

998,436.

2 SHEETS—SHEET 1.



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SLACK CONTROLLING DEVICE.
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2 SHEETS-SHEET 2.

Fig. 3.

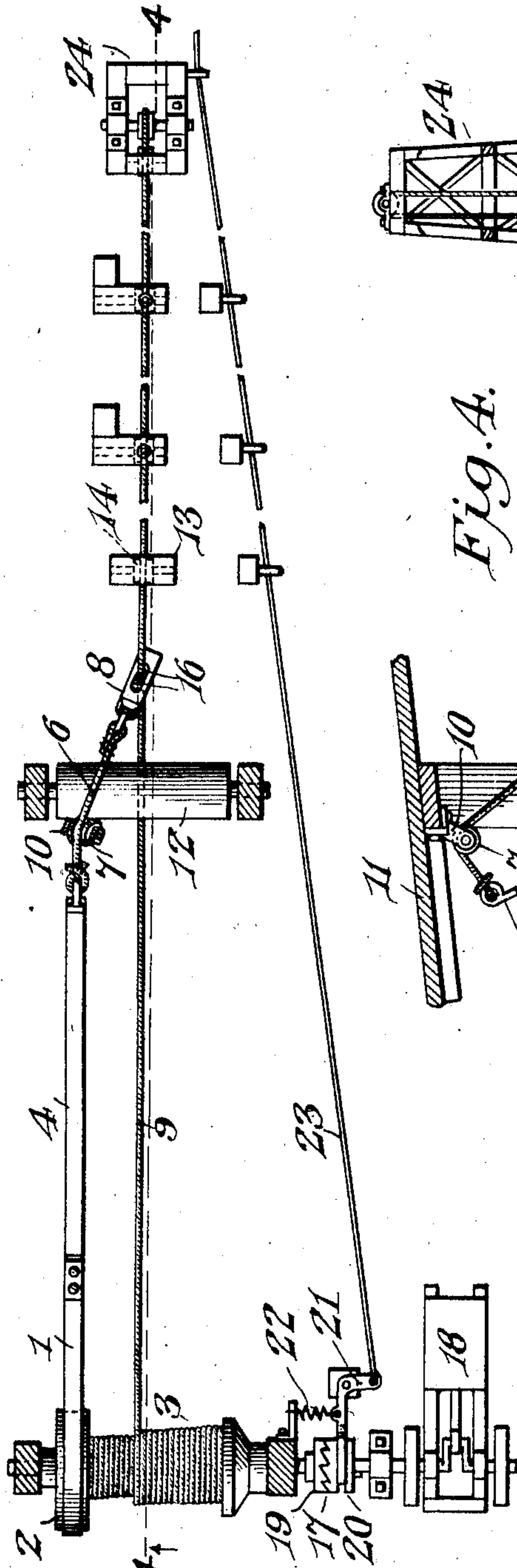
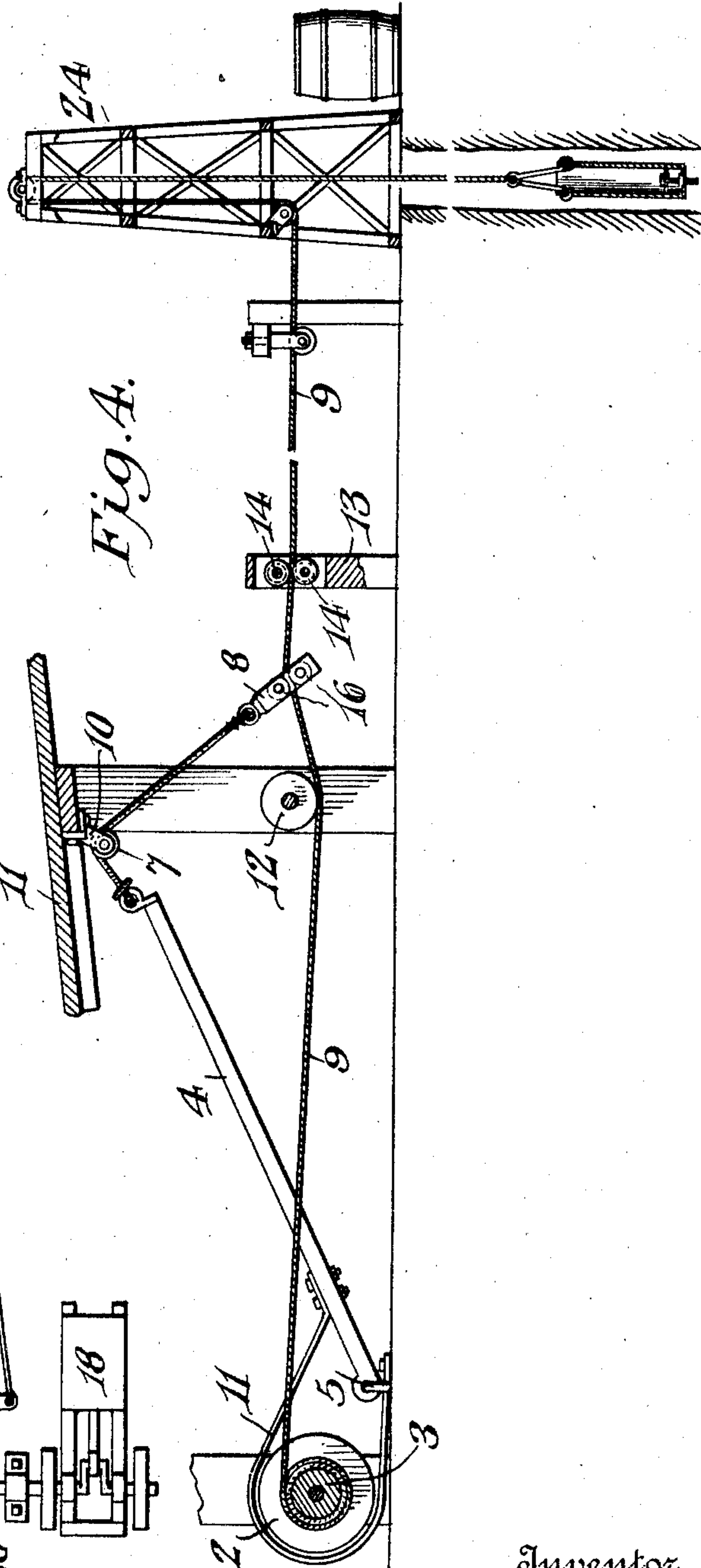


