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SAMPLE SCRIPT A

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Claim 1

A device for controlling the leakage of fluid when a pipe is disconnected, comprising:
a) a sleeve, having means for forming a seal; and
b) sleeve expanding means,
and being arranged such that, in use, the sleeve is placed around and forms a seal around a point of disconnection and, on disconnection, the sleeve expanding means causes the sleeve to expand such that the disconnected ends remain sealed within the sleeve.

DEPENDENT CLAIMS

2. A device as claimed in Claim 1, further comprising a drain duct through which fluid can be removed from the sleeve.

3. A device as claimed in claim 1 or claim 2 wherein the sleeve expanding means comprises an open pored foam.

4. A device as claimed in any preceding claim wherein the means for forming a seal comprises an open pored foam.

5. A device as claimed in claim 3 or claim 4 wherein the open pored foam fills at least part of the interior of the sleeve.

6. A device as claimed in any of claims 3 to 5 wherein the open pored foam is flexible.

7. A device as claimed in any of claims 3 to 6 when dependent on claim 2, wherein the open pored foam comprises collector ducts which, in use, direct fluid to the drain duct.

8. A device as claimed in any of claims 1-2 or 4-7, except where dependent on claim 3, wherein the sleeve expanding means comprises one or more coiled springs.

9. A device as claimed in any preceding claim wherein the sleeve is made from an impervious, flexible material.

10. A device as claimed in claim 9, wherein the flexible impervious material is reinforced neoprene.

11. A device as claimed in any preceding claim wherein the sleeve further comprises plates at a top end and a bottom end.

12. A device as claimed in claim 11, wherein the plates are made of a rigid metal.

13. A device as claimed in any preceding claim, wherein the sleeve has an opening, a long side, through which the pipe may be inserted into the sleeve.

14. A device as claimed in claim 13, wherein the opening is sealed by open pored foam, and wherein said foam has a slot through which the pipe can be inserted.

15. A device as claimed in claim 13 or 14, wherein the opening further comprises a fastening means.

16. A device as claimed in claim 15, wherein the fastening means is selected from the group consisting of one or more inflatable bladders, buckles and/or hook and loop fastenings.

17. A device substantially as described herein, and as illustrated in figures 1-3.

A device for controlling the leakage of fluid

This invention relates to devices for use in controlling the leakage of fluid. In particular, this invention relates to a device for controlling the leakage of fluid when a pipe is disconnected.

Disconnecting pipes, whether from a static point (e.g. a stop cock) or from another pipe, presents a number of difficulties. Pipes are generally used to carry fluid and, even when fluid is not actively travelling through the pipe, some fluid is normally still retained. When the pipe is disconnected, this fluid will drain out of the pipe.

This is particularly a problem in situations where the fluid in the pipe is under pressure and, on disconnection, will shoot out of the pipe with some force. This could cause injury or damage, or pollute the surrounding area depending on the contents of the pipe.

One area where this is a particular problem is in the field of oil drilling. An oil well drilling string comprises a series of steel tubes which are screwed together to form a continuous length, and which is extended as the drilling goes deeper. When the drill bit needs to be changed, the drill string must be removed from the hole, necessitating separation of the steel tubes. During drilling, the tubes are filled with drilling mud. This is an expensive liquid used for lubrication and debris removal. It is therefore desirable to prevent loss of drilling mud not only to prevent damage and/or injury which may result from shooting out of the pipe, but it is also desirable to collect the drilling mud so that it can be reused.

Attempts to provide a method for doing this have been made in the past. In particular, GB2264965 discloses a device designed to prevent the release of drilling mud on disconnection of the steel tubes which form the drilling string. This device comprises a three sided box having neoprene seals at the top and bottom, and being sealable on its open side by inflatable air bladders which are inflated using a compressed air source. In use, the box is fitted around the join of the pipes to be disconnected, and a seal is formed using the air bladders. When the pipes are separated, any fluid released is caught in the device and drains out via a drainage duct.

However, this device has a number of disadvantages. Firstly, it is both complex and expensive to manufacture. In addition, when the pipes are unscrewed from each other, the distance between them increases causing one of the pipes to ride up through the top seal. This pipe can then pull out of the device causing the drilling mud to be expelled, and resulting in danger to the people operating the machinery as well as a loss of valuable drilling mud. Furthermore, the device is of a fixed size, and sometimes cannot fit into the space available to be used effectively. There is therefore a need for an improved device.

There has now been developed a device which overcomes or substantially mitigates the problems associated with the prior art.

According to a first aspect of the invention, there is provided a device for controlling the leakage of fluid when a pipe is disconnected, comprising:

a) a sleeve, having means for forming a seal; and
b) sleeve expanding means,

and being arranged such that, in use, the sleeve is placed around and forms a seal around a point of disconnection, and, on disconnection, the sleeve expanding means causes the sleeve to expand such that the disconnected ends remain sealed within the sleeve.

This is advantageous because the device ensures that the disconnected ends do not escape from the device, thereby preventing the release of any fluid contained within the pipe. When the pipe is disconnected, the distance between the disconnected ends is necessarily greater than the distance between the ends when they were connected. By providing means for expanding the sleeve such that this increase in distance is accommodation by the device, this device provides a significant advantage over the prior art.

Preferably, the device also comprises the features of claim 2. This is beneficial, as it allows the fluid released from the pipe to be collected and retained for future use. It also permits the collection of larger volumes of fluid than can be held by the device alone.

