



## **INNOVATIONS IN TIMES OF CRISES**

# PATENT ALERT

Innovations in times of Crises - 2020-07

### ABSTRACT

This editions recapulates some striking innovations as a result of global crises.

**Madeleine Wéry**

Centexbel Patent-Cell

## Synthetic rubber – WWII

[B. F. Goodrich Company](#) scientist [Waldo Semon](#) developed a new and cheaper version of synthetic rubber known as Ameripol™ in 1940. Ameripol (a name derived from American and Polymer) made synthetic rubber production much more cost effective, helping to meet the United States' needs during World War II. Semon was an active researcher for the government synthetic rubber development program during World War II that was essential to the Allied war effort. Semon held 116 U.S. patents and many international patents.

### Synthetic rubber-like composition and method of making same

Patent no: US 1,929,453 ; 2,188,396

Date of publication: 1933-10-10

Applicant(s): Goodrich Corp

Inventor: Waldo L Semon

Resilient rubber-like masses are made by dissolving at elevated temperatures an insoluble polymerized vinyl halide (chloride, bromide or iodide) in a medium capable of dissolving the halide only at temperatures considerably above room temperature and causing the composition to gel by cooling it. Examples of suitable solvents are chloronaphthalene, o-nitrodiphenylether, dibutylphthalate, tricresylphosphate, benzylbenzoate, a mixture of 2 parts of o-nitrodiphenylether, 1 part of m-dinitrobenzene and 1 part of dinitrotoluene, a mixture of equal parts of tricresyl phosphate and dibutylphthalate, etc. Fillers, pigments and other compatible plastics may be incorporated. In examples (1) one part of polymerized vinyl chloride is dissolved in 2 parts of o-nitrodiphenylether at 180 DEG C. and cooled; (2) 8 parts of polymerized vinyl chloride are dissolved at elevated temperature in 3 parts of tricresyl phosphate and 3 parts of dibutylphthalate and cooled. (From GB398091 A)

## Nylon Parachute - WWII

In 1938, Smith helped start and run the Pioneer Parachute Company of Manchester, Connecticut, working as vice president and chief engineer. Due to WWII shortages, nylon replaced silk for the main chute. By 1942, Pioneer was the largest producer of nylon parachutes in the world. At the peak, 3,000 employees made 300 parachutes each day, making Pioneer one of the largest suppliers for American servicemen who jumped behind enemy lines on D-Day.

On June 6, 1942, Adeline Gray made the first jump by a human with a nylon parachute at Brainard Field in Hartford. Her jump, performed before a group of Army officials, put the world's first nylon parachute to the test.

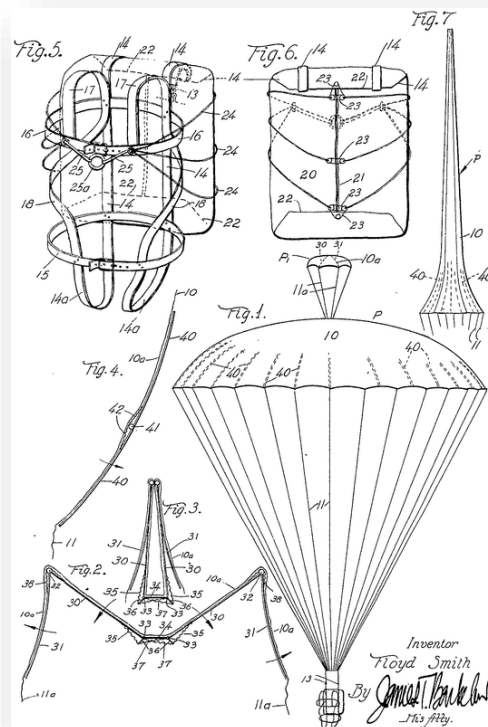
### Parachute

Patent no: US 1,462,456; US. 1,340,423

Date of publication: 1920-05-18

Applicant(s): FLOYD SMITH AERIAL EQUIPMENT COMPANY,

Inventor: FLOYD SMITH



## Microplastics extraction from sea – human pollution

Concerns have been raised regarding the ingestion of microplastics (MPs) by numerous organisms including humans. The negative impact of plastic debris, particularly on marine ecosystems, has been appreciated for decades. Microplastics are defined as a particle of plastic 5mm in diameter or less, so basically the size of a sesame seed or smaller – and they are generally formed over time by larger plastic pollution in oceans that breaks down over time due to direct sunlight exposure and weathering.

