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Seabourn

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[54] **GUIDE BASE AND METHOD FOR SETTING SAME**

[75] Inventor: **Ed O. Seabourn,** Norfolk, England

[73] Assignee: **Phillips Petroleum Company,** Bartlesville, Okla.

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[52] **U.S. Cl.** **61/46.5,** 61/63, 166/.5, 166/.6, 175/7

[51] **Int. Cl.** **E21b 43/01,** B63b 35/00

[58] **Field of Search** ..... 61/465, 46, 63, 69; 166/.5, .6; 175/7

[56] **References Cited**

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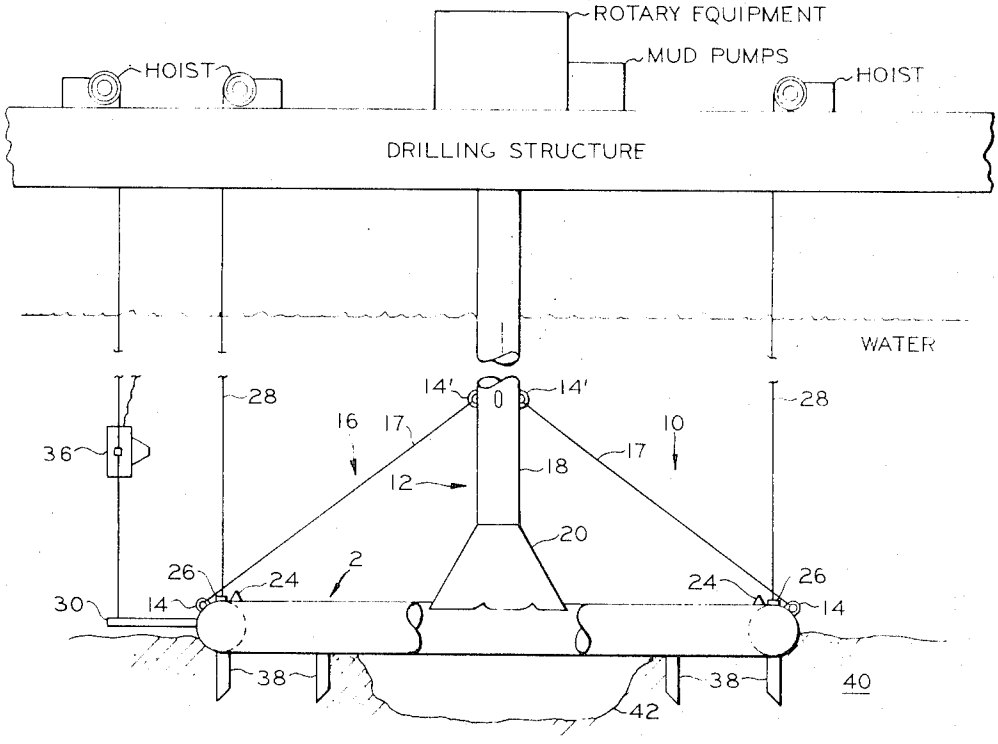
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Primary Examiner—Jacob Shapiro

[57] **ABSTRACT**

A frame having an opening therethrough is secured by a first means to a drilling means positioned in said opening. A second means is provided for severing a portion of the first means in response to movement of the drilling means through the frame for releasing said drilling means from said frame.

