

AUTOMATED PIPE SLIPS

Cross-Reference to Related Applications

[0001] This application is a nonprovisional application which claims priority from U.S. provisional application number 61/885,386, filed October 1, 2013.

Technical Field/Field of the Disclosure

[0002] The present disclosure relates to supporting tubular members when detached from a draw works during, for example, pipe make up and break out.

Background of the Disclosure

[0003] In many stages of the drilling and completion of an oil and gas well, tubular members are coupled end-to-end to form what is known as a string. For the purposes of this disclosure, the term “drill string” will be used to refer to any such string, including, without limitation, drill strings, tool strings, casing strings, and completion strings. Typically, tubular members are made up in approximately 30-90 foot segments, and include threaded couplings at each end. Commonly known as “box” and “pin” connections for the female and male portions, respectively, the threaded connections serve to both form a fluid seal between the tubular members and to durably connect the adjacent tubulars.

[0004] When “making up” or “breaking out” a drill string, the string below the drilling platform is disconnected from the draw works of the drilling rig to, for example, bring in a new tubular member to be added to the drill string or to remove the previously disconnected segment from the drill floor area. During this period, the drill string must be

supported to prevent it from descending into the well bore. For this purpose, a “slips” is used.

Summary

[0005] The present disclosure provides for an automated pipe slips for supporting a tubular member. The automated pipe slips may include a slips body. The slips body may be generally annular and may have a tapered inner surface. The automated pipe slips may also include a plurality of wedges. The wedges may be positioned to slide along the tapered inner surface of the slips body. The wedges may alternate between short wedges and long wedges.

[0006] The present disclosure also provides for a method of supporting a tubular member. The method may include providing an automated pipe slips. The automated pipe slips may include a slips body. The slips body may be generally annular and may have a tapered inner surface. The automated pipe slips may also include a plurality of wedges. The wedges may be positioned to slide along the tapered inner surface of the slips body. The wedges may alternate between short wedges and long wedges. The method may also include suspending the tubular member within the automated pipe slips with a draw works; determining whether the tubular member has a diameter above or below a threshold diameter; extending the long wedges or the short wedges and long wedges to engage the tubular member; lowering the tubular member.

Brief Description of the Drawings

[0007] The present disclosure is best understood from the following detailed description when read with the accompanying figures. It is emphasized that, in accordance with the standard practice in the industry, various features are not drawn to scale. In fact, the

dimensions of the various features may be arbitrarily increased or reduced for clarity of discussion.

[0008] FIG. 1 depicts a partial cross section of an automated pipe slips in accordance with embodiments of the present disclosure installed in a rotary table.

[0009] FIG. 2 depicts a perspective view of an automated pipe slips in accordance with embodiments of the present disclosure.

[0010] FIG. 3a depicts a perspective view of the automated pipe slips of FIG. 2 partially disassembled.

[0011] FIG. 3b depicts a perspective view of the automated pipe slips of FIG. 3a partially disassembled.

[0012] FIG. 4 depicts a bottom view of the automated pipe slips of FIG. 2.

[0013] FIG. 5 depicts a perspective view of a slips subassembly consistent with embodiments of the present disclosure.

[0014] FIG. 6 depicts a side view of the slips subassembly of FIG. 5.

[0015] FIG. 7 depicts a cross section view of the slips subassembly of FIG. 6.

[0016] FIG. 8a depicts a cross section view of the automated pipe slips of FIG. 2 gripping a large diameter tubular.

[0017] FIG. 8b depicts a top view of the automated pipe slips of FIG. 2 gripping a large diameter tubular.

[0018] FIG. 9a depicts a cross section view of the automated pipe slips of FIG. 2 gripping a small diameter tubular.

[0019] FIG. 9b depicts a top view of the automated pipe slips of FIG. 2 gripping a small diameter tubular.

[0020] FIG. 10 depicts a perspective exploded view of a slips wedge consistent with embodiments of the present disclosure.

[0021] FIGS. 11a and 11b depict a side view and a top view, respectively, of the automated pipe slips of FIG. 2 partially disassembled.

[0022] FIGS. 12a-c depict top views of the automated pipe slips of FIG. 2 centralizing tubulars having different diameters.

[0023] FIG. 13 depicts a perspective view of a wiper assembly consistent with embodiments of the present disclosure partially disassembled.

[0024] FIG. 14a depicts a top view of the wiper assembly of FIG. 13 in a retracted position.

[0025] FIGS. 14b, 14c depict top views of the wiper assembly of FIG. 13 in contact with tubulars having different diameters.