Preferably, the device comprises the features of claim 3. This may be incorporated into the device by any suitable method known in the art. Typically, it's formed by foaming in situ. Open pored foam can both expand and be compressed, allowing the size of the device to be altered as necessary (e.g. to accommodate disconnected pipes or to fit into a smaller space).

Preferably, the device comprises the features of claim 4. The use of open pored foam is beneficial as it has a baffle effect on fluid released, preventing fluid from draining directly through the device and so aiding in the prevention of leaks.

Preferably, the device comprises the features of claim 5. The use of the foam to fill part or all of the sleeve is advantageous as it provides a better seal than merely providing a layer of foam at the end. It also enables it to function better as the sleeve expanding means, as there is a greater volume of foam to expand and exert pressure.

Preferably, the device comprises the features of claim 6. The use of a flexible foam ensures that a good seal is formed around the pipe.

Preferably, the device comprises the features of claim 7. These ducts are beneficial as they increase the efficiency with which fluid can be drained from the device.

Preferably, the device comprises the features of claim 8. The use of coiled springs as the sleeve expanding means is beneficial as they are cost effective and easy to fit.

Preferably, the device comprises the features of claim 9. This is beneficial as it prevents the leakage of fluid through the walls of the compression of the sleeve. a number of suitable materials are known in the art. Preferably the material is reinforced neoprene (as claimed in claim 10).

Preferably, the device comprises the features of claim 11. This is advantageous as it provides structure to the device, enabling it to form a better seal around the pipe. The plates may be made of any suitable material, but preferably are formed of a rigid metal (as claimed in claim 12).

Preferably, the device comprises the features of claim 13. This is beneficial as it allows easy insertion of the pipe into the sleeve.

Preferably, this opening is sealed as claimed in claim 14, ensuring that fluid cannot escape through it.

Preferably, the device comprises the features of claim 15. This ensures that the device remains in place on the pipe, and cannot slide off. The fastening means may be any suitable means. In particular, the fastening means may be one or more inflatable bladders, buckles, and/or hook and loop fasteners (e.g. Velcro^{GM}) as claimed in claim 16.

An embodiment of the invention will now be described by reference to the accompanying drawings:
Figure 1 shows a perspective view of a device according to the invention, with a cutaway portion.
Figure 2 shows a cross sectional view along the line x-x, when the device is fixed to a pipe.
Figure 4 shows a cross sectional view along the line x-x, when the device is fixed to a pipe, and is compressed.

Figure 1 shows a device 1 having an outer skin 2 and top and bottom metal plates 3. The outer skin 2 and metal plates 3 form the sleeve. The sleeve has an opening 4 down one side, and is filled with open pored foam 5. At the opening 4, the open pored foam 5 is cut into a 'V' shape, which progresses into a wavy slot 6 which extends towards the centre of the device 1. Down the centre of the device 1 there is provided a hole 7 for accommodation of the pipe. There is further provided a drain duct 8 which is located on the base of the device.

Figures 2 and 3 show the device in use. Looking first at Figure 2, the pipe 9 has been inserted through the wavy slot 6 of figure 1, and into the central hole. The point of disconnection 10 of the pipe 9 is positioned inside the device. Holding tongs 11 and working tongs 12 grip the pipe 9 above and below the device. In use, the working tongs 12 are rotated to undo the screw joint and so disconnect the pipes. On disconnection, the foam 5 expands as the pipes are moved apart, retaining the seal around the pipe.

Fluid released from the pipes enters the foam 5, and is directed to the drain duct 8 from where it can be collected.

Referring now to figure 3, this figure shows the same situation as described above in relation to figure 2, except that the distance between the holding tongs 11 and the working tongs 12 is smaller. Because the foam 5 can be compressed, the device has been compressed in order to fit into and operate in this smaller space.

It will be appreciated that alternatives may be incorporated into the embodiment shown here. Open pored foam may be used as the sleeve expanding means as described above. Alternatively, the sleeve expanding means may be one or more coiled springs.

The device is described as having an opening through which the pipe is inserted. It will be appreciated that the device called instead be formed in two halves which are attached to the pipe, or could have a hinged opening.

Instead of a 'V' shaped opening followed by a wavy slot 6 as shown in figure 1, the open pored foam could be straight sided or have a 'U' shaped opening, and the slot could be straight. The embodiment shown is particularly advantageous as it is easy to insert the pipe into the 'V' shaped opening, and the use of a wavy slot ensures that the baffle effect of the foam is maintained and that fluid cannot escape.

Open pored foam is particularly preferred for use as the seal. However, neoprene or rubber seals could also be used, or any other seal which provides the required function.