10 Claims, 2 Drawing Figures



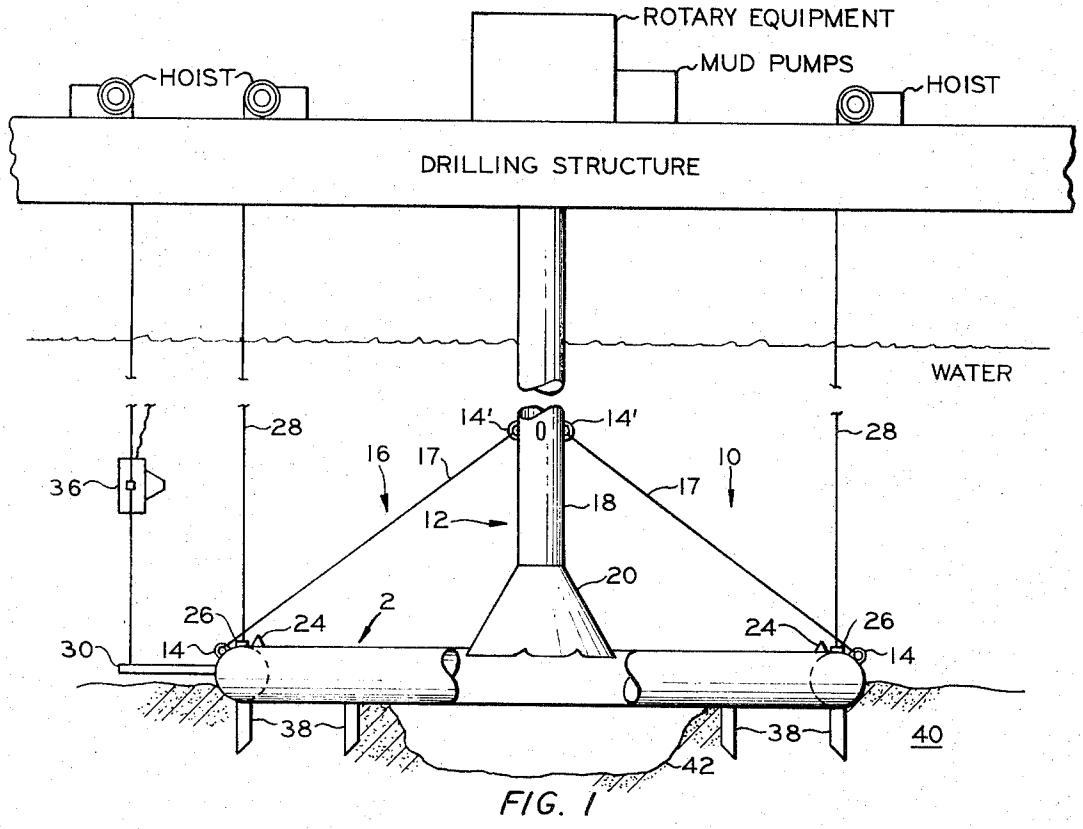

ROTARY EQUIPMENT
MUD PUMPS
HOIST
HOIST
DRILLING STRUCTURE
WATER
28
14'
14'
28
36
16
17
10
17
12
18
20
26
24
2
24
26
30
14
14
38
38
40
42

