

1) Family number: 33057454 (US2006118191A)

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Title: SYSTEM AND METHOD FOR PIPE REPAIR

**Abstract:** A system and method of repairing a pipe including securing a reinforcing material, such as a dry fiber structure (e.g., a carbon fibers) to the surface of the pipe. A polymeric material is placed on top of the reinforcing material, self-penetrating the dry fiber structure. The polymeric material substantially saturates the reinforcing material and cures to form a reinforced polymeric composite which may increase or restore the pressure rating or operating pressure capacity of the pipe. Optionally, an outer containment component, such as a sleeve, shell, box, wall, outer pipe, and so on, may be installed around the reinforcing material prior to introduction of the polymeric material. In this case, the polymeric material may be placed (i.e., poured) into the interior of the containment component on top of the reinforcing material.

**Classifications:**

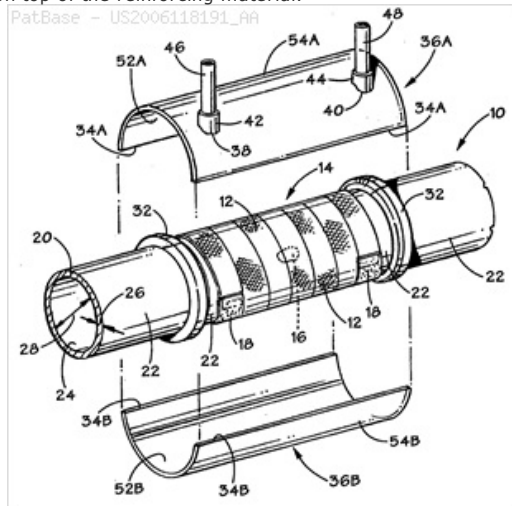
**International (ipc 8-9):** B29C63/14 B29C70/34 B29C70/36 B29C73/02 B32B37/00 F16L55/00 F16L55/16 F16L55/17 F16L55/175 F16L55/18 (Advanced/Invention); F16L55/00 F16L55/175 (Advanced/Non-invention); B29C70/04 B29C73/00 B32B37/00 F16L55/00 F16L55/16 F16L55/18 (Core/Invention)

**International (ipc 1-7):** F16L55/175

**CPC:** F16L55/1686 B29C70/32 B29C70/342 B29C70/36 B29C73/02 B29C73/04 B29K2031/00 B29K2063/00 B29K2067/00 B29K2075/00 B29K2707/04 B29L2023/22 B29C73/025 F16L55/175

**European:** B29C70/32 B29C70/34A B29C70/36 B29C73/02 B29C73/02B B29C73/04 F16L55/168D F16L55/175 L29K31/00 L29K63/00 L29K67/00 L29K70/04 L29K75/00 L29L23/22

**US:** 138/172 138/97 138/97S 138/99 138/99P 156/287 156/294 156/53 156/77 264/269

**Family:**

| Publication number | Publication date | Application number | Application date |
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| AU2005310158 AA    | 20060608         | AU20050310158      | 20051118         |
| AU2005310158 BB    | 20100715         | AU20050310158      | 20051118         |
| AU2008239504 AA    | 20081023         | AU20080239504      | 20080304         |
| AU2008239504 BB    | 20120412         | AU20080239504      | 20080304         |
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| CA2683782 AA       | 20091013         | CA20082683782      | 20080304         |
| CA2683782 C        | 20130924         | CA20082683782      | 20080304         |
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| CN101680591 A      | 20100324         | CN200880015845     | 20080304         |
| CN101680591 B      | 20121003         | CN200880015845     | 20080304         |
| DE602005036438 D1  | 20121129         | DE200560036438T    | 20051118         |
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| IN04347DN2007 A    | 20070824         | IN2007DN04347      | 20070607         |
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| KR20100001538 U    | 20100210         | KR20097000017U     | 20080304         |
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| US2006118191 AA    | 20060608         | US20040003199      | 20041203         |
| US2006137756 AA    | 20060629         | US20060360830      | 20060223         |
| US2007107791 AA    | 20070517         | US20060647855      | 20061229         |
| US2007107792 AA    | 20070517         | US20060648354      | 20061229         |
| US2008017263 AA    | 20080124         | US20070787419      | 20070413         |
| US2008216938 AA    | 20080911         | US20080040791      | 20080229         |
| US7367362 BB       | 20080506         | US20060647855      | 20061229         |
| US7387138 BB       | 20080617         | US20060648354      | 20061229         |

