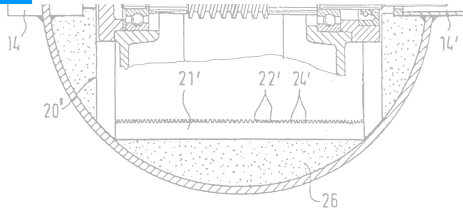


WS PATENT[®]

European Patent and Trademark Attorney
Dr.-Ing. Wolfram Schlimme, LL.M.



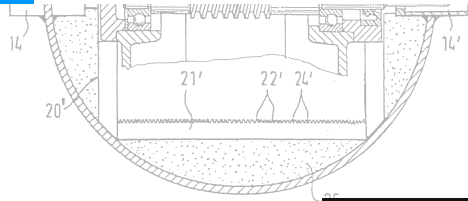
Patents in Outer Space

Patent Protection of Space Related Inventions



Technische Universität München
Institute of Astronautics (LRT)
Summer School 2014
29. September 2014

Dr. Wolfram Schlimme, LL.M.
German & European Patent Attorney



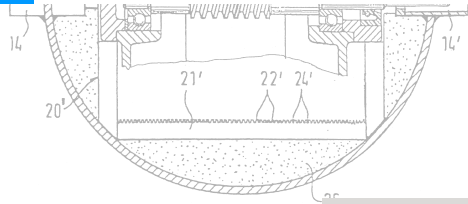
Patent Protection of Space Related Inventions

Have Patents Legal Effect in Space ?



Does our astronaut have to respect a patent ?





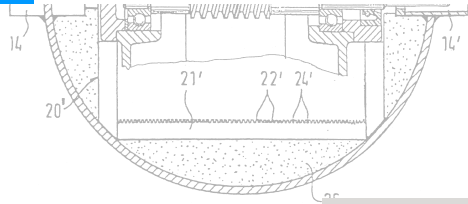
Patent Protection of Space Related Inventions

Patents on Earth and in Outer Space

Five topics will be presented in this lecture

- ① Patents as Intellectual Property Rights
- ① Space Law – Common Interest of all Mankind
- ① Principles of Territoriality and of Nationality
- ① Limits to the Skies – Limits to the Laws
- ① Patent Infringements in Space

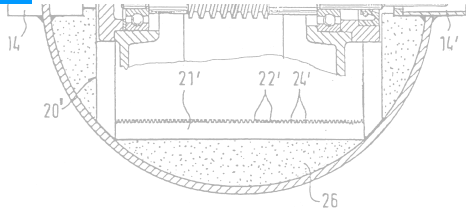




Patent Law - Basics

- **Patents as Intellectual Property Rights**
- Space Law – Common Interest of all Mankind
- Principles of Territoriality and of Nationality
- Limits to the Skies – Limits to the Laws
- Patent Infringements in Space





Patent Protection of Space Related Inventions

Patents as Intellectual Property Rights

Intellectual Property (IP)

Industrial Property

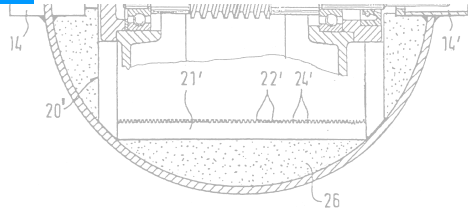
Copyright

Patents

Trademarks

Design



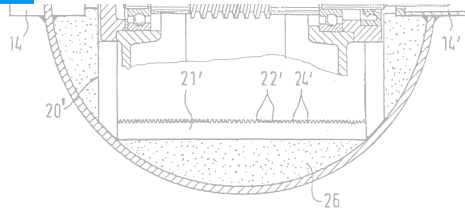


Patent — a Technical IP Right (Basics)

What is a patent ?

- ⦿ National or regional Industrial Property right
- ⦿ Protects a technical invention
- ⦿ Needs to be novel and based on an inventive step
- ⦿ Examined IP right — granted after examination
- ⦿ Examination carried out at the Patent Office by a technically qualified Examiner (e.g. an engineer)
- ⦿ Duration max. 20 years (25 years by exception)
- ⦿ Enforcement possible only after grant !

