

## F16L

### PIPES; JOINTS OR FITTINGS FOR PIPES; SUPPORTS FOR PIPES, CABLES OR PROTECTIVE TUBING; MEANS FOR THERMAL INSULATION IN GENERAL

#### Definition statement

*This place covers:*

- Methods and machines for laying pipes ([F16L 1/00](#))
- Devices to support, fix or hold pipes ([F16L 3/00](#))
- Pipes: conduits of closed cross-section which are specially adapted to convey fluids, material or objects ([F16L 9/00](#) and [F16L 11/00](#))
- Joints between pipes ([F16L 13/00](#) - [F16L 41/00](#), [F16L 47/00](#), [F16L 49/00](#))
- Energy and noise absorbers associated with pipes ([F16L 55/02-F16L 55/055](#))
- Means for stopping flow from or in pipes ([F16L 55/10-F16L 55/136](#))
- Devices for covering leaks in pipes ([F16L 55/16-F16L 55/179](#))
- Pipe pigs primarily for repairing pipes ([F16L 55/26-F16L 55/48](#))
- Protection of pipes against wear, heat, cracking, buckling and corrosion ([F16L 57/00](#) and [F16L 58/00](#))
- Thermal insulation of pipes, or in general, e.g. when no other special application of the insulation is given ([F16L 59/00](#))
- Tubular bodies that are not used to carry fluid, material or objects, e.g. pipes for scaffoldings, or furniture are only classified in the associated field, e.g. scaffoldings or furniture.
- If the pipe or connection is adapted for a specific use, it is only classified in the use field (e.g. medical connectors, microconnectors or vacuum cleaners)
- Documents that concern the specific material or a specific use for thermal insulation are classified in the specific fields for the material or use (e.g. fridges, building panels or motor compartments)

The class is divided in the following main groups

[F16L 1/00](#) Laying of pipes

[F16L 3/00](#) Fixation of pipes

[F16L 5/00](#) Pipes passing through walls

[F16L 7/00](#) Pipe support inside other pipes

[F16L 9/00](#) Rigid pipes

[F16L 11/00](#) Hoses (the product)

[F16L 13/00](#) Non-disconnectable pipe-joints (not made of plastic material)

[F16L 15/00](#) Screw-threaded joints

[F16L 17/00](#) Sealing by fluid pressure

[F16L 19/00](#) Connection of pipes with swivel nuts

[F16L 21/00](#) Male-female couplings

[F16L 23/00](#) Flanged joints

[F16L 25/00](#) Special types of connections for pipes (not in [F16L 13/00-F16L 23/00](#))

[F16L 27/00](#) Adjustable joints (e.g. for allowing movements)

[F16L 29/00](#) Joints with cut-off means

[F16L 31/00](#) Connection of two hoses or two flexible sleeves

[F16L 33/00](#) Connection of hoses to rigid members

[F16L 35/00](#) Safety connections of hoses

[F16L 37/00](#) Quick-acting couplings

[F16L 39/00](#) Multiple/double-walled joints of fittings for pipes or hoses

[F16L 41/00](#) Branching pipes or joining pipes to walls or pipes

[F16L 43/00](#) Bends

[F16L 45/00](#) Pipe units with apertures

[F16L 47/00](#) Connection of plastic pipes; Connectors made of plastic

[F16L 49/00](#) Connection of pipes or to pipes of brittle material

[F16L 51/00](#) Expansion compensation devices (e.g. thermal expansion)

[F16L 53/00](#) Heating/cooling pipes or pipe-systems

[F16L 55/00](#) Energy absorbers, noise absorbers, means for plugging pipes, pigs, repairing pipes etc.

[F16L 57/00](#) Protection of pipes, e.g. against external/internal damage or wear

[F16L 58/00](#) Protection of pipes against corrosion or incrustation (e.g. by coatings)

[F16L 59/00](#) Thermal insulations

## References

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Watering gardens, fields, sports grounds, or the like, e.g. perforated pipe-lines	<a href="#">A01G 25/00</a>
Vacuum cleaners, e.g. corrugated hoses; leaning machines, e.g. hose connections combined with electrical contacts, steam hoses with cables for steam ironing	<a href="#">A47L</a>
Connectors in the medical field, e.g. catheters	<a href="#">A61M</a>
Fire fighting; fire fighting hoses; sprinkler systems	<a href="#">A62C</a>
Micro/macro connectors, e.g. for lab on chip	<a href="#">B01L</a>
Sprayers	<a href="#">B05B</a>
Cleaning of pipes	<a href="#">B08B</a>
Air conditioning ducts in vehicles	<a href="#">B60H</a>
Fuel conduits in vehicles, connections to LPG tank	<a href="#">B60K 15/00</a>
Fixing of hoses or cables in motors vehicles	<a href="#">B60R</a>
Arrangement of piping or air hoses for brake systems	<a href="#">B60T 17/04</a>
Pipe laying ships	<a href="#">B63B</a>

Containers/bags/vessels/tanks Connections to containers in general; Closing straps	<a href="#">B65D</a>
Bends for conveying concrete	<a href="#">B65G</a>
Wear protection for bends for conveying concrete	<a href="#">B65G 53/52</a>
LPG couplings/filling nozzles/ Transferring fluids, e.g. fuel from bulk to vehicles or portable containers	<a href="#">B67D</a>
Dispensing fluids, e.g. filling bottles or cans	<a href="#">B67D 1/00</a>
Fastening of pipes or cables to bridges	<a href="#">E01D 19/00</a>
Couplings for dredgers	<a href="#">E02F 3/3609</a>
Domestic plumbing: shower hoses; toilet installations; drainage; Sewage	<a href="#">E03C</a> , <a href="#">E03D</a> , <a href="#">E02B</a> , <a href="#">E03F</a>
Downpipes for roof drainage, fixing means therefore	<a href="#">E04D</a>
Vertical ducts, channels in buildings, e.g. chimneys	<a href="#">E04F</a>
Fluid concrete transport	<a href="#">E04G</a>
Air ducts for ventilation of mines or tunnels, connections therefore	<a href="#">E21F 1/04</a>
Suspension devices for tubes or the like in mines or tunnels	<a href="#">E21F 17/00</a>
Exhaust pipes	<a href="#">F01N</a>
Air intake in motor engines, e.g. ducts between motor and filter	<a href="#">F02M</a>
Fixing devices, e.g. hollow screws	<a href="#">F16B</a>
Valves	<a href="#">F16K</a>
Conduits, junctions for lubrication systems	<a href="#">F16N 21/00</a>
Connections to gas tanks	<a href="#">F17C</a>
Pipelines/pipe systems	<a href="#">F17D</a>
Water tubes of steam boilers	<a href="#">F22B 37/00</a>
Joints, connection for chimneys or flues	<a href="#">F23J 13/00</a>
Hot water systems, central heating, e.g. distributors for heating built up from modules	<a href="#">F24D</a>
Ducting arrangements for air-conditioning	<a href="#">F24F 13/02</a>
Heat exchangers	<a href="#">F28D</a>
Sealing elements into header boxes or end plates of heat-exchangers	<a href="#">F28F 9/00</a>
Pipes in nuclear reactors	<a href="#">G21C 15/00</a>
Installation of electric cables, e.g. cable or pipe binders, cable or pipe channels	<a href="#">H02G</a>

### Special rules of classification

- Classification is not allocated when the features in the document concerning this subclass are obviously of no technical value, or a mere reference (e.g. if in a document it is mentioned that the connection can be also made by gluing, welding, screwing... without a further relevant technical information)
- Documents mainly concerning the material of the pipe or hose are classified in main groups [F16L 9/00](#) or [F16L 11/00](#)
- There is a horizontal indexing scheme for further details not related to a specific CPC group:

Uses or applications of pigs or moles [F16L 2101/00](#)

Special arrangements for pipe couplings [F16L 2201/00](#)

## F16L 1/00

### Laying or reclaiming pipes; Repairing or joining pipes on or under water

#### References

##### Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Laying sewer pipes	<a href="#">E03F 3/06</a>
Laying sewer pipes in earth boreholes or wells	<a href="#">E21B</a>

##### Informative references

Attention is drawn to the following places, which may be of interest for search:

Lining of pipes, replacement of damaged part of a pipe, replacing an existing pipe with a new pipe, wherein the old pipe is being ruptured	<a href="#">F16L 55/16</a>
Soldering or welding	<a href="#">B23K</a>
Pipe laying ships	<a href="#">B63B</a>
Lifting-gear and load-engaging elements	<a href="#">B66</a>
Hydraulic installations, soil drainage	<a href="#">E02B</a>
Excavations or underwater constructions	<a href="#">E02D</a>
Machines for digging trenches in combination with pipe-assembly	<a href="#">E02F</a>
Tunnelling	<a href="#">E21D</a>
Laying electric, or combined optical and electric, cables	<a href="#">H02G</a>

## F16L 1/0246

{at a certain height off the ground}

#### Definition statement

*This place covers:*

Pipes passing over streets or bodies of water

## F16L 1/038

the pipes being made in situ

#### Definition statement

*This place covers:*

Methods of laying pipes wherein the material which forms the pipe later, takes the pipe-shape at the building site, e.g. concrete

## References

### Limiting references

*This place does not cover:*

Pipe laying methods wherein the pipe is made by connecting together short pipe pieces	<a href="#">F16L 1/036</a>
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## F16L 1/12

### Laying or reclaiming pipes on or under water

## References

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Buoyant hoses	<a href="#">F16L 11/133</a>
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## F16L 1/123

### {Devices for the protection of pipes under water}

## Definition statement

*This place covers:*

protection against fishing, cortex induced vibrations

## References

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Protection of pipes in general	<a href="#">F16L 57/00</a>
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## F16L 1/15

### vertically

## Definition statement

*This place covers:*

pipes that stay vertically, for example: riser pipes

## F16L 1/161

### {the pipe being composed of sections of short length}

## Definition statement

*This place covers:*

e.g. pipe laying methods wherein the pipe segments are joined together on the bottom of the body of water.

**F16L 1/20**

**Accessories therefor, e.g. floats, weights**

**References**

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

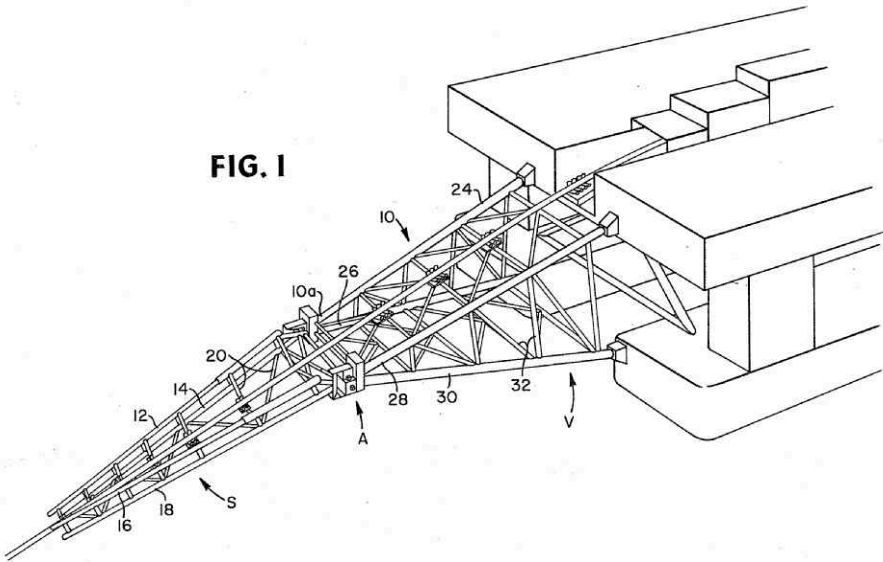
Buoys	<a href="#">B63B 22/00</a>
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**F16L 1/225**

**Stingers**

**Definition statement**

This place covers:



**F16L 1/23**

**Pipe tensioning apparatus**

**Definition statement**

This place covers:

clamping devices holding the pipe during laying

**F16L 1/235**

**Apparatus for controlling the pipe during laying**

**Definition statement**

This place covers:

e.g. checking welding seams or coatings just before laying of the pipe

## F16L 1/24

### Floats; Weights

#### References

##### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

Floats per se	<a href="#">B63B 22/00</a>
Salvaging sunken vessels or underwater object	<a href="#">B63C 7/00</a>

## F16L 1/26

### Repairing or joining pipes on or under water

#### References

##### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

Buoyant hoses	<a href="#">F16L 11/133</a>
Joints per se	<a href="#">F16L 13/00</a> – <a href="#">F16L 49/00</a>
Joining pipes to underwater installations	<a href="#">E21B</a>