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| WO08083066 A2 | 20080710 | WO2007US88525 | 20071221 |
| WO08083066 A3 | 20080821 | WO2007US88525 | 20071221 |
| WO08083066 A8 | 20090806 | WO2007US88525 | 20071221 |
| WO08127798 A1 | 20081023 | WO2008US55744 | 20080304 |

**Priority:**

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| US20080040791 | 20080229 | EP20080731314 | 20080304 | WO2008US55744 | 20080304 |

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**Designated states:** AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

**2) Family number: 31573116 (SK284479B)**

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**Title:** PROCESS FOR REPAIRING HIGH PRESSURE DISTRIBUTIONS AND A SLEEVE APPLYING THIS PROCESS

**Abstract:** Process for repairing is based on the method of so-called thermal sleeve, by which repaired assembled joint (21) of high diameter pipes (2) is covered with a groove (31) of divided sleeve (3), which parts are weld together along longitudinal joint and at the edges are created corner joints (23) by weld along circuit. Corner joints (23) are at the same time created under reduced pressure and reduced flow of medium with the aid of preheat and slow cooling.

**Classifications:**

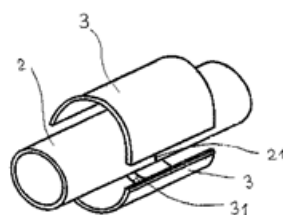
**International (IPC 8-9):** F16L13/02 F16L55/163

F16L55/17 (Advanced/Invention);

F16L13/00 F16L55/16 F16L55/162 (Core/Invention)

**International (IPC 1-7):** F16L13/02 F16L55/163 F16L55/17

PatBase - SK284479\_B6



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| SK2000000764 A5    | 20011203         | SK20000000764      | 20000519         |
| SK284479 B6        | 20050401         | SK20000000764      | 20000519         |

**Priority:**

SK20000000764 20000519

**Probable Assignee:** VUZ VYSKUMNY USTAV ZVARACSKY

**Assignee(s):** (std): VUZ VYSKUMNY USTAV ZVARACSKY ; VYSKUMNY USTAV ZVARACSKY PRIEM

**Assignee(s):** VYSKUMNY USTAV ZVARACSKY PRIEMYSELNY INST SR ; VYSKUMNY USTAV ZVARACSKY PRIEMYSELNY INSTITUT SR

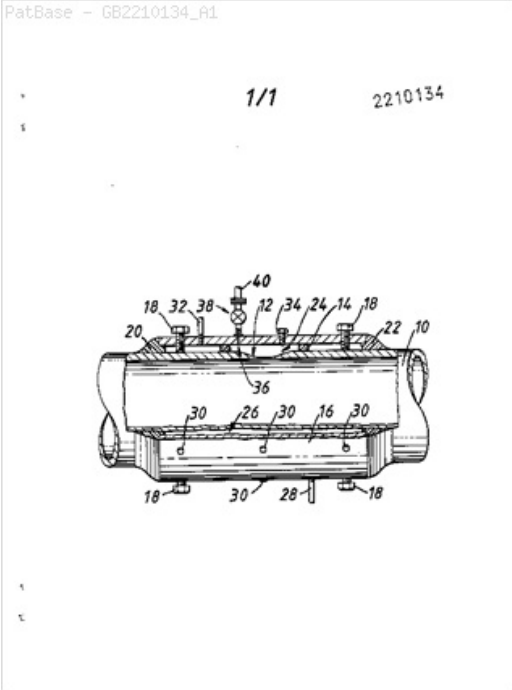
3) Family number: 2274204 (GB2210134A)

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Title: METHOD OF REPAIRING A PIPE

**Abstract:** A seal 14 is placed around the damaged part 12 and clamped between a shell 16 and the pipe 10. Epoxy resin seals 20, 22 are formed. Material is injected at 28 to fill the space 26 between the shell and pipe and outside the seal 14. In a second stage of injection resin material is injected at 34 to fill the space 24 within the seal 14. If gas is escaping through the damaged part 12 and through the valve 38 the pressure applied to the resin exceeds the gas pressure and is maintained during curing. Instead of a single continuous seal 14, two seals each encircling the pipe can be used. The shell is two parts joined by welding; or two parts drawn together by bolts to compress the seal or seals.

