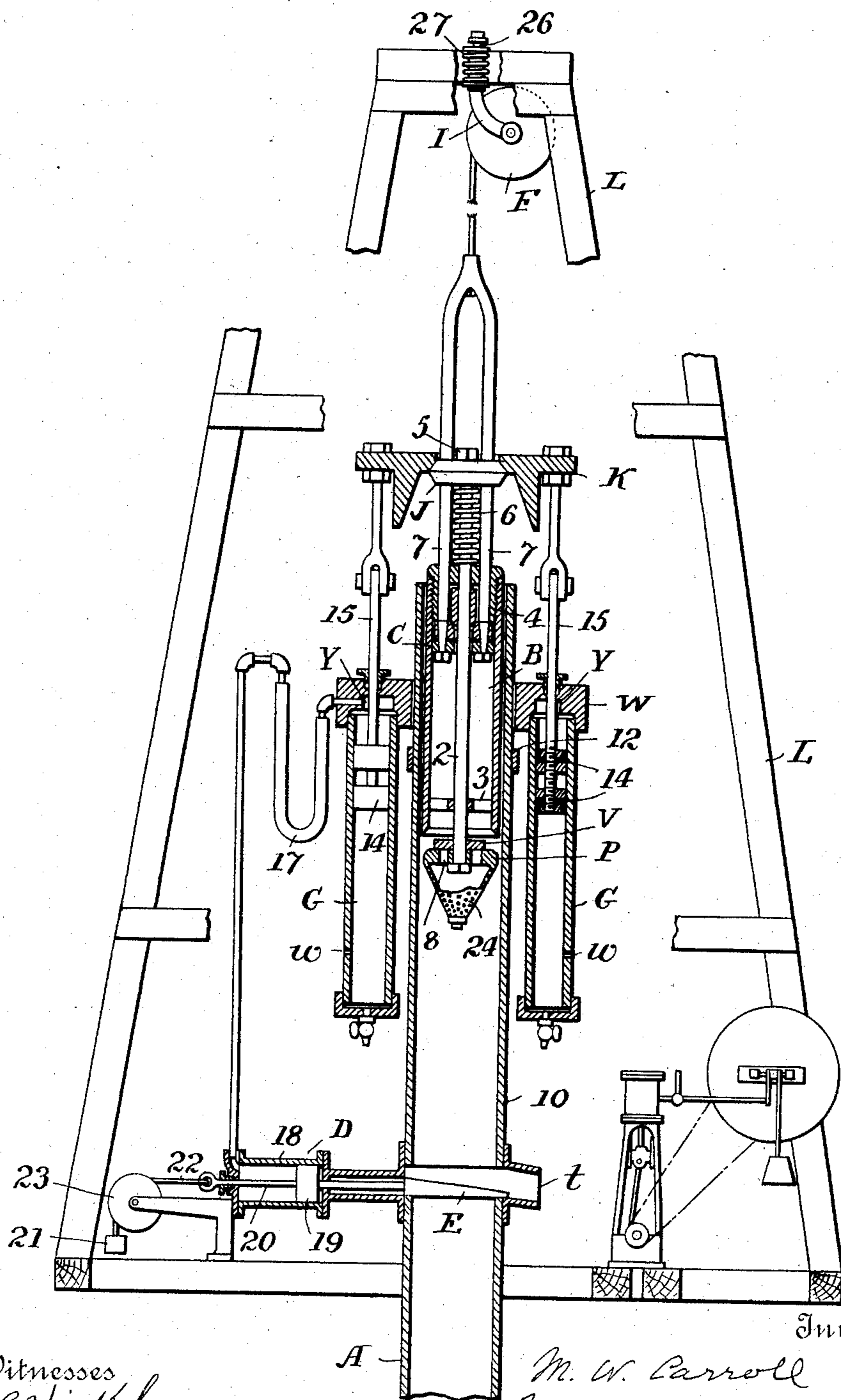


No. 864,229.

PATENTED AUG. 27, 1907.

M. W. CARROLL.
WELL BAILING APPARATUS.
APPLICATION FILED FEB. 4, 1907.



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MONROE W. CARROLL, OF BEAUMONT, TEXAS.