Detailed Description

[0026] It is to be understood that the following disclosure provides many different embodiments, or examples, for implementing different features of various embodiments. Specific examples of components and arrangements are described below to simplify the

present disclosure. These are, of course, merely examples and are not intended to be limiting. In addition, the present disclosure may repeat reference numerals and/or letters in the various examples. This repetition is for the purpose of simplicity and clarity and does not in itself dictate a relationship between the various embodiments and/or configurations discussed.

[0027] FIG. 1 depicts a cross section view of automated pipe slips 100. Automated pipe slips 100 may, in some embodiments, be adapted to be inserted into a drill floor of a drilling rig. In some embodiments, automated pipe slips 100 may be installed into rotary table 30 as depicted in FIG. 1. Automated pipe slips 100 may include slips body 101. Slips body 101 may be a generally annular member having a generally frustoconical inner surface 103 which tapers inward toward the lower end of slips body 101. In some embodiments, slips body 101 may be adapted to allow a plurality of wedges 121 to slide thereupon as discussed below. In some embodiments, automated pipe slips 100 may include top cover assembly 105. Top cover assembly 105 may, for example and without limitation, prevent debris from entering automated pipe slips 100 and prevent damage to the internal components thereof. In some embodiments, as depicted in FIG. 5, top cover assembly 105 may be pivotably opened. In some embodiments, top cover assembly 105 may be extended by one or more hydraulic pistons 109.

[0028] In some embodiments, as depicted in FIG. 4, automatic pipe slips 100 may include indexing tab 107. Indexing tab 107 may be coupled to the lower side of automated pipe slips 100 and may be positioned to interlock with a matching indexing slot (not shown) in rotary table 30. Indexing tab 107 may, in some embodiments, allow automated pipe slips 100 to engage with and be rotated by rotary table 30.

[0029] In some embodiments, as depicted in FIGS. 2-4, slips body 101 may be formed from two or more slips subassemblies 111. In some embodiments, slips subassemblies 111 may be coupled together by one or more slips assembly pins 113a and 113b. In some embodiments, as depicted in FIGS. 5 and 6, slips subassemblies 111 may include one or more mating fingers 115 adapted to couple adjacent slips subassemblies 111 and, in some embodiments, receive slips assembly pins 113. In some embodiments, each of slips subassemblies 111 may be formed identically to the other slips subassemblies 111. Although depicted throughout this disclosure as utilizing three slips subassemblies 111, one having ordinary skill in the art with the benefit of this disclosure will understand that any number of slips subassemblies 111 may be utilized without deviating from the scope of this disclosure. In some embodiments, the number of slips subassemblies 111 may relate to, for example and without limitation, the number of wedges 121 utilized with automated pipe slips 100.

[0030] In some embodiments, at least one slips subassembly 111 may be removed or partially removed from automated pipe slips 100, as depicted in FIG. 3b. In some embodiments, by removing or partially removing at least one slips subassembly 111, automated pipe slips 100 may be laterally removed from tubular member 10. In some embodiments, as depicted in FIGS. 3a and 3b, adjacent slips subassemblies 111 may be coupled by inner slips assembly pins 113a and outer slips assembly pins 113b. In some embodiments, by removing one outer slips assembly pin 113b and two inner slips assembly pins 113a from a slips subassembly 111, that slips subassembly 111 may be pivotably movable relative to the rest of automated pipe slips 100, as depicted in FIG. 3b. In some embodiments, mating fingers 115 may be rounded to allow for this pivoting.

[0031] As depicted in FIGS. 5 and 6, wedges 121 may be coupled to frustoconical inner surface 103 such that they are moved radially inward and outward as they are moved down or up relative to slips body 101. In some embodiments, as depicted in FIG. 1, as some or all of wedges 121 move downward, wedges 121 may, for example and without limitation, radially grip the outer surface of tubular member 10. In some embodiments, tubular member 10 may be part of a tubular string such as, for example and without limitation, a drill string, tool string, or casing string. In some embodiments, the weight of tubular member 10 and any tubular string coupled thereto may cause grip between wedges 121 to be increased as understood in the art. Likewise, as they move upward along frustoconical inner surface 103, wedges 121 may move radially outward, allowing tubular member 10 to be released. In some embodiments, wedges 121 may include one or more dies 127. Dies 127 may, in some embodiments, allow for greater grip between wedges 121 and tubular member 10.