FIG. 1

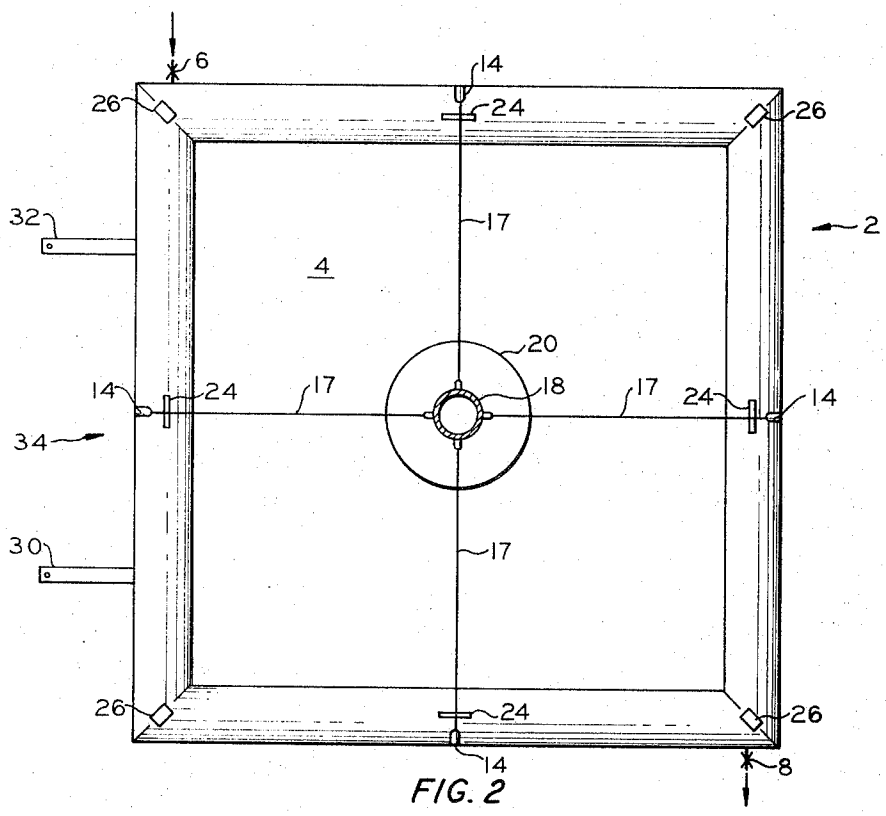

6
14
26
24
26
32
17
2
4
20
14
24
17
18
17
24
14
34
30
17
26
24
26
14
8

FIG. 2

GUIDE BASE AND METHOD FOR SETTING SAME

In drilling beneath a body of water it is desirable to provide a guide base for assisting in entry and reentry of tools into a hole drilled into the ground underlying said body of water. These guide bases are particularly useful when drilling beneath water which is flowing or has a relatively large wave action. Heretofore utilized guide bases were set on the sea floor and thereafter the drilling means, i.e., drill bit and drill pipe, was lowered into an opening of the guide base and drilling was commenced. These heretofore utilized methods required recovering the setting tools after the guide base was positioned and then running the bit and stabbing the bit into said opening of the guide base. Where the current or wave action was strong, it often required several hours to position the bit within the guide base and initiate drilling operations through the guide base. The heretofore utilized apparatus often represented waste of labor and equipment relative to the apparatus and method of this invention wherein drilling through the opening of the guide base can be initiated immediately upon landing of the guide base on the ground beneath the body of water.

This invention, therefore, resides in a guiding apparatus and the method of setting same on the ground beneath a body of water.

Other aspects, objects, and advantages of the present invention will become apparent from a study of the disclosure, the appended claims, and the drawing.

The drawing is a diagrammatic view of the appartus of this invention. FIG. 1 shows a side view of the apparatus and FIG. 2 shows a top view of the apparatus.

Referring to FIGS. 1 and 2, a frame 2 of the apparatus has an opening 4 extending therethrough. The frame 2 is preferably formed of conduit, for example, 20-inch casing. An inlet 6 and an outlet 8 can be provided for passing weighting material into and out of the conduit forming the frame 2. Examples of weighting material which can be utilized are weighted drilling mud or cement slurries.

First means 10 are provided for releasably securing the frame 2 to the drilling means 12 positioned in said frame opening 4. These first means 10 comprise a plurality of fastening means, for example, pad eyes 14 fixedly attached at spaced apart locations on the frame 2, for example, by welding the pad eyes 14 to the frame 2, and holding means 16, for example, ropes 17, each connected at one end to a respective pad eye 14 and being connected at the other end to the drilling means 12, for example, by tying the rope 17 to the other pad eyes 14' connected to a drill collar 18 above the bit 20.

An example of the holding means 16, hereafter referred to as ropes 17, that have proven to be effective in the use of this invention, are four one-inch nylon ropes 17 each positioned substantially 180 degrees apart about the drill collar 18 and the frame 2.

It should be understood that other rope 17 or materials other than nylon can be utilized so long as they are easily severable in the method of this invention and will withstand the impacts of loads subjected thereupon during running and setting of the frame 2.

A second means, here shown as knives 24, are positioned adjacent each pad eye 14 between said respective pad eye and the frame opening 4, for contacting and severing the ropes 17 in response to movement of the drilling means 12 through the frame opening 4 for releasing said drilling means 12 from said frame 2.

In order to provide for recovering the frame 2 and setting said frame, particularly where said apparatus is heavy, weighing for example 20,000–100,000 pounds, a plurality of major fastening means, for example, major pad eyes 26, can be fixedly attached at spaced apart locations about the frame 2 and connected to cables 28 which are associated with hoist or elevating apparatus positioned on structure, for example, a drill ship or platform, positioned above the surface of the water.