Fig. 4.



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UNITED STATES PATENT OFFICE.

DAVID BROWN WHITEHILL, OF NORTH CLARENDON, PENNSYLVANIA.

SLACK-CONTROLLING DEVICE.

998,436.

Specification of Letters Patent.

Patented July 18, 1911.

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To all whom it may concern:

Be it known that I, DAVID B. WHITEHILL, a citizen of the United States, residing at North Clarendon, in the county of Warren and State of Pennsylvania, have invented a new and useful Slack-Controlling Device, of which the following is a specification.

The invention relates to a slack controlling device for well bailing operating mechanism and the like.

The object of the present invention is to provide a simple, inexpensive and efficient slack controlling device, adapted to prevent kinks and consequent breaks in the wire line or cable of well bailing, or other mechanism, and capable also of automatically taking up the slack and of simultaneously checking and stopping the rotary movement of the drum or reel to prevent excessive slack.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claims here-to appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawing:—Figure 1 is a longitudinal sectional view of a slack controlling device, constructed in accordance with this invention. Fig. 2 is a horizontal sectional view of the same. Fig. 3 is a plan view, the shed being in section, showing the slack controlling device connected with well bailing operating mechanism. Fig. 4 is a sectional view on the line 4—4 of Fig. 3.

Like numerals of reference designate corresponding parts in all the figures of the drawing.