WELL-BAILING APPARATUS.

No. 864,229.

Specification of Letters Patent.

Patented Aug. 27, 1907.

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To all whom it may concern:

Be it known that I, MONROE W. CARROLL, a citizen of the United States, residing at Beaumont, in the county of Jefferson and State of Texas, have
5 invented certain new and useful Improvements in Well-Bailing Apparatus, of which the following is a specification.

My invention relates to well bailing apparatus and to that class in which a valve bucket is raised and
10 lowered within the tube of the well and discharges its contents above a gate in said tube, consisting of certain features of construction fully set forth hereinafter and illustrated in the accompanying drawing which shows the said apparatus in sectional elevation
15 in connection with the usual derrick and operating means.

The well tube A is provided with a gate E and with a port *t* above the gate, and with an extension
10 above the port. A bailing bucket B slides in the tube and is open at the bottom with a valve seat to which is adapted a valve P, and the stem or spindle
20 of said valve extends through a guiding spider 3 and through the cap 4 of the bucket, and has at the upper end a contact piece J which slides with the stem and is held against a stop or nut 5 by a spring 6.
25 The valve P has ports 8 closed by a valve V.

Within the bucket slides a piston C suitably packed and connected with two piston rods 7, 7, which constitute practically part of the flexible suspensory
30 of the bucket which is operated to carry the bucket up and down within the well tube. When the bucket is at the bottom of the well, the upward movement of the suspensory carries the piston upward in the bucket, the valves V opening to permit the liquid
35 contents of the well to pass into the bucket until the piston reaches its upper position, the spring 6 lifting the valve P and closing it, and the bucket being then carried upward until it is above the gate E which closes as hereinafter set forth. As the bucket
40 reaches its upper position the contact piece J is brought against a suitable stop device, as for instance, a cross head K, when the bucket will continue to rise, but the contact piece will be arrested together with the valve P so that the bucket is lifted above the valve
45 and the contents are discharged into the extension 10 of the well tube and pass out through the port *t*.

If the cross head was secured immovably in place the shock of the sudden arrest of the bucket might prove detrimental, and I, therefore, suitably weight
50 the cross head and permit it to have a limited movement upward and downward. Thus as shown a head or weight W is connected with the cross head and slides upon the extension 10, the downward movement being limited by a stop or shoulder 12, and I
55 further make use of this arrangement as a means of securing power to operate the gate E. To this end

I connect with the head W any suitable form of air compressor, the same being shown as consisting of two cylinders G, G, provided each with reverse pistons 14 secured to the rods 15 suspended from the
60 cross head K, and each cylinder communicates with a channel Y in the head W which through a conduit 17 supplies air to a motor D of any suitable construction connected to operate the gate E. As shown the motor has a cylinder 18 provided with a piston 19
65 connected with the gate, and having a rod 20 which extends through a packing box in the head of the cylinder and is connected to a weight 21 by a cord 22 passing over a suitable guide pulley 23. Each cylinder G has near the lower end a port *w* so that
70 when the head W makes contact with the stop 12 the pistons may descend in the cylinders, the air escaping until the pistons pass the port *w* when the air in the lower part of each cylinder will constitute a cushion to prevent too sudden a contact with the
75 cross head K, and the contact piece J with the head of the bucket.

To guard the valve P against contact with liners or strainers in the well and also avoid the shock which would result from bringing the flat bottom of the
80 valve against the surface of the liquid in the well I provide a guard in the shape of an inverted cone 24 at the bottom of the valve P, which cone is perforated to permit the liquid to pass readily to the ports 8, and further to act as a strainer to prevent the
85 said ports from being obstructed by the materials.

The flexible suspensory of the bucket passes over a suitable guide pulley F, and to permit the latter to swing to any desired position without effecting the vertical position of the suspensory coinciding
90 with the axis of the bucket I support the guide pulley F by a bracket I having a pivot 26 in line with the axis of the bucket and constructed to support the shaft of the pulley at one side so that the said line will be tangential to the periphery of the pulley,
95 the pivot 26 turning in a suitable bearing 27 at the head of the derrick L.

