

J. E. SUITS & R. B. ARMSTRONG.

OIL WELL CONTROL.

APPLICATION FILED JUNE 28, 1910.

989,441.

Patented Apr. 11, 1911.

2 SHEETS—SHEET 1.

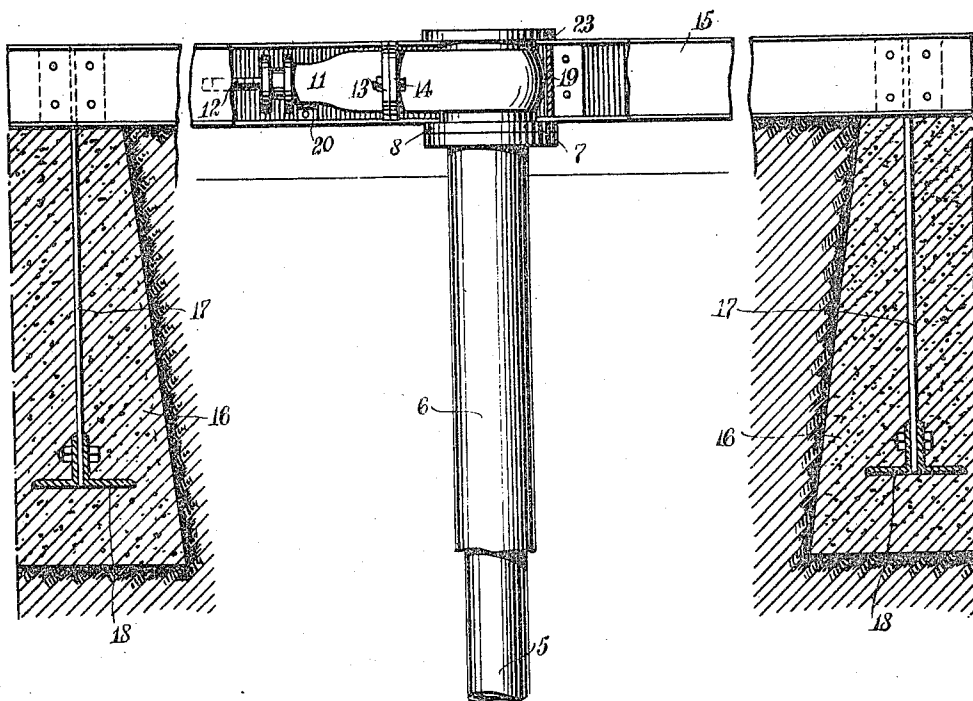


Fig. 1

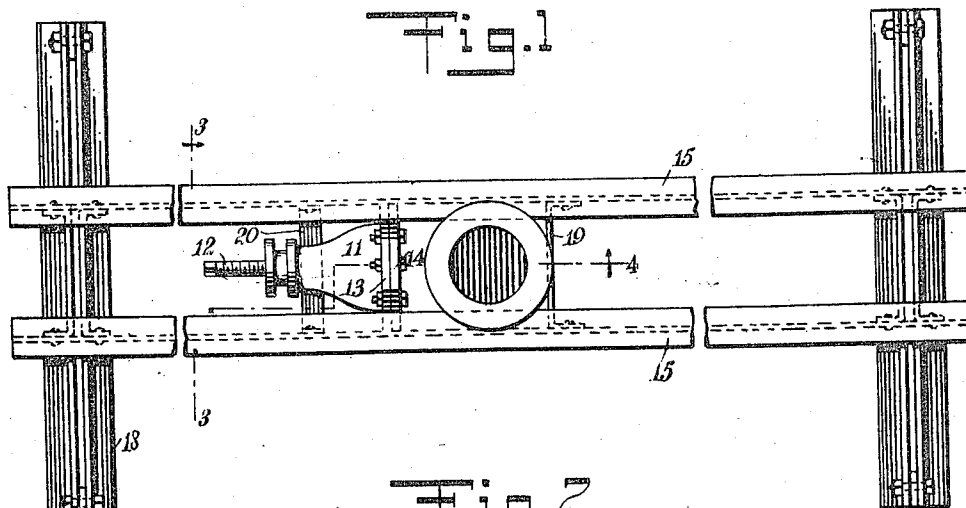


Fig. 2

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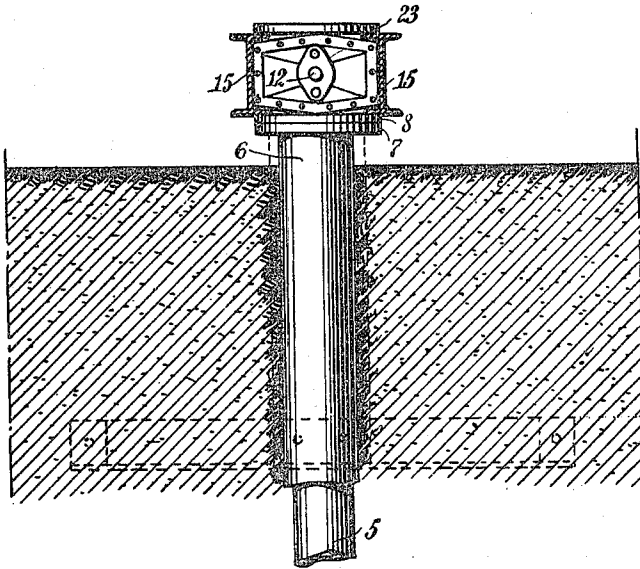


Fig. 3

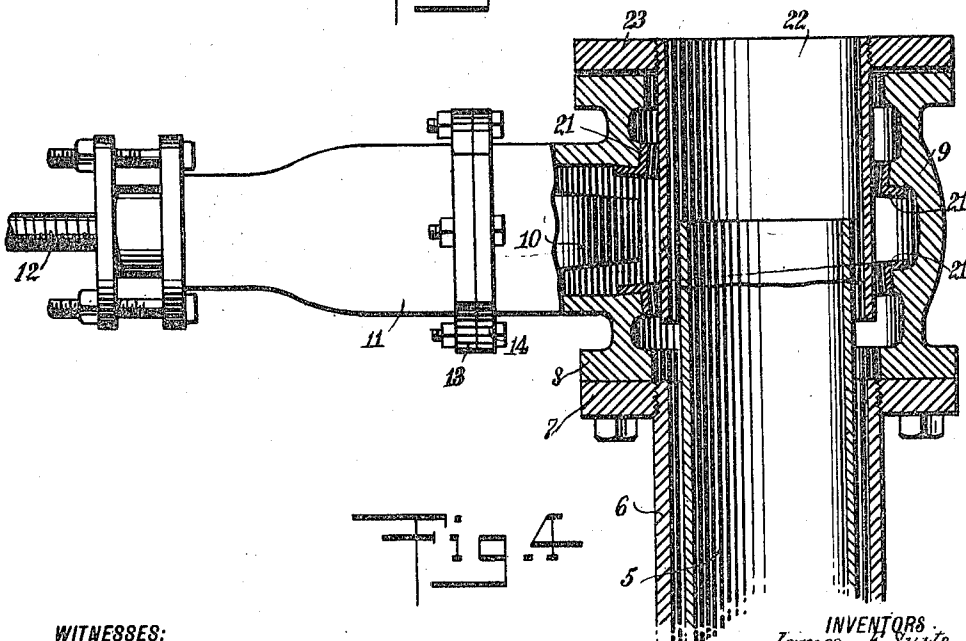


Fig. 4

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UNITED STATES PATENT OFFICE.

JAMES EDWARD SUITS AND ROBERT BARTHOLIMINNE ARMSTRONG, OF DOUGLAS,
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OIL-WELL CONTROL.

989,441.

Specification of Letters Patent.

Patented Apr. 11, 1911.

Application filed June 28, 1910. Serial No. 569,303.

To all whom it may concern:

Be it known that we, JAMES E. SUITS and ROBERT B. ARMSTRONG, citizens of the United States, and residents of Douglas, in the county of Cochise and Territory of Arizona, have invented a new and Improved Oil-Well Control, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to provide means for checking and controlling the flow of oil, water or gas from a deep bored well; and to provide an emergency flow checking device to control the rush of liquid from the well during or at the completion of the bore itself and prior to the installation of the controlling head therefor.

One embodiment of the present invention is disclosed in the structure illustrated in the accompanying drawings, in which like characters of reference denote corresponding parts in all the views, and in which—

Figure 1 is a fragmentary view in side elevation of the upper end of a well casing and controlling jacket therefor; Fig. 2 is a plan view of the casing, jacket, gate valve and mountings therefor; Fig. 3 is a cross section taken on the line 3—3 in Fig. 2; and Fig. 4 is a vertical section taken on the line 4—4 in Fig. 2.