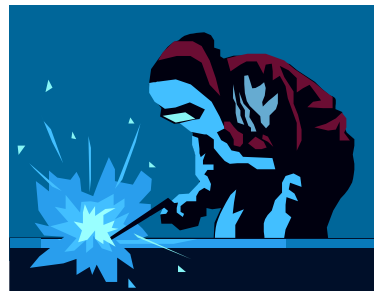
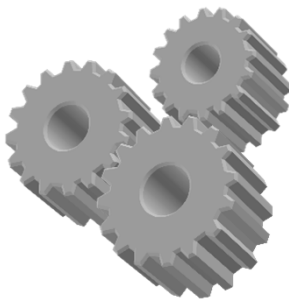


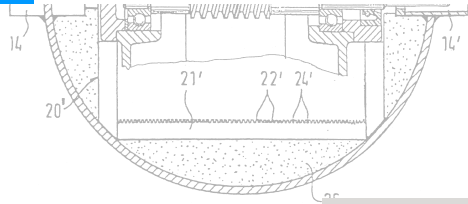


Patent — a Technical IP Right (Basics)

A patent can be granted for:

- a device (e.g. an apparatus)
- a method (e.g. working method or production process)
- a substance (e.g. in chemistry or pharmacy)

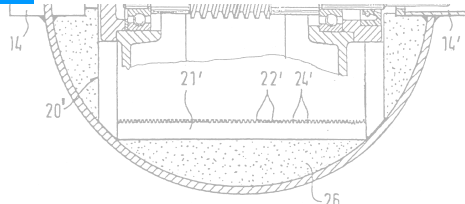




International Space Law - Basics

- ❶ Patents as Intellectual Property Rights
- ❷ **Space Law – Common Interest of all Mankind**
- ❸ Principles of Territoriality and of Nationality
- ❹ Limits to the Skies – Limits to the Laws
- ❺ Patent Infringements in Space

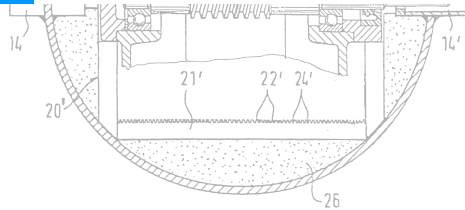




International Space Law Treaties

- ⦿ **Outer Space Treaty (OST)**
 - ⦿ Outer Space Treaty (Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies) “Magna Charta” of space law (1967; 103 ratification states)
- ⦿ **Registration Convention**
 - ⦿ Convention on Registration of Objects Launched into Outer Space (1976; 60 ratification states)
- ⦿ **Moon Agreement**
 - ⦿ Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (1984; 15 ratification states)
- ⦿ **Rescue Agreement**
 - ⦿ Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (1968; 94 ratification states)
- ⦿ **Liability Convention**
 - ⦿ Convention on International Liability for Damage Caused by Space Objects (1972; 91 ratification states)





Outer Space Treaty - OST

🕒 Art I OST (1st and 2nd paragraph)

*The exploration and use of outer space, including the Moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and **shall be the province of all mankind.***

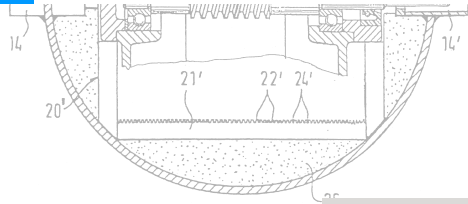
*Outer space, including the Moon and other celestial bodies, **shall be free for exploration and use by all States** without discrimination of any kind, on a basis of equality and in accordance with international law, and **there shall be free access to all areas of celestial bodies.** ...*

🕒 Art II OST

*Outer space, including the Moon and other celestial bodies, **is not subject to national appropriation** by claim of sovereignty, by means of use or occupation, or by any other means.*

National law, e.g. patent law, cannot be extended to outer space !