## F16L 3/00

**Supports for pipes, cables or protective tubing, e.g. hangers, holders, clamps, cleats, clips, brackets (anchors for holding pipes on or under the ground [F16L 1/06](#); {sound-damping supports [F16L 55/035](#); supports for insulated pipes [F16L 59/135](#)})**

#### References

##### *Limiting references*

*This place does not cover:*

Anchors for holding pipes on or under the ground	<a href="#">F16L 1/06</a>
Sound-damping supports	<a href="#">F16L 55/035</a>
Supports for insulated pipes	<a href="#">F16L 59/135</a>

##### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

Holders for pipes passing through walls or partitions	<a href="#">F16L 5/00</a>
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**F16L 3/01**

for supporting or guiding the pipes, cables or protective tubing, between relatively movable points, e.g. movable channels

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Hauling- or hoisting-chains with arrangements for holding electric cables, hoses or the like	<a href="#">F16G 13/16</a>
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**F16L 3/015**

using articulated- or supple-guiding elements

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Cranes with means for transmitting pneumatic, hydraulic or electric power to movable parts or devices	<a href="#">B66C 13/12</a>
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**F16L 3/04**

and pressing it against a wall or other support

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Staples	<a href="#">F16B 15/00</a>
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**F16L 3/1033**

{with two members engaging the pipe, cable or tubing, the two members being joined only on one side of the pipe}

**Definition statement**

*This place covers:*

e.g. pipe clamps made of two parts, the parts being connected on one side and the opposite side stays open

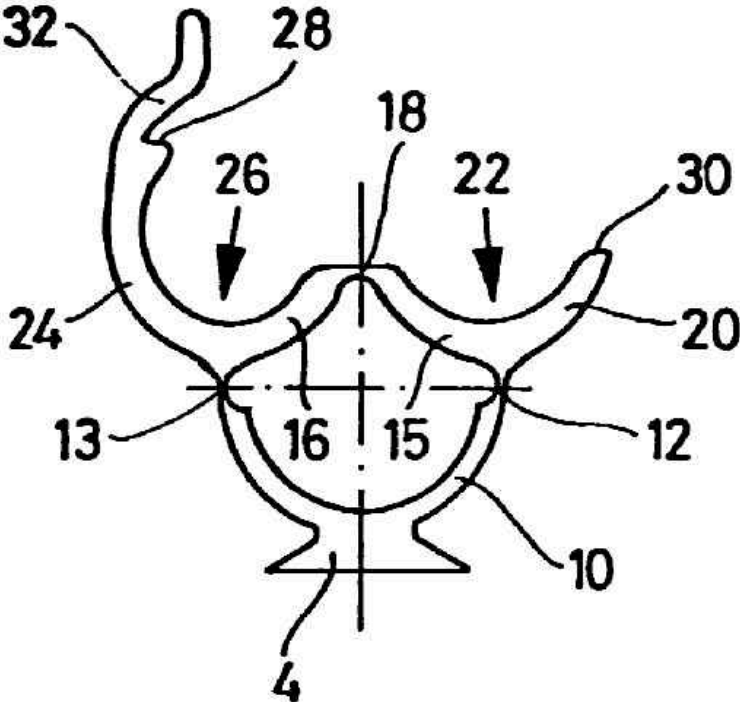


**F16L 3/1203**

{with a pair of arms moved automatically to closed position by overcenter spring}

**Definition statement**

*This place covers:*

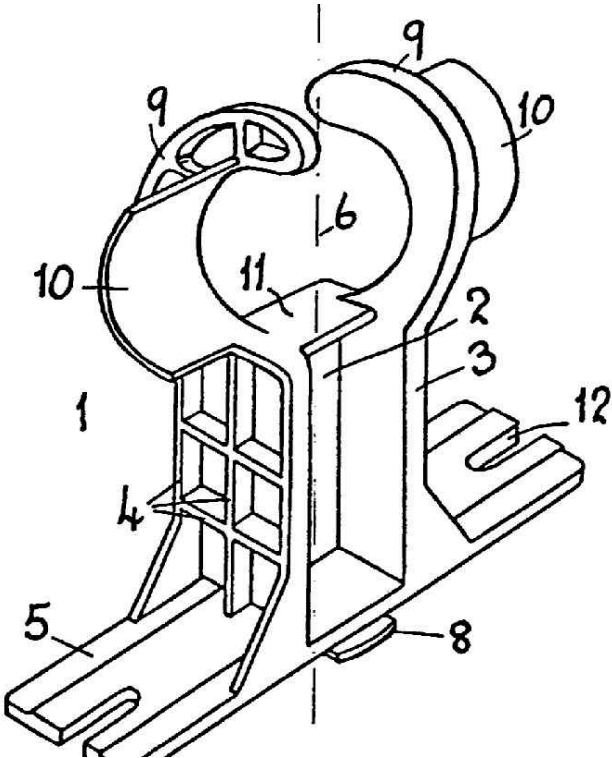


**F16L 3/1215**

{the pipe being fixed by rotation of an element}

**Definition statement**

*This place covers:*

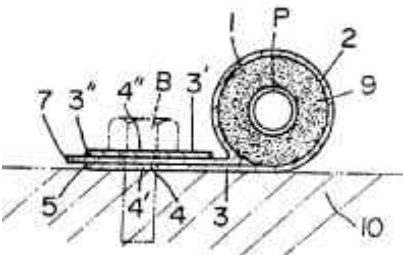


**F16L 3/123**

and extending along the attachment surface

**Definition statement**

*This place covers:*

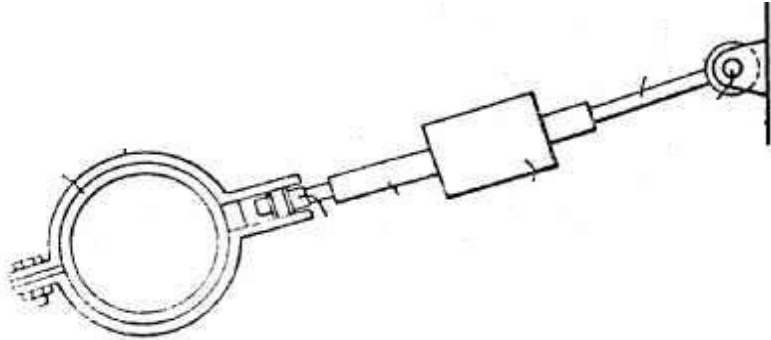


**F16L 3/202**

the transverse movement being converted to a rotational movement  
([F16L 3/215](#) takes precedence)

**Definition statement**

*This place covers:*



**References**

**Limiting references**

*This place does not cover:*

Movement of the pipes being hydraulically or electrically controlled	<a href="#">F16L 3/215</a>
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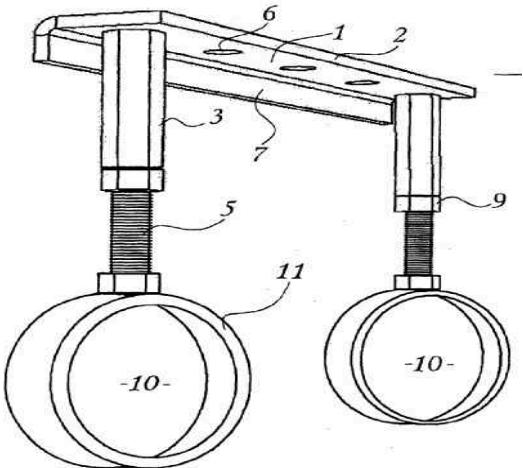
**F16L 3/221**

{having brackets connected together by means of a common support}

**Definition statement**

*This place covers:*

Support for supporting a number of parallel pipes at intervals, wherein the brackets and support are originally two different parts

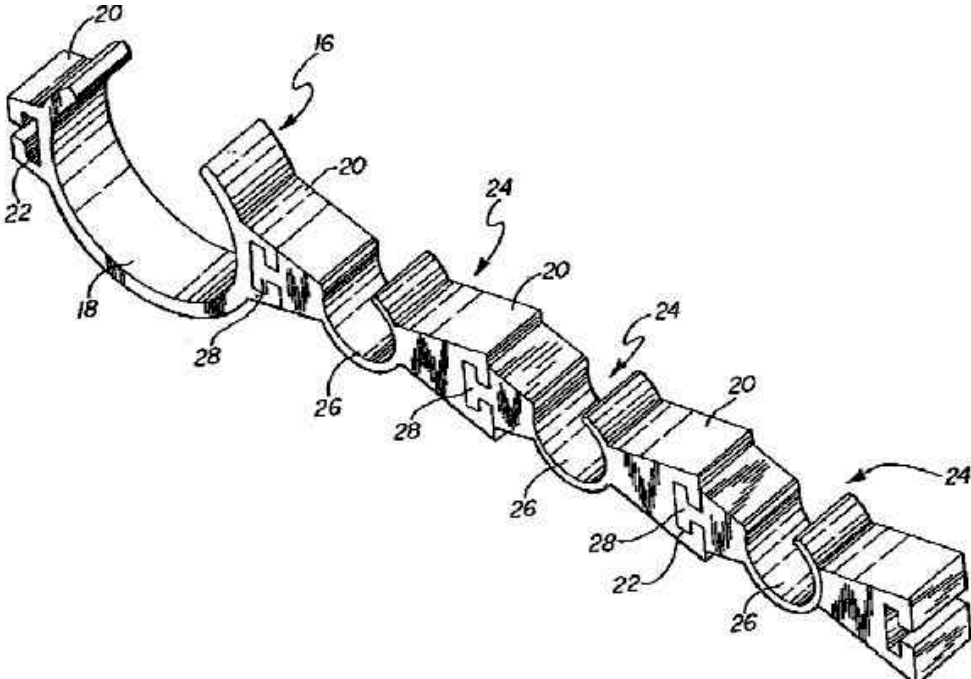


**F16L 3/222**

{having single supports directly connected together}

**Definition statement**

*This place covers:*



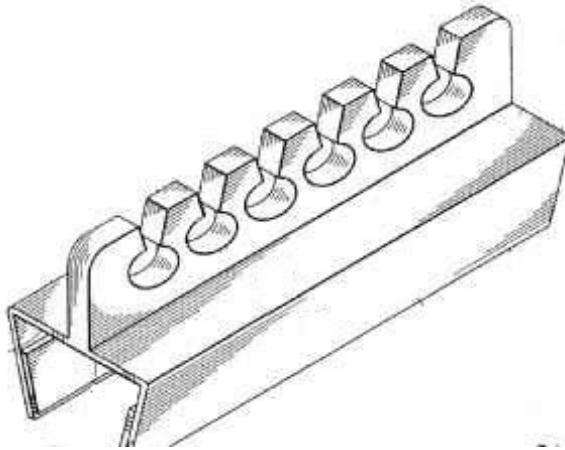
## F16L 3/223

each support having one transverse base for supporting the pipes ([F16L 3/23](#), [F16L 3/237](#) take precedence)

### Definition statement

*This place covers:*

one integral support for all pipes



### References

#### Limiting references

*This place does not cover:*

Supports for a bundle of pipes or a plurality of pipes placed side by side in contact with each other	<a href="#">F16L 3/23</a>
Supports for two pipes only	<a href="#">F16L 3/237</a>

## F16L 5/00

Devices for use where pipes, cables or protective tubing pass through walls or partitions ({passing insulated pipes through walls [F16L 59/121](#);} arrangements for leading electric cables or lines through walls, floors or ceilings [H02G 3/22](#))

### References

#### Limiting references

*This place does not cover:*

Passing insulated pipes through walls	<a href="#">F16L 59/121</a>
Arrangements for leading electric cables or lines through walls, floors or ceilings	<a href="#">H02G 3/22</a>

#### Application-oriented references

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

For steam boilers	<a href="#">F22B 37/105</a>
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**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Joining pipes to walls	<a href="#">F16L 41/00</a>
Joining plastic pipes to walls	<a href="#">F16L 47/26</a>
Sealing elements into header boxes or end plates of heat-exchangers	<a href="#">F28F 9/00</a>

Holders for pipes passing through walls or partitions

**F16L 7/00**

Supporting of pipes or cables inside other pipes or sleeves, e.g. for enabling pipes or cables to be inserted or withdrawn from under roads or railways without interruption of traffic (sleeves for supporting pipes, cables or protective tubing, between relatively movable points [F16L 3/01](#), {fixation devices of optical cables in ducts [G02B 6/508](#), installation of electric cables [H02G 1/08](#)})

**References****Limiting references**

This place does not cover:

