W. G. BLACK.

OIL WELL MACHINERY COMPRISING THE SPRING BAIL ELEVATOR.

APPLICATION FILED JULY 6, 1920.

1,397,072. Patented Nov. 15, 1921.

Fig. 1.

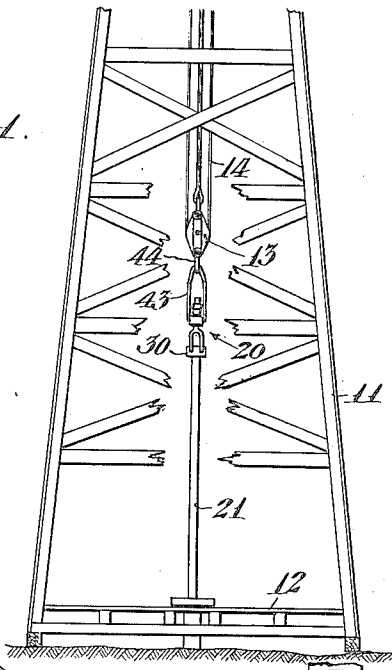


Fig. 2.

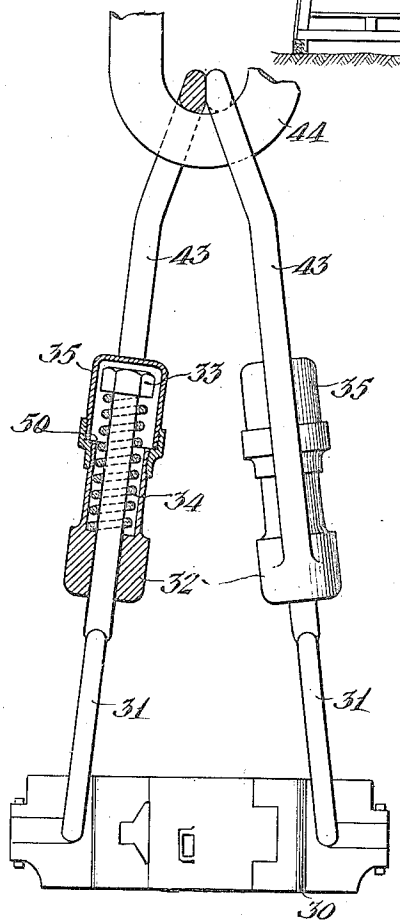
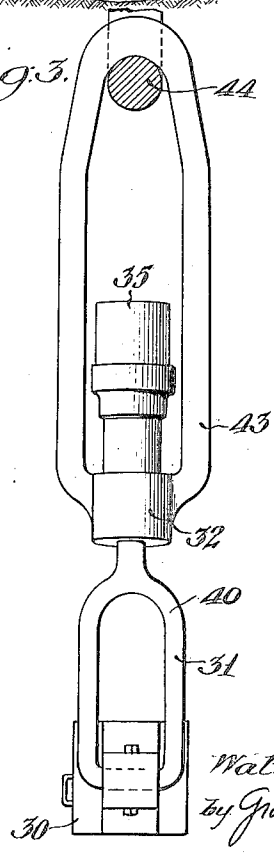


Fig. 3.



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UNITED STATES PATENT OFFICE.

WALTER G. BLACK, OF WHITTIER, CALIFORNIA.

OIL-WELL MACHINERY COMPRISING THE SPRING-BAIL ELEVATOR.

1,397,072. Specification of Letters Patent. Patented Nov. 15, 1921.

Application filed July 6, 1920. Serial No. 394,327.

To all whom it may concern:

Be it known that I, WALTER G. BLACK, a citizen of the United States, residing at Whittier, county of Los Angeles, and State of California, have invented a new and useful Improvement in Oil-Well Machinery Comprising the Spring-Bail Elevator, of which the following is a specification.

My invention relates to oil well tools and particularly to elevators which are used for raising casing, tubing and rods in oil well drilling operation.

The principal object of my invention is to provide a bail for an elevator in which are incorporated resilient means for the purpose of preventing the sudden strains when the material is lifted from breaking or injuring the machinery.

Further objects and advantages will be made evident hereinafter.

Referring to the drawings which are for illustrative purposes only,

Figure 1 is a side elevation of an oil well derrick in which my invention is being used.

Fig. 2 is an elevation partly in section.

Fig. 3 is a side elevation.

Referring to these drawings which are for illustrative purposes only, 11 is a derrick having a floor 12. A block 13 is provided, this block being suspended by a cable 14 from the top of the derrick by means not shown. The elevator 20 is shown as lifting a string of pipe 21. This elevator consists of clamping members 30 which may be placed around the pipe and locked thereon in accordance with standard practice. Passing through the clamping members 30 are lower bail members 31, these members projecting through a body 32 and having a nut 33 secured thereon. Surrounding the members 31 and between the nut 33 and the body 32 are compression springs 34. A cap 35 is provided for each of the bodies 32 entirely inclosing the nut 33 and the spring 34, these caps being removable so that grease may be placed inside the body 34 for the purpose of reducing friction. The member 31 is forked as shown at 40, the body 32 is connected by upper ball members 43 with a member 44 forming a portion of the block 13. The nut 33 is of sufficient size to strike against a shoulder 50 formed on the body 32 when the spring 34 is partially compressed.

The method of operation is as follows:

In practice I prefer to leave the elevator 20 permanently attached to the block 13 although it may be used on the standard form of hook and detached therefrom if desired. The members 30 being clamped around a pipe 21 which it is desired to lift and the slack being taken up in the cable 14, a gradual strain is applied, this strain being cushioned by the springs 34 which are compressed until the nut 33 strikes against the shoulders 50. The strain is therefore gradually applied to the pipe which greatly reduces the danger of breaking the pipe or any portion of the elevating machinery thus reducing the hazard of costly shutdowns and preventing accidents and loss of life which may occur in the event breakages take place in the derrick.

I claim as my invention:

1. In an elevator for use in an oil well derrick, clamping members adapted to be locked around a member to be lifted, bail members on which said clamping members are supported, and resilient means in each of said bail members.

2. In an elevator for use in an oil well derrick, clamping members adapted to be locked around a member to be lifted, bail members on which said clamping members are supported, and compression springs each so placed as to allow an extension of one of said bail members under load.

3. In an elevator for use in an oil well derrick, clamping members adapted to be locked around a member to be lifted, lower bail members each secured to one of said clamping members, upper bail members upon which the entire elevator is suspended, and resilient means connecting said bail members.

4. In an elevator for use in an oil well derrick, clamping members adapted to be locked around a member to be lifted, lower bail members each secured to one of said clamping members, upper bail members upon which the entire elevator is suspended, and compression springs each located between one of said lower bail members and one of said upper bail members and so placed as to allow a mutual movement of said bail members under load.

5. In an elevator for use in an oil well derrick, clamping members adapted to be locked around a member to be lifted, lower bail members each secured to one of said clamping members, upper bail members upon which the entire elevator is suspended, two bodies each rigidly secured to an upper

bail member and through which a lower bail member passes, and two compression springs each interposed between one of said bodies and its lower bail member.

6. In an elevator for use in an oil well derrick, clamping members adapted to be locked around a member to be lifted, lower bail members each secured to one of said clamping members, upper bail members upon which the entire elevator is suspended, two bodies each rigidly secured to an upper bail member and through which a lower bail member passes, two compression springs each located in a cavity in one of said bodies and interposed between its respective body and the lower bail member passing therethrough, and means for closing the upper part of said cavity.

In testimony whereof I have hereunto set my hand at Los Angeles, California, this 22nd day of June, 1920.

WALTER G. BLACK.