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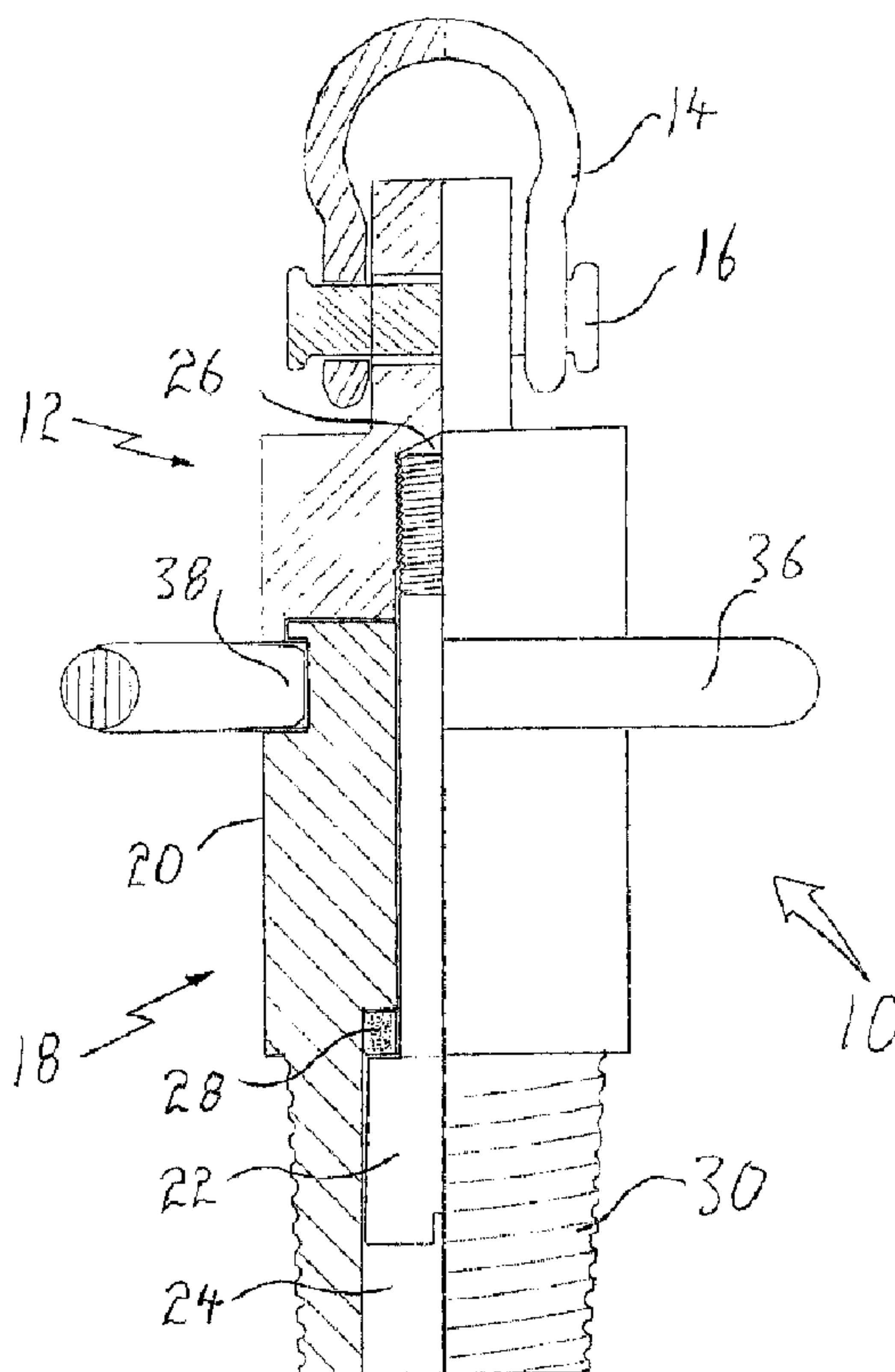
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(54) Titre : EMBOUT DE RAMASSAGE DE TIGES