[0032] In some embodiments, when release of tubular member 10 is desired, an upward motion of tubular member 10 by, for example, a draw works may release downward pressure on wedges 121, thus allowing them to be retracted with relatively little resistance, thereby disengaging tubular member 10 from automated pipe slips 100.

[0033] In some embodiments, dies 127 may be replaceable. As depicted in FIG. 10, in some embodiments, one or more dies 127 may fit into one or more die slots 129 formed in wedges 121. For example, dies 127 may be replaced due to wear or to change material depending on the type and material of tubular member 10. In some embodiments, dies 127 and die slots 129 may be generally partially circular, allowing dies 127 to rotate within die slots 129. In some embodiments, dies 127 may thus be able to rotate relative to

wedges 121 to, for example and without limitation, align with the face of tubular member 10. In some embodiments, dies 127 may be held in die slots 129 by die retainer 128 coupled to wedge 121. In some embodiments, die retainer 128 may be coupled to wedge 121 by, for example and without limitation, dovetail 130 as understood in the art.

[0034] In some embodiments, when gripping tubular member 10, wedges 121 may support the weight of tubular member 10, such as during a make up or break out operation when tubular member 10 is not otherwise supported. In some embodiments, as depicted in FIG. 7, wedges 121 may be moved up and down by one or more hydraulic pistons 123. One having ordinary skill in the art with the benefit of this disclosure will understand that wedges 121 may be actuated utilizing any suitable assembly, including but not limited to a hydraulic piston, linear actuator, rack and pinion, or screw drive. In some embodiments, wedges 121 may be coupled to one or more wedge rails 125. Wedge rails 125 may, for example and without limitation, allow wedges 121 to remain in proper alignment with slips body 101.

[0035] In some embodiments, as depicted in FIG. 7, wedge 121 may be trapezoidal in cross section such that die 127 remains generally vertical as wedge 121 traverses frustoconical inner surface 103. In some embodiments, wedge 121 may be formed as a single unit. In some embodiments, wedge 121 may include primary wedge 131 and secondary wedge 133. In some embodiments, primary wedge 131 may meet secondary wedge 133 at secondary angled surface 135. In some embodiments, secondary angled surface 135 may be generally more vertical than frustoconical inner surface 103 to, for example, increase the reactive loading which occurs when the weight of tubular member 10 pulls down on wedges 121. In some embodiments, die 127 may be coupled to

secondary wedge 133. In some embodiments, as the weight of tubular member 10 is transferred to automated pipe slips 100, secondary wedge 133 may move downward along secondary angled surface 135, causing secondary wedge 133 to exert additional gripping force against tubular member 10. In some embodiments, secondary wedge 133 may be coupled to primary wedge 131 via return spring 137. Return spring 137 may push secondary wedge 133 upward when the weight of tubular member 10 is removed therefrom.

[0036] In other embodiments, a ball-grip system may be utilized as a secondary locking feature in place of secondary wedge 133. A ball-grip system includes a plurality of ball bearings positioned within recesses in the face of wedges 121. The recesses contain the ball bearings, while providing a ramped surface such that when a downward load is applied to the ball bearings, the ball bearings roll downward within the recess, applying additional pressure to the gripped tubular member 10. In some embodiments, the secondary locking feature may be a mechanized cam. In some embodiments, the secondary locking feature may include a hydraulic cylinder which may include an accumulator.

[0037] As depicted in FIGS. 5 and 6, each slips subassembly 111 may include multiple wedges 121. In some embodiments, for example and without limitation, each slips subassembly 111 may include two wedges 121. Although discussed herein as having two wedges 121 in each slips subassembly 111 and six wedges 121 overall, one having ordinary skill in the art with the benefit of this disclosure will understand that automated pipe slips 100 may include any number of wedges 121 without deviating from the scope of this disclosure.

[0038] In some embodiments, automated pipe slips 100 may include wedges 121 having different lengths. In some embodiments, as understood by one having ordinary skill in the art with the benefit of this disclosure, a longer contact surface between wedges 121 and tubular member 10 may decrease shear stress on tubular member 10 by, for example, distributing the forces applied thereto over a larger area. However, a longer wedge 121 may not be able to adequately grip a damaged tubular member 10. In some embodiments, as depicted in FIG. 6, automated pipe slips 100 may include short wedges 121a and long wedges 121b. In some embodiments, short wedges 121a and long wedges 121b may be selectively extended independently of each other. In some embodiments, if a damaged tubular member 10 is to be gripped, automated pipe slips 100 may extend only short wedges 121a.

