

## Protective clothing material

WO201959203

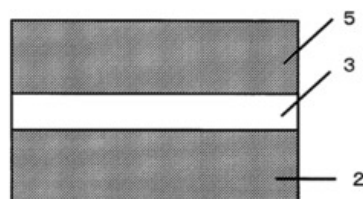
2019-03-28

Applicant(s): Shibata Yu, Yuichiro Hayashi

The present invention addresses the problem of providing a protective clothing material that has excellent liquid, in particular oil, penetration suppression properties and an excellent ventilation rate. This protective clothing material includes at least a spunbond nonwoven fabric layer (A) and a meltblown nonwoven fabric layer having an olefin resin as a main component, wherein: the spunbond nonwoven fabric layer (A) and the meltblown nonwoven fabric layer are directly laminated together; the spunbond nonwoven fabric layer (A) is made of fibers having an average fiber diameter of 18-30  $\mu\text{m}$ , has a thickness of 150-300  $\mu\text{m}$ , has a bulk density of 0.20-0.40  $\text{g}/\text{cm}^3$ , and further has a fluorine mass content in the entire spunbond nonwoven fabric layer (A) of 500 ppm or greater; the meltblown nonwoven fabric layer is made of fibers having an average fiber diameter of 3-8  $\mu\text{m}$ , has a thickness of 100-200  $\mu\text{m}$ , has a bulk density of 0.20-0.40  $\text{g}/\text{cm}^3$ , and further has a fluorine mass content in the entire meltblown nonwoven fabric layer of 100 ppm or less.

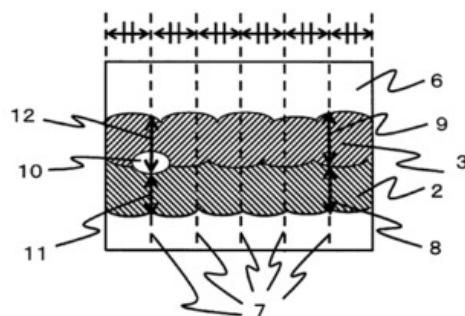
【図4】

1



【図5】

【図5】



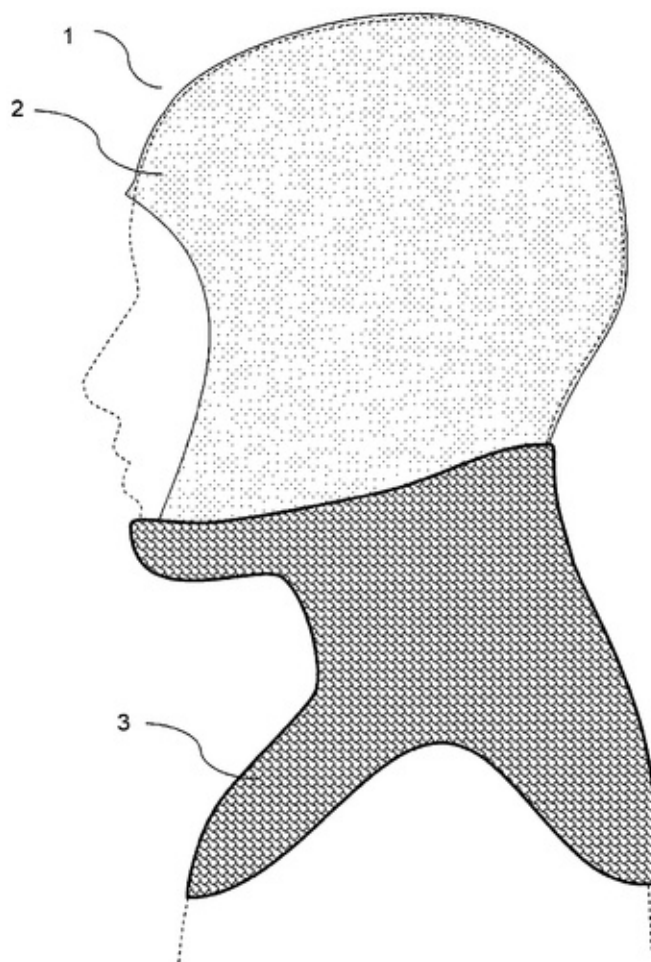
## Flameproofed storm hood with an anti-cutting equipment

DE202019000586

2019-02-02

Applicant(s): HOMAGK FRANK PATRICK, TANNHAEUSER GUNTER

Storm hood flame retardant material with a partial cut protection equipment, characterized in, that it consists of flexible and stretchable knitted defined protection regions.