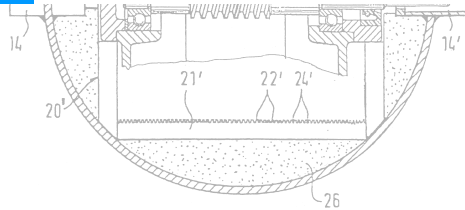


Patent Protection of Space Related Inventions

Connecting Factors in Law

- ❶ Patents as Intellectual Property Rights
- ❷ Space Law – Common Interest of all Mankind
- ❸ **Principles of Territoriality and of Nationality**
- ❹ Limits to the Skies – Limits to the Laws
- ❺ Patent Infringements in Space





Principles of Territoriality and Nationality

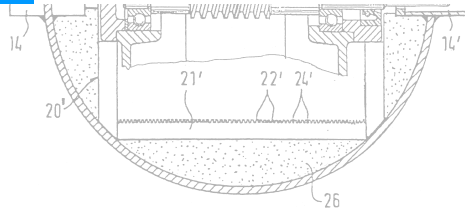
Legal Principle of Territoriality

- ⦿ The Principle of Territoriality defines the territory of legal effect (i.e. the territory where the laws of a state or of a community of states are applicable) as the connecting factor to connect an occurrence with a particular law or jurisdiction
 - ⦿ Example: a German citizen speeds too fast on an Austrian autobahn
-> Austrian traffic law will be applicable

Legal Principle of Nationality

- ⦿ The Principle of Nationality defines the nationality (e.g. of a person) as the connecting factor to connect an occurrence with a particular law or jurisdiction
 - ⦿ Example: an Italian citizen dies in Germany on a holiday trip
-> Italian law of succession will be applicable





Connecting Factor for Vehicles

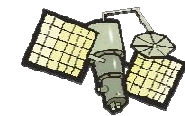
Vehicles are subject to the Principle of Nationality

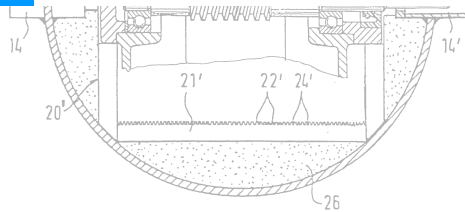
- ⦿ Aircrafts are subject to the nationality of the state on whose registry the aircraft is carried

 - ⦿ Art. 17 Convention on International Civil Aviation
- ⦿ Naval vessels are subject to the nationality of the state on whose registry the vessel is carried

 - ⦿ Art. 91 (1) UN Convention on the Law of the Sea
- ⦿ Space objects are subject to the nationality of the state on whose registry the space object is carried

 - ⦿ Art. VIII Outer Space Treaty (OST - Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies)





Connecting Factor for Space Objects

Space objects and Art. VIII OST

- 🕒 The first sentence of Art VIII OST reads:

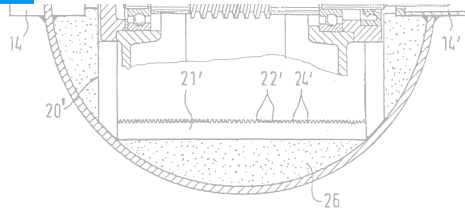
A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body.

- 🕒 Art. I c of the “Convention on Registration of Objects Launched into Outer Space” reads:

The term “State of Registry” means a launching State on whose registry a space object is carried in accordance with article II.

- 🕒 The state on whose register a space object is carried has thus also “jurisdiction and control” over the space object and over the personnel thereof. The laws of said state of registry are thus applicable to such a space object and its personnel – this applies also for said state’s patent law



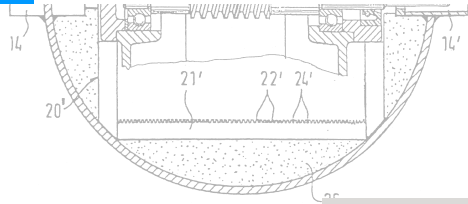


Connecting Factor in Patent Law

Patents are subject to the Principle of Territoriality

- ⦿ National patents provide protection within the territory of legal effect of the patent granting state
- ⦿ Regional patents provide protection
 - ⦿ either within the entire territory of legal effect of a group of states (future European Community Patent)
 - ⦿ or within the territories of legal effect of selected states on a national patent protection basis (present European Patent)
- ⦿ Patent protection thus connects to the territory of legal effect of the patent granting state. The territory of legal effect extends beyond the political boundaries also to naval, aerial and space vehicles registered in said state even outside said state's borders