### Microplastic compactor and method of compacting microplastics

Patent no: GB201918145

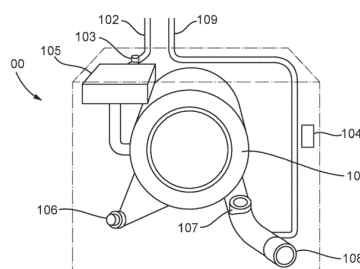
Date of publication: 2020-01-22

Applicant(s): INHERITING EARTH

Inventor: ADAM ROOT, REUBEN KETTLE AIERS, THOMAS RUDELL, NTANI KOKKINOS

The compactor 200 is for extracting and compressing microplastics from waste effluent 203. The compactor includes a chamber 201 and an inlet 202 for supplying the waste effluent into the chamber. At least one plate 204a within the chamber is moveable between a non-compressing position and a compressing position. A drive unit 205a is for driving the at least one plate between a non-compressing position and a compressing position. The at least one plate is operable, in use, to extract and compress the microplastics from waste effluent, and to move the compressed microplastics to a discharge outlet 206. The drive unit may be a ram driven linear actuator, a hydraulic actuator, or may be manually operated via a lever or push rod. The plate may include a permeable material such as a mesh. The chamber may be cylindrical and include a permeable material in a wall. The compactor prevents microplastics or microfibers from the wastewater of washing machines and other appliances from entering the environment.

Fig. 1



## Tent for emergency – social crisis/environmental facts

The United Nations Human Settlements Program estimates that 1.1 billion people live in inadequate housing, and the best data available suggest that more than 100 million people have no housing at all. Homeless encampments threaten many human rights, including most directly the right to housing. People living in encampments face profound challenges with respect to their health, security, and wellbeing, and encampment conditions typically fall far below international human rights standards. Residents are frequently subject to criminalization, harassment, violence, and discriminatory treatment.

### Shelter module

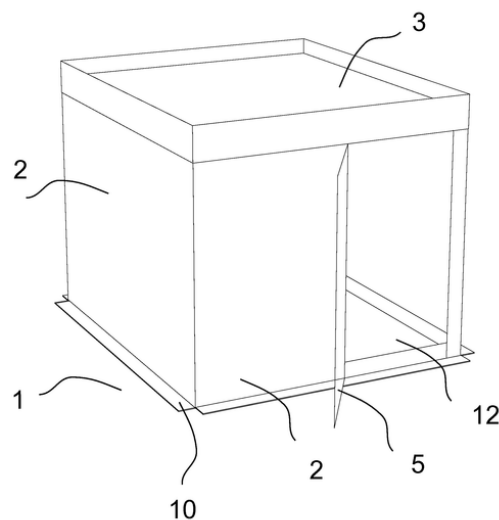
Patent no: US20100122499 A1/ DE102008057973 A1

Date of publication: 2010-05-20

Applicant(s): SHELTER & ROAM

Inventor: WILLNAUER SIGMAR

The invention relates to a shelter module that is easy to set up and take down, and is intended, for example, as emergency accommodation to house persons who have become homeless as the result of natural events (earthquakes, fires, storms, tsunamis) or events of war. The invention furthermore relates to a shelter module that serves as a playhouse, animal housing, military or expedition accommodation, and the like. The shelter module is composed of hollow or textured chamber panels and has excellent inherent stability.



## Development of mask Covid19 – sanitary crisis

During the fight against the COVID-19 pandemic, the development of face masks expands. It lists the impact of the recommendations from the European Commission on the development and distribution of face masks. Two types of masks are on the rise: surgical ones (medical device) and respiratory ones (protective equipment).