The slack controlling device, which is adapted to prevent wire lines of well rigging and other mechanism from kinking and breaking, comprises in its construction a band brake having a band 1 for engaging the rim 2 of a drum or reel 3, but the band brake may be arranged to engage a friction wheel or other member connected with the shaft upon which the drum or reel is mounted. The band brake is connected with a gravity acting lever 4, arranged at an inclination and hinged or pivoted at its lower

end 5. The upper end of the inclined lever 4 is connected with a rope or cable 6, or other suitable flexible connection, which is arranged on a pulley 7. One end of the rope or flexible connection 6 is secured to the lever 4, and the other end carries a guide 8 through which the wire line or cable 9 passes. The pulley 7 is mounted in a suitable bracket or hanger 10, secured to a suitable support, which may conveniently consist of a shed 11, that is ordinarily employed in connection with well rigging. The wire line or cable 9 also passes beneath a transverse guide roll 12 and through a fixed guide 13, preferably equipped with pulleys or other suitable anti-friction devices 14. The guide 8, which is carried by the rope or flexible connection 6, is located between the relatively fixed guide 14 and the transverse guide roll 12, and when the wire line or cable is maintained taut, it, through the flexible connection 6, holds the brake operating lever 4 in an elevated position and maintains the band brake out of engagement with the cooperating rotary friction element of the drum or reel. Should, however, the drum or reel rotate too rapidly and slacken the wire line or cable, the slack will be taken up by the guide, as illustrated in dotted lines in Fig. 1 of the drawing, and the slackening of the rope or cable 6 will permit the gravity acting lever to swing downward and apply the band brake. This will check the rotary movement of the drum or reel and prevent excessive slack. As the slack is taken up through the proper operation of the bailing mechanism, the brake lever will be swung upward and the drum or reel will be relieved of the band brake. The guide or guide block 8 of the flexible connection 6 is equipped with upper and lower anti-friction wheels 16, located above and below the wire line or cable 9 and adapted to permit the same to pass freely through the guide.

In Figs. 3 and 4 of the drawings, the slack controlling device is shown applied to well bailing operating mechanism. The drum or reel 3 is connected by a clutch 17 with an engine 18, or other suitable motor for rotating the drum or reel to wind up the cable. The clutch, which may be of any suitable construction, is shown composed of a relatively fixed section 19 and a slidable section 20, actuated by a shifting lever 21 to which is connected a spring 22 for nor-

mally maintaining the clutch sections in engagement with each other. The lever 21 is controlled by a wire 23, extending to the derrick 24. When the wire 23 is pulled, the lever 21 is oscillated to move the slidable clutch section away from the relatively fixed clutch section for releasing the drum or reel.

The slack adjusting device takes up the slack in the wire line or cable to prevent the same from kinking and breaking, and it simultaneously applies the brake and checks the rotary movement of the drum or reel, and thereby prevents further slack, so that there is no liability of the slack becoming excessive and beyond the control of the device, which is automatic in its operation.

While the slack adjuster is designed particularly for use in connection with well bailing mechanism, such as that illustrated and described in Patent No. 850,987, granted to me Apr. 23, 1907, it will be apparent that it may be advantageously employed in connection with any hoisting cable or winding mechanism, where it is desirable to hold the slack and prevent the wire from kinking.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a slack adjuster for well bailing mechanism, the combination of a well bailing drum or reel adapted to wind and unwind a cable, a wire cable extending from the drum or reel to the well and adapted to be connected to a bail, a band brake for checking the excessive rotary movement of the drum or reel when the same is released by the well bailing mechanism to permit the cable to unwind freely, a gravity acting lever for applying the brake, and means operated by the cable for supporting the lever in an elevated position when the cable is taut and for permitting the lever to apply the brake when the cable is slackened.

2. In a slack adjuster for well bailing mechanism, the combination of a well bailing drum or reel adapted to wind and unwind a cable, a wire cable extending from the drum or reel to the well and adapted to be connected to a bail, a band brake for checking the excessive rotary movement of the drum or reel when the same is released by the well bailing mechanism to permit the cable to unwind freely, a gravity acting lever for applying the brake, and a flexible connection between the lever and the cable, said flexible connection being arranged to hold the band brake in an inoperative position when the cable is taut and adapted to permit the brake to be applied when the cable is slackened.