This invention is applied to well boring wherein is employed a pipe casing 5. The pipe casing 5 is composed of a series of successive pipe sections, bolted or otherwise secured together, which are inserted with and follow the drill head. When in the operation a gushing stream of subterranean water or oil is pierced, there has been no means of restraining the sudden flow of the liquid through the said casing. This has resulted in great loss of the liquid, and also in considerable inconvenience to the operatives. It is to overcome this objection, principally, that the present invention is devised.

The invention consists primarily in a jacket 6, which is preferably formed in one or more sections extended into the ground at about fifty feet in length. The upper section of pipe constituting the jacket is provided with, or has secured thereto, a heavy annular flange 7. It is to this flange 7 that there is bolted a flange 8 of the heavy gate valve 9. The gate valve 9 is of any suitable construction, having a gate 10 horizontally mounted in suitable guides contained with-

in a valve head 11. Attached to the gate 10 is a rotary screw threaded stem 12, the rotation whereof advances or retracts the gate 10. The head 11 is provided with a suitable bolting flange 13, which is secured to a flange 14 of the valve 9 when the valve is in operative position.

The jacket 6 is formed to a diameter slightly larger than the casing 5 so that the drive of the said casing may be unrestricted as far as the jacket is concerned, and to further avoid impeding the withdrawal of the casing sections should the well prove dry or subsequently become exhausted and it be desired to remove the said casing. It is intended, however, that the separation between the jacket 6 and casing 5 shall be slight, and such as to be readily filled with sediment or detritus usually carried by the first head of oil or water when the subterranean pocket or channel is pierced.

In mounting the jacket 6 and valve 9 carried thereby, we provide a bridge formed of two heavy I-beams 15, 15, which are supported on suitable concrete footings 16, 16 to which they are suitably anchored by anchor plates 17, 17. The plates 17, 17 are provided with short angle iron foot sections 18, 18. To steady the beams 15, 15 and the valve casing and head thereof, we provide cross bars 19 and 20 which are arranged to hold in fixed relation the valve casing and the valve head. The accumulated strength of the beams 15, 15 and anchoring construction therefor will vary to suit the needs and ideas of the constructing engineer in charge.

To protect the valve seats 21, 21 during the operation of boring and sinking the casing 5, we have provided a short pipe section or thimble 22. The thimble 22 is of the same internal diameter as the jacket 6, and is provided at the upper end with a flange 23, to which it is rigidly secured or with which it is integrally formed. The thimble 22 extends within the valve casing past the seats 21, 21.

The operation of boring a well with tools employing the jacket 6 and valve 9—10 herein described is as usual. The employment of the present invention is called into use only when and as a gusher is opened and when the same is ascertained by the drive or spurt of oil or water, as the case may be, to be past the control rods and through the head of the boring tools. When this occurs

the upper section of the casing is removed and the thimble 22 is quickly lifted to free the head of the gate 10. The gate 10 is now readily closed upon the seats 21, 21 by rotating the stem 12 in the manner common to the operation of gate valves. When the gate 10 is thus closed the exit of the liquid from out the jacket 6 is completely closed. If desired, the flow of the liquid downward between the casing 5 and jacket 6 and upward around the lower edge of the said jacket, may be avoided or counteracted by incasing the jacket in suitable cement foundation. This, however, is not found by us to be necessary. As a rule, the first gush of liquid brings with it the sediment and borings contained in the casing around the drills, which floods into and dams the space between the casing and the jacket. With the flow thus checked and arrested the head for the well may be installed, and if deemed wise this installation may be seated on top of the casing 9, the gate 10 being retained in position as an emergency valve.

25 Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:—

1. An oil well control, comprising a tubular jacket infolding the upper end of a well

casing; a valve disposed on said jacket to control the flow upward therethrough; and a valve protecting tubular section supported within said valve and extended through the passage thereof.

2. An oil well control, comprising a tubular jacket infolding the upper end of a well casing; a valve disposed on said jacket to control the flow upward therethrough; and an upwardly removable valve protecting tubular section supported within said valve and extended through the valve passage thereof.

3. An oil well control comprising an elongated tubular jacket having a diameter slightly larger than the well casing and extended into the earth and infolding the upper end of a well casing; a valve disposed on said jacket to control the flow upward therethrough; and a suitably anchored supporting structure for said jacket.

In testimony whereof we have signed this specification in the presence of two subscribing witnesses.

JAMES EDWARD SUITS.

ROBERT BARTHOLIMINNE ARMSTRONG.

Witnesses:

JAMES B. SPEED,

CHARLES ASHER.