### Protective mask with reusable holder for filter material

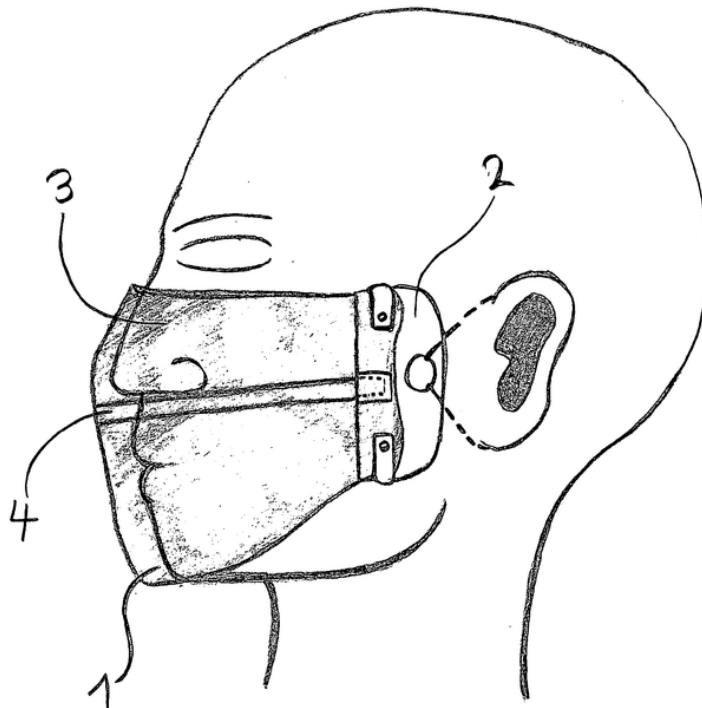
Patent no: DE202020001913

Date of publication: 2020-07-16

Applicant(s): STOETZNER PHILIPP

Inventor: STOETZNER PHILIPP

Protective mask with reusable holder for fastening easily available filter material made of cellulose, such as disposable handkerchiefs, or textile in front of the mouth and nose, characterized in that suitable elevations for piercing 5 or clamping 7 filter material 3 made of cellulose or textiles and at least one Clip 6 or 8 for fastening the filter material are attached to the at least one reusable holder 2.



## PLA a biobased & biodegradable material – reduction synthetic waste

Around one million tons of fabrics used for clothing applications are produced each year in Europe by yarn spinning combining natural fibres (such as cotton or wool) and synthetic fibres (such as polyester). These blends of natural fibres and synthetics are generally prepared to improve comfort and durability aspects of the end products. However, these standard fabrics are complex to recycle after their use since both types of fibres are intermingled and cannot be separated again. The PLA based fabrics will have two main advantages over the polyester fabrics they will replace: They can be fully recycled at the end of their shelf life; They will offer more breathability, lower weight, better tinting and UV resistance.

### Biodegradable fabric and use of such fabric

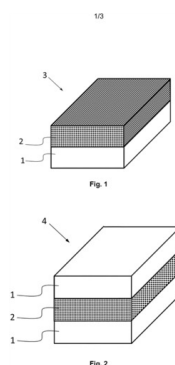
Patent no: WO2019/122195

Date of publication: 2019-06-27

Applicant(s): Beaulieu

Inventor: GOORMACHTIGH LAURENS JEAN-MARC L, FAELENS FEMKE, VAN GIEL FRANS

The invention relates to a fabric comprising layered composite filaments, wherein the layered composite filaments comprise at least a first biodegradable polymer layer and at least a second biodegradable polymer layer directly adhering to each other, wherein the visual degradation speed of the first biodegradable polymer layer is slower than the visual degradation speed of the second biodegradable polymer layer. The invention further relates to the use of such fabric as temporary weed control, temporary erosion control, as a hygienic article, or temporary packaging material.



## Chitosan extraction – biobased material improved properties – environmental concern

It is made by treating the chitin shells of shrimp and other crustaceans with an alkaline substance, such as sodium hydroxide. Chitosan is approved for medical use. It may decrease the growth of bacteria and fungus and may be useful as a burn dressing.

### Method for the production of antibacterial chitosane-containing polymer for medical purposes, in particular for treating wounds

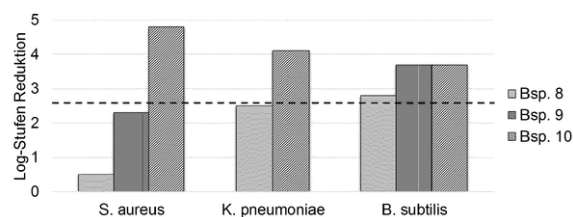
Patent no: WO2019/243187 A1

Date of publication: 2019-12-26

Applicant(s): PAUL HARTMANN

Inventor: KETTEL DR MARKUS, TAMULAITYTE RASA IRENA

The present invention relates to a method for producing a polymer for medical purposes, in particular for wound treatment. The invention also relates to the polymer per se which is obtained by means of the method, and to the use of said polymer in medicine and wound dressings. The produced polymer principally provides a hydrated polyurethane hydrogel system or a hydrated polyurethane foam system, in the cross-linked polymer structure of which chitosan is securely embedded, in particular by covalent incorporation. The produced polymers are characterised in particular by an antibacterial action and secure embedding of the chitosan in the polymer network.



Figur 4