I do not claim herein any of the novel features illustrated and described in this application and also disclosed in my prior application, Serial No. 270,039.
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Without limiting myself to the construction shown, I claim:

1. The combination with a well tube and its gate and port *t* and with a bucket and means for moving it in said tube, of a motor connected to operate the gate, and means
105 whereby the motor is put in operation as the bucket rises above the gate.
2. The combination with a well tube, of a gate for closing the same transversely, an extension above the gate provided with a port, a bucket provided with valves movable within the tube, a motor having a piston connected
110 with the gate, and means for directing the motor fluid to the motor as the bucket is carried above the gate.
3. The combination with a well tube, of a gate for clos-

ing the same transversely, an extension above the gate provided with a port, a bucket provided with valves movable within the tube, a motor having a piston connected with the gate to move the gate in one direction, and a weight
5 for moving the gate in the other direction.

4. The combination with a well tube, of a gate for closing the same transversely, an extension above the gate provided with a port, a bucket provided with valves, movable within the tube, a motor having a piston connected with
10 the gate, and an air compressor for directing the motor fluid to the motor as the bucket is carried above the gate.

5. The combination with a well tube, of a gate for closing the same transversely, an extension above the gate provided with a port, a bucket provided with valves movable within the tube, a motor having a piston connected with
15 the gate, and air cylinders provided with pistons connected to move with the bucket as it passes above the gate, and means for conducting the air from said cylinders to the motor.

6. The combination of a well tube, its gate and port, of a bucket provided with a valve, means for raising and lowering the bucket including a suspensory connected thereto, a cross head adapted to move with said suspensory as the bucket passes above the gate, air compressing
20 means connected with said cross head, a motor connected with the gate, and a conduit between the air compressing means and the motor.

7. The combination of a well tube, gate and port, of a bucket provided with a valve and means for raising and lowering the same, a cross head and means for lifting it as the bucket passes above the gate, air cylinders with
30 pistons and piston rods, the latter connected with the cross head, a motor connected to operate the gate, and a conduit between the cylinders and the motor.

8. The combination with a well tube, gate, port, bucket and suspensory for the bucket, of a cross head through which the suspensory passes, a contact piece on the suspensory arranged to engage the cross head as the bucket
35 is carried above the gate, a motor for the gate, and means operated from the cross head for putting the motor in operation.

9. The combination with a well tube, gate, port, bucket and suspensory for the bucket, of a cross head through which the suspensory passes, a contact piece on the sus-

pensory arranged to engage the cross head as the bucket
45 is carried above the gate, a motor for the gate, and an air compressor connected with the motor, and adapted to be operated by the cross head.

10. In an apparatus of the character described, the combination with a bucket and cross head, of air cylinders, a
50 head W connected therewith having a channel communicating with both cylinders, and pistons in the cylinders having piston rods connected with the cross head.

11. In an apparatus of the character described, the combination with a bucket and cross head, of air cylinders, a
55 head W connected therewith having a channel communicating with both cylinders, pistons in the cylinders having piston rods connected with the cross head, and a well tube having an extension on which the head W slides.

12. In an apparatus of the character described, the combination with a bucket having a valve seat at the bottom of a valve adapted thereto, a valve spindle extending
60 downward as the bucket reaches its upper position, a perforated cone at the bottom of the valve, ports in the valve, and valve closing said ports under the pressure in the bucket.

13. In an apparatus of the character described, the combination with a tube, of a bucket, a piston, a suspensory connected with the piston, a weighted cross head, a contact piece sliding on the suspensory and supported between the bucket and contact piece, and an air compressor
70 carried by the cross head, a gate for closing the tube, and a motor for said gate, the latter supplied with air from said compressor.

14. In an apparatus of the character described, the combination with a bucket, of a valve connected to a sliding spindle, a suspensory carried by said spindle, a cross head and pistons connected therewith, and weighted cylinders receiving said pistons and each provided with port
80 above the lower ends of the cylinders, for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

MONROE W. CARROLL.

Witnesses:

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