**Classifications:**  
**International (IPC 8-9):** F16L55/168 (Advanced/Invention); F16L55/16 (Core/Invention)  
**International (IPC 1-7):** F16L55/16  
**CPC:** F16L55/175  
**European:** F16L55/175



Family:

| Publication number | Publication date | Application number | Application date |
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| GB2210134 A1       | 19890601         | GB19870022174      | 19870921         |
| GB2210134 B2       | 19901114         | GB19870022174      | 19870921         |
| GB8722174 A0       | 19871028         | GB19870022174      | 19870921         |

Priority:

GB19870022174 19870921 GB19870022174 19870921

**Probable Assignee:** BRITISH GAS PLC  
**Assignee(s): (std):** BRITISH GAS PLC  
**Inventor(s): (std):** PALLAN WILLIAM  
**Inventor(s):** WILLIAM PALLAN

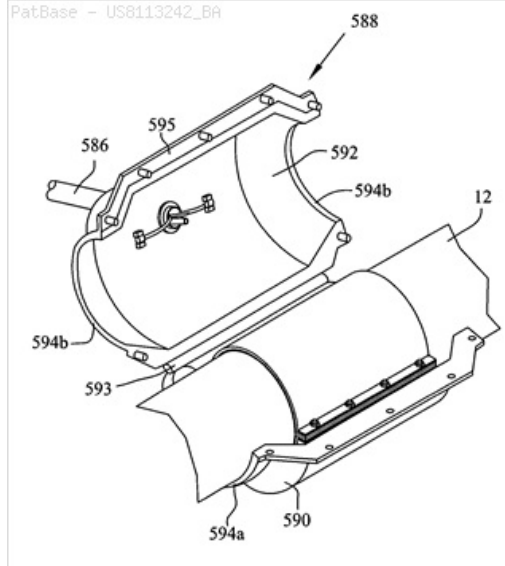
4) Family number: 50638550 (US8113242B)

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Title: COMPOSITE REPAIR FOR PIPES

**Abstract:** A repair assembly is provided for repairing a pipe that in one embodiment includes a layer of thermoplastic material substantially surrounding the pipe in an area needing repair; a heating element located to provide heat to the layer of thermoplastic material; and an overpress at least partially surrounding the pipe and the layer of thermoplastic material. The layer of thermoplastic material may be configured as a sleeve surrounding the pipe, and the sleeve may be configured in two semicylindrical halves with longitudinal seams where the semicylindrical halves meet. The seams extend generally parallel to a longitudinal axis of the pipe, and the sleeve may further include outwardly extending flanges along the edges of the semicylindrical halves at the seams.

**Classifications:**  
**International (IPC 8-9):** F16L55/00 F16L55/16 (Advanced/Invention)  
**CPC:** F16L55/172 B29C63/0047 B29C63/0069 B29C63/22 B29C65/18 B29C65/562 B29C66/1312 B29C66/52272 B29C66/532 B29C66/547 B29C66/71 B29C66/81261 B29C66/81457 B29C66/8284 B29C73/04 B29C73/10 B29C73/30 B29C73/34 B29C2035/043 F16L55/168 B29C66/73921 G01M3/002 G01M3/223 G01M3/243 G01M3/2815 G01M5/0025 G01M5/0041 B29C66/7392 B29C66/81241 B29C66/81821  
**European:** B29C63/00T2 B29C63/22 B29C65/18 B29C66/1312 B29C66/52272 B29C66/532 B29C66/547 B29C66/81261 B29C66/81457 B29C66/8284 B29C73/04 B29C73/10 B29C73/30 B29C73/34 F16L55/168 F16L55/172 L29C35/04B2B L29C63/00E L29C65/56D L29C66/71  
**US:** 138/104 138/158 138/97 138/99 156/64 156/95 285/93 73/46

**Family:**

| Publication number | Publication date | Application number | Application date |
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| US8113242 BA       | 20120214         | US20100657316      | 20100119         |
| US8631829 BA       | 20140121         | US20120396294      | 20120214         |

**Priority:**

US20100657316 20100119 US20120396294 20120214

**Probable Assignee:** ODYSIAN TECHNOLOGY LLC

**Assignee(s):** (std): BENNETT BARTON E ; ODYSIAN TECHNOLOGY LLC

**Inventor(s):** (std): BENNETT BARTON E

**Agent(s):** FAEGRE BAKER DANIELS LLP

**5) Family number: 21188758 (US2307148A)**

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**Title:** REPAIR PARTS FOR PIPE LINES

**Abstract:** 1. A cap for a repair assembly for jointed pipe lines comprising an arcuate body of sheet metal, said body having a transverse bead therein, said bead extending through an arc of more than 180 degrees, the remaining portion of the body extending through an arc of 180 degrees.