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FIGURE 1

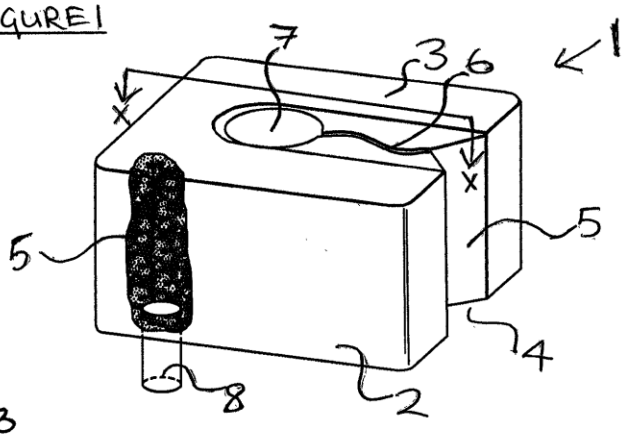


FIGURE 2

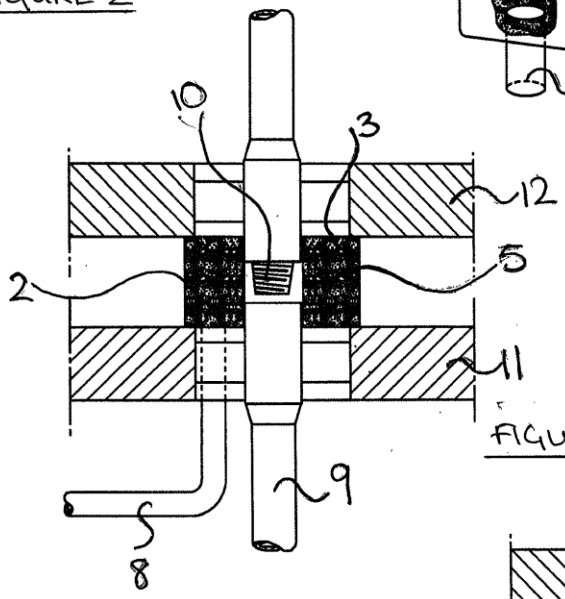
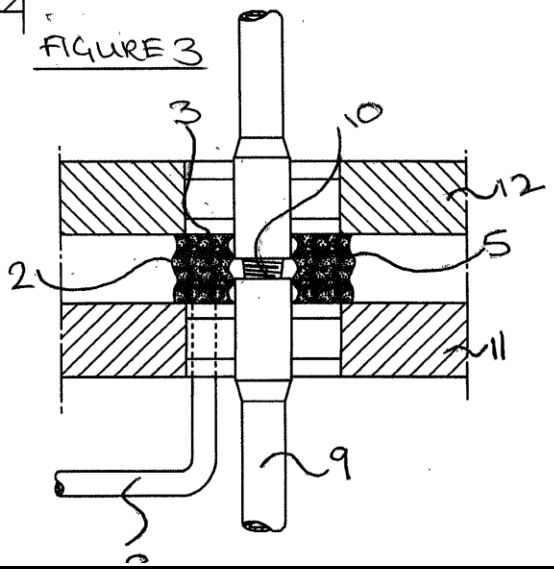


FIGURE 3



ABSTRACT

A device for controlling the leakage of fluid

There is presented a device for controlling the leakage of fluid when a pipe is disconnected. It may particularly be used in any situation in which it is desirable to prevent the release of fluid on disconnection of a pipe, and may be particularly useful in the disconnection of drilling strings. The device 1 comprises a sleeve 2, 3 having means for forming a seal, such as open pored foam 5, and sleeve expanding means, such as open pored foam 5 or a coiled spring. The device is arranged such that, in use, the sleeve is desired point of disconnection 10. On disconnection, the sleeve expanding means causes the sleeve to expand such that the disconnected ends remain sealed within the sleeve. This prevents the release of fluid from the pipe on disconnection.

[Accompanied by figure 2.]

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SAMPLE SCRIPT B

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A collector for collecting drilling mud

The invention relates to a collector and a method for collecting drilling mud, and more particularly to a collector and a method for collecting drilling mud from an oil well drilling string.

An oil well drilling string is made up of pipe strings which are screwed together to form a continuous length. A drill bit is threaded down this length, and the pipe strings extend down a drill hole. When the drill bit is changed the pipe strings have to be removed from the drill hole. This is done by gripping a pipe string by a static holding tong below a joint to be unscrewed. The pipe string is also gripped by a work tong above the joint. The work tong unscrews the joint and the tongs separate to pull two pipes apart.

It is undesirable to allow drilling mud to escape from the pipe string as the pipes are being separated because the drilling mud is expensive.

A device disclosed in GB2264965 can be used to collect drilling mud (see figure 1). The device is formed from a box with upper and lower flexible seals. The box wraps around the pipe string axially and bladders expand to hold the pipe string (see figure 2). Disadvantageously, the upper pipe can pull out of the box or sometimes the box cannot fit between the holding tong and the work tong.

It is an object of the invention to overcome one or more of the problems associated with the prior art, or other problems.

According to a first aspect of the invention there is provided a collector according to claim 1. Advantageously the collector can be squeezed between two tongs gripping a pipe string, and can expand axially along the length of the pipe string as the tongs unscrew the pipe string and move apart. This ensures that the collector always encloses the pipe string ends to capture escaping drilling mud.

Preferably, the collector is in accordance with claim 2 or claim 3. Advantageously, the top and bottom rigid plates maintain the integrity of the collector as the housing is compressed axially and as the housing expands axially around the pipe string.

Preferably, the collector is in accordance with claim 4 or claim 5. Advantageously, the flexible sleeve allows the collector to expand transverse to the axis of the pipe string during compression of the housing.

Preferably, the collector is in accordance with claim 6 or claim 7. Advantageously, the collector can be slotted side ways over a pipe string (after the tongs have clamped the pipe string).

Preferably the collector is in accordance with claim 8. Advantageously, drilling mud captured by the housing can be easily removed and collected from the housing.

Preferably, the collector is in accordance with claim 9. Advantageously, the foam, is compressible and biased towards expanding back to its original shape following compression. This means that the foam can expand axially if it is compressed axially.

Preferably, the collector is in accordance with claim 12. Advantageously, the collector ducts can drain the drilling mud towards a drain duct so that it can be removed from the housing.

Preferably, the collector is in accordance with claim 13. Advantageously, the V-shape acts as a guide to guide the housing axially onto the pipe string.

Preferably, the collector is in accordance with claim 14. Advantageously the wavy line baffles the drilling mud to prevent it from escaping out of the V shaped entrance.