Sleeves for supporting pipes, cables or protective tubing, between relatively movable points	<a href="#">F16L 3/01</a>
Fixation devices of optical cables in ducts	<a href="#">G02B 6/508</a>
Installation of electric cables	<a href="#">H02G 1/08</a>

**F16L 9/00****Rigid pipes****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Steam boiler tubes	<a href="#">F22B 37/10</a>
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**F16L 9/02**

of metal ([F16L 9/16](#) - [F16L 9/22](#) take precedence)

**References****Limiting references**

This place does not cover:

Rigid pipes wound from sheets or strips, with or without reinforcement	<a href="#">F16L 9/16</a>
Rigid pipes obtained by bending a sheet longitudinally and connecting the edges	<a href="#">F16L 9/17</a>

Limiting references

Double-walled pipes; Multi-channel pipes or pipe assemblies	<a href="#">F16L 9/18</a>
Rigid pipes made of sound-absorbing materials or with sound-absorbing structure	<a href="#">F16L 9/21</a>
Rigid pipes composed of a plurality of segments	<a href="#">F16L 9/22</a>

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Finned pipes	<a href="#">F28F</a>
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**F16L 9/06****Corrugated pipes****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Corrugated flexible pipes	<a href="#">F16L 11/15</a>
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**F16L 9/08**

**of concrete, cement, or asbestos cement, with or without reinforcement  
([F16L 9/16](#) - [F16L 9/22](#) take precedence)**

**References****Limiting references**

This place does not cover:

Rigid pipes wound from sheets or strips, with or without reinforcement	<a href="#">F16L 9/16</a>
Rigid pipes obtained by bending a sheet longitudinally and connecting the edges	<a href="#">F16L 9/17</a>
Double-walled pipes; Multi-channel pipes or pipe assemblies	<a href="#">F16L 9/18</a>
Rigid pipes made of sound-absorbing materials or with sound-absorbing structure	<a href="#">F16L 9/21</a>
Rigid pipes composed of a plurality of segments	<a href="#">F16L 9/22</a>

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Shaping clay or other ceramic compositions, slag or mixtures containing cementitious material	<a href="#">B28B</a>
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**F16L 9/16****wound from sheets or strips, with or without reinforcement****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Making wound paper articles	<a href="#">B31C</a>
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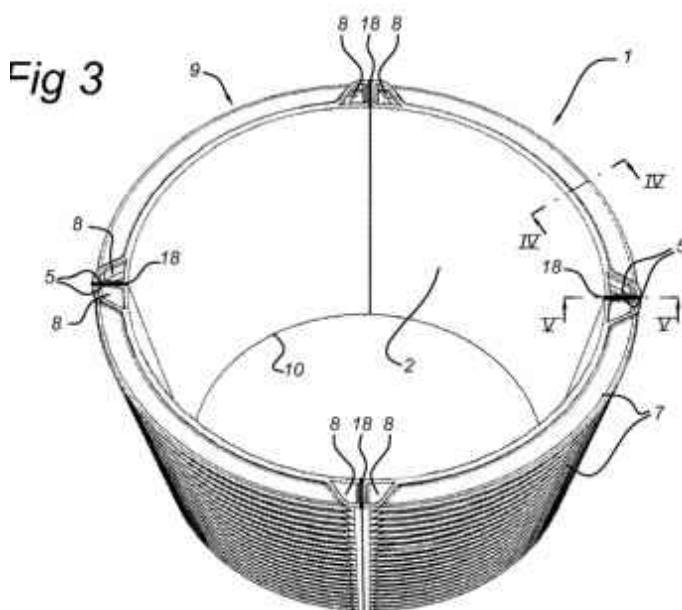
**F16L 9/18****Double-walled pipes; Multi-channel pipes or pipe assemblies****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Joints therefor	<a href="#">F16L 39/00</a>
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**F16L 9/22****Pipes composed of a plurality of segments****Glossary of terms***In this place, the following terms or expressions are used with the meaning indicated:*

The term "segments" means radial segments, not axial segments

This group covers e.g.



## F16L 11/00

### Hoses, i.e. flexible pipes

#### References

##### *Application-oriented references*

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Suction-cleaner hoses	<a href="#">A47L 9/24</a>
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##### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

Hose-like supports for pipes, cables or protective tubing, between relatively movable points	<a href="#">F16L 3/01</a>
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## F16L 11/082

{two layers}

#### Definition statement

*This place covers:*

e.g. hoses with two layers of helically wound cord or wire

## F16L 11/083

{three or more layers}

#### Definition statement

*This place covers:*

e.g. hoses with three or more layers of helically wound cord or wire

## F16L 11/086

{two layers}

#### Definition statement

*This place covers:*

e.g. hoses with two braided layers

## F16L 11/087

{three or more layers}

#### Definition statement

*This place covers:*

e.g. hoses with three or more braided layers

**F16L 11/11**

with corrugated wall {(F16L 11/24 takes precedence)}

**Definition statement**

*This place covers:*  
corrugated hoses made from elastic material

**References**

**Limiting references**

*This place does not cover:*

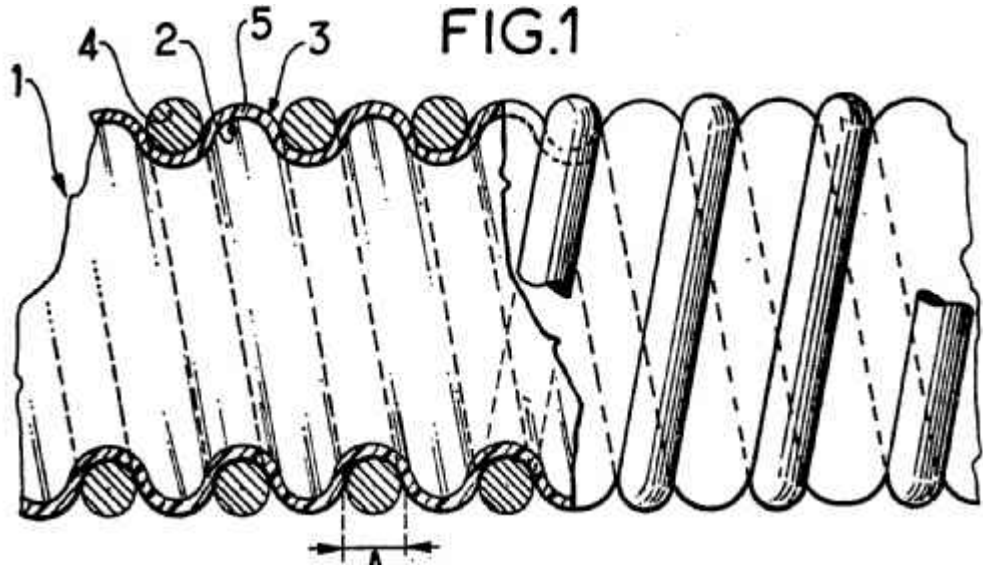
Corrugated hoses wound from strips or bands	<a href="#">F16L 11/24</a>
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**F16L 11/115**

having reinforcements not embedded in the wall

**Definition statement**

*This place covers:*  
e.g.



## F16L 13/00

Non-disconnectible pipe-joints, e.g. soldered, adhesive or caulked joints (joints for rigid pipes of plastics [F16L 47/00](#); {non-disconnectible pipe-joints to walls or other pipes, the joined pipe axis being perpendicular to the plane of the wall or to the axis of the other pipe [F16L 41/082](#)})

### References

#### Limiting references

*This place does not cover:*

Non-disconnectible pipe-joints to walls or other pipes, the joined pipe axis being perpendicular to the plane of the wall or to the axis of the other pipe	<a href="#">F16L 41/082</a>
Non-disconnectible joints for rigid pipes of plastics	<a href="#">F16L 47/00</a>

## F16L 13/007

specially adapted for joining pipes of dissimilar materials {(joints between metal and plastic pipes [F16L 47/24](#))}

### References

#### Limiting references

*This place does not cover:*

Joints between metal and plastic pipes	<a href="#">F16L 47/24</a>
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#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Disconnectible joints for pipes of dissimilar materials	<a href="#">F16L 25/0072</a>
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## F16L 13/02

### Welded joints

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Arc welding of curved planar seams	<a href="#">B23K 9/028</a>
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## F16L 13/08

Soldered joints {(specially adapted for connecting metal hoses to rigid members [F16L 33/26](#))}

### References

#### Limiting references

*This place does not cover:*

Joints specially adapted for connecting metal hoses to rigid members	<a href="#">F16L 33/26</a>
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#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Soldering metal	<a href="#">B23K 1/00</a>
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## F16L 13/14

made by plastically deforming the material of the pipe, e.g. by flanging, rolling

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Working of metal tubes without essentially removing material	<a href="#">B21D</a>
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## F16L 15/00

Screw-threaded joints {(hose connections with parts screwed directly on or into the hose [F16L 33/24](#); joining pipes to wall [F16L 41/00](#))}; Forms of screw-threads for such joints

### References

#### Limiting references

*This place does not cover:*

Hose connections with parts screwed directly on or into the hose	<a href="#">F16L 33/24</a>
Joining pipes to walls	<a href="#">F16L 41/00</a>

#### Application-oriented references

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Screw threaded connections for drilling rods (drill hammer)	<a href="#">E21B 17/042</a>
Casing joints used in deep-drilling	<a href="#">E21B 17/08</a>

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Lubricating compositions	<a href="#">C10M</a>
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**F16L 15/08**

with supplementary elements ([F16L 15/04](#), {[F16L 41/00](#) and [F16L 43/02](#)} take precedence)

**Definition statement**

This place covers:

screw threaded connections with supplementary elements, e.g. additional locking elements. Not covered are screw threaded connections with supplementary elements which form a sealing.

**References****Limiting references**

This place does not cover:

Screw-threaded joints with additional sealings	<a href="#">F16L 15/04</a>
Branching pipes; Joining pipes to walls	<a href="#">F16L 41/00</a>
Bends or siphons adapted to make use of special securing means	<a href="#">F16L 43/02</a>

**F16L 17/00**

Joints with packing adapted to sealing by fluid pressure ({for hoses [F16L 33/16](#);} compensating devices [F16L 51/00](#))

**References****Limiting references**

This place does not cover:

Sealing by fluid pressure for hoses	<a href="#">F16L 33/16</a>
Compensating devices	<a href="#">F16L 51/00</a>

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Sealing by fluid pressure for universal joints with partly spherical engaging surfaces	<a href="#">F16L 27/067</a>
Joints allowing adjustment or movement only about the axis of one pipe	<a href="#">F16L 27/08</a>
Joints comprising a flexible connection only	<a href="#">F16L 27/10</a>
Joints allowing substantial longitudinal adjustment or movement	<a href="#">F16L 27/12</a>
Couplings of the quick acting type	<a href="#">F16L 37/00</a>
Sealings tightened by external pressure, inflatable packings	<a href="#">F16J 15/00</a>

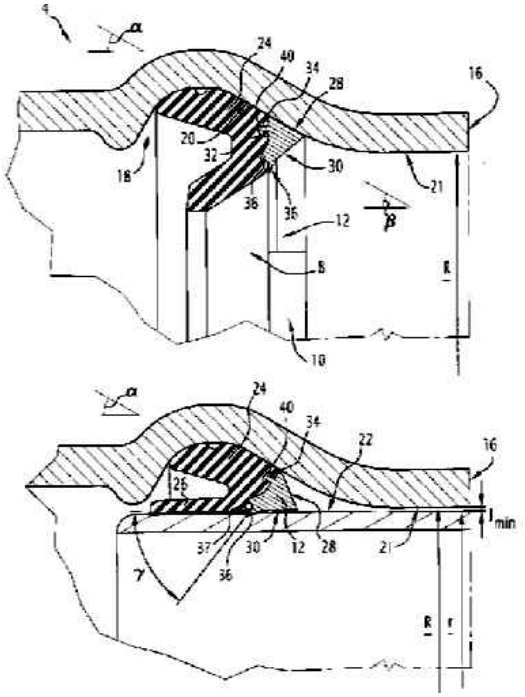


**F16L 17/035**

the sealing rings having two lips parallel to each other

**Definition statement**

*This place covers:*



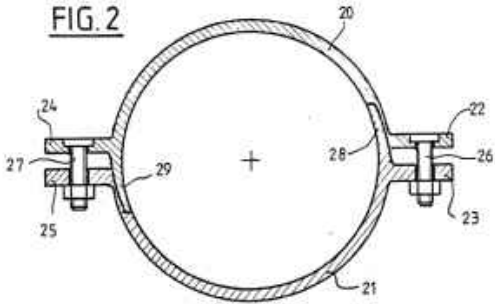
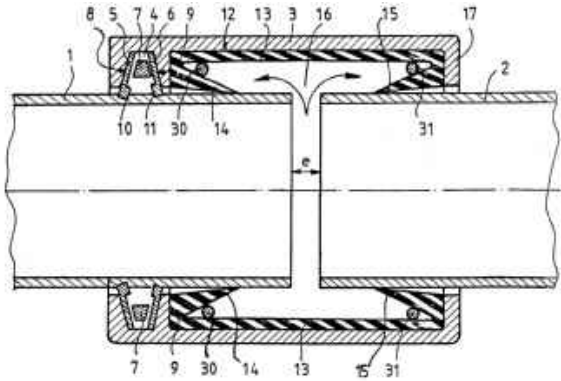