(54) Title: PICK UP SUB



(57) Abrégé/Abstract:

A pick up sub includes a first body and a second body rotatably coupled to the first body. The second body has an exterior surface with circumferentially spaced slots, separated by stops. A hand wheel encircles the second body. The hand wheel has radially inwardly extending contact members, which extend into each of the circumferentially spaced slots. Rotation of the hand wheel about the second body in a first direction is limited by a first hammer face on the contact members engaging a first anvil face on the stops. Rotation of the hand wheel about the second body in a second direction is limited by a second hammer face on the contact members engaging a second anvil face on the stops. The hand wheel delivers a jarring impact, which eliminates the need for a wrench.

**ABSTRACT OF THE DISCLOSURE**

A pick up sub includes a first body and a second body rotatably coupled to the first body. The second body has an exterior surface with circumferentially spaced slots, separated by stops. A hand wheel encircles the second body.

5 The hand wheel has radially inwardly extending contact members, which extend into each of the circumferentially spaced slots. Rotation of the hand wheel about the second body in a first direction is limited by a first hammer face on the contact members engaging a first anvil face on the stops. Rotation of the hand wheel about the second body in a second direction is limited by a second hammer face on the contact members engaging a second anvil face on the stops. The hand wheel delivers a jarring impact, which eliminates the need for a wrench.

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**TITLE OF THE INVENTION:**

Pick Up Sub

**FIELD OF THE INVENTION**

5           The present invention relates to a pick up sub used on a drilling rig for picking up pipe.

**BACKGROUND OF THE INVENTION**

10           A pick up sub is used on a drilling rig for picking up threaded tubulars, such as drill pipe and drill collars. A pick up sub consists of a body having a first or upper end and a second or lower end. A lifting coupling is provided at the first end, which enables the pick up sub to be suspended from drilling rig lifting equipment. A threaded coupling is  
15 provided at the second end, which enables the pick up sub to mate in threaded engagement with a drill pipe.

          Drill pipe is threaded onto and off of the threaded coupling of the pick up sub and then tightened or loosened  
20 using a wrench. Injuries have been sustained by drilling rig workers, as a result of wrenches slipping or being dropped on them from above.

**SUMMARY OF THE INVENTION**

25           What is required is a pick up sub which is safer to use.

          According to the present invention there is provided a pick up sub which includes a first body and a second body rotatably coupled to the first body. The second body has an  
30 exterior surface with more than one circumferentially spaced slots. The slots are separated by stops. A lift coupling is provided on the first body which is adapted for suspending the first body from drilling rig lifting equipment. A threaded coupling is provided on the second body which is

adapted for threadly engaging a tubular member. A hand wheel encircles the second body. The hand wheel has more than one radially inwardly extending contact members. A contact member extends into each of the circumferentially spaced  
5 slots in the second body. Rotation of the hand wheel about the second body in a first direction is limited by a first hammer face on at least one of the contact members engaging a first anvil face on at least one of the stops. Rotation of the hand wheel about the second body in a second direction is  
10 limited by a second hammer face on at least one of the contact members engaging a second anvil face on at least one of the stops.

With the pick up sub, as described above, a wrench is  
15 not necessary. Any additional torsional force required to tighten or loosen a connection is provided by manipulating the hand wheel to create a jarring impact between one of the hammer faces on the contact member of the hand wheel and one of the anvil faces on the stops. In the preferred embodiment  
20 which is hereinafter illustrated and described, there are three radially inwardly extending contact members on the hand wheel and three circumferentially spaced slots on the second body which accommodate the contact members. It will be appreciated, however, that there could be as few as two  
25 contact members or more than the three which have been illustrated.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

30 These and other features of the invention will become more apparent from the following description in which reference is made to the appended drawings, the drawings are for the purpose of illustration only and are not intended to in any way limit the scope of the invention to the particular

embodiment or embodiments shown, wherein:

**FIGURE 1** is a side elevation view, partially in section, of a pick up sub constructed in accordance with the teachings of the present invention.