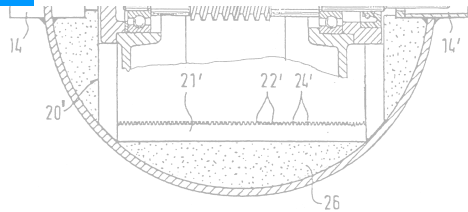


Patent Protection of Space Related Inventions

From Airspace to Outer Space

- ❶ Patents as Intellectual Property Rights
- ❷ Space Law – Common Interest of all Mankind
- ❸ Principles of Territoriality and of Nationality
- ❹ **Limits to the Skies – Limits to the Laws**
- ❺ Patent Infringements in Space



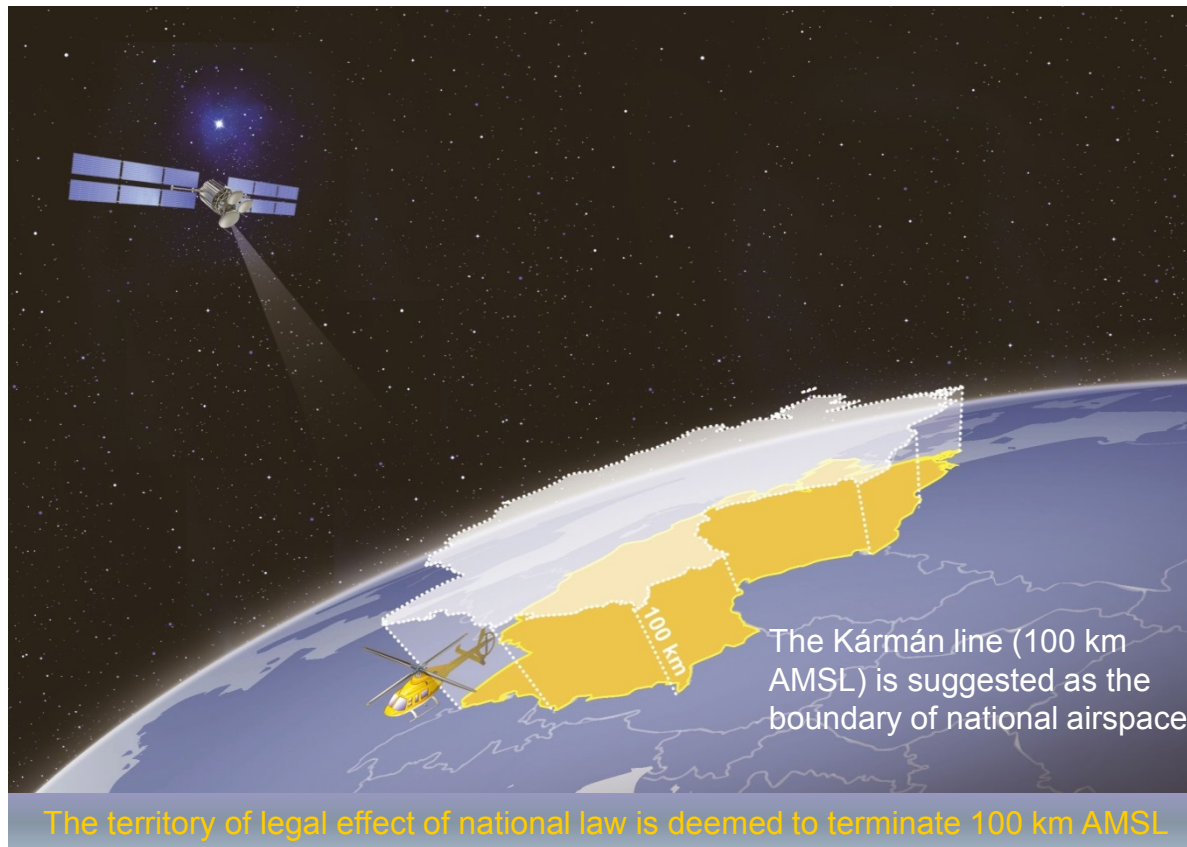
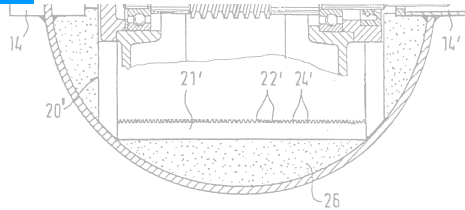