Preferably the collector is in accordance with claim 15. Advantageously, the fasteners hold the housing together when it is under pressure.

Preferably the collector is in accordance with claim 17. Advantageously, the bladders seal the entrance.

According to a second aspect of the invention there is provided a use of the collector of the first aspect of the invention for collecting drilling mud.

According to a third aspect of the invention, there is provided a method in accordance with claim 19.

The invention will now be described, by way of example only, with reference to the figures in which:

Figure 1 is a perspective view of a collector of the prior art.
Figure 2 is a plan sectional view of the collector of figure 1.
Figure 3 is a perspective part cut away view of a collector according to a preferred embodiment of the invention.
Figure 4 is a side sectional view of the collector of figure 3.
Figure 5 is a side sectional view of the collector of figure 3.

Figures 3 to 5 show a collector 10 having a flexible housing 20 which is configured to form a seal around the circumference of a pipe spring 40. The collector 10 also has

an axial expansion means 30. The collector 10 is arranged to be compressed between two gripping tongs 51, 52.

The housing 20 has a top rigid plate 21 formed of metal and a bottom rigid plate 22 formed of metal (not shown). When the pipe string 40 is in a drill hole, the top rigid plate 21 is above the bottom rigid plate 22 in an axial direction of the pipe string 40.

The housing 20 has a flexible outer sleeve 23 formed of neoprene which extends vertically between the top rigid plate 21 and bottom rigid plate 22 to form an impervious case.

The housing 20 has an entrance 24 in one side of the housing. The entrance 24 forms a vertical slot in the flexible outer sleeve which can receive a pipe string. The pipe string 40 can be pushed through the entrance 24 to sit inside the housing 20. The entrance 24 seals shut around the pipe string 40.

The collector 10 also has a drain duct 60 which is in fluid connection with the housing 20 and extends away from the collector. The drain duct 60 is configured to carry drilling mud, that has been collected inside the housing, out of the housing and to a desired location. The drain duct 60 is in the form of a pipe.

The axial expansion means 30 is made up of flexible open pore foam 31. The foam 31 sits inside the housing 20 encased by top rigid plate 21, bottom rigid plate 22 and flexible outer sleeve 23. The focus 31 is springy and biased towards expanding following compression, such that if the collector is compressed between two tongs, the foam expands axially along the pipe string.

The foam 31 contains collector ducts which drain drilling mud towards the drain duct 60. The collector ducts (not shown) are in the form of small tubes.

The entrance 24 is formed by cutting a V shape 25 into the side of the foam 31. The V shaped entrance 25 is perpendicular to the length of the pipe string 40 so that the pipe string can slot into the V shape 25. A wavy cut 26 is made which begins at the base of the V shape and spreads to the centre of the foam 31. The centre of the foam 31 has a cylindrical hole 27 for supporting a length of pipe string 40.

In use, the collector 10 is squeezed between a 1st tong 51 and a 2nd tong 52 which are gripping a pipe string 40. The pipe string 40 slots sideways through the V shape cut 25 on entrance 24. The pipe string 40 continues to slot between the wavy line cut 26 until it rest inside the cylindrical hole 27. The housing 20 has now formed a seal around the circumference of the pipe string 40, and the joint to be unscrewed 41 rests inside the housing. At this point the collector 10 is compressed (see figure 5) between the two tongs. As the tongs 51, 52 unscrew the joint 41 and pull apart, the collector 10 expands axially along the pipe string 40 under the force of the foam 31. As such, the joint 41 is maintained inside the collector 10 (see figure 4). As the ends of the pipe strings separate, drilling mud escapes from the pipe string 40 and enters the housing 20. The foam 31 absorbs the drilling mud and baffles it to prevent it from emerging out of the entrance 24 or cylindrical hole 27. The collector ducts drain the drilling mud towards the drain duct 60 which drains the drilling mud out of the

collector 10. The foam 31 is firm enough so that it does not gape at the entrance 24 under pressure.

As an alternative embodiment, the entrance 24 has an inflatable bladder which seals shut around the pipe string 40.

In another alternative embodiment, the axial expansion means 30 consists of a coil spring which is based to push the top rigid plate 21 away from the bottom rigid plate 22 so that the collector expands axially along the length of pipe string 40.

In another alternative embodiment, the collector 10 has buckles or Velcro for fastening the flexible sleeve across the entrance 24.

In another alternative embodiment, the top rigid plate 21 and the bottom rigid plate 22 are formed of hard plastic.

Claims

1. A collector for collecting drilling mud comprising:
a flexible housing configured to form a seal around the circumference of a pipe string an axial expansion means, arranged such that in use the housing is fitted around a pipe string and is compressed between two pipe string gripping tongs, wherein upon separation of the two gripping tongs the axial expansion means causes the housing to expand axially along the pipe string.

2. The collector of claim 1, wherein the housing comprises a top rigid plate and a bottom rigid plate.

3. The collector of claim 2, wherein the top rigid plate and the bottom rigid plate are formed of metal.

4. The collector of claim 2 or claim 3, wherein the housing comprises a flexible outer sleeve which extends between the top rigid plate and the bottom rigid plate.

5. The collector of claim 4, wherein the flexible outer sleeve is formed of neoprene.

6. The collector of any preceding claim, wherein the housing comprises an entrance configured to permit entry of a pipe string into the housing, wherein in use the entrance is configured to form a seal around the pipe string once it is inside the housing.

7. The collector of claim 6, wherein the entrance is in the side of the housing.

8. The collector of any preceding claim, further comprising a drain duct configured to drain drilling mud out of the housing.