5 **FIGURE 2** is a top plan view, in section, of the second body of the pick up sub illustrated in **FIGURE 1** with hand wheel engaged.

**FIGURE 3** is an exploded side elevation view, of the pick up sub illustrated in **FIGURE 1**.

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#### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

The preferred embodiment, a pick up sub generally identified by reference numeral 10, will now be described with reference to **FIGURES 1** through 3.

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##### Structure and Relationship of Parts:

Referring to **FIGURE 1**, a first body 12 has a lift coupling 14 with lift pin 16, adapted for suspending first body 12 from drilling rig lifting equipment. A second body 18, having an exterior surface 20 is rotatably coupled to first body 12. In the illustrated embodiment, a threaded main pin 22 extends through a first bore 24 in second body 18 engaging a threaded bore 26 in first body 12. A thrust ring 28 is positioned within first bore 24 between threaded main pin 22 and second body 18. Second body 18 is adapted with a threaded coupling 30 for threadably engaging a tubular member. Referring to **FIGURE 2**, exterior surface 20 of second body 18 has three circumferentially spaced slots 32 separated by stops 34. A hand wheel 36, having three radially inwardly extending contact members 38, encircles second body 18, each of contact members 38 extending into each of slots 32. Each of contact members 38 has a first hammer face 40 and a second hammer face 42. Each of stops 34 has a first anvil face 44 and a second anvil face 46.

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Operation:

The use and operation of pick up sub 10 will now be described with reference to **FIGURES 1** through **3**. Referring to **FIGURE 3**, main pin 22 engages thrust ring 28 and second body 18, engaging first body 12. Referring to **FIGURE 2**, hand wheel 36 is positioned on second body 18 such that contact members 38 fit in slots 32. Referring to **FIGURE 1**, lift pin 16 attaches lift coupling 14 to first body 12. Referring to **FIGURE 2**, where an operator wishes to connect pick up sub 10 to a tubular member, the tubular member is first threaded onto threaded coupling 30 by hand. Hand wheel 36 is then manipulated to rapidly rotate hand wheel 36 in a first direction indicated by arrow 48, until first hammer face 40 of each contact member 38 strikes each first anvil face 44 of each stop 34. Conversely, when an operator wishes to disengage threaded coupling 30 from a tubular member, hand wheel 36 is rotated rapidly in a second direction indicated by arrow 50. Second hammer face 42 of each contact member 38 strikes each second anvil face 46 of each stop 34. Referring to **FIGURE 1**, hand wheel 36 remains with pick up sub 10 as an integral tool for engagement and removal of tubular members.

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In this patent document, the word "comprising" is use in its non-limiting sense to mean that items following the word are included, but items not specifically mentioned are not excluded. A reference to an element by the indefinite article "a" does not exclude the possibility that more than one of the element is present, unless the context clearly requires that there be one and only one of the elements.

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It will be apparent to one skilled in the art that

modifications may be made to the illustrated embodiment without departing from the spirit and scope of the invention as hereinafter defined in the Claims.

**THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:**

- 5 1. A pick up sub, comprising:  
a first body;  
a second body rotatably coupled to the first body, the  
second body having an exterior surface with more than one  
circumferentially spaced slots, the slots being separated by  
10 stops;  
a lift coupling on the first body which is adapted for  
suspending the first body from drilling rig lifting  
equipment;  
a threaded coupling on the second body which is adapted  
15 for threadly engaging a tubular member;  
a hand wheel encircling the second body, the hand wheel  
having more than one radially inwardly extending contact  
members, one of which extends into each of the  
circumferentially spaced slots in the second body, rotation  
20 of the hand wheel about the second body in a first direction  
being limited by a first hammer face on at least one of the  
contact members engaging a first anvil face on at least one  
of the stops, rotation of the hand wheel about the second  
body in a second direction being limited by a second hammer  
25 face on at least one of the contact members engaging a second  
anvil face on at least one of the stops.
2. The pick up sub as defined in Claim 1, wherein there are  
three radially inwardly extending contact members on the hand  
30 wheel and three circumferentially spaced slots on the second  
body which accommodate the contact members.