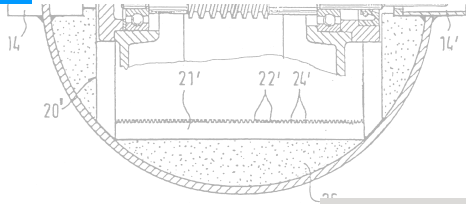
National Airspace and its Boundaries

- ⦿ **Art. 1 of the "Convention on International Civil Aviation" reads:**
The contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory.
- ⦿ **Art. 2 of the "Convention on International Civil Aviation" reads:**
For the purposes of this Convention the territory of a State shall be deemed to be the land areas and territorial waters adjacent thereto under the sovereignty, suzerainty, protection or mandate of such State.
 - ⦿ The airspace over a state is a part of its law's territory of legal effect
 - ⦿ A state's patent law is thus applicable also in said state's airspace
- ⦿ **But where does the airspace end and outer space begin ?**
 - ⦿ **NASA definition: 50 nm (80 km) AMSL**
Aerodynamic steering is not possible any more due to too low air density
 - ⦿ **FAI definition: 100 km AMSL (Kármán line)**
The atmosphere is too thin to produce enough aerodynamic lift with a speed not exceeding orbital velocity; the vehicle will orbit and not fly



National Air Space vs. Outer Space



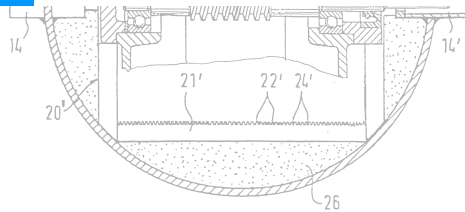


Patent Protection of Space Related Inventions

Patent Infringement and Enforcement

- ❶ Patents as Intellectual Property Rights
- ❷ Space Law – Common Interest of all Mankind
- ❸ Principles of Territoriality and of Nationality
- ❹ Limits to the Skies – Limits to the Laws
- ❺ **Patent Infringements in Space**





Patent Enforcement in Outer Space ?

Free Outer Space

- National/regional patent protection cannot be extended to free outer space
- A patent directed to features exclusively realized in outer space cannot be enforced as this would be a national appropriation of outer space
- A use of the patent is not an infringement

Space Objects

- Patent protection granted in a state can be extended to space objects registered in said state (patenting state = registry state)
- A patent directed to features exclusively realized in or on a space object registered in the patenting state can be enforced in said state
- A use of the patent in or on such a space object can be an infringement

Combinations with Outer Space

- A patent directed to features partly realized in the territory of legal effects of said patent (territory of the patenting state) and partly in the free outer space could possibly be enforceable, provided that an enforcement does not lead to a national appropriation of outer space – outer space is free for everyone !



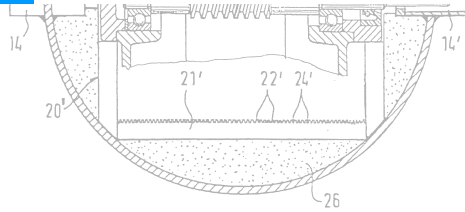
Patents in Space ?

Patent protection
on space objects ?
YES

Patent protection
in outer space?
NO

Patent protection
in the airspace ?
YES





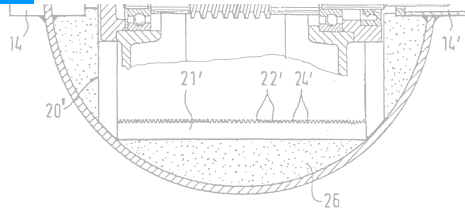
Patent Enforcement in Outer Space ?

⦿ (Virtual) Example 1:

A method of collecting cosmic radiation in a first orbit, converting said collected radiation into electric energy and transmitting said energy as a high energy laser beam to a receiver in a second orbit

- ⦿ A patent granted to this method would prevent others from applying this method in the free outer space (according to the laws of the patenting state)
- ⦿ The patenting state extends its territory of legal effect to outer space
- ⦿ This is a national appropriation of outer space offending against Art. II OST
- ⦿ A use of the patent **cannot** be regarded as a patent infringement





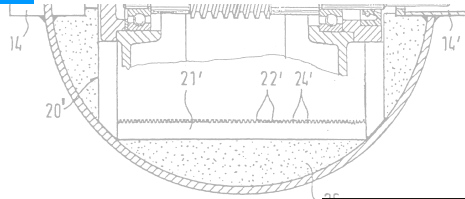
Patent Enforcement in Outer Space ?