**F16L 17/04**

**with longitudinally split or divided sleeve**

**Definition statement**

*This place covers:*



**F16L 17/10**

**the packing being sealed by the pressure of a fluid other than the fluid in or surrounding the pipe**

**References**

**Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Expansion-compensation arrangements for pipe-lines	<a href="#">F16L 51/00</a>
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## F16L 19/00

Joints in which sealing surfaces are pressed together by means of a member, e.g. a swivel nut, screwed on or into one of the joint parts ({screw-threaded joints [F16L 15/00](#);} [F16L 17/00](#) takes precedence; if using bolts or equivalent connecting means [F16L 23/00](#); {electrically insulating [F16L 25/02](#); adjustable joints, joints allowing movement [F16L 27/00](#); specially adapted for pipes of brittle material [F16L 49/06](#)})

### References

#### Limiting references

*This place does not cover:*

Screw threaded joints	<a href="#">F16L 15/00</a>
Joints with packing adapted to sealing by fluid pressure	<a href="#">F16L 17/00</a>
Flanged joints with sealing surfaces pressed together by bolts or equivalent connecting means	<a href="#">F16L 23/00</a>
Electrically insulating joints	<a href="#">F16L 25/02</a>
Adjustable joints, joints allowing movement	<a href="#">F16L 27/00</a>
Specially adapted for pipes of brittle material	<a href="#">F16L 49/06</a>

### Special rules of classification

Looping references between [F16L 19/00](#) and [F16L 23/00](#) have been identified. Until this inconsistency is resolved, the current classification practice in CPC is as follows:

Flanged joints with sealing surfaces pressed together by means other than bolts or equivalent are classified only in [F16L 19/00](#).

Flanged joints with sealing surfaces pressed together by bolts or equivalent are classified only in [F16L 23/00](#).

## F16L 19/0206

{the collar not being integral with the pipe}

### Definition statement

*This place covers:*

Joints with flanges not forming part of the pipe body. This includes welded or screwed on flanges which are not considered to be integral with the pipe

## F16L 19/061

{a pressure ring being arranged between the clamping ring and the threaded member or the connecting member}

### Definition statement

*This place covers:*

connections having two rings

**F16L 19/065**

the wedging action being effected by means of a ring

**Definition statement**

*This place covers:*

connections having one ring

**F16L 19/0653**

{the ring being rotatably connected to one of the connecting parts}

**Definition statement**

*This place covers:*

connections wherein the ring rotates with the nut during the fastening

**F16L 19/083**

{the longitudinal cross-section of the ring not being modified during clamping}

**Definition statement**

*This place covers:*

connections wherein the ring being a split ring

**F16L 19/10**

the profile of the ring being altered

**Definition statement**

*This place covers:*

connection wherein the ring being no split ring

**F16L 21/00**

**Joints with sleeve or socket (F16L 13/00, {F16L 15/00}, F16L 17/00, F16L 19/00, {F16L 25/0027, F16L 27/00, F16L 37/00} take precedence {; specially adapted to be made of plastics or to be used with pipes made of plastics F16L 47/06; specially adapted for pipes of brittle material F16L 49/02})**

**References****Limiting references**

*This place does not cover:*

Non-disconnectable pipe-joints	<a href="#">F16L 13/00</a>
Screw-threaded joints	<a href="#">F16L 15/00</a>
Joints adapted to sealing by fluid pressure	<a href="#">F16L 17/00</a>
Joints in which sealing surfaces are pressed together by means of a member, e.g. a swivel nut	<a href="#">F16L 19/00</a>
Joints for pipes made of reinforced concrete	<a href="#">F16L 25/0027</a>

Adjustable joints	<a href="#">F16L 27/00</a>
Couplings of the quick-acting type	<a href="#">F16L 37/00</a>
Joints with sleeve and socket specially adapted to be used with pipes of plastic	<a href="#">F16L 47/06</a>
Joints with sleeve and socket specially adapted to be used with pipes of brittle material	<a href="#">F16L 49/02</a>

### Informative references

Attention is drawn to the following places, which may be of interest for search:

Devices for covering leaks in pipes or hoses	<a href="#">F16L 55/16</a>
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## F16L 23/00

Flanged joints ([F16L 13/00](#), [F16L 17/00](#), [F16L 19/00](#) take precedence; adjustable joints [F16L 27/00](#); for hoses [F16L 33/00](#); couplings of the quick-acting type [F16L 37/00](#); for double-walled or multi-channel pipes or assemblies [F16L 39/00](#); connecting arrangements or other fittings specially adapted to be made of plastics or to be used with pipes made of plastics [F16L 47/00](#); specially adapted for pipes of brittle material pipe [F16L 49/00](#))

### References

#### Limiting references

This place does not cover:

Non-disconnectable pipe joints	<a href="#">F16L 13/00</a>
Joints adapted to sealing by fluid pressure	<a href="#">F16L 17/00</a>
Flanged joints with sealing surfaces pressed together by means other than bolts or equivalent	<a href="#">F16L 19/00</a>
Adjustable joints	<a href="#">F16L 27/00</a>
For hoses	<a href="#">F16L 33/00</a>
Couplings of the quick-acting type	<a href="#">F16L 37/00</a>
For double-walled or multi-channel pipes or assemblies	<a href="#">F16L 39/00</a>
Connecting arrangements or other fittings specially adapted to be made of plastics or to be used with pipes made of plastics	<a href="#">F16L 47/00</a>
Specially adapted for pipes of brittle material	<a href="#">F16L 49/00</a>

### Special rules of classification

Looping references between [F16L 19/00](#) and [F16L 23/00](#) have been identified. Until this inconsistency is resolved, the current classification practice in CPC is as follows:

Flanged joints with sealing surfaces pressed together by means other than bolts or equivalent are classified only in [F16L 19/00](#).

Flanged joints with sealing surfaces pressed together by bolts or equivalent are classified only in [F16L 23/00](#).

**F16L 23/003**

{Auxiliary devices}

**Definition statement**

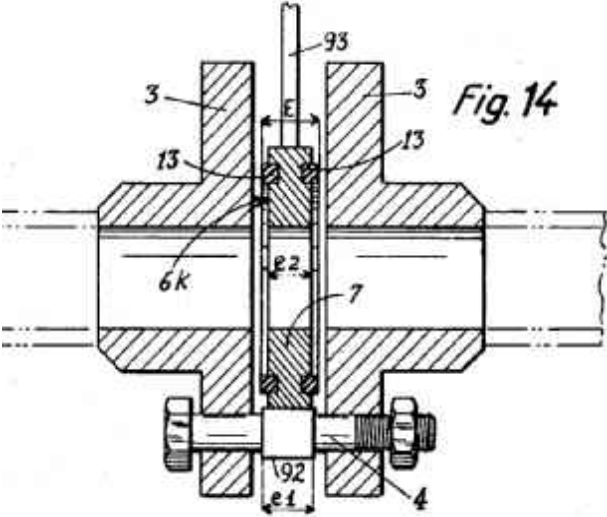
*This place covers:*  
devices for aligning, separating or locking of the flange connection

**F16L 23/006**

{Attachments}

**Definition statement**

*This place covers:*  
Attachments to the joints having no sealing or connection function e.g. measuring devices or valves that are attached to, or integrated in the flange

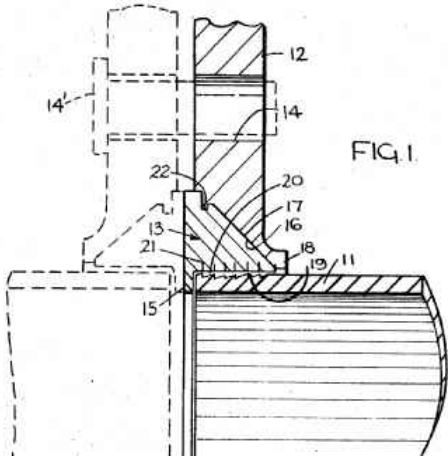


**F16L 23/0286**

{the shoulder not being formed from the pipe}

**Definition statement**

*This place covers:*



**References**

**Limiting references**

*This place does not cover:*

<p>Joints with sleeve and socket, where the pipe ends are overlapping:</p>	<p><a href="#">F16L 21/08</a></p>
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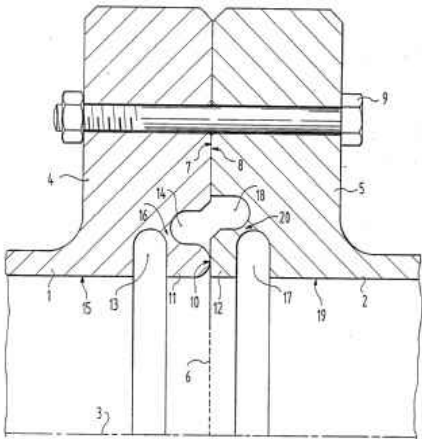
**F16L 23/162**

{the pipe ends abutting each other}

**Definition statement**

*This place covers:*

Joints where "pipe ends are abutting each other", which should be interpreted in the way that no extra sealing rings are present and there is surface to surface contact between the flanges



## F16L 25/00

Constructive types of pipe joints not provided for in groups [F16L 13/00](#) - [F16L 23/00](#) (adjustable or allowing movement [F16L 27/00](#); with fluid cut-off means [F16L 29/00](#); quick-acting [F16L 37/00](#); for double-walled or multi-channel pipes [F16L 39/00](#); connecting arrangements or other fittings specially adapted to be made of plastics or to be used with pipes made of plastics [F16L 47/00](#); specially adapted for pipes of brittle material [F16L 49/00](#) ); Details of pipe joints not otherwise provided for, e.g. electrically conducting or insulating means}

### References

#### Limiting references

*This place does not cover:*

Adjustable joints	<a href="#">F16L 27/00</a>
Joints with fluid cut-off means	<a href="#">F16L 29/00</a>
Couplings of the quick-acting type	<a href="#">F16L 37/00</a>
Joints or fittings for double-walled or multi-channel pipes or pipe assemblies	<a href="#">F16L 39/00</a>
Specially adapted to be made of plastics or to be used with pipes made of plastics	<a href="#">F16L 47/00</a>
Specially adapted for pipes of brittle material	<a href="#">F16L 49/00</a>

#### References out of a residual place

*Examples of places in relation to which this place is residual:*

Non-disconnectable pipe joints	<a href="#">F16L 13/00</a>
Screw-threaded joints	<a href="#">F16L 15/00</a>
Joints adapted to sealing by fluid pressure	<a href="#">F16L 17/00</a>
Joints in which sealing surfaces are pressed together by means of a member, e.g. swivel nut	<a href="#">F16L 19/00</a>
Joints with sleeve or socket	<a href="#">F16L 21/00</a>
Flanged joints	<a href="#">F16L 23/00</a>

**F16L 25/009**

{Combination of a quick-acting type coupling and a conventional one}

**Definition statement**

*This place covers:*

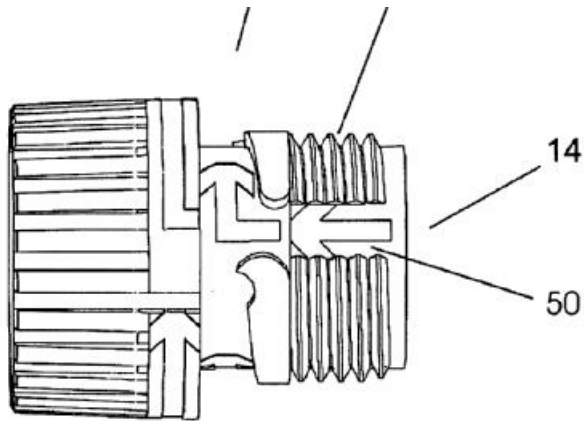


Figure 3

**F16L 25/01**

especially adapted for realising electrical conduction between the two pipe ends of the joint or between parts thereof