It is preferred that first and second guide arms 30, 32 be attached to a side portion 34 of the frame 2 with cables extending upwardly from each guide arm 30,32 to the overlying structure for guiding underwater viewing apparatus 36, for example, an underwater television camera, from a first location at the drilling structure downwardly to a second location adjacent the frame 2 and maintaining the viewing apparatus 36 oriented in a preselected direction, for example, toward the center of the frame opening 4. It is also preferred that a plurality of elongated anchors 38 or spikes be connected to the frame 2 at spaced apart locations with each extending downwardly therefrom. It is preferred that these anchors 38 be of a size and shape for readily entering the ground 40 in response to the wieght of the frame 2. By so providing anchors 38, shifting of the frame 2 is reduced during subsequent drilling through the frame opening 4.

In the method of this invention, hoisting cables 28 are connected to the major pad eyes 26 and ropes 17 are connected to the pad eyes 14 and the drilling means 12.

The cables 28 and drilling means 12 are thereafter passed from the structure for lowering the guiding apparatus of this invention through the body of water and into contact with the underlying ground 40. As the weight of the frame 2 is released, the anchors 38 are caused to bury into the ground there to assist in preventing movement of the frame 2 relative to the ground 40.

Fluid is thereafter passed from the structure downwardly through and outwardly from the drilling means 12 and against the ground 40. Impact of the fluid against the ground 40 at a location beneath the frame opening 4 causes the ground to be washed away thereby forming an opening 42 in the ground extending downwardly through the ground beneath the opening 4 of the frame 2. During and/or after the forming of the ground opening 42, the drilling means 12 is lowered through the frame opening 4 and into the formed ground opening 42.

This movement of the drilling means 12 relative to the frame 2 causes the ropes 17 to be brought into contact with their respective knives 24. Further downward movement of the drilling means 12 causes the knives 24 to sever the ropes 17 and release the drilling means 12 from the frame 2 after which the drilling means 12 can be rotated for drilling a bore hole into the underlying formations.

During these and subsequent operations, underwater viewing apparatus 36 can be lowered from the structure to its oriented position adjacent the frame opening 4 for monitoring the adjacent equipment.

Other modifications and alterations of this invention will become apparent to those skilled in the art from

the foregoing discussion and accompanying drawing, and it should be understood that this invention is not to be unduly limited thereto.

That which is claimed is:

1. A guiding apparatus comprising:

a frame having an opening;

first means for releasably securing the frame to a drilling means positioned in said opening; and

second means for contacting and severing a portion of said first means in response to the movement of the drilling means through the frame opening for releasing said drilling means from said frame.

2. An apparatus, as set forth in claim **1**, wherein said frame is formed of conduit.

3. An apparatus, as set forth in claim **2**, including means for passing weighting material into the frame.

4. An apparatus, as set forth in claim **1**, wherein the first means comprises:

a plurality of fastening means fixedly attached at spaced apart locations on the frame; and

holding means connected at one end to each of the fastening means and being connectable at the other end to the drilling means.

5. An apparatus, as set forth in claim **4**, wherein the holding means are ropes.

6. An apparatus, as set forth in claim **1**, wherein the second means comprises a knife positioned adjacent each first means in the pathway of a portion of said first means during movement of the drilling means through said frame opening.

7. An apparatus, as set forth in claim **1**, including means for lowering the frame from a first location downwardly to a second location.

8. An apparatus, as set forth in claim **1**, including means attached to the frame for guiding an underwater viewing apparatus from a first location downwardly therefrom to a second location adjacent the frame and maintaining the viewing apparatus oriented in a preselected direction at said second location.

9. An apparatus, as set forth in claim **1**, including a plurality of elongated anchors connected to the frame at spaced apart locations and extending downwardly therefrom.

10. A method for installing a guiding apparatus beneath a body of water, comprising:

connecting the guiding apparatus to cables of a structure positioned above the body of water;

connecting the guiding apparatus via ropes to drilling means for positioning and releasably maintaining said drilling means adjacent an opening of the guiding apparatus;

passing the cables and drilling means from the structure for lowering the guiding apparatus through the body of water and into contact with the underlying ground;

passing fluid downwardly through the drilling means and against the ground for washing an opening in the ground beneath the opening of the guiding means; and

lowering the drilling means through the opening of the guiding apparatus and the formed ground opening for severing the ropes and releasing the drilling means from the guiding apparatus.

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