⦿ (Virtual) Example 2:

A satellite comprising a device for collecting cosmic radiation, a converter for converting collected cosmic radiation into electric energy and a transmitter for transmitting said energy as high energy laser beam to a receiver satellite

- ⦿ Space objects registered in a state are subject to jurisdiction and control of this state according to Art. VIII OST
- ⦿ Patents granted by this state extend also to satellites registered in said state
- ⦿ A patent granted to a satellite would prevent others from e.g. producing, selling or owning such a satellite within the territory of legal effect of the patenting state
- ⦿ A use of the patent in a satellite registered in the patenting state can be regarded as patent infringement





Patent Protection of Space Related Inventions

Have Patents Legal Effect in Space ?

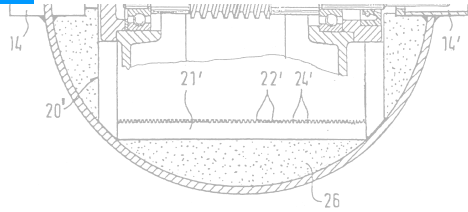


Does our astronaut have to respect a patent ?
The answer is a typical answer from a lawyer:

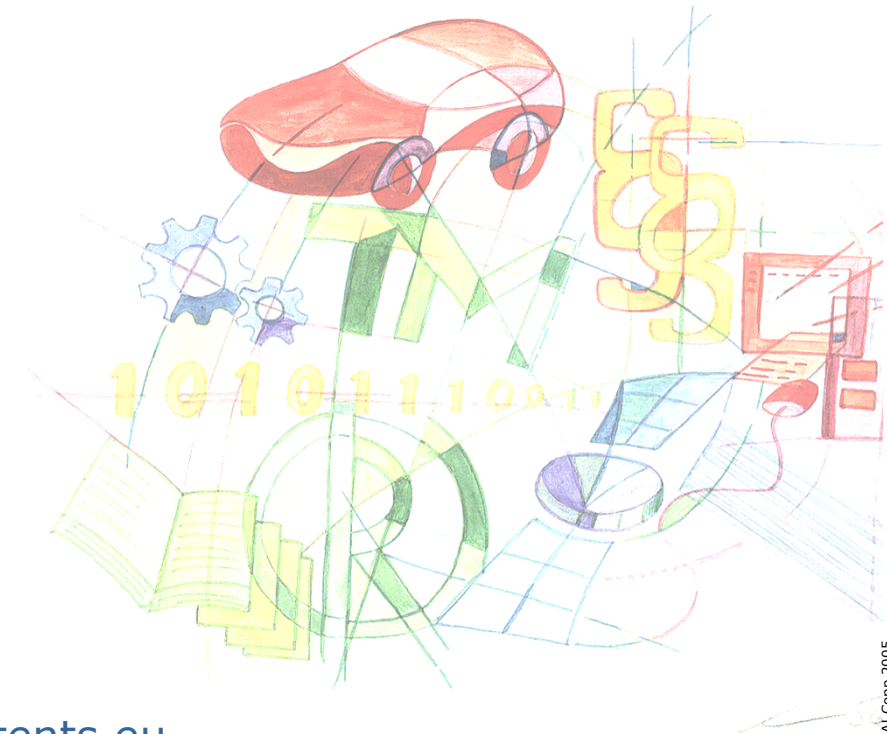
It depends !



Patents in Outer Space

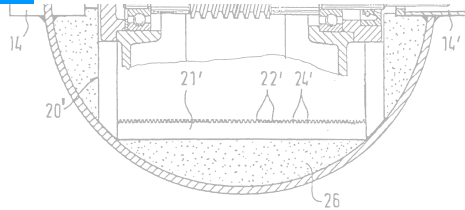


Thank you for
your attention



For more information visit www.spacepatents.eu

Literature: Mitteilungen der deutschen Patentanwälte, 2014, S. 363 ff.



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