**References****Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Electrically-conductive connections between or with tubular conductors	<a href="#">F16L 47/00</a>
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**F16L 25/02**

Electrically insulating joints or couplings

**References****Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Insulating bodies in general	<a href="#">H01B</a>
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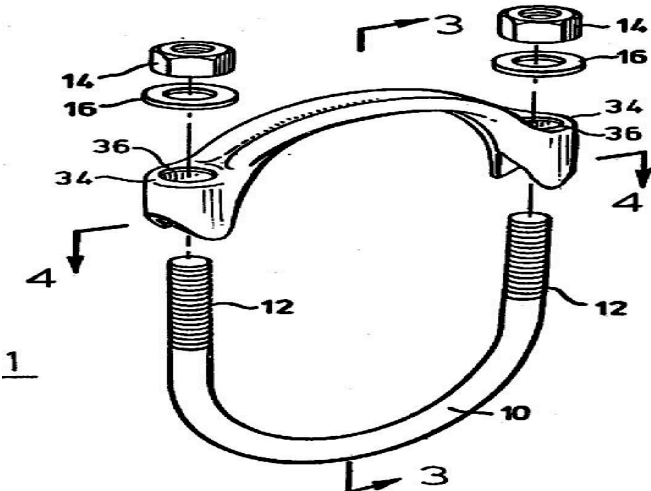


**F16L 25/04**

comprising a collar or ring having a threaded pin rigid with the pipe-encircling member

**Definition statement**

*This place covers:*

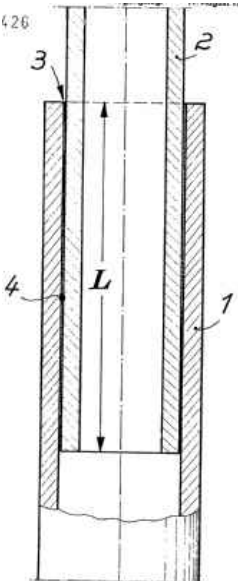


**F16L 25/10**

Sleeveless joints between two pipes, one being introduced into the other

**Definition statement**

*This place covers:*



## F16L 27/00

Adjustable joints, Joints allowing movement (of the quick-acting type [F16L 37/50](#); for double-walled or multi-channel pipe assemblies [F16L 39/04](#); {connecting arrangements or other fittings specially adapted to be made of plastics or to be used with pipes made of plastics [F16L 47/00](#); connecting arrangements specially adapted for pipes of brittle material [F16L 49/00](#)})

### References

#### Limiting references

*This place does not cover:*

Couplings of the quick-acting type	<a href="#">F16L 37/50</a>
For double-walled or multi-channel pipes or assemblies	<a href="#">F16L 39/04</a>
Connecting arrangements or other fittings specially adapted to be made of plastics or to be used with pipes made of plastics	<a href="#">F16L 47/00</a>
Specially adapted to be used with pipes of brittle material	<a href="#">F16L 49/00</a>

#### Application-oriented references

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Connections between hoses and sprayers	<a href="#">B05B</a>
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#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Branching pipes, wherein the branch pipes are moveable	<a href="#">F16L 41/18</a>
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## F16L 27/02

Universal joints, i.e. with mechanical connection allowing angular movement or adjustment of the axes of the parts in any direction

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Articulated hoses made of rigid material	<a href="#">F16L 11/18</a>
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**F16L 27/04****with partly spherical engaging surfaces****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Joints with, between the surfaces, a flexible element which undergoes shear and flexure	<a href="#">F16L 27/103</a>
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**F16L 27/047****held in place by a screwed member having an internal spherical surface****Definition statement***This place covers:*

joints held together with a swivel nut

**F16L 27/08****allowing adjustment or movement only about the axis of one pipe****References*****Informative references****Attention is drawn to the following places, which may be of interest for search:*

Swivel joints in hose lines for flushing boreholes	<a href="#">E21B 21/02</a>
--	----------------------------

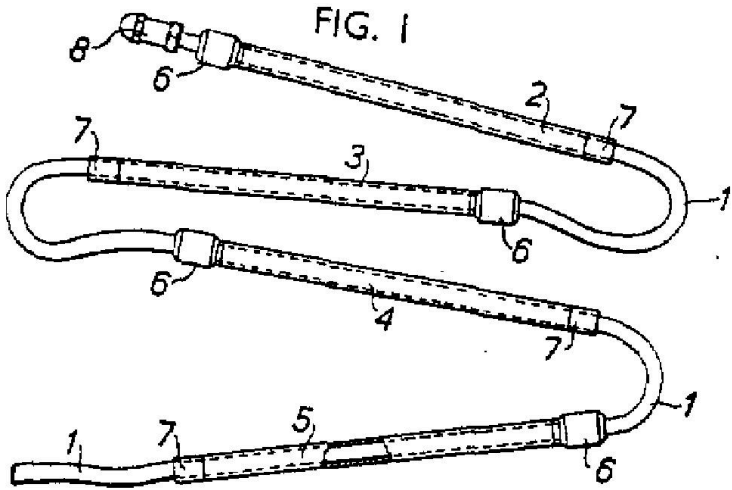
**F16L 27/0861**

{Arrangements of joints with one another and with pipes or hoses}

**Definition statement**

*This place covers:*

e.g.



**F16L 27/12**

allowing substantial longitudinal adjustment or movement (by use of screw-thread [F16L 15/02](#))

**References**

**Limiting references**

*This place does not cover:*

Joint allowing movement by use of screw-threads	<a href="#">F16L 15/02</a>
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**Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Telescopic bends	<a href="#">F16L 43/006</a>
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**F16L 29/00**

Joints with fluid cut-off means (quick-acting joints with cut-off means [F16L 37/28](#))

**Definition statement**

*This place covers:*

The fluid cut off means must be a part of, or functionally associated with the connection, not just a valve in a pipe, otherwise its classified only with the valves [F16K](#)

## References

### Limiting references

*This place does not cover:*

Couplings of the quick-acting type with cut-off means	<a href="#">F16L 37/28</a>
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### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Valves, taps and cocks in general	<a href="#">F16K</a>
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## F16L 29/02

**with a cut-off device in one of the two pipe ends, the cut-off device being automatically opened when the coupling is applied**

## References

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Screw joints without cut-off devices	<a href="#">F16L 19/00</a>
--------------------------------------	----------------------------

## F16L 29/04

**with a cut-off device in each of the two pipe ends, the cut-off devices being automatically opened when the coupling is applied**

## References

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Screw joints without cut-off devices	<a href="#">F16L 19/00</a>
--------------------------------------	----------------------------

## F16L 31/00

**Arrangements for connecting hoses to one another or to flexible sleeves  
([F16L 33/00](#) takes precedence)**

## Definition statement

*This place covers:*

hoses directly connected to each other

## References

### Limiting references

*This place does not cover:*

Arrangements for connecting hose to rigid members	<a href="#">F16L 33/00</a>
Rigid hose connectors, i.e. single members engaging both hoses	<a href="#">F16L 33/00</a>

## F16L 33/00

**Arrangements for connecting hoses to rigid members; Rigid hose connectors, i.e. single members engaging both hoses**

### References

#### *Application-oriented references*

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Hose couplings specially adapted for suction cleaners	<a href="#">A47L 9/24</a>
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#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

Hand tools per se for inserting fittings into hoses	<a href="#">B25B 27/10</a>
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## F16L 33/02

### Hose-clips

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

Covering leaks in pipes or hoses	<a href="#">F16L 55/16</a>
----------------------------------	----------------------------

## F16L 33/025

**tightened by deforming radially extending loops or folds**

### Definition statement

*This place covers:*

e.g. Oetiker ears

## F16L 33/14

**with a taping-bolt, i.e. winding up the end of the hose-encircling member**

### Definition statement

*This place covers:*

e.g. fastening means working like a sardine-can opener

## F16L 33/26

specially adapted for hoses of metal

### Definition statement

*This place covers:*

corrugated hoses

## F16L 35/00

Special arrangements used in connection with end fittings of hoses, e.g. safety or protecting devices

### Definition statement

*This place covers:*

safety housings; devices against unauthorized use, anti-kink devices for pipe ends; pressure relief devices

## F16L 37/00

Couplings of the quick-acting type (radially binding sleeves [F16L 17/04](#), [F16L 21/06](#); connecting hoses to rigid members [F16L 33/00](#); connections made automatically when vehicles are brought together [B60D](#), [B61G](#); specially adapted for lubricating devices [F16N 21/00](#))

### Definition statement

*This place covers:*

Joints wherein the connection is established by one or two simple quick movements

### References

#### Limiting references

*This place does not cover:*

Radially binding sleeves	<a href="#">F16L 17/04</a> , <a href="#">F16L 21/06</a>
Connecting hoses to rigid members	<a href="#">F16L 33/00</a>
Connections made automatically when vehicles are brought together	<a href="#">B60D</a> , <a href="#">B61G</a>
Specially adapted for lubricating devices	<a href="#">F16N 21/00</a>

#### Application-oriented references

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Connections between hoses and sprayers	<a href="#">B05B</a>
--	----------------------

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Welded connections or screwed connections	<a href="#">F16L 13/00</a> , <a href="#">F16L 15/00</a>
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**F16L 37/02**

in which the connection is maintained only by friction of the parts being joined (F16L 37/22 takes precedence)

**Definition statement**

*This place covers:*

Couplings that can be separated by force, e.g. pulling strongly

**References**

**Limiting references**

*This place does not cover:*

Connections maintained by means of balls, rollers or helical springs under radial pressure between the parts	<a href="#">F16L 37/22</a>
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**F16L 37/084**

combined with automatic locking

**Definition statement**

*This place covers:*

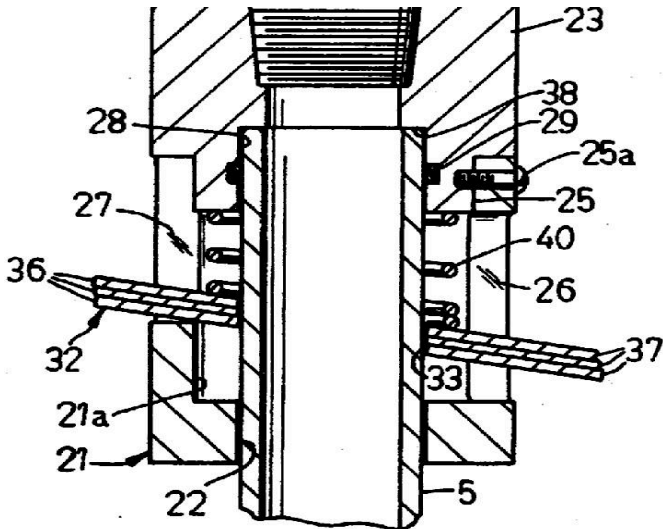
Joints wherein the connection is established by one simple quick movement: simply push the two pipe ends together: "click"