**Classifications:**

**International (IPC 8-9):** F16L55/17 (Advanced/Invention);

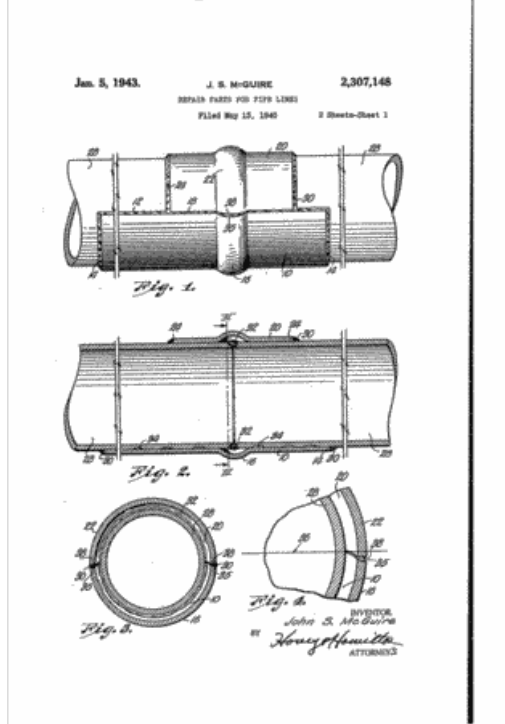
F16L55/16 (Core/Invention)

**International (IPC 1-7):** F16L55/16

**CPC:** F16L55/17

**European:** F16L55/17

**US:** 138/99 285/288.1 285/417

**Family:**

| Publication number | Publication date | Application number | Application date |
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**Priority:**

US19400334739 19400513

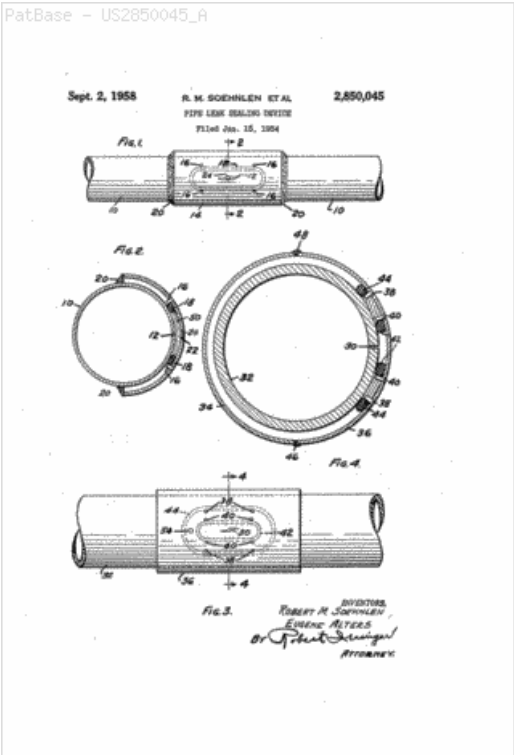
**Probable Assignee:** EARL HOVEY C  
**Assignee(s): (std):** EARL HOVEY C  
**Assignee(s):** C EARL HOVEY  
**Inventor(s): (std):** MCGUIRE JOHN S

**6) Family number: 22520446 (US2850045A)** © PatBase

**Title:** PIPE LEAK SEALING DEVICE

**Abstract:** (Claim 1) e for sealing a leak in a conduit of circular cross-section comprising a steel plate sleeve member of substantially uniform thickness formed in substantially half-cylindrical shape on a radius slightly longer than that of the outer surface of the conduit to be sealed, a plurality of dowel pins each of substantially cylindrical shape projecting radially inwardly from the sleeve member a distance substantially less than the excess of the radius of the sleeve member over the radius of the outer surface of the conduit, said pins being spaced apart around an area of the inner surface of the sleeve member adapted to overlie the leak to be sealed, and an O-ring of rubberlike material having 'a cross-sectional diameter greater than the length of said pins and having spaced points on its outer periphery engaged with 'said pins whereby the pins support the O-ring in thc sleeve member for sealing the conduit when the sleeve mcmberis secured to the conduit with the O-ring surrounding the leak and deformed by compression between the sleeve -member and thecouduit.