[0039] Because wedges 121 may continuously extend generally inward, automated pipe slips 100 may be utilized to grip a range of pipe diameters. In some embodiments, different numbers of wedges 121 may be utilized depending on the diameter of tubular member 10. For example, in some embodiments, as depicted in FIGS. 8a, 8b, when a relatively wide tubular member 10a (that is a tubular member having a diameter larger than a threshold diameter) is to be gripped by automated pipe slips 100, both short and long wedges 121a, 121b are actuated. Short and long wedges 121a, 121b may be driven downward and abut against the outer wall of relatively wide tubular member 10a, thus applying a force thereon to support the tubular string attached thereto. Additionally, the weight of the tubular string pulling down on relatively wide tubular member 10a gripped by automated pipe slips 100 may pull short and long wedges 121a, 121b further down slips body 101, increasing the force applied on relatively wide tubular member 10a to

increase the grip and thus the support of the tubular string. In some embodiments, in order to, for example, avoid uneven loading, short and long wedges 121a, 121b may be positioned such that their lower edges are parallel when engaging relatively wide tubular member 10a.

[0040] When a relatively narrow tubular member 10b (that is a tubular member having a diameter smaller than a threshold diameter) is to be gripped by automated pipe slips 100, only long wedges 121b are deployed as depicted in FIGS. 9a, 9b. Since relatively narrow tubular member 10b has a smaller circumference than relatively wide tubular member 10a, both short wedges 121a and long wedges 121b may not be able to actuate at the same time without interfering with each other before contacting relatively narrow tubular member 10b. Additionally, long wedges 121b may allow for a larger contact surface between automated pipe slips 100 and relatively narrow tubular member 10b to, for example, distribute the forces applied thereto over a larger area. Thus, damage to relatively narrow tubular member 10b from the high normal and shear forces may, for example, be reduced. By selectively actuating only long wedges 121b or both long wedges 121b and short wedges 121a, automated pipe slips 100 may be used for tubular members having a range of diameters without modification. In some embodiments, multiple configurations of wedges 121a, 121b may be available to be used in automated pipe slips 100 to, for example and without limitation, vary the range of diameters of tubular member which may be gripped. For example, a radially shorter set of wedges 121a and 121b may allow a larger diameter tubular overall to be grasped than a radially shorter set of wedges 121a or 121b, while the radially longer set of wedges 121a or 121b may allow a smaller diameter tubular to be grasped than the radially shorter set of wedges

121a or 121b. In some embodiments, short wedges 121a may be wider than long wedges 121b to, for example, increase the contact area on larger tubular members.

[0041] When a tubular member 10 is to be gripped by automated pipe slips 100, tubular member 10 may be misaligned within automated pipe slips 100. In order to center tubular member 10 to allow wedges 121 to properly grip tubular member 10, automated pipe slips 100 may, in some embodiments, include tubular centralizer 141. As depicted in FIGS. 11a-b, in some embodiments, tubular centralizer 141 may be positioned above slips body 101. In some embodiments, tubular centralizer 141 may be included in cover assembly 105. Tubular centralizer 141 may include a plurality of centering arms 143. Centering arms 143 may be adapted to pivot about pivot pins 145 as depicted in FIG. 11a. Centering arms 143 may, in some embodiments, be driven by one or more hydraulic pistons 147. One having ordinary skill in the art with the benefit of this disclosure will understand that centering arms 143 may be extended by any suitable device, including, but not limited to, a hydraulic motor, electric motor, or hydraulic piston. Centering arms 143 may, as depicted in FIG. 11b, be positioned such that each tubular centering arm 143 is at a different height to, for example, prevent tubular centering arms 143 from interfering when in operation.

[0042] In some embodiments, centering arms 143 may be generally curved to, for example and without limitation, allow centering arms 143 to contact any tubular member 10 to be centered with a generally concave surface, which may encourage the tubular member 10 to be centered within tubular centralizer 141. In some embodiments, as centering arms 143 are extended, tubular member 10 may be contacted by one or more centering arms 143 and urged toward the center of automated pipe slips 100. Once

centered, tubular member 10 may be retained in the center position by centering arms 143 until, in some embodiments, wedges 121 fully engage tubular member 10. Because centering arms 143 may be extended continuously, a range of diameter for tubular member 10 may be accommodated utilizing the same tubular centralizer 141. For example, FIG. 12a depicts tubular centralizer 141 centering small diameter tubular member 11 within automated slips 100. FIG. 12b depicts tubular centralizer 141 centering medium diameter tubular member 12 within automated slips 100. FIG. 12c depicts tubular centralizer 141 centering large diameter tubular member 13.