**F16L 37/0844**

{by means of a ring pivoting so as to lie against the tube}

**Definition statement**

*This place covers:*





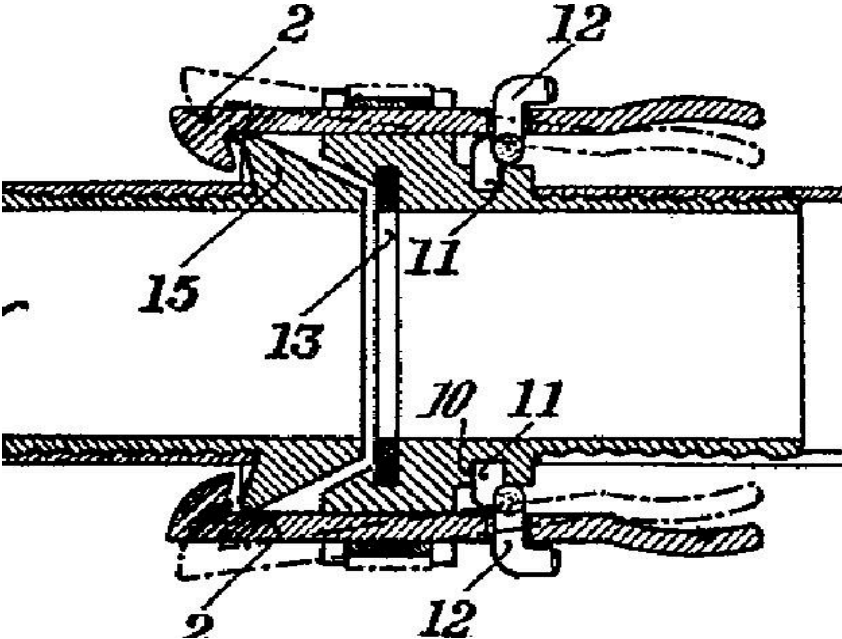
**F16L 37/0848**

{rocking freely}

**Definition statement**

*This place covers:*

Couplings with rigid hook members which can pivot

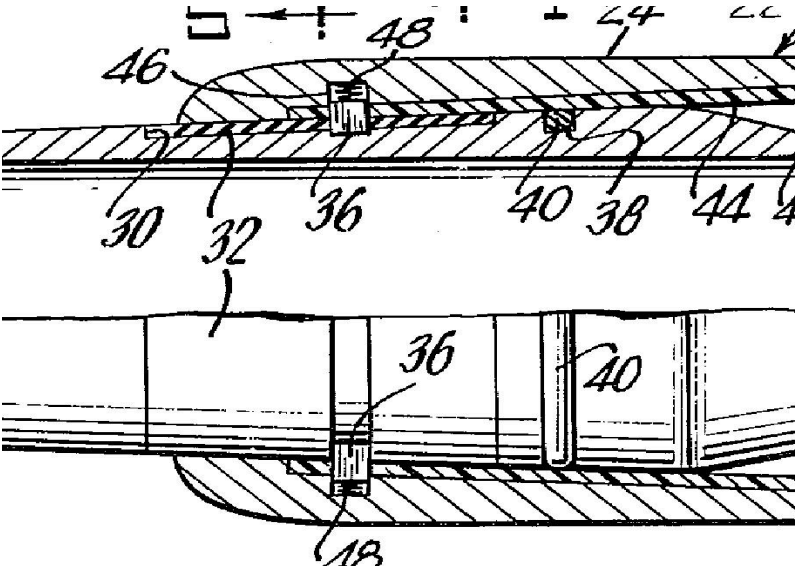


**F16L 37/086**

by means of latching members pushed radially by spring-like elements

**Definition statement**

*This place covers:*



## References

### Limiting references

*This place does not cover:*

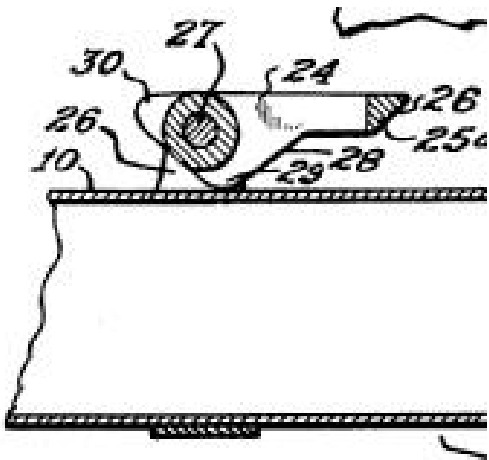
Radially moved latching members forming a ring	<a href="#">F16L 37/0841</a>
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## F16L 37/096

by means of hooks hinged about an axis

### Definition statement

*This place covers:*



## F16L 37/10

using a rotary external sleeve or ring on one part

### Definition statement

*This place covers:*

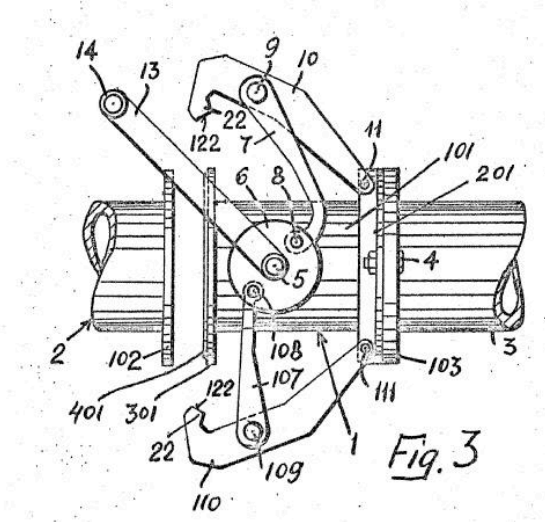
Joints wherein the connection is established by two simple quick movements: Pushing the two pipe ends together plus an additional second action; an action to achieve the locking

**F16L 37/1205**

{using hooks hinged about an axis placed behind a flange and which act behind the other flange}

**Definition statement**

*This place covers:*

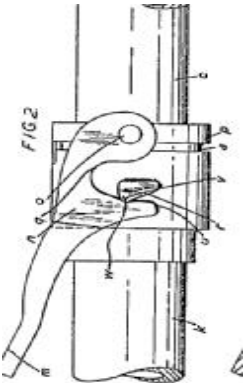


**F16L 37/16**

Joints tightened by the action of a wedge-shaped hinged hooks

**Definition statement**

*This place covers:*



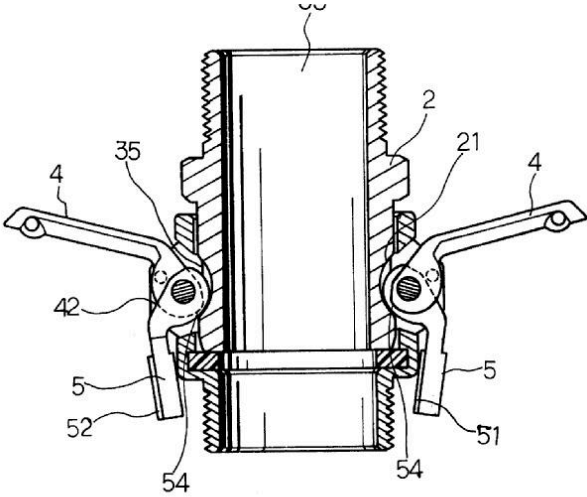
GB607402

**F16L 37/18**

**Joints tightened by eccentrics or rotatable cams**

**Definition statement**

*This place covers:*



US5904380

**F16L 37/248**

**Bayonet-type couplings**

**Definition statement**

*This place covers:*

Joints wherein the locking pins are visible in closed position

**F16L 37/252**

**the male part having lugs on its periphery penetrating in the corresponding slots provided in the female part**

**Definition statement**

*This place covers:*

Bayonet type couplings with male part having external lugs, wherein the locking pins are not visible in closed position

## F16L 37/50

adjustable; allowing movement of the parts joined

### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Adjustable joints in general	<a href="#">F16L 27/00</a>
Joints for double-walled or multi-channel pipes or pipe assemblies	<a href="#">F16L 37/56</a>

## F16L 39/00

Joints or fittings for double-walled or multi-channel pipes or pipe assemblies

### References

#### Limiting references

This place does not cover:

Joints of the quick acting type	<a href="#">F16L 37/56</a>
---------------------------------	----------------------------

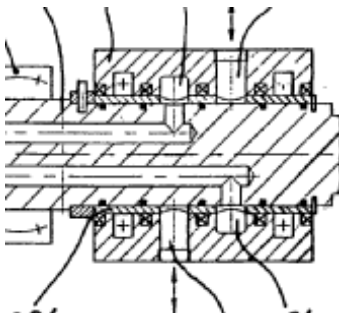
## F16L 39/04

allowing adjustment or movement {(of the multiline swivel type [F16L 39/06](#))}

### Definition statement

This place covers:

Connections wherein the different lines turn together



### References

#### Limiting references

This place does not cover:

Joints of the multiple swivel type	<a href="#">F16L 39/06</a>
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#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Joints allowing adjustment or movement in general	<a href="#">F16L 27/00</a>
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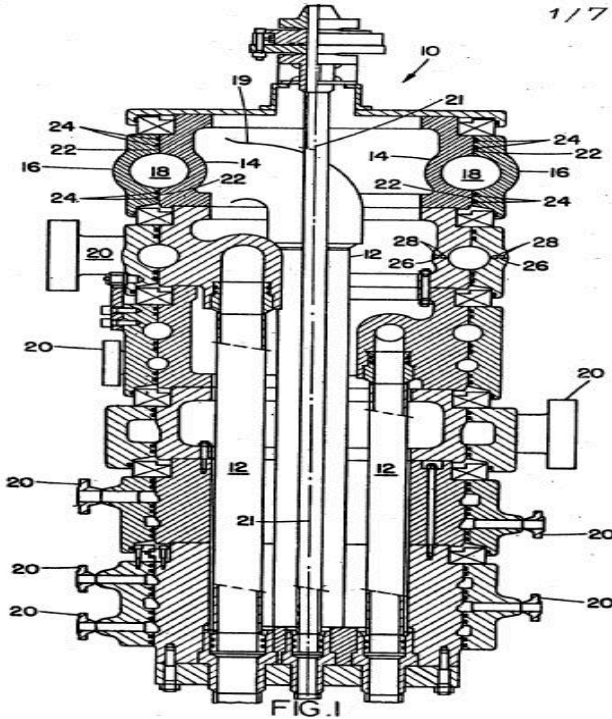
**F16L 39/06**

of the multiline swivel type, e.g. comprising a plurality of axially mounted modules

**Definition statement**

*This place covers:*

Connections wherein the different lines are independently turnable



FR2538875

**F16L 41/00**

Branching pipes; Joining pipes to walls ([F16L 39/00](#) takes precedence {; characterised by couplings of the quick-acting type [F16L 37/008](#); specially adapted to be made of plastics or to be used with pipes made of plastics [F16L 47/26](#) })

**Definition statement**

*This place covers:*

joining pipes to walls of other pipes

**References**

**Limiting references**

*This place does not cover:*

The branch pipe being joint to the main pipe or the wall by a coupling of the quick acting type	<a href="#">F16L 37/008</a>
Joints or fittings for double-walled or multi-channel pipes or pipe assemblies	<a href="#">F16L 39/00</a>

Specially adapted to be made of plastics or to be used with pipes made of plastics	<a href="#">F16L 47/26</a>
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**Informative references**

Attention is drawn to the following places, which may be of interest for search:

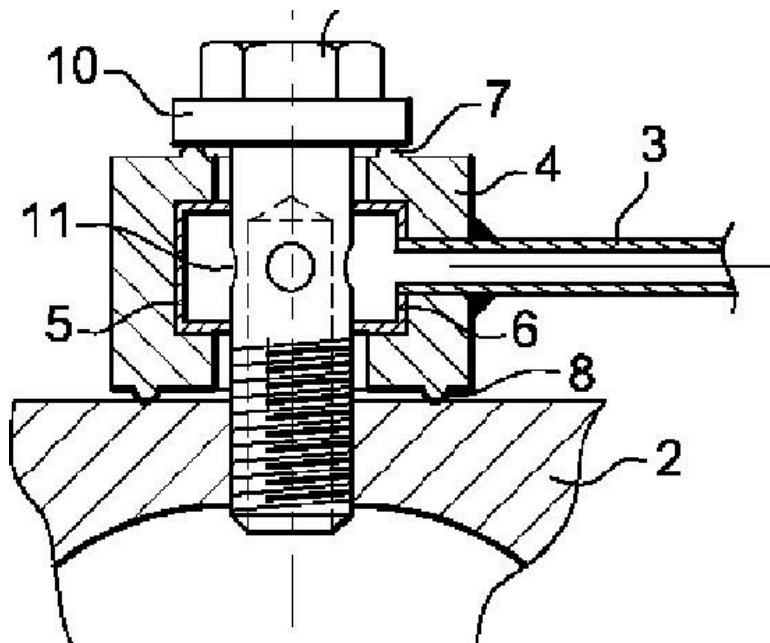
Pipes passing through walls	<a href="#">F16L 5/00</a>
Connectors not designed for conveying fluid	<a href="#">F16B 9/00</a>

**F16L 41/005**

{adjustable and comprising a hollow threaded part in an opening}

**Definition statement**

This place covers:



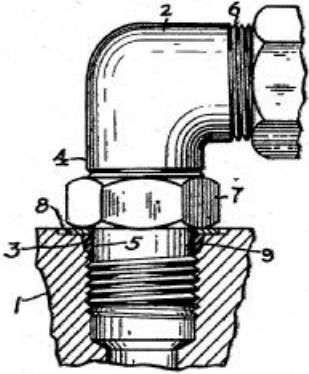
FR2538875

**F16L 41/007**

{adjustable and comprising a bend}

**Definition statement**

*This place covers:*



DE1475792

**F16L 41/03**

comprising junction pieces for four or more pipe members

**Definition statement**

*This place covers:*

e.g. manifolds

**References**

**Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Manifolds for hydraulics and pneumatics	<a href="#">F15B 13/0807</a>
---	------------------------------

**F16L 41/04**

Tapping pipe walls, i.e. making connections through the walls of pipes while they are carrying fluids; Fittings therefor

**References**

**Limiting references**

*This place does not cover:*

Tapping means specially adapted for plastic pipes	<a href="#">F16L 47/34</a>
---	----------------------------