9. The collector of any preceding claim, wherein the axial expansion means comprises flexible open pore foam, wherein the foam is inside the housing.

10. The collector of claim 9, wherein the housing is filled with the foam.

11. The collector of claim 9, wherein the housing is partially filled with the foam.

12. The collector of any one of claims 9 to 11, wherein the foam comprises collector ducts.

13. the collector of any one of claims 9 to 12 when dependent on claim 6 or 7, wherein the entrance comprises a V-shaped cut into the foam.

14. The collector of claim 13, wherein the entrance further comprises a wavy slit in the foam.

15. The collector of claim 13 or claim 14, when dependent on claim 4 or claim 5 a fastening means for fastening the flexible outer sleeve over the entrance.

16. The collector of claim 15, wherein the fastening means comprises buckles and/or Velcro.

17. The collector of claim 6 or 7, wherein the entrance comprises inflatable bladders.

18. Use of the collector of any one of claims 1 to 17 for collecting drilling mud.

19. A method for collecting drilling mud from a pipe string, comprising:
Gripping a pipe string below a joint with a first tong and gripping the pipe string above the joint with a second tong;
Squeezing the collector of any one of claims 1 to 19 between the 1st tong and the 2nd tong' undoing the joint in the pipe string; and separating the first tong and the second tong.

