Aug. 10, 1926. 1,595,386

V. H. EARLEY

LINE CONTROL FOR ROTARY DRILLING RIGS

Filed Oct. 15, 1925 2 Sheets-Sheet 1

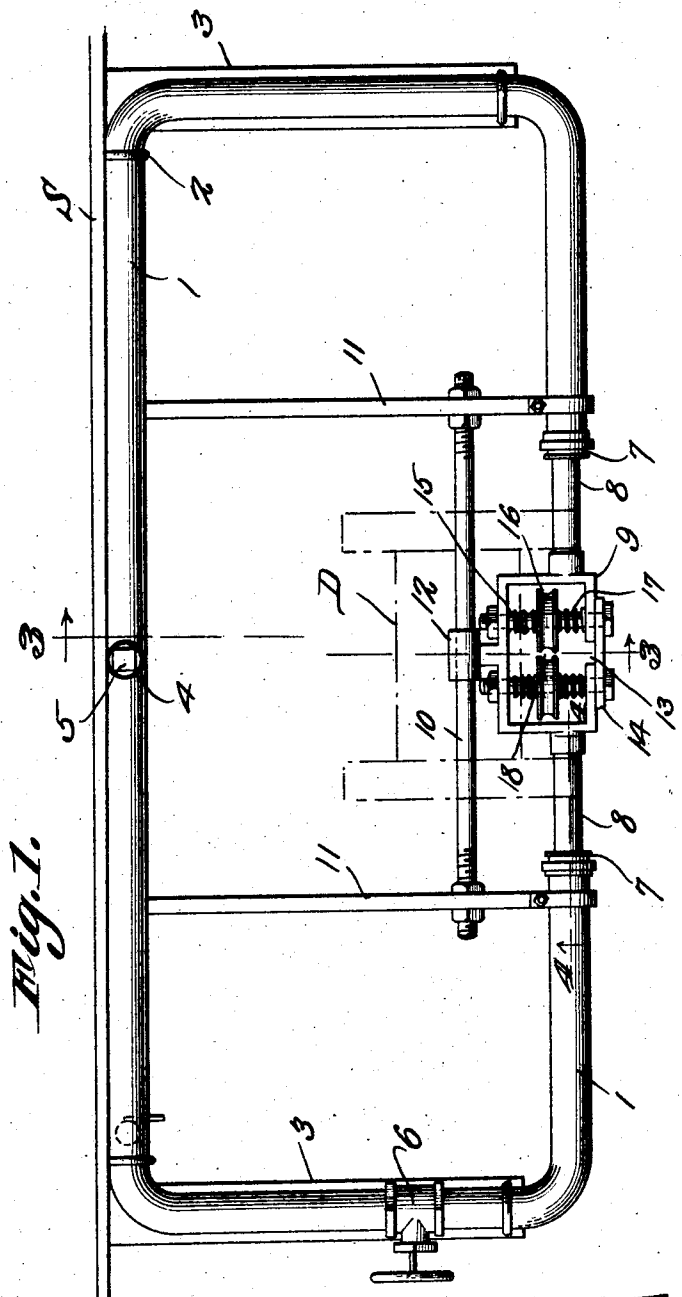


Fig. 1.

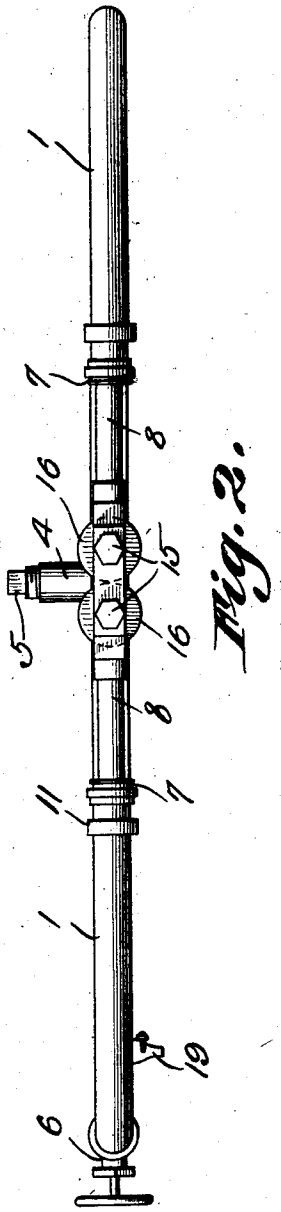


Fig. 2.

