

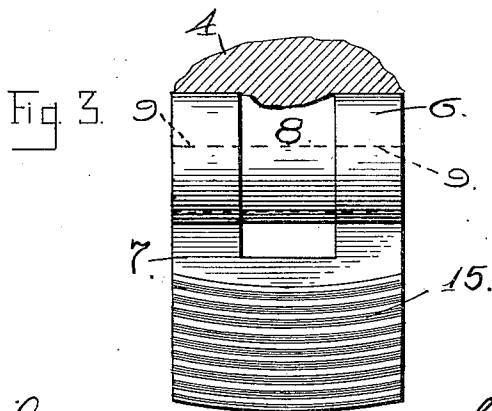
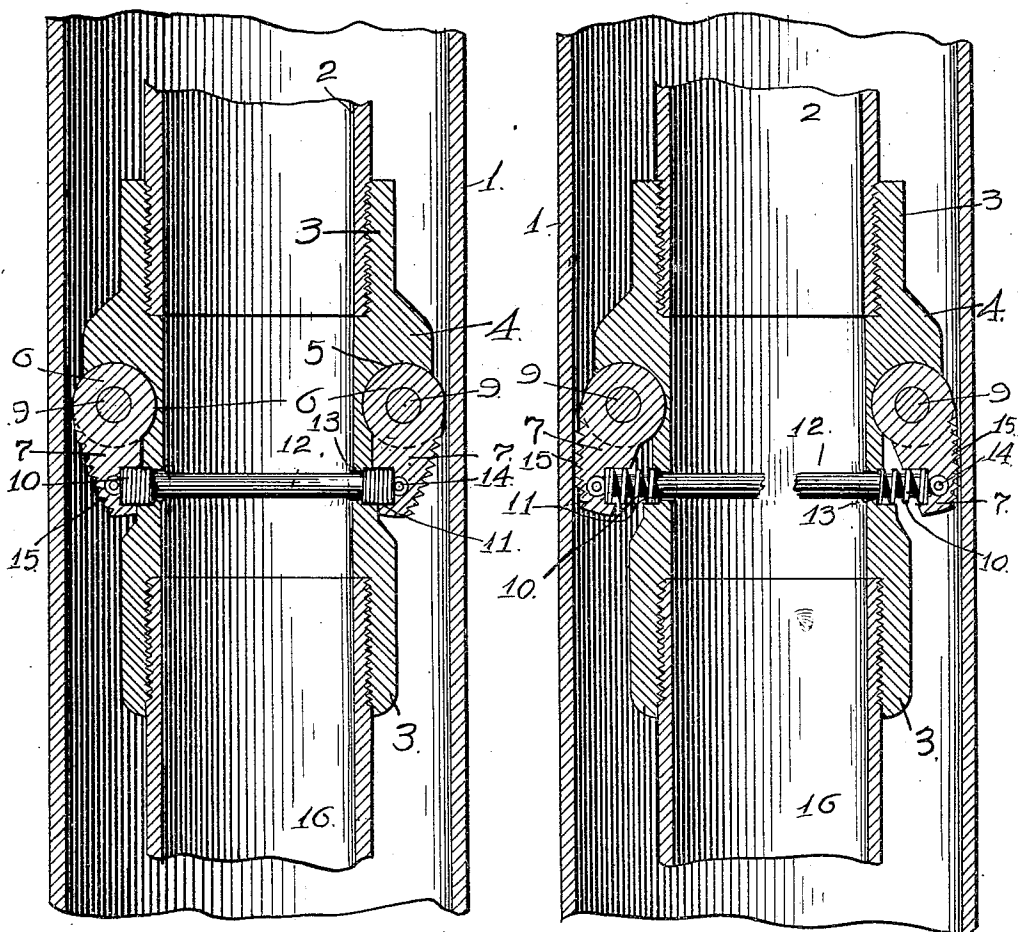
S. A. GUIBERSON, JR.
SAFETY APPLIANCE FOR OIL WELL TUBING.
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1,050,127.

Patented Jan. 14, 1913.

Fig. 1.

Fig. 2.



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UNITED STATES PATENT OFFICE.

SAMUEL A. GUIBERSON, JR., OF COALINGA, CALIFORNIA.

SAFETY APPLIANCE FOR OIL-WELL TUBING.

1,050,127.

Specification of Letters Patent.

Patented Jan. 14, 1913.

Application filed August 4, 1911. Serial No. 642,247.

To all whom it may concern:

Be it known that I, SAMUEL A. GUIBERSON, Jr., a citizen of the United States, residing at Coalinga, in the county of Fresno and State of California, have invented certain new and useful Improvements in Safety Appliances for Oil-Well Tubing, of which the following is a specification.

During the pumping of oil from wells, the tubing within the well casing usually terminates at a point some distance from the bottom of the well. During the pumping operation, the sand carried within the pumped oil acts against the inner wall surface of the tubing and the sucker-rod during its pumping stroke impinges against the said wall surface with the result that the casing being weakened by the cutting action of the sand and the frictional wear of the sucker-rod to which it is subjected, breaks and falls to the bottom of the well, and becoming bent, distorted and twisted within the well casing, cuts through the wall thereof to the destruction of the well casing and oftentimes proves ruinous to the well. This breaking and dropping of the said tubing not only occurs due to the reason given, but also is occasioned by the breaking of the tubing line of the elevators permitting the tubing supported thereby to drop, or by the sudden dropping of the sucker-rod within the tubing causing a breakage of the connecting couplings, permitting a fall of the tubing below such point of breakage, or the dropping may result by the pumping strain placed onto a defective joint-section of the tubing.