**F16L 41/045****{without removal of material ([F16L 41/065](#) takes precedence)}****Definition statement***This place covers:*

e.g. the tapping means piercing the wall

**F16L 41/065****{without removal of material}****Definition statement***This place covers:*

e.g. the tapping means piercing the wall by using guidance on attaching means embracing the pipe

**F16L 41/082****{Non-disconnectible joints, e.g. soldered, adhesive or caulked joints}****References****Informative references***Attention is drawn to the following places, which may be of interest for search:*

Non-disconnectible pipe joints in general	<a href="#">F16L 13/00</a>
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**F16L 43/00****Bends; Siphons (with cleaning apertures [F16L 45/00](#))****References****Limiting references***This place does not cover:*

Bends with cleaning apertures	<a href="#">F16L 45/00</a>
-------------------------------	----------------------------

**Application-oriented references***Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Expansion-compensation arrangements making use of bends	<a href="#">F16L 51/04</a>
Odour seals for basins	<a href="#">E03C 1/18</a>
Siphons for water-closets	<a href="#">E03D 11/18</a>
Siphons in general	<a href="#">F04F 10/00</a>

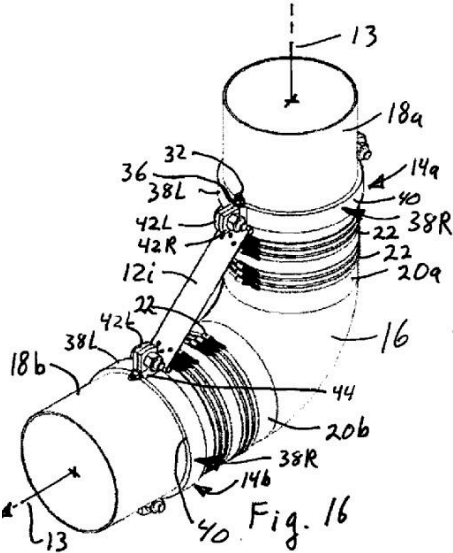
**F16L 43/02**

adapted to make use of special securing means

**Definition statement**

*This place covers:*

e.g. stress relief devices holding the pipe on both sides of the bend



US2010244437

**F16L 45/00**

Pipe units with cleaning aperture and closure therefor

**References**

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Means for stopping flow from or in pipes or hoses	<a href="#">F16L 55/10</a>
Launching or retrieval of pigs or moles	<a href="#">F16L 55/46</a>

**F16L 47/00**

Connecting arrangements or other fittings specially adapted to be made of plastics or to be used with pipes made of plastics {(connections for hoses of plastics [F16L 33/006](#))}

**Relationships with other classification places**

Not covered are fittings made of plastic or which are used with plastic pipes, but are not specially adapted therefor, e.g. if they could be made of any other material without any adaptations. These fittings are classified in the general groups for the respective connections.

## References

### Limiting references

*This place does not cover:*

Connections for hoses of plastics	<a href="#">F16L 33/006</a>
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### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Rigid pipes of plastics	<a href="#">F16L 9/12</a>
Bends or siphons	<a href="#">F16L 43/008</a>

## F16L 47/02

### Welded joints; Adhesive joints

## References

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Non-disconnectible pipe-joints in general	<a href="#">F16L 13/00</a>
---	----------------------------

## F16L 47/04

### with a swivel nut or collar engaging the pipe

## References

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Joints in which sealing surfaces are pressed together by means of a member screwed on or into one of the joint parts, in general	<a href="#">F16L 19/00</a>
--	----------------------------

## F16L 47/06

### with sleeve or socket formed by or in the pipe end

## References

### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Joints with sleeves or socket, in general	<a href="#">F16L 21/00</a>
---	----------------------------

## F16L 47/22

using shrink-down material

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

In other than plastics	<a href="#">F16L 13/004</a>
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## F16L 49/00

Connecting arrangements, e.g. joints, specially adapted for pipes of brittle material, e.g. glass, earthenware

### Relationships with other classification places

Not covered are joints of pipes of brittle material when the connection is not specially adapted therefor, e.g. if they could be made of any other material without any adaptations. These fittings are classified in the general groups for the respective connections.

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

Sleeves, nipples of reduction pieces made of elastic material	<a href="#">F16L 21/005</a>
---	-----------------------------

## F16L 49/06

Joints in which sealing surfaces are pressed together by means of a member, e.g. swivel nut, screwed on, or into, one of the joint parts

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

Joints in which sealing surfaces are pressed together by means of a member screwed on or into one of the joint parts, in general	<a href="#">F16L 19/00</a>
--	----------------------------

## F16L 49/08

Adjustable joints; Joints allowing movement

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

Adjustable joints, in general	<a href="#">F16L 27/00</a>
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**F16L 51/00****Expansion-compensation arrangements for pipe-lines (telescopic pipes  
[F16L 27/12](#))****References****Limiting references**

*This place does not cover:*

Telescopic pipes	<a href="#">F16L 27/12</a>
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**Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Hangers or supports for pipes with special provision allowing movement of the pipes	<a href="#">F16L 3/16</a>
---	---------------------------

**F16L 51/02****making use of bellows or an expansible folded or corrugated tube****References****Application-oriented references**

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Bellows that are intended to provide adjustment or movement to the coupling	<a href="#">F16L 27/107</a>
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**Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

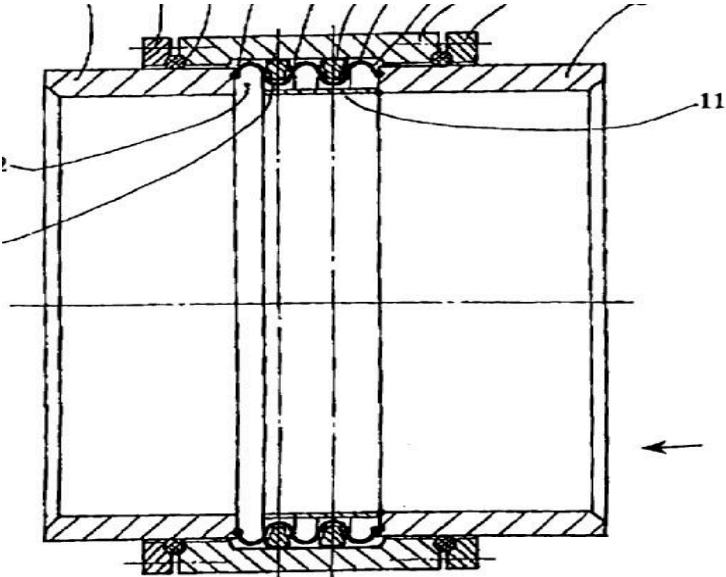
Rigid corrugated pipes	<a href="#">F16L 9/06</a>
Corrugated hoses made of rigid material	<a href="#">F16L 11/15</a>

**F16L 51/028**

{with the expansion or contraction of each corrugation being limited}

**Definition statement**

*This place covers:*



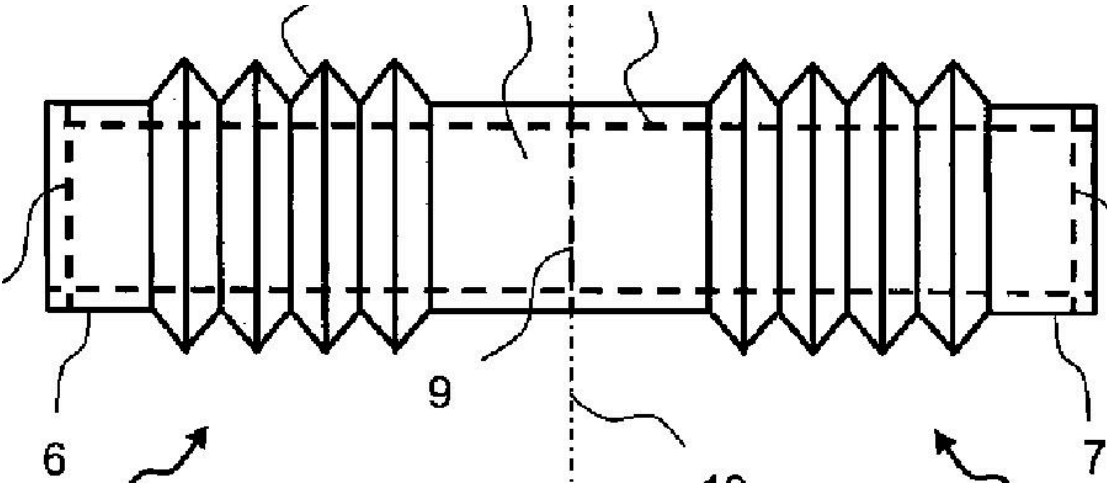
US6422611

**F16L 51/03**

comprising two or more bellows

**Definition statement**

*This place covers:*



DE102007052243

## F16L 53/00

### Heating of pipes or pipe systems; Cooling of pipes or pipe systems

#### References

##### Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Heating or cooling of hoses	<a href="#">F16L 11/12</a>
Devices for preventing freezing of pipes in water main or service pipe systems	<a href="#">E03B 7/12</a>
Devices for thawing frozen pipes in water main or service pipe systems	<a href="#">E03B 7/14</a>

##### Informative references

Attention is drawn to the following places, which may be of interest for search:

Heating or cooling of valves	<a href="#">F16K 31/002</a>
Pipe-line systems, pipe-lines	<a href="#">F17D</a>
Heat exchangers	<a href="#">F28D</a>

## F16L 55/00

Devices or appurtenances for use in, or in connection with, pipes or pipe systems (the preceding groups and groups [F16L 57/00](#), [F16L 59/00](#) take precedence; repairing or joining pipes on or under water [F16L 1/26](#); nozzles [B05B](#); cleaning of pipes [B08B 9/02](#); {arrangements of draining devices for water main or service pipe systems [E03B 7/08](#);} devices for preventing bursting of water pipes by freezing [E03B 7/10](#); {draining devices for hydrants [E03B 9/14](#);} for domestic plumbing installations [E03C 1/00](#); {steam traps for draining of liquids from enclosures containing gases or vapours [F16T](#)}; arrangements for sealing leaky tubes or conduits of heat-exchangers [F28F 11/00](#))

#### Definition statement

This place covers:

Devices for use in, or in connection with pipes or pipe systems that are not covered by groups [F16L 1/00](#) – [F16L 53/00](#), [F16L 57/00](#), [F16L 59/00](#), e.g. damping devices, means for stopping flow, devices for covering leaks, pigs or moles, preventing accumulation of dirt.

#### References

##### Limiting references

This place does not cover:

Repairing or joining pipes on or under water	<a href="#">F16L 1/26</a>
Cleaning of pipes	<a href="#">B08B 9/02</a>
Devices for preventing bursting of water pipes by freezing	<a href="#">E03B 7/10</a>

**Application-oriented references**

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

Arrangements of draining devices for water main or service pipe systems	<a href="#">E03B 7/08</a>
Draining devices for hydrants	<a href="#">E03B 9/14</a>
Devices for domestic plumbing installations	<a href="#">E03C 1/00</a>
Arrangements for sealing leaky tubes or conduits of heat-exchangers	<a href="#">F28F 11/00</a>

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Nozzles	<a href="#">B05B</a>
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**F16L 55/02**

Energy absorbers; Noise absorbers (in valves [F16K 47/00](#))

**References****Limiting references**

This place does not cover:

Means in valves for absorbing fluid energy	<a href="#">F16K 47/00</a>
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**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Springs, shock absorbers, means for damping vibration in general	<a href="#">F16F</a>
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**F16L 55/027**

Throttle passages

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Influencing flow of fluids	<a href="#">F15D 1/00</a>
Control of fluid flow	<a href="#">G05D 7/00</a>