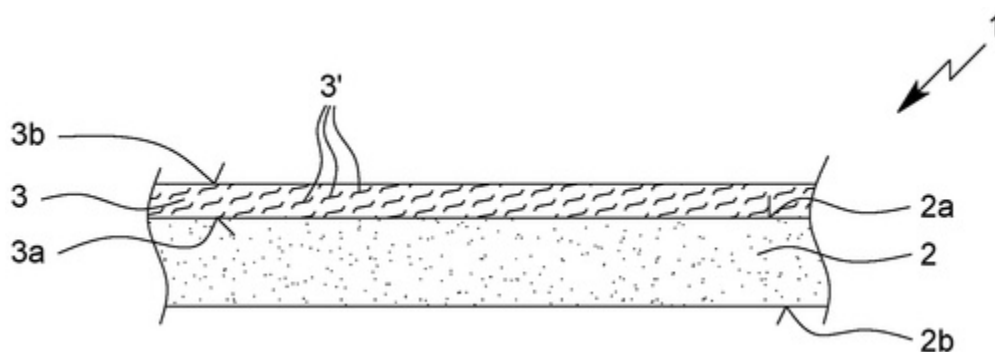
## Air-permeable sheet filter material

DE202018100242

2019-01-17

Applicant(s): BÖHRINGER BERTRAM KURT, FISCHER RAINER, NGUYEN CONGMINH

The present invention relates to a sheet filter material, in particular having an aerosol filter function and/or a particle filter function, preferably having a protective function against chemical, biological and/or chemical harmful and toxic substances, and to a method for the production thereof. The sheet filter material is particularly suitable for producing protective equipment, protective objects, sports and leisure clothing and filters and filter materials of all types.



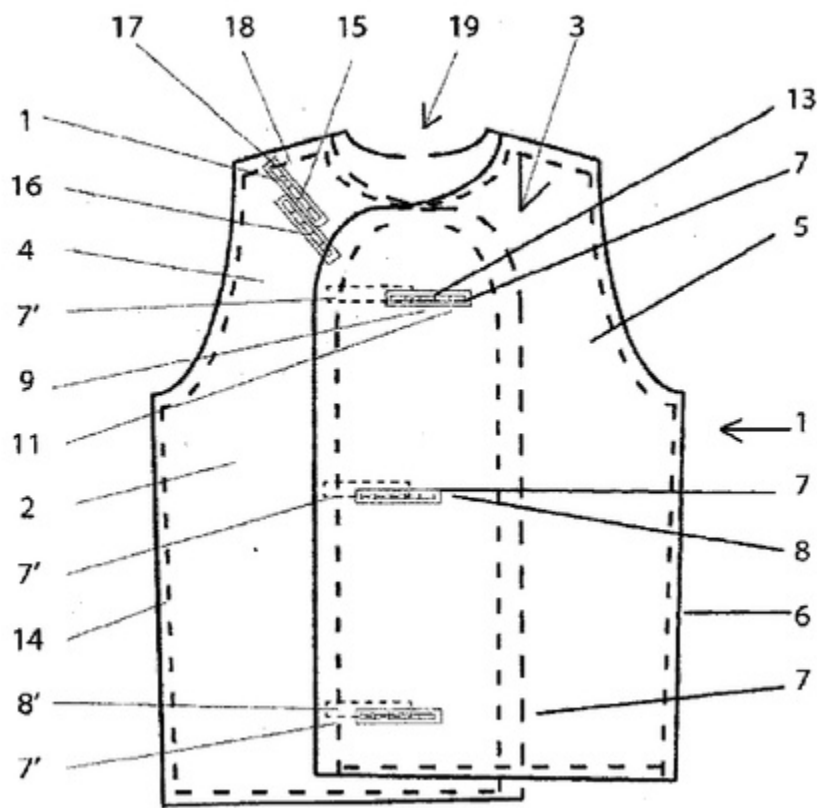
## Clothing or accessory for protection against ionizing radiation