The object of the present invention is to hold the inner tubing locked within and to the well casing at a point below the pump-barrel, so that in case of the said tubing becoming unduly worn and weakened to the breaking point, for any reason whatever, the same cannot drop within the casing from its adjusted or locked position; although the lock device does not in any manner interfere with the free removal of the tubing from within the well casing, it does prevent the dropping in case the lifting means should become broken or detached from the said tubing during the withdrawal thereof.

To comprehend the invention reference should be had to the accompanying sheet of drawings, wherein—

Figure 1 is a vertical sectional view illus-

trating the locking means within the well casing and in a closed position. Fig. 2 is a similar view disclosing the locking means in locked engagement with the well casing. Fig. 3 is a detail view of one of the locking-jaws or dogs, and a portion of the ring to which it is hinged.

In the drawings, the numeral 1 is used to designate an ordinary well casing fitted within an oil well, and 2 the lower end portion of the pump barrel united in the usual manner to the tubing within the casing through which the sucker-rod works. The part 2 may constitute a nipple extension or a downward extension thereof, the lower end of which is screw-threaded to receive the screw-threaded end of a ring 3, of a diameter slightly less than the interior diameter of the well casing 1. The ring 3 is preferably formed on its outer face with the enlarged portions 4, each of which is provided with a bearing seat 5 for the reception of the head 6 of a swinging jaw or dog 7, which head 6 is slotted transversely to embrace or straddle an ear 8 outwardly projecting from the enlarged portion 4, and the jaw or dog is hinged thereto by means of a pin 9 passing through a central bore in the head 6 and ear 8. As thus mounted, each jaw or dog 7 is free for outward swinging movement on the securing means therefor being severed or broken. In the present case, the swinging jaws or dogs are forced outwardly by the pressure of the retained springs 10 acting thereagainst. Each spring rests at one end within a seat 11 provided in the outer face of the ring 3 for the reception thereof, its opposite end acting against the inner face of the swinging jaw or dog 7, the said jaws or dogs when drawn inwardly or in closed position holding the springs 10 in compression, it being understood that there is a spring for each of the lock-jaws or dogs 7. The jaws or dogs are held in closed position by means of the cross tie rod 12, which extends through bores 13 in the ring or collar 3, and are held to the respective jaws or dogs 7 by a securing pin 14. Preferably, the outer face of each jaw or dog is provided with transversely disposed teeth 15, which, when the jaws or dogs are thrown outwardly act against the inner wall surface of the casing 1 and prevent the downward slippage of the tubing on the weight of the pumped oil being placed thereon. While a

cam-shaped jaw or dog 7 is preferred, as illustrated in the drawing, still the same may be given any shape suitable for the work desired. An extension 16 for the carrying or supporting of an anchor for the tubing is illustrated in the drawing as screwed into the lower end of the ring 3, but this is not essential.

In applying the lock means to the well casing, the ring 3 is secured to the lower end of the pump barrel prior to its insertion within the casing, and the same gradually lowered within the casing as sections are added in the usual manner to the tubing. When the tubing has been lowered to the desired distance within the well casing, the same is held suspended therein temporarily and a suitable tool or weight lowered into the tubing with sufficient force to cause the same to strike the cross tie rod 12, which may be constructed of any suitable material, a sudden blow to cause the rupture or breakage thereof, when the pressure of the released compressed springs 10 forces outwardly the swinging cam jaws or dogs into engagement with the inner wall surface of the casing 1, which, on the supported tubing being released, holds the line of tubing securely locked against downward movement within the casing. The severing tool being removed, the sucker-rod carrying the usual valve for the pump barrel is inserted into the tubing held locked against downward movement within the well casing. With the tubing thus positioned and locked to the well casing the dropping thereof is provided against, thus overcoming the defect in connection with the present method of suspending the tubing in the well casing. While the casing is held absolutely locked against downward movement, the spring held jaws or dogs will give inwardly to release the tubing for the removal or withdrawal thereof from the well casing. While two lock jaws or pawls are illustrated for securing the tubing in locked position, it is obvious that any desired number of such jaws or pawls may be employed.

It will be understood that the part 2 constitutes the lower end or end extension of the tubing within which the sucker-rod works, the said rod and tubing being of the usual construction, no description or illustration thereof being required for an understanding of the present invention, which re-

lates solely to an automatic safety lock device carried by the tubing for preventing the dropping thereof to the bottom of the well in case of the same breaking for any reason whatever.

I am aware that the details of construction herein shown and described may be varied without creating a departure from the invention, and I do not wish to be understood as confining myself to the illustrated and described arrangement of parts.

Having thus described the invention what is claimed as new and desired to be protected by Letters Patent is—

A safety attachment for locking the lower end of a tubing within a well casing to prevent downward movement of the tubing therein, the same comprising a hollow cylindrical coupling provided at its upper and lower ends with suitable screw-threads, the upper end thereof adapted to be threaded onto the lower end of a well tubing and the lower end adapted to be threaded onto the upper end of a supporting anchor, pivotally mounted lock jaws arranged in seats provided on the exterior of said coupling, said jaws provided on their outer faces with transversely disposed teeth and also provided adjacent the lower end of their inner faces with a spring receiving recess, corresponding spring receiving recesses formed in the exterior of said coupling adjacent the lower end of said jaws, coiled compression springs interposed between said coupling and said pivotally mounted jaws, and seated in said recesses, said springs adapted to force said jaws into locked engagement with the well casing to prevent a downward movement of the tube therein, and a breakable tie rod controlling the release of said spring actuated jaws, said rod arranged transversely of said coupling, the opposite ends thereof projecting through openings provided within the recesses in the outer face of said coupling and through the coiled springs and mounted in said jaws within the recess formed within the inner face thereof.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL A. GUIBERSON, JR.

Witnesses:

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