**Classifications:**  
**International (ipc 8-9):** F16L55/168 (Advanced/Invention); F16L55/16 (Core/Invention)  
**International (ipc 1-7):** F16L55/16  
**CPC:** F16L55/1683  
**European:** F16L55/168B  
**US:** 138/92 138/99 285/288.1 285/369



**Family:**

| Publication number | Publication date | Application number | Application date |
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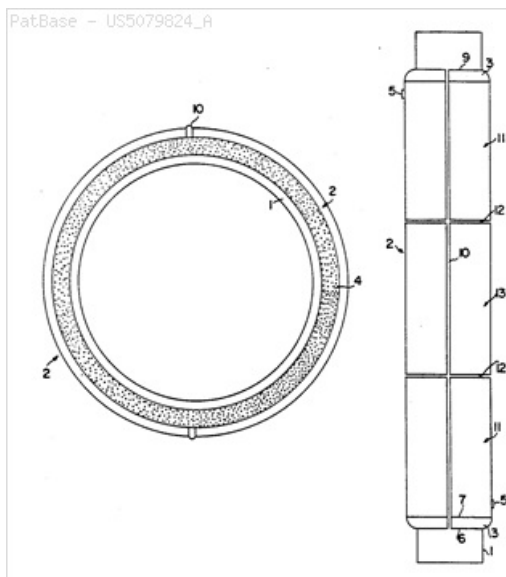
**Priority:** US19540404349 19540115  
**Probable Assignee:** EUGENE ALTERS  
**Assignee(s): (std):** EUGENE ALTERS ; SOEHNLEN ROBERT M  
**Inventor(s): (std):** SOEHNLEN ROBERT M ; EUGENE ALTERS  
**Inventor(s):** ALTERS EUGENE

**7) Family number: 9304104 (US5079824A)** © PatBase

**Title:** METHOD FOR THE INSTALLATION OF A JACKET REINFORCEMENT FOR PIPING

**Abstract:** A jacket for reinforcement of piping, and especially petroleum piping, including a jacket, joint elements between the jacket and the conducting piping, resin disposed in the space between the piping and the jacket, injection fittings or couplings for injection of the resin, and welds connecting the main body of the jacket and the joint elements.

**Classifications:**  
**International (ipc 8-9):** B23P6/00 E21B17/01 E21B17/10 F16L55/168 F16L55/18 F16L57/00 F16L58/02 F16L58/10 F16L58/16 (Advanced/Invention); B23P6/00 E21B17/00 F16L55/16 F16L57/00 F16L58/02 (Core/Invention)  
**International (ipc 1-7):** B23P6/04 E21B17/10 F16L55/18 F16L57/00 F16L58/10 F16L58/16  
**CPC:** Y10T29/49428 Y10T29/49737 Y10T29/49742 Y10T29/49746 Y10T29/49879 Y10T29/49904 E21B17/1085 B23P6/00 E21B17/01 F16L55/168 F16L57/00 F16L58/02  
**European:** B23P6/00 E21B17/01 E21B17/10 E21B17/10W F16L55/168 F16L57/00 F16L58/02  
**US:** 138/98 228/119 285/15 29/402.13 29/402.16 29/402.18

**Family:**

| Publication number | Publication date | Application number | Application date |
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| CA2100608 AA       | 19950116         | CA19932100608      | 19930715         |
| CA2100608 C        | 19960903         | CA19932100608      | 19930715         |
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| CA2165093 C        | 19990216         | CA19932165093      | 19930715         |
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| US5079824 A        | 19920114         | US19890401776      | 19890901         |

**Priority:**

MX19880012918 19880902 CA19932100608 19930715 CA19932165093 19930715

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**Inventor(s):** ARTURO CAJIGA YAMIN ; JESUS SILVA LOPEZ

**Agent(s):** GOWLING LAFLEUR HENDERSON LLP

**8) Family number: 117319 (US3638684A)**

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**Title:** METHOD OF REPAIRING TUBE STRUCTURES

**Abstract:** A method for repairing tubes that, during use, develop on the tube surfaces contaminating layers that prevent joining of new tube sections, as in fluid circulating heat transfer installations for chemical reactors. At least two surrounding protective sleeves are initially joined as by welding, to a tube at spaced locations on the tube to protect underlying portions of the tube from development of such layers. If a defect occurs between the sleeves, the defective tube may be removed by cutting through the sleeves and the tube underneath, removing the cut tube section, removing the remaining cut sleeve portions from the adjacent tube ends, and then joining a replacement tube section to the portions of the unremoved tube that were protected by the sleeves, preferably with new sleeves fixed in place over the resulting joints.