3. In a slack adjuster for well bailing mechanism, the combination of a well bailing drum or reel adapted to wind and un-

wind a cable, a wire cable extending from the drum or reel to the well and adapted to be connected to a bail, a band brake for checking the excessive rotary movement of the drum or reel when the same is released by the well bailing mechanism to permit the cable to unwind freely, means for automatically applying the brake, and means connected with the cable and with the first-mentioned means for maintaining the brake in an inoperative position when the cable is taut and for permitting the brake to be applied when the cable is slackened.

4. In a slack adjuster for well bailing mechanism, the combination of a well bailing drum or reel adapted to wind and unwind a cable, a wire cable extending from the drum or reel to the well and adapted to be connected to a bail, a band brake for checking the excessive rotary movement of the drum or reel when the same is released by the well bailing mechanism to permit the cable to unwind freely, a gravity acting lever for applying the brake, a flexible connection attached to the lever and connected with the cable and arranged to hold the lever elevated when the cable is taut and adjustable to permit the lever to swing downward and apply the brake when the cable is slackened, and guiding means for the flexible connection.

5. In a slack adjuster for well bailing mechanism, the combination of a well bailing drum or reel adapted to wind and unwind a cable, a wire cable extending from the drum or reel to the well and adapted to be connected to a bail, a band brake for checking the excessive rotary movement of the drum or reel when the same is released by the well bailing mechanism to permit the cable to unwind freely, a gravity acting lever for applying the brake, a flexible connection attached to the lever and having guiding means through which the cable passes, and relatively fixed guiding means receiving the flexible connection.

6. In a slack adjuster for well bailing mechanism, the combination of a well bailing drum or reel adapted to wind and unwind a cable, a wire cable extending from the drum or reel to the well and adapted to be connected to a bail, a band brake for checking the excessive rotary movement of the drum or reel when the same is released by the well bailing mechanism to permit the cable to unwind freely, spaced guiding means receiving the cable, and flexible means connected with the cable between the spaced guiding means and connected also with the band brake and arranged to take up the slack and permit the band brake to be applied when the cable is slackened.

7. In a slack adjuster for well bailing mechanism, the combination of a well bailing drum or reel adapted to wind and un-

5 wind a cable, a wire cable extending from the drum or reel to the well and adapted to be connected to a bail, a band brake for checking the excessive rotary movement of the drum or reel when the same is released by the well bailing mechanism to permit the cable to unwind freely, spaced guiding means receiving the cable, and a relatively fixed guide located above the cable, and a flexible connection supported by the relatively fixed guide and connected with the brake operating means and with the cable between the said spaced guides.

15 8. In a slack adjuster for well bailing mechanism, the combination of a well bailing drum or reel adapted to wind and unwind a cable, a wire cable extending from the drum or reel to the well and designed to be connected with a bail, a band brake for checking the excessive rotary movement of the reel when the same is released by the well bailing mechanism to permit the cable to unwind freely, a gravity acting lever for applying the band brake, spaced guides receiving the cable, a relatively fixed guide located above the cable, and a flexible connection supported by the relatively fixed guide and connected at one end with the

gravity acting lever and provided at the other end with a guide located between the spaced guides and receiving the cable. 30

9. In a slack adjuster for well bailing mechanism, the combination of a well bailing drum or reel adapted to wind and unwind a cable, a wire cable extending from the drum or reel to the well and designed to be connected with a bail, a band brake for checking the excessive rotary movement of the reel when the same is released by the well bailing mechanism to permit the cable to unwind freely, a horizontal guide roll arranged above the cable, a relatively fixed guide located in advance of and spaced from the horizontal guide roll, an over-head pulley located above the cable, and a flexible connection guided by the pulley and connected with the band brake and with the cable at a point between the guide roll and the relatively fixed guide. 40 45

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses. 50

DAVID BROWN WHITEHILL.

Witnesses:

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J. H. DRISCOLL.