KEORI KK) 23.02.1999, abstract, drawing	1
A	US 2008/0027383 AI (FATHALLAH NAHHAS) 31.01.2008, fig. 1-9, the claims, p. 2	1
A	RU 86417 U1 (AVGUSTOPULO ELEONORA TEODOROVNA) 10.09.2009, the claims	1

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* 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 application or patent 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 when the document is taken alone
"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
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
27 November 2013 (27.11.2013)	05 December 2013 (05.12.2013)
Name and mailing address of the ISA/ RU	Authorized officer
Facsimile No.	Telephone No.

Form PCT/ISA/210 (second sheet) (July 2009)

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- UA 6079 U **[0003]**
- UA 10515 U **[0005]**
- WO 9218021 A1 **[0007]**