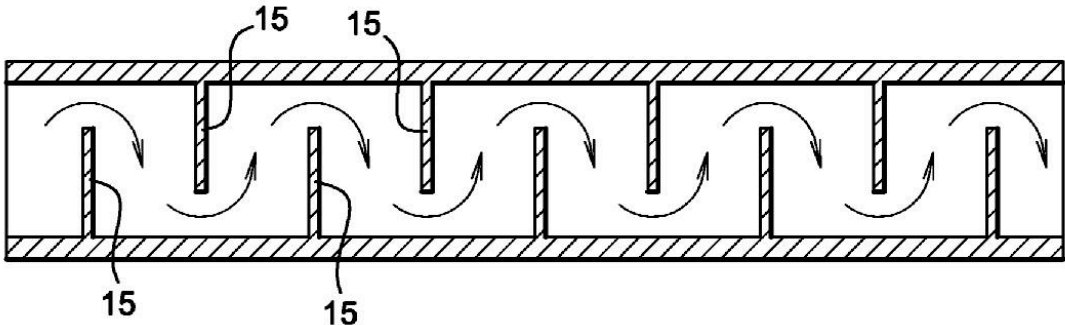


**F16L 55/02736**

{using transversal baffles defining a tortuous path}

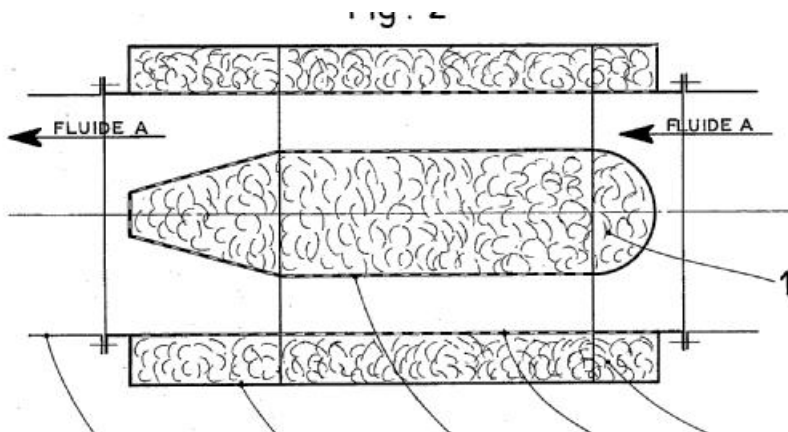
**Definition statement**

*This place covers:*



FR2942018

*This group covers*



FR2447069

**F16L 55/04**

**Devices damping pulsations or vibrations in fluids** {(F16L 55/02 takes precedence)}

**References**

**Limiting references**

*This place does not cover:*

Energy absorbers; Noise absorbers	<a href="#">F16L 55/02</a>
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**Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Counter-acting cavitation in pumps	<a href="#">F04B 39/00</a>
Springs, shock absorbers, means for damping vibration in general	<a href="#">F16F</a>

Means in valves for absorbing fluid energy	<a href="#">F16K 47/00</a>
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## F16L 55/05

Buffers therefor

### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Accumulators	<a href="#">F15B 1/04</a>
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## F16L 55/053

the gas in the reservoir being separated from the fluid in the pipe

### Definition statement

*This place covers:*

pneumatic reservoirs having a membrane

## F16L 55/07

Arrangement or mounting of devices, e.g. valves, for venting or aerating or draining (apparatus for draining [F16T](#))

### References

#### Limiting references

*This place does not cover:*

Apparatus for draining	<a href="#">F16T</a>
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#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangement of draining devices in water supply systems	<a href="#">E03B 7/08</a>
Venting or aerating devices per se	<a href="#">F16K 24/00</a>

## F16L 55/09

Air conditioning, e.g. de-watering, in pneumatic systems

### References

#### Informative references

Attention is drawn to the following places, which may be of interest for search:

Air conditioning in general	<a href="#">F24F</a>
-----------------------------	----------------------

## F16L 55/11

Plugs {([F16L 55/128](#) takes precedence)}

### Definition statement

*This place covers:*

Closing means which can be fixed inside the pipe end

### References

#### Limiting references

*This place does not cover:*

In situ expandable members introduced axially into pipes or hoses	<a href="#">F16L 55/128</a>
---	-----------------------------

## F16L 55/115

Caps {([F16L 55/1286](#) takes precedence)}

### Definition statement

*This place covers:*

Closing means which can be fixed on the outside of the pipe end

### References

#### Limiting references

*This place does not cover:*

In situ expandable caps introduced axially into pipes or hoses	<a href="#">F16L 55/1286</a>
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## F16L 55/165

a pipe {or flexible liner} being inserted in the damaged section

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Protection against corrosion	<a href="#">F16L 58/10</a>
------------------------------	----------------------------

## F16L 55/17

by means of rings, bands or sleeves pressed against the outside surface of the pipe or hose

### Definition statement

*This place covers:*

also two half sleeves for covering leaks in pipes from outside the pipe

## References

### *Informative references*

Attention is drawn to the following places, which may be of interest for search:

Hose-clips for connecting hoses to rigid members	<a href="#">F16L 33/02</a>
--	----------------------------

## F16L 55/179

pecially adapted for bends, branch units, branching pipes or the like

## References

### *Informative references*

Attention is drawn to the following places, which may be of interest for search:

Pigs or moles specially adapted to work at or near a junction between a main and a lateral pipe	<a href="#">F16L 55/265</a>
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## F16L 55/18

Appliances for use in repairing pipes ([F16L 55/10](#) takes precedence)

## References

### *Limiting references*

This place does not cover:

Means for stopping flow from or in pipes or hoses	<a href="#">F16L 55/10</a>
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### *Informative references*

Attention is drawn to the following places, which may be of interest for search:

Pigs or moles for pipes, in general	<a href="#">F16L 55/26</a>
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## F16L 55/24

Preventing accumulation of dirt or other matter in the pipes, e.g. by traps, by strainers

## References

### *Informative references*

Attention is drawn to the following places, which may be of interest for search:

Cleaning of pipes	<a href="#">B08B</a>
Preventing accumulation in pneumatic conveyors	<a href="#">B65G 53/521</a>

## F16L 55/26

**Pigs or moles, i.e. devices movable in a pipe or conduit with or without self-contained propulsion means**

### Definition statement

*This place covers:*

General features of pigs or moles for use in pipes or pipe systems

### Relationships with other classification places

Special adaptations of pigs or moles for the use in pipes or pipe systems as defined in Note 1. are classified only in the corresponding place of the Note.

General features of pigs or moles, e.g. propulsion means, not specially adapted to the use in pipes or pipe systems as defined in Note 1. are classified in [F16L 55/26](#) and subgroups.

### References

#### Informative references

*Attention is drawn to the following places, which may be of interest for search:*

Tunnel railway systems	<a href="#">B61B 13/10</a>
Conveying articles through pipes or tubes, e.g. tube mail systems	<a href="#">B65G 1/00</a>

## F16L 57/00

**Protection of pipes or objects of similar shape against external or internal damage or wear ({protection under water [F16L 1/123](#);} supporting of pipes inside other pipes or sleeves [F16L 7/00](#); used in connection with end fittings of hoses [F16L 35/00](#); protection thereof during transport [B65D 59/00](#))**

### References

#### Limiting references

*This place does not cover:*

Protection under water	<a href="#">F16L 1/123</a>
Supporting of pipes inside other pipes or sleeves	<a href="#">F16L 7/00</a>
Used in connection with end fittings or hoses	<a href="#">F16L 35/00</a>
Protecting of pipes during transport	<a href="#">B65D 59/00</a>

#### Application-oriented references

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

For steam boilers	<a href="#">F22B 37/107</a>
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**Informative references**

Attention is drawn to the following places, which may be of interest for search:

For tubular articles not conveying fluid	<a href="#">B65D 59/02</a>
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**F16L 57/06**

against wear ([F16L 57/04](#) takes precedence)

**References****Limiting references**

This place does not cover:

Protection against fire or sources of extreme heat	<a href="#">F16L 57/04</a>
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**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Wear protection of pipes conveying material in bulk, e.g. concrete	<a href="#">B65G 53/523</a>
--	-----------------------------

**F16L 58/00**

Protection of pipes or pipe fittings against corrosion or incrustation  
(compound tubes [F16L 9/14](#))

**References****Limiting references**

This place does not cover:

Compound tubes	<a href="#">F16L 9/14</a>
----------------	---------------------------

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Supporting of pipes inside other pipes or sleeves	<a href="#">F16L 7/00</a>
Cleaning pipes or tubes	<a href="#">B08B 9/02</a>
Cathodic corrosion protection	<a href="#">C25F</a>

**F16L 58/02**

by means of internal or external coatings

**References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Coatings for thermal insulation	<a href="#">F16L 59/00</a>
Methods or machines for applying coatings	<a href="#">B28B 11/04</a> , <a href="#">B28B 21/94</a>

**F16L 58/04**

Coatings characterised by the materials used ([F16L 58/16](#) takes precedence)

**References****Limiting references**

*This place does not cover:*

Coatings in the form of a bandage	<a href="#">F16L 58/16</a>
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**Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Compositions of coatings	<a href="#">C04B</a>
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**F16L 58/16**

the coating being in the form of a bandage

**References****Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Apparatus for covering cores by winding	<a href="#">B65H 81/00</a>
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**F16L 58/18**

specially adapted for pipe fittings

**References****Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Non-disconnectible joints of coated pipes	<a href="#">F16L 13/0254</a>
Screw joints for coated pipes comprising pipes with collars or flanges	<a href="#">F16L 19/0243</a>

**F16L 59/00**

Thermal insulation in general

**Definition statement**

*This place covers:*

Thermal insulation for pipes or hoses or pipe cover elements, or in general, e.g. when no other special application of the insulation is given. This group does not cover materials for thermal insulation, which are classified in the specific groups for the materials.

## References

### Application-oriented references

Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:

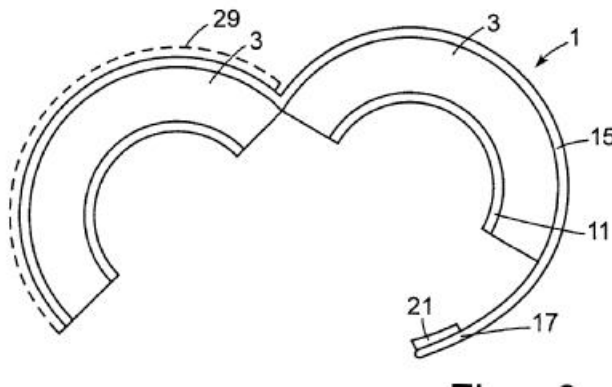
Heat, sound insulation in buildings	<a href="#">E04B</a>
Heat insulation of steam engines	<a href="#">F01B 31/08</a>
Heat insulation in rotary piston machines	<a href="#">F01C 21/06</a>
Thermal or acoustic insulation for combustion engines	<a href="#">F02B 77/11</a>
Heat insulation of pumps	<a href="#">F04C 29/04</a>
Thermal insulation of pressure vessels	<a href="#">F17C 1/12</a>
Vessels not under pressure, with provision for insulation	<a href="#">F17C 3/02</a>
For refrigerators	<a href="#">F25D</a>

## F16L 59/023

{with a hinge opposite the slit}

### Definition statement

This place covers:



DE202005004339U

## F16L 59/06

Arrangements using an air layer or vacuum

### Definition statement

This place covers:

Arrangements using an air layer or vacuum, air meaning any type of gas



## F16L 59/12

Arrangements for supporting insulation from the wall or body insulated, e.g. by means of spacers between pipe and heat-insulating material; Arrangements specially adapted for supporting insulated bodies

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

Pipe supports allowing movement in axial direction	<a href="#">F16L 3/18</a>
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## F16L 59/121

{for pipes passing through walls or partitions}

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

Devices for use where pipes, cables or protective tubing pass through walls or partition in general	<a href="#">F16L 5/00</a>
---	---------------------------

## F16L 59/141

{in which the temperature of the medium is below that of the ambient temperature (rigid pipes of wood [F16L 9/006](#); vacuum insulation [F16L 59/065](#))}

### Definition statement

*This place covers:*

insulation for pipes conveying cryogenic fluids

## F16L 59/16

Arrangements specially adapted to local requirements at flanges, junctions, valves or the like

### References

#### *Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

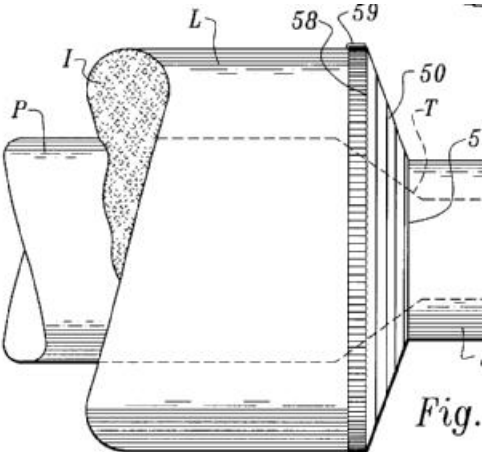
Means in or on valves for heating or cooling	<a href="#">F16K 49/00</a>
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**F16L 59/166**

{covering the end of an insulated section}

**Definition statement**

*This place covers:*



US6752176

**F16L 59/21**

adapted for expansion-compensation devices

**References**

**Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

Expansion-compensation arrangements for pie-lines	<a href="#">F16L 51/00</a>
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