No. 750,715. PATENTED JAN. 26, 1904.

W. W. SLEEMAN.

WORKING BARREL FOR WELLS.

APPLICATION FILED OCT. 14, 1903.

NO MODEL.

Fig. 1

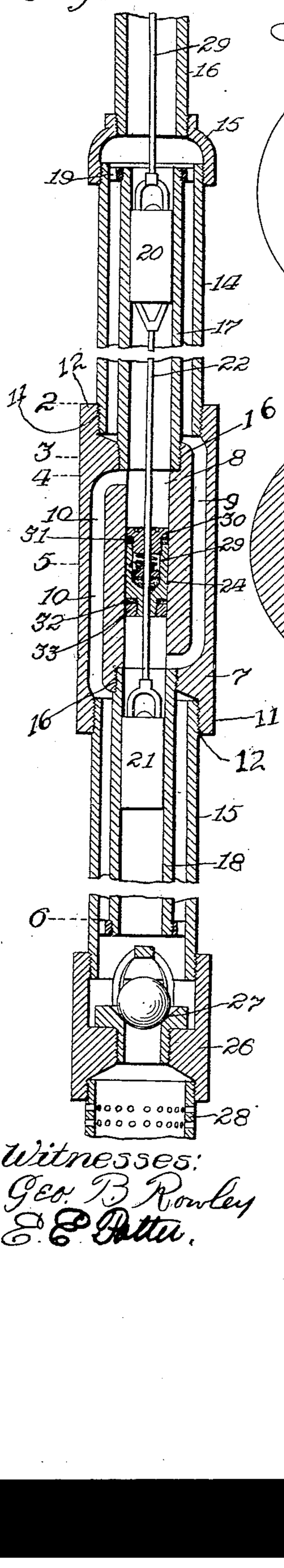


Fig. 2

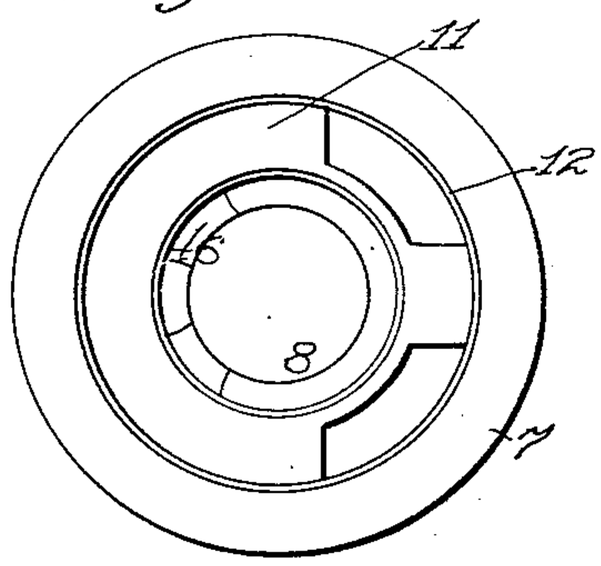


Fig. 3

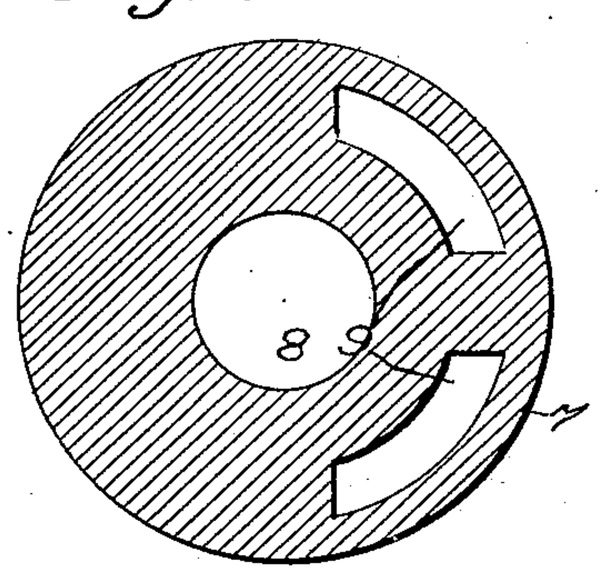


Fig. 4