FIG. 1

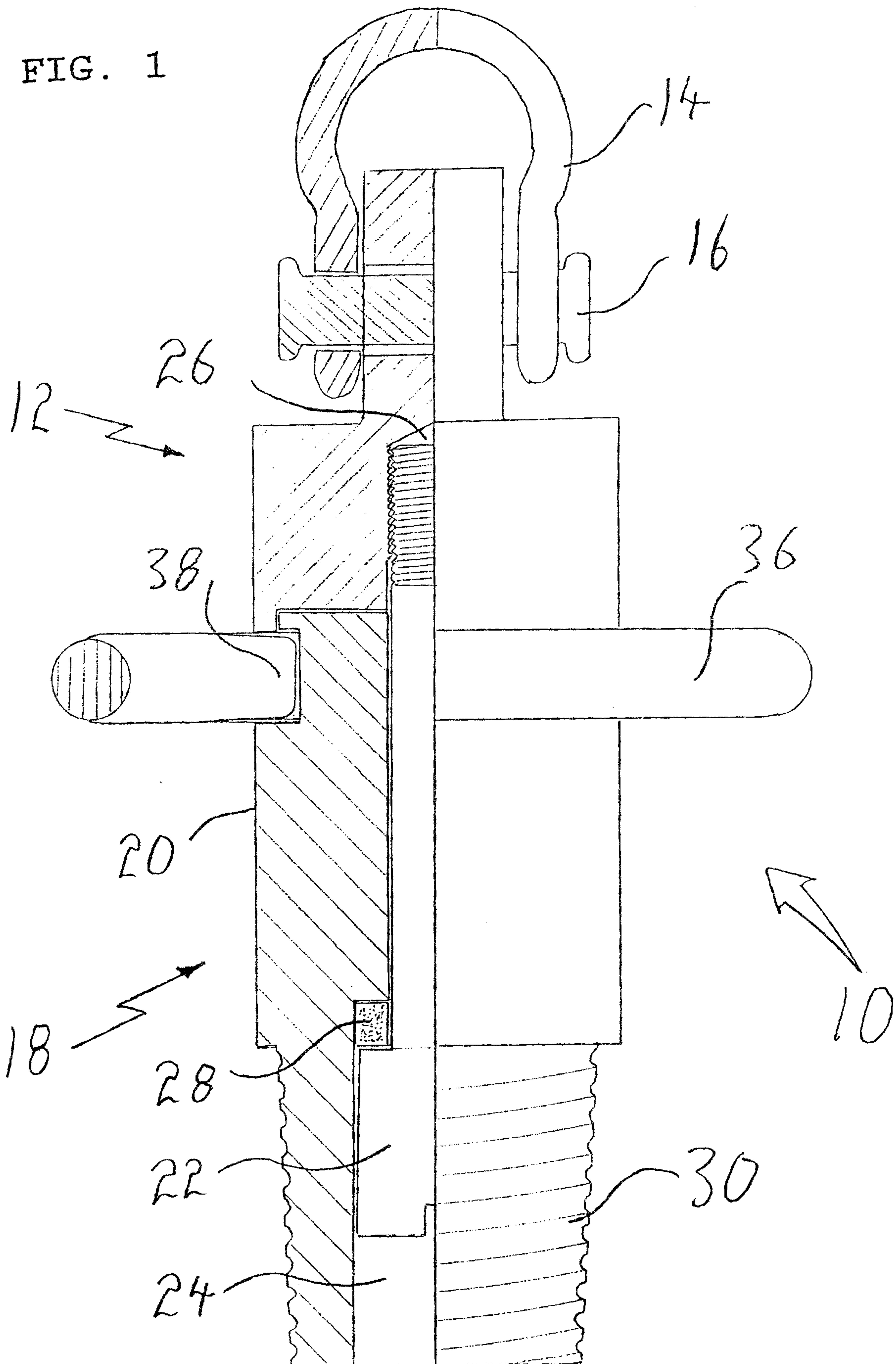