20. A collector substantially as described herein with reference with figures 3 to 15.

21. Use of a collector substantially as described herein with reference to figures 3 to 5.

22. A method for collecting drilling mud substantially as described herein with reference to figures 3 to 5.

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Figure 1

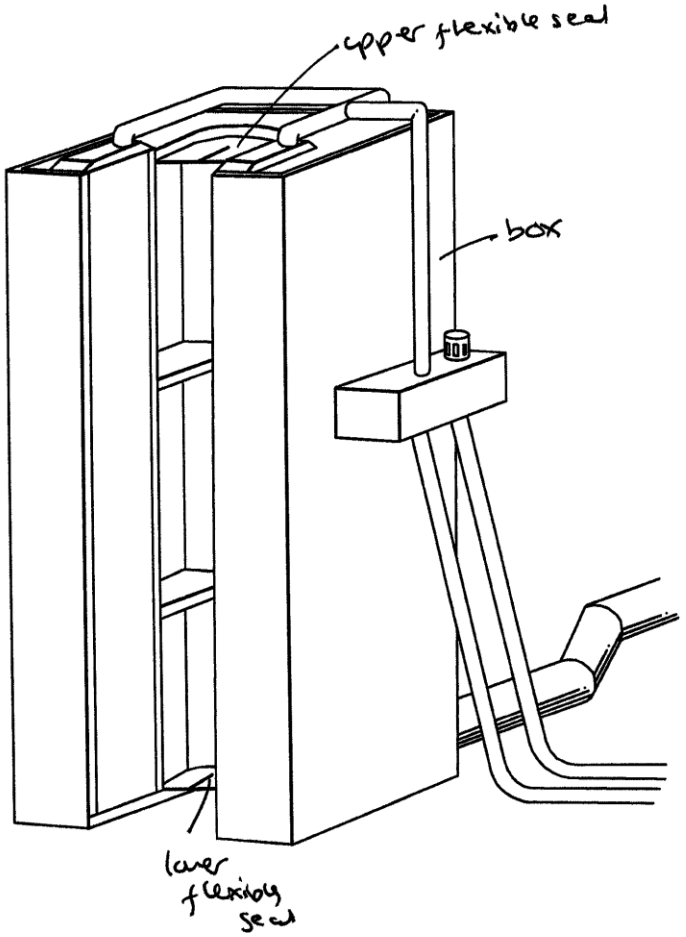

Figure 2

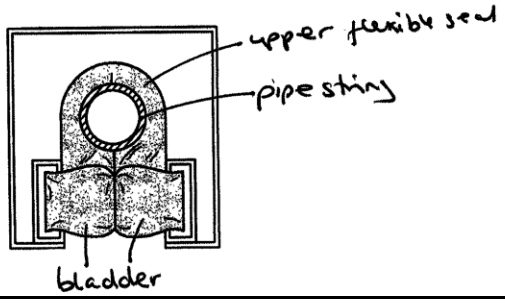

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Figure 3

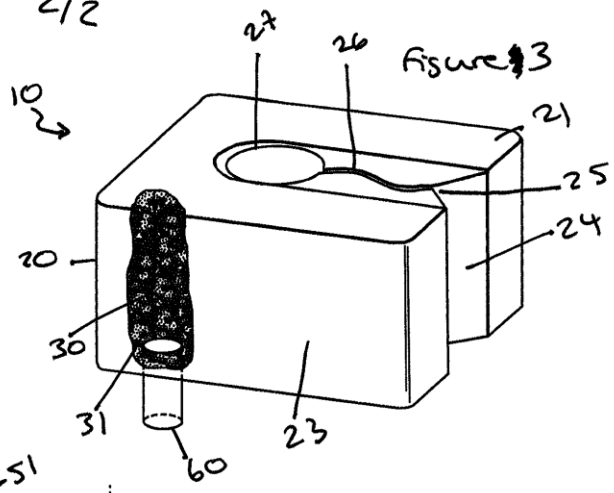

Figure 4

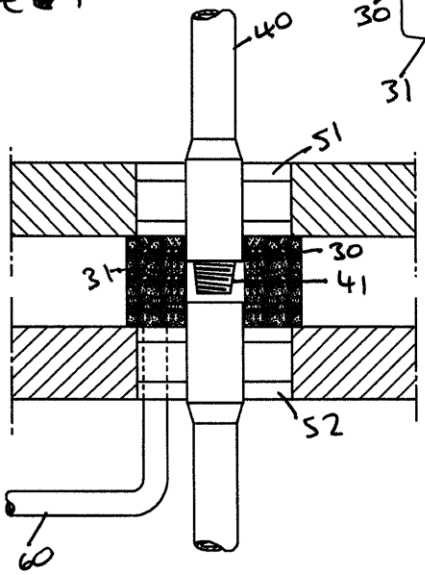

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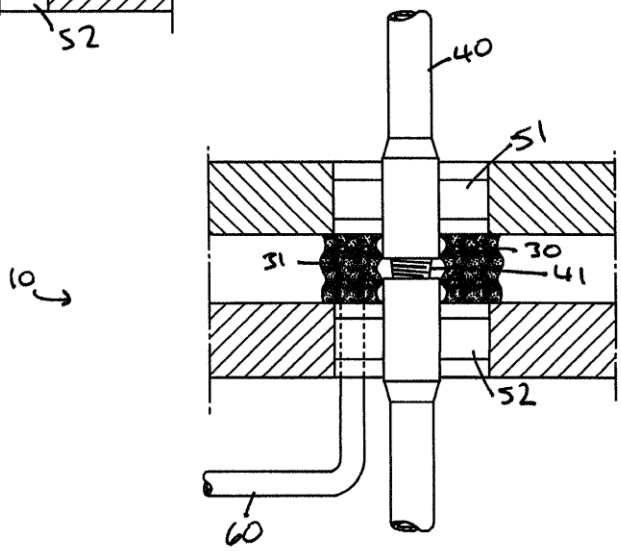
Figure 5



Abstract

A collector 10 for collecting drilling mud has a flexible housing 20 which contains flexible open pore foam 31. The housing 20 is arranged to be compressed between two gripping tongs 51, 52, and fitted around a joint in a pipe string 40. As the two gripping tongs (51, 52 figure 4) undo the joint and pull two ends of the pipe string 40 apart, the housing 20 expands axially along the length of the pipe string 40 under the pressure of the foam 31 so that the open ends of the pipe string 40 are encompassed by the housing. Escaping drilling mud can then be collected by the housing 20.

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SAMPLE SCRIPT C

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A Collecting Device

The present invention relates to a collecting device for collecting fluid when disassembling an oil well drilling string.

An oil well drilling string normally comprises steel tubes. These are screwed together to form a continuous length of string. When the string is to be removed from the oil well, the strings are disconnected into threes.

The strings normally contain drilling fluid which is expensive and desirable to recover. As the strings ..... typically shoots out and is lost.

A known device to collect the drilling fluid during disassembling a string is shown in figures 1 and 2. This device is described in GB2264965. The device comprises a three sided box sleeve 5a, b, c with top and bottom neoprene seals 20a, b while bladders 10 are arranged in the sleeve to be inflated by compressed air from valve 30. The seal 20a, b are split so they can fit around a lower most joint where the string is to be disconnected. When the string is disassembled, the drilling fluid flows into the cavity and drains via a duct 50 into a reservoir.

A problem with this known device is that the upper pipe may pull out of the box as the string is unscrewed and so expensive drilling fluid goes everywhere. Furthermore, the spacing between the tongs can vary and so the device shown in figures 1 and 2 is not adaptable to tongs that are too close together.

Therefore, it is an object of the present invention to overcome or substantially alleviate the problems mentioned above.

According to the present invention there is provided a collecting device comprising a top and a bottom plate separated by an elastic member, a passage for receiving a string extends between and through the top and bottom plates, the elastic member bring compressed when in use such that as a string is disassembled the elastic member expands in a longitudinal direction of the string.

Advantageously, the collecting device always surrounds the point where the string is being disconnected.

Preferably, the elastic member comprises a foam.

Conveniently, the elastic member further comprises a flexible outer wall that at least partially surrounds the foam.

In another embodiment, the elastic member comprises a flexible outer wall surrounding a spring coil, and a foam is located around the passage.

Preferably, the foam is formed with a collector duct.

Conveniently, the flexible outer wall is formed of reinforced neoprene.

In one embodiment, the top and bottom plates are formed with a feeding channel that extends from the passage to a free end of each plate and the foam is partitioned by a line cut through the foam from the passage to a free end of the foam, so that the feeding channel and the line enable a string to be passed there through and locate in the passage.

Conveniently, the line cut through the foam is non-linear.

Preferably, the free end of the foam to which the line extends is bevelled towards the line so as to be able to guide a string into the line of the foam and the feeding channel of plates.

In one embodiment, a portion of the flexible outer wall comprises fastening means and is configured to extend across the free end of the foam and plates, such that the portion can cover the free end of the foam and the plates and be temporarily secured by the fastening means when doing so.

The fastening means may be a buckle or formed of Velcro.

Preferably, the free end of the foam formed with the line is sealed with an inflatable bladder.

In another aspect of the invention, a method for using a collecting device as described above is provided, the method comprising the step of locating a string with a joint in the passage, compressing the collecting device so that it fits between an upper and a lower tong, disassemble the string by rotating the upper tong, such that the collecting device expands in a longitudinal direction of the string.

Preferred embodiments of the invention will now be described by way of example only, with reference to the accompanying drawings, in which;

Figure 1 shows a device known from prior art,
Figure 2 shows a cross-section of the device shown in figure 1,

Figure 3 shows a perspective view of a collecting device according to the present invention,
Figure 4 shows a cross-section of the device shown in figure 3; and
Figure 5 shows another cross-sectional view of the device shown in figure 3.