**Classifications:**

**International (IPC 8-9):** B01J19/00 F16L13/02 F16L55/16 F16L58/00 F28D7/08 F28F19/00 (Advanced/Invention); F16L13/00 F16L58/00 F28F19/00 (Core/Invention)

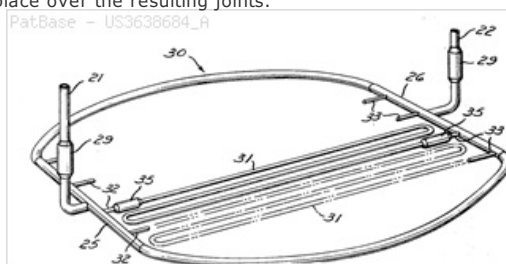
**International (IPC 1-7):** B01J1/00 F16L13/00 F16L13/02 F16L55/16 F16L55/18 F16L58/00 F16L7/00 F16L9/18 F28D1/04 F28D1/06 F28F19/00

**CPC:** B01J19/0013 B01J19/0053 B01J19/0073 B01J2219/00083 F16L55/1608 F28D7/08 F28D7/087 Y10T29/49352 Y10T29/49737 F16L58/00 F16L13/02 F28F19/00

**European:** B01J19/00B2 B01J19/00D B01J19/00D6 F16L13/02 F16L55/16F F16L58/00 F28D7/08 F28D7/08B2A F28F19/00 L01J219/00B2D2D

**US:** 138/113 138/97 165/134.1 165/163 165/178 165/7.5 165/75 165/76 285/15 285/288.1 285/45 29/157.3R 29/401 29/402.13 29/890.031 294/10

PatBase - US3638684\_A

**Family:**

| Publication number | Publication date | Application number | Application date |
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| BE764335 A         | 19710916         | BE19710764335      | 19710316         |
| CA938898 A1        | 19731225         | CA19710102521      | 19710112         |
| DE2112635 A1       | 19710930         | DE19712112635      | 19710316         |
| FR2084701 A5       | 19711217         | FR19710009175      | 19710316         |
| GB1347906 A        | 19740227         | GB19710022953      | 19710419         |
| NL7103447 A        | 19710920         | NL19710003447      | 19710315         |
| US3638684 A        | 19720201         | US19700019611      | 19700316         |
| US3717200 A        | 19730220         | US19710149213      | 19710602         |

**Priority:**

US19700019611 19700316 US19710149213 19710602

**Probable Assignee:** MCKEE A AND CO

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**Inventor(s):** (std): JOHN PAVILON STANLEY ; PAVILON S ; PAVILON S J ; PAVILON STANLEY J

**Inventor(s):** S J PAVILON ; SJ PAVILON ; STANLEY J PAVILON ; PAVILON S US

9) Family number: 3287410 (US4890373A)

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**Title:** PIPE REPAIR APPARATUS AND METHOD

**Abstract:** A quick, easy, and permanent inline repair of a ruptured pipe is accomplished by the use of one of a firmly of rigid covers shaped to cover the rupture and adhering the rigid cover in sealing relation over the rupture. A utility tool is disclosed that may be used to restore the expanded metal surrounding a rupture in a freeze burst copper water pipe to its intended position in line with the pipe before the rupture is covered with a rigid cover.

**Classifications:**

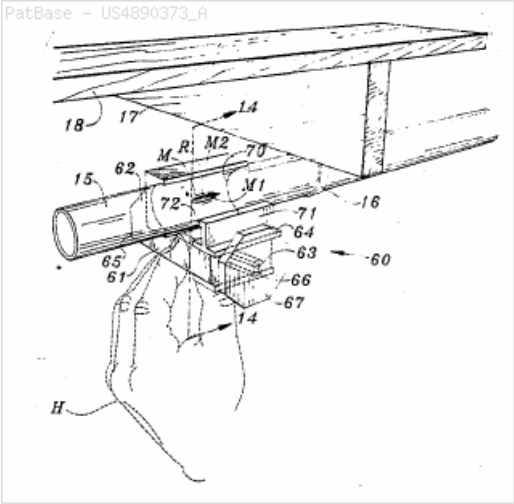
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