FIG. 2

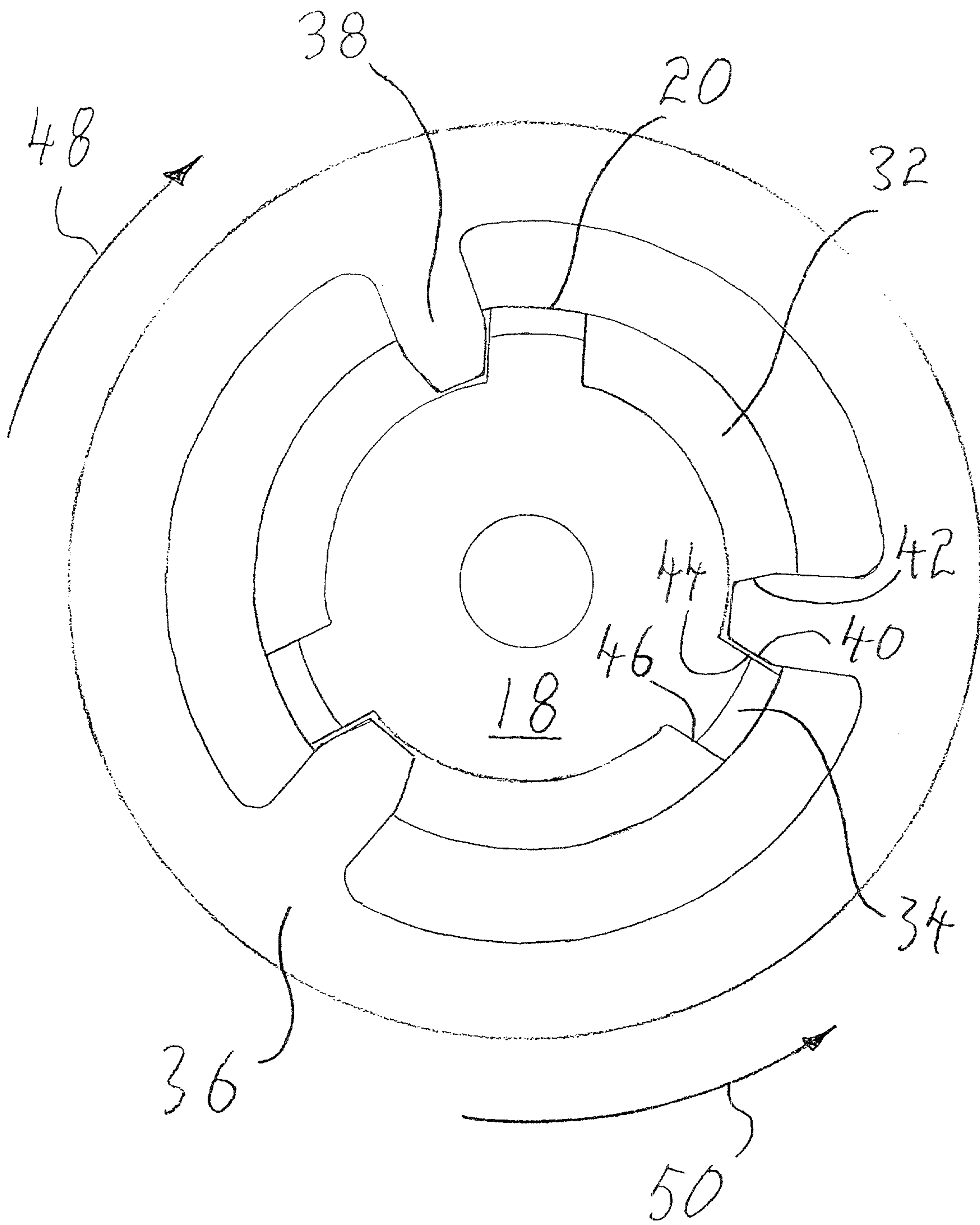


FIG. 3