US20190008218

2019-01-11

Applicant(s): GLICKMAN MARC E, SITBON ERIC, SITBON RUBEN

It is a clothing or accessory for protection against ionizing radiation comprising a body of flexible material threadable by an operator and reinforcing protection means comprising of one or more layers or plates protecting against ionizing radiation integrated within said body. The garment comprises at least two parts, each provided with a magnetic element for setting, adjusting, arranging or closing the garment or accessory when one of the parts is activated by the operator to cooperate with the other part. Each magnetic element is composed of at least two groups each comprising at least one positive magnet and at least one negative magnet, the groups of the same magnetic element being set directly or indirectly on the same support and/or between them and being able to co-operate with the groups of opposing polarities of the other magnetic element.



## Biological method for forming grip surface during glove manufacture

WO2019/104636

2019-06-06

Applicant(s): ZHANG JING, YE TIANSHI, DING WEIWEI

Systems and methods for creating a grip surface (104) of a protectant glove (100). The method may comprise dipping a glove mold into a coagulant material (206); dipping the glove mold into a nitrile coating formulation to form an outer surface of the glove (208), wherein a biodegradable material is distributed throughout the nitrile coating formulation; vulcanizing at least the outer surface of the glove to form a protectant outer surface (212); washing at least the outer surface of the glove with an enzyme solution; decomposing, by the enzyme solution, the biodegradable material that is distributed throughout the outer surface of the glove, thereby forming a grip surface of the glove comprising an open-cell structure within the outer surface (216); and drying the glove to form a final glove comprising the grip surface (218).

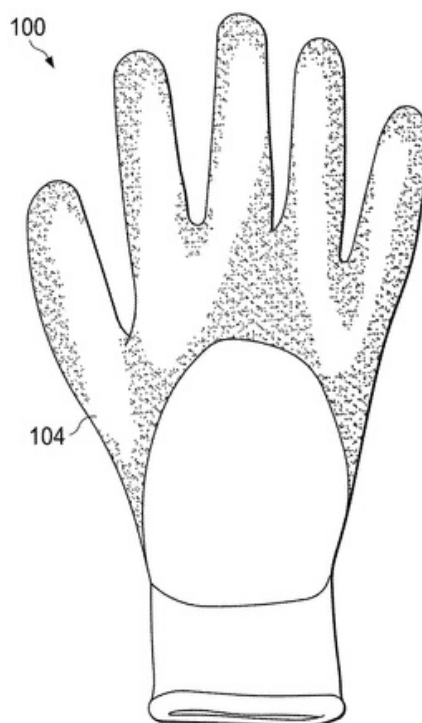


FIG. 1A

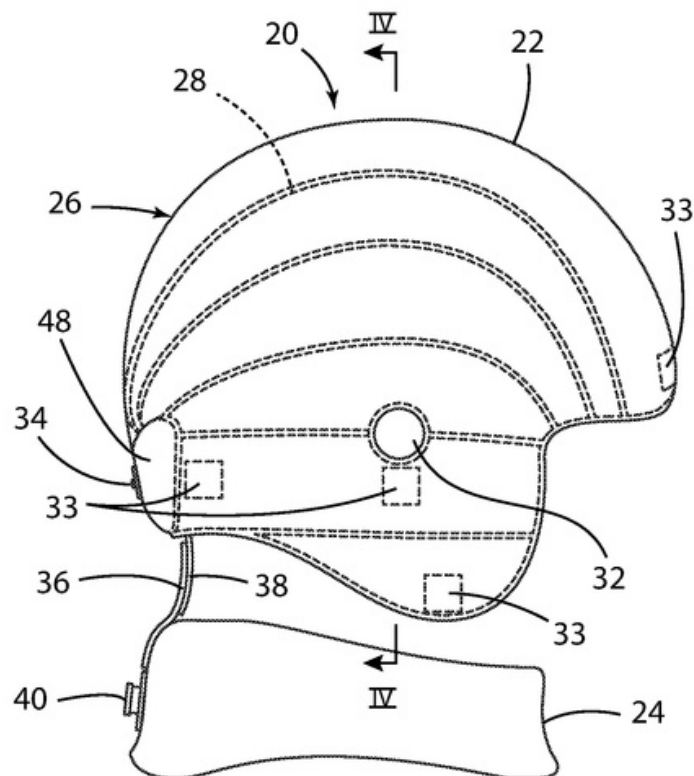
## Protective helmet covers with inflatable bladders