Referring now to the drawings, it is shown in figures 3 to 5 a collecting device 1 according to the present invention.

The collecting device 1 comprises a top and a bottom plate 2, 3. A flexible outer wall 4 extends between plates 2, 3.

A foam 5 is located inside the collecting device 1. The foam is springy.

A drain collector 6 is attached to the collecting device.

The plates 2, 3 are formed with a feeding channel 7. The foam is formed with a line 8 that is cut through the foam. The feeding channel and line extend from a free end 9 of each plate and from a free end 10 of the foam 5, respectively, towards a passage 11 that extends between and through the plates 2, 3 and also through the foam 5.

In this embodiment, the foam 5 is springy and in use, the collecting device is positioned around a string 14 that is to be disassembled in compression.

This is shown in figure 5. The foam is compressed. As the string is unscrewed, the foam 5 expands in a direction of the string 14. The flexible outer wall 4 also expands with the foam 5.

Therefore, the collecting device 1 according to the present invention can be compressed to fit in between to close tongs and also extend in the direction of longitudinal axis of the string so that the collecting device 1 continuously encloses the joint 15 of the string 14. Therefore, valuable drilling fluid is never spilt.

Advantageously, the foam 5 baffles the drilling fluid.

The foam may be formed with collector ducts (not shown) which lead the drilling fluid to the drain collector 6.

In an alternative embodiment, the foam does not provide the springy feature. Instead, a coil spring is used. (Not shown.)

In another embodiment, the outer flexible wall 4, extends across the bevelled opening formed at the free end 9, 10 of the foam and plates 2, 3. This seals the collecting device 1 in terms of the line 8 formed in the foam. The flexible outer wall 4 would then be attached with a buckle or Velcro.

In another embodiment, the foam is stiff enough to seal the collecting device in terms of the line.

Although preferred embodiments have been described, a skilled person will understand that other embodiments falling with in the scope of the claims form part of this device.

Claims

1. A collecting device for collecting fluid when disassembling an oil well drilling string, the collecting device comprises a top and a bottom plate separated by an elastic member, a passage for receiving a string extends between and through the top and bottom plates, the elastic member being compressed when in use such that as a string is disassembled the elastic member expands in a longitudinal direction of the string.

2. A collecting device according to claim 1, wherein the elastic member comprises a foam.

3. A collecting device according to claim 2, wherein the elastic member further comprises a flexible outer wall that at least partially surrounds the foam.

4. A collecting device according to claim 1, wherein the elastic member comprises a flexible outer wall surrounding a spring coil, and a foam is located around the passage.

5. A collecting device according to claim 2 or claim 3, wherein the foam is formed with a collector duct.

6. A collecting device according to any of claims 3 to 5, wherein the flexible outer wall is formed of reinforced neoprene.

7. A collecting device according to any of claims 3 to 6, wherein the top and bottom plates are formed with a feeding channel that extends from the passage to a free end of each plate, and the foam is partitioned by a line cut through the foam from the passage to a free end of the foam, so that the feeding channel and the line enable a string to be passed there through and to locate in the passage.

8. A collecting device according to claim 7, wherein the line cut through the foam is non-linear.

9. A collecting device according to claim 7 o 8, wherein the free end of the foam to which the line extends is bevelled towards the line so as to be able to guide a string into the line of the foam and the feeding channel of the plates.

10. A collecting device according to any of claims 7 to 9, wherein a portion of the flexible outer wall comprises fastening means and is configured to extend across the free end of the foam and the plates, such that the portion can cover the free end of the foam and the plates and be temporarily secured by the fastening means when doing so.

11. A collecting device according to claim 10, wherein the fastening means comprises a buckle.

12. A collecting device according to claim 10, wherein the fastening means is formed of velcro.

13. A collecting device according to any of claims 7 to 9, wherein the free end of the foam formed with the line is sealed with an inflatable bladder.

14. A collecting device substantially as described herein with reference to the accompanying figures numbered 3 to 5.

15. A method for using a collecting device as defined in any of claims 1 to 15, the method comprising the step of locating a string with a joint in the passage, compressing the collecting device so that it fits between an upper and a lower tong, disassemble the string by rotating the upper tong, such that the collecting device expands in a longitudinal direction of the string.