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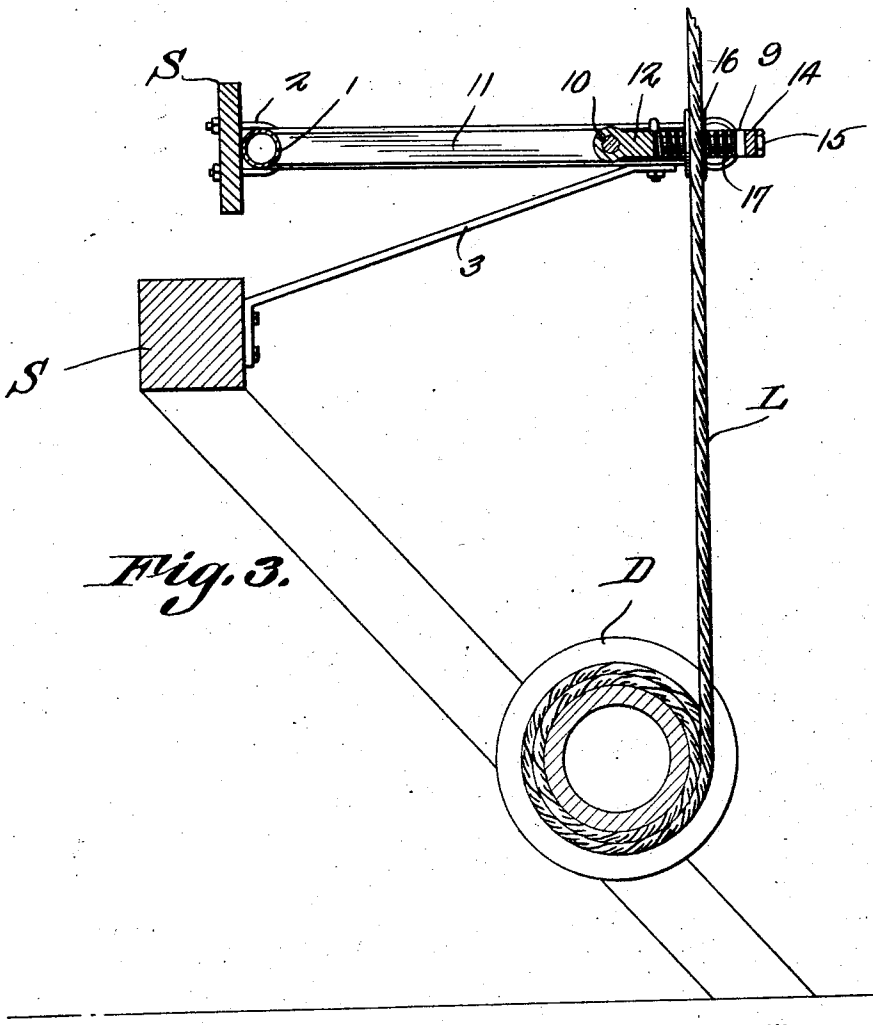


Fig. 3.

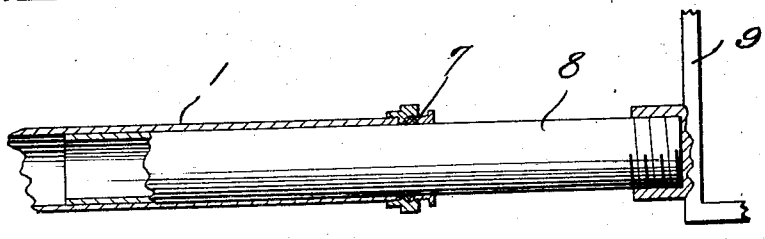


Fig. 4.

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UNITED STATES PATENT OFFICE.

VIVIAN H. EARLEY, OF WHITTIER, CALIFORNIA.

LINE CONTROL FOR ROTARY DRILLING RIGS.

Application filed October 15, 1925. Serial No. 62,691.

This invention relates to a control for the drilling line of a rotary drilling rig although it is to be understood that the same may be used in connection with any kind of a cable such as a swabbing line, a sand line or the like used on a drum.

It is well known to those skilled in the art that during the operation of a cable of the type mentioned it is difficult to eliminate the flapping and swinging of the line while in use and, consequently, damage to the line and other serious trouble often results.

It is an object of the present invention to provide a control which will insure proper feeding of the line to and from drum so that it will be held thereon closely. A further object is to provide a control the operation of which is regulated by hydraulic means which is simple and compact and can be installed readily.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings,

Figure 1 is a plan view of the control.