US20190125025

2019-05-02

Applicant(s): WILLIAMS JAMES

Protective headgear assemblies are provided that reduces the impact forces by spreading them laterally and uses air to resist the impact forces and decrease the rate of deceleration of the human head on impact, can have an energy absorbent inflatable outer shell made of uniformly consistent viscoelastic material in contact with and placed directly on the outer surface of a rigid helmet; the outer shell layer having an inner layer and an outer layer separated into segments by partitions; the segments having openings into a common collector segment having an air valve to receive air from outside of the outer shell; the openings providing a restricted passage for the air in the segments to escape into the collector segment then distributed into remaining segments on impact, then returning to equilibrium after the impact.



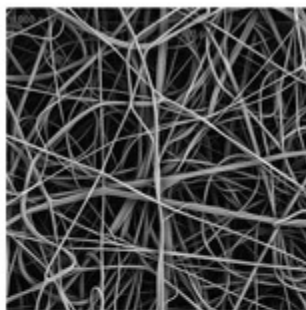
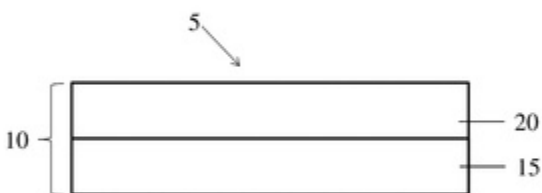
## Medial protective material

US20190030855

2019-01-31

Applicant(s): Anantharamaiah Nagendra, Gallimore Mark A.

Protective clothing materials and related methods and garments are provided. In some embodiments, a protective clothing material may comprise a fibrous layer that serves as a barrier to certain fluids (e.g., bodily fluids, water) and microbes. The impermeability of the fibrous layer may be due, at least in part, to the structural uniformity and/or relatively small pore size of the fibrous layer. In some embodiments, the fibrous layer may have a relatively high air permeability that imparts beneficial properties (e.g., relatively high air flow, breathability) to the protective clothing material without adversely affecting its protection rating. In certain embodiments, the protective clothing material may also comprise one or more coarse nonwoven webs that impart beneficial properties (e.g., splash resistance) to the protective clothing material. The protective clothing materials, described herein, may be particularly useful for a wide variety of applications, including the formation of AAMI level 4 protective garments.



## Carbon nanotube hybrid material fabric, composite fabric, and personal protective apparel and equipment

WO2019/014212

2019-01-17

Applicant(s): SCHULZ MARK J, KANAKARAJ SATHYA, MAST DAVID, SHANOV VESSELIN, CHAUHAN DEVIKA, HOU GUANGFENG, NG VIANESSA, XU CHENHAO, CHEN RUI DANIEL, KUBLEY ASHLEY, HOU XIAODA, KLEISMIT RICHARD

Carbon nanotube (CNT) fiber and sheets formed by a specialized gas assembly pyrolytic reactor method that permits gas phase integration of nano and micro particles (NMPs) are processed into yarn and fabric used in the manufacture of personal protective clothing and equipment that can be tailored via selection of NMPs for a wide variety of functionality depending on target application. The CNT-NMP hybrid fabrics may be designed to exhibit enhanced electrical and thermal conductivity, moisture wicking, air filtering, and environmental sensing properties.

Fig. 7