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Fig.1
Prior Art

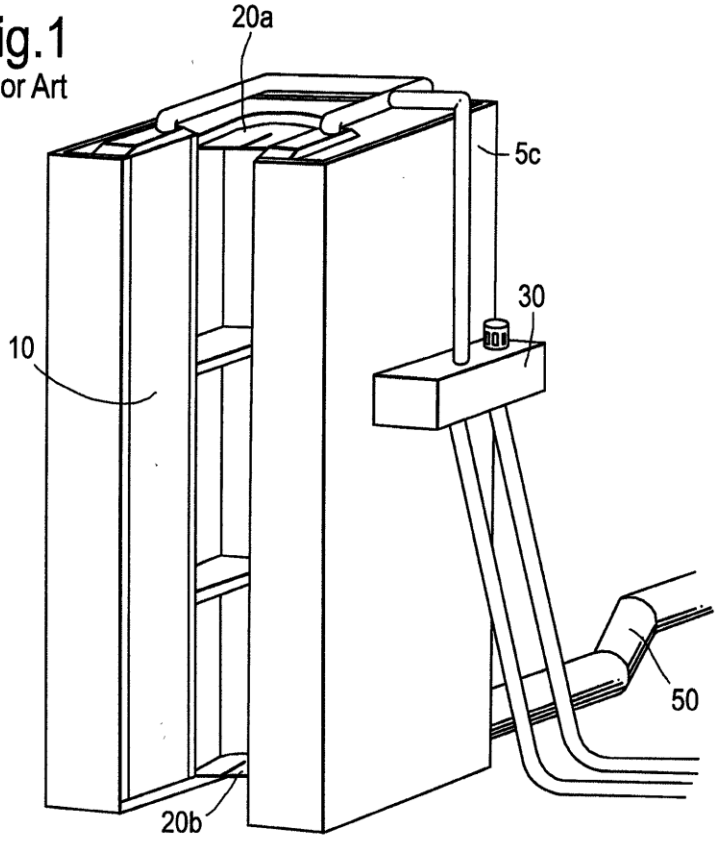
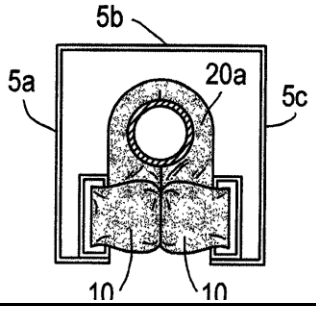


Fig.2
Prior Art



PAPER QUESTION

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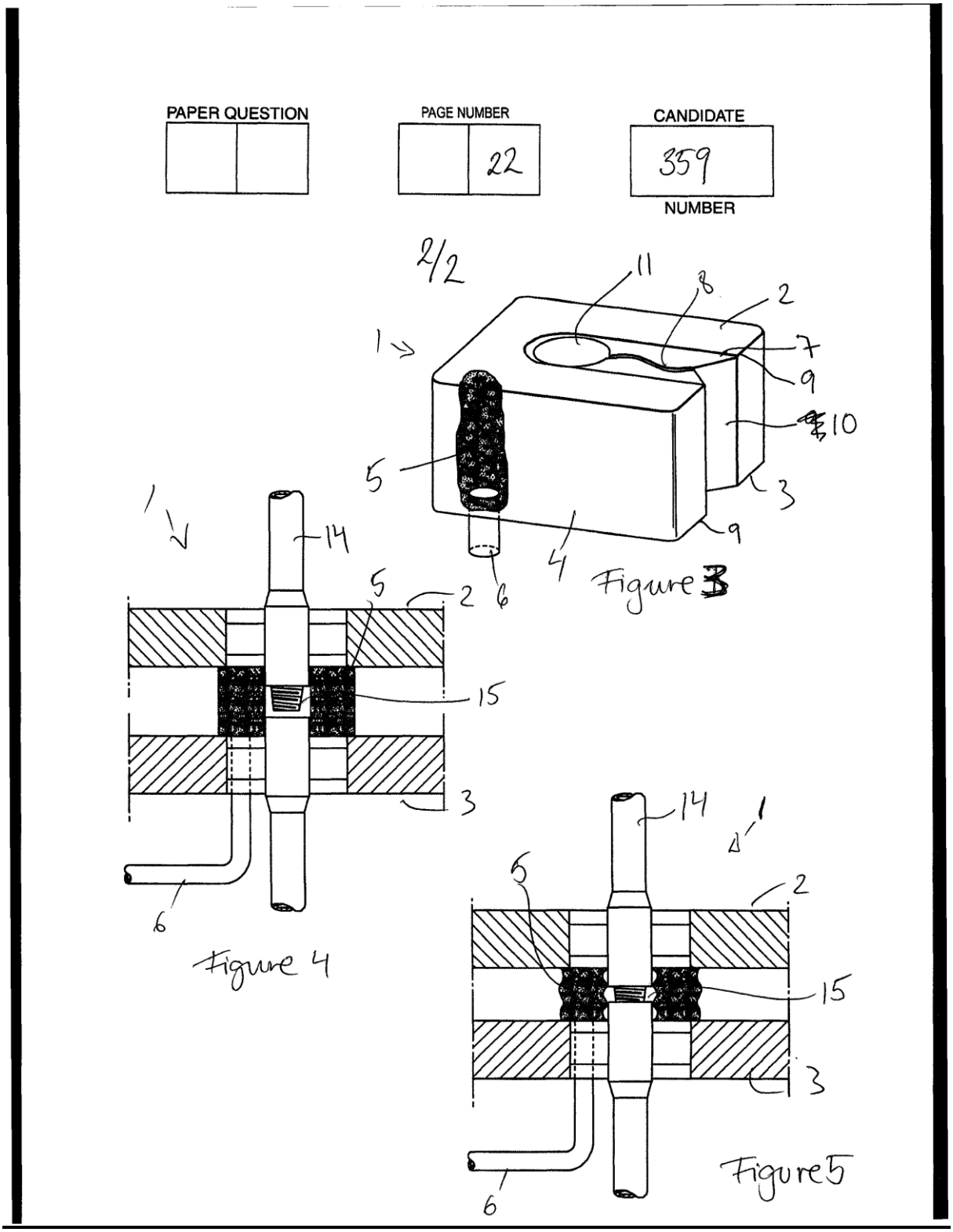

Abstract

A Collecting Device [Figure 3]

A collecting device 1 for collecting fluid when disassembling an oil well drilling string is disclosed. The collecting device comprises a top and bottom plate 2, 3 separated by an elastic member. A passage 11 for receiving a string 14 extends between and through the top and bottom plates 2, 3. The elastic member being compressed when in use such that as a string is disassembled the elastic member expands in a direction of the string 14.