Figure 2 is a front elevation thereof.

Figure 3 is a section on line 3—3 Figure 1.

Figure 4 is an enlarged section on line 4—4 Figure 1, a portion of the inner pipe of the telescopic connection being shown in elevation.

Referring to the figures by characters of reference 1 designates a frame formed of pipe and one side of which is adapted to be connected to a supporting structure S by yokes or brackets 2 or any other suitable means. Braces 3 are located under the frame so that the same will be supported in a substantially horizontal position. The frame includes a filling opening 4 normally closed by a screw plug 5 and also includes a valve 6. The ends of the pipe constituting the frame are extended toward each other but spaced apart at the front of the frame and the terminals of the pipe are provided with packing glands 7 adapted to fit snugly about plungers 8 which are slidable within the end portions of the pipe and can be formed of pipe sections or can be solid as preferred. These plungers are connected to oposite ends respectively of a carriage 9 it being understood that the plungers 8 are in alinement. The carriage is held against rotation by a guide rod 10 which is parallel with the front portion of the frame and is secured at its ends to cross strips 11 connecting the front and back portions of the frame. This rod is slidably engaged by an arm 12 extending from the carriage.

The front of the carriage is provided with an opening 13 normally bridged by a plate 14. This plate is fastened in position by parallel rods 15 extending transversely of and secured to the carriage. Grooved pulleys 16 are mounted to slide and rotate on the respective rods and are held normally centered thereon by opposed springs 17 which are mounted on the rods and bear against the carriage. The peripheries of the pulleys are disposed close together so that the grooves therein cooperate to provide a pass 18 through which the line can work freely.

When the apparatus herein described is installed the carriage 9 is positioned above a portion of the drum D of the drilling rig. The line is inserted between the pulleys 16 and when the drum D is actuated the line will be wound thereon and at the same time travel downwardly through the pass 18. The pulleys 16 will be drawn laterally against the action of the springs in the paths thereof and as the line is fed along the drums the carriage 9 will be moved therewith. As a result of this action one of the plungers 8 will cause the water or other liquid in the tubular frame 1 to travel longitudinally from the path thereof, past the valve 6 and longitudinally with the other plunger 8. Obviously by adjusting the valve 6 the flow of water or other liquid within the frame 1 can be retarded to a desired extent and the sliding movement of the carriage 9 similarly regulated. The carriage will of course move backwardly and forwardly, according to the direction of movement of the line, and the pulleys will also be free to move longitudinally along the bearing rods 15 when subjected to pull by the line.

A valved drain 19 can be provided in the pipe 21 so that the water or other liquid contained therein can be withdrawn at will.

In the drawings the line or cable has been indicated at L.

What is claimed is:

1. A control of the class described including a tubular frame having spaced ends, a carriage, plungers extending therefrom and slidable within said ends, a liquid within the tubular frame for controlling the movement of the plungers, means within said frame for controlling the flow of the liquid, and line guiding means within the carriage.

2. A device of the class described including a tubular frame, a carriage, plungers extending in opposite directions from the carriage and slidable in the frame, a liquid within the frame for controlling the movement of the plungers, means carried by the frame for controlling the flow of the liquid, and line engaging pulleys slidably and rotatably mounted within the carriage.

3. A device of the class described including a tubular frame having spaced ends, a carriage between said ends, oppositely extending plungers projecting from the carriage and slidable within the respective ends, a liquid within the frame for controlling the movement of the plungers, means carried by the frame for controlling the flow of the liquid, a guide slidably engaged by the carriage and supported by the frame, and line guiding pulleys mounted to slide and rotate within the frame.

4. The combination with a tubular frame having spaced ends, and a guide carried by said frame, of a carriage slidably mounted on the guide, plungers extending in opposite directions respectively from the carriage and slidable within the respective end portions of the frame, a liquid within said frame for retarding the movement of the plungers, means carried by the frame for retarding the flow of the liquid, line engaging pulleys within the carriage mounted to slide and rotate, and yielding means for retarding the sliding movement of the pulleys.

5. The combination with a tubular frame having spaced ends, plungers slidable within the respective ends, means for directing a fluid into the frame and sealing the frame, and means for controlling the flow of fluid longitudinally within the frame, of a carriage interposed between and secured to the plungers, a guide, means on the carriage slidably engaging the guide, line guiding pulleys carried by the frame and mounted to slide transversely thereof and to rotate therein, and yielding means for retarding the sliding movement of the pulleys.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

VIVIAN H. EARLEY.