[0043] As understood in the art, during a drilling operation, a wellbore may be filled with drilling fluid. As a tubular member 10 is retracted from a wellbore, the outer surface thereof may be very dirty. In some embodiments, as depicted in FIG. 1, automated pipe slips 100 may include pipe wiper assembly 161. In some embodiments, pipe wiper assembly 161 may be located at a position below slips body 101. Pipe wiper assembly 161 may, in some embodiments, include one or more wiper arms 163 as depicted in FIGS. 13 and 14a-c. Wiper arms 163 may, in some embodiments, pivot about wiper pivot pins 165. In some embodiments, wiper arms 163 may be driven by one or more pneumatic cylinders 167. In some embodiments of the present disclosure, by using a compressible fluid such as air to extend wiper arms 163, pneumatic cylinders 167 may provide a selected amount of compliance or “springiness” to wiper arms 163. One having ordinary skill in the art with the benefit of this disclosure will understand that wiper arms 163 may be extended utilizing, for example and without limitation, hydraulic, pneumatic, or electromechanical actuators without deviating from the scope of this disclosure. The compliance of wiper arms 163 may allow, for example and without limitation, for wiper

arms 163 to remain in contact with a tubular string as it moves therethrough despite any changes in diameter or protuberances such as, for example and without limitation, tool joints as understood in the art.

[0044] In some embodiments, wiper arms 163 may include one or more wiper blades 169. Wiper blades 169 may be pivotably coupled to wiper arms 163. In some embodiments, wiper blades 169 may be at least partially formed from a generally flexible material adapted to remain in contact with a tubular string as it moves through wiper assembly 161 despite any changes in diameter or protuberances such as, for example and without limitation, tool joints as understood in the art.

[0045] In some embodiments, wiper blades 169 may include inner blade portions 171 and outer blade portions 173. In some embodiments, inner blade portions 171 may be formed from a more flexible material than outer blade portions 173. Inner blade portions 171 may thus be adapted to flex and conform to the outer surface of a tubular member 10, while outer blade portions 173 support inner blade portions 171 and couple them to wiper arms 163. Additionally, inner blade portions 171 may allow wiper blades 169 to conform to the outer surface of a range of diameters of tubular member. For example, FIG. 14b depicts wiper blades 169 in contact with small diameter tubular member 11. In this case, only a center portion of inner blade portions 171 are deflected and in contact with small diameter tubular member 11. As another example, FIG. 14c depicts wiper blades 169 in contact with large diameter tubular member 13. In this case, nearly the entire length of inner blade portions 171 are in contact with large diameter tubular member 13.

[0046] In some embodiments, wiper arms 163 may be extended during an entire trip out operation to, for example and without limitation, prevent fluid from the wellbore from entering automated pipe slips 100.

[0047] In some embodiments, automated pipe slips 100 may include a control system. The control system may be positioned to control, monitor, and sense the operation of automated pipe slips 100. Although described throughout as operating utilizing hydraulic pressure, one having ordinary skill in the art with the benefit of this disclosure will understand that automated pipe slips 100 may be controlled utilizing electromechanical, hydraulic, pneumatic actuators, or a combination thereof.

[0048] The foregoing outlines features of several embodiments so that a person of ordinary skill in the art may better understand the aspects of the present disclosure. Such features may be replaced by any one of numerous equivalent alternatives, only some of which are disclosed herein. One of ordinary skill in the art should appreciate that they may readily use the present disclosure as a basis for designing or modifying other processes and structures for carrying out the same purposes and/or achieving the same advantages of the embodiments introduced herein. One of ordinary skill in the art should also realize that such equivalent constructions do not depart from the spirit and scope of the present disclosure and that they may make various changes, substitutions, and alterations herein without departing from the spirit and scope of the present disclosure.

Claims:

1. An automated pipe slips for supporting a tubular member, the automated pipe slips comprising:
 - a slips body, the slips body being generally annular and having a tapered inner surface; and
 - a plurality of wedges, the wedges being positioned to slide along the tapered inner surface of the slips body, the wedges alternating between short wedges and long wedges.
2. The automated pipe slips of claim 1, wherein the slips body is separable into two or more slips subassemblies.
3. The automated pipe slips of claim 2, wherein the slips subassemblies are coupled using one or more slips assembly pins.
4. The automated pipe slips of claim 3, wherein adjacent slips subassemblies are adapted to pivot relative to each other if one or more slips assembly pins are removed.
5. The automated pipe slips of claim 2, wherein each slips subassembly includes at least one wedge of the plurality of wedges.
6. The automated pipe slips of claim 2, wherein each slips subassembly includes one or more mating fingers, the mating fingers adapted to interlock with the mating fingers of adjacent slips subassemblies.
7. The automated pipe slips of claim 1, further comprising a cover assembly positioned at a top of the automated pipe slips.

8. The automated pipe slips of claim 7, wherein the cover assembly is adapted to pivotably open.
9. The automated pipe slips of claim 1, wherein the wedges are moved along the tapered inner surface of the slips body by one of a hydraulic piston, linear actuator, rack and pinion, or screw drive.
10. The automated pipe slips of claim 1, wherein the wedges slide along rails positioned on the tapered inner surface of the slips body.
11. The automated pipe slips of claim 1, wherein the wedges further comprise a primary wedge and a secondary wedge, the primary wedge adapted to slide along the tapered inner surface of the slips body, and the secondary wedge adapted to slide along a secondary angled surface formed between the primary wedge and the secondary wedge wherein the secondary angled surface is more vertical than the tapered inner surface of the slips body.
12. The automated pipe slips of claim 11, wherein the wedges further comprise a return spring adapted to motivate the secondary wedge upward along the secondary angled surface.
13. The automated pipe slips of claim 1, wherein the wedges further comprise one or more dies adapted to interface with an outer surface of the tubular member.
14. The automated pipe slips of claim 13, wherein the dies are retained in one or more die grooves formed in the wedges.

15. The automated pipe slips of claim 14, wherein the dies are retained in the die grooves by a die retention plate.
16. The automated pipe slips of claim 1, wherein the wedges further comprise a secondary locking feature.
17. The automated pipe slips of claim 16, wherein the secondary locking feature comprises at least one of a ball-grip system, hydraulic cylinder, accumulator, and mechanized cam.
18. The automated pipe slips of claim 1, wherein the long wedges are selectively actuatable independent of the short wedges.
19. The automated pipe slips of claim 18, wherein the long wedges are actuated for gripping a tubular member having diameter smaller than a threshold diameter and both long and short wedges are actuated for gripping a tubular member having a diameter larger than a threshold diameter, the threshold diameter being the smallest diameter of tubular member for which the actuation of both long and short wedges does not cause adjacent wedges to contact each other.
20. The automated pipe slips of claim 1, wherein the short wedges are wider than the long wedges.
21. The automated pipe slips of claim 1, further comprising a tubular centralizer, the tubular centralizer including multiple centering arms positioned radially about the slips body, each centering arm positioned to pivot about a pivot point and extend inward so that a tubular member is centered within the pipe slips body.

22. The automated pipe slips of claim 21, wherein each centering arm is driven by one of a hydraulic motor, electric motor, or hydraulic piston.
23. The automated pipe slips of claim 1, further comprising a pipe wiper, the pipe wiper including multiple wiper arms positioned radially about the slips body, each wiper arm adapted to pivot about a pivot point and extend inward to contact a tubular member so that any fluid or debris on an exterior surface of the tubular member may be wiped off.
24. The automated pipe slips of claim 23, wherein each wiper arm is driven by a pneumatic piston, hydraulic piston, or electromechanical actuator.
25. The automated pipe slips of claim 23, wherein each wiper arm comprises a wiper blade.
26. The automated pipe slips of claim 25, wherein the wiper blade is pivotably coupled to the wiper arm.
27. The automated pipe slips of claim 25, wherein the wiper blade comprises an inner blade and an outer blade, the inner blade being generally more compliant than the outer blade such that the inner blade more easily conforms to an outer profile of the tubular member.
28. A method of supporting a tubular member, the method comprising:
- providing an automated pipe slips, the automated pipe slips comprising:
- a slips body, the slips body being generally annular and having a tapered inner surface;

a plurality of wedges, the wedges being positioned to slide along the tapered inner surface of the slips body, the wedges alternating between short wedges and long wedges;

suspending the tubular member within the automated pipe slips with a draw works;

determining whether the tubular member has a diameter above or below a threshold diameter;

extending the long wedges or the short wedges and long wedges to engage the tubular member; and

lowering the tubular member.

29. The method of claim 28, wherein both the short wedges and long wedges are extended for a tubular member having a diameter above the threshold diameter, and only the long wedges are extended for a tubular member having a diameter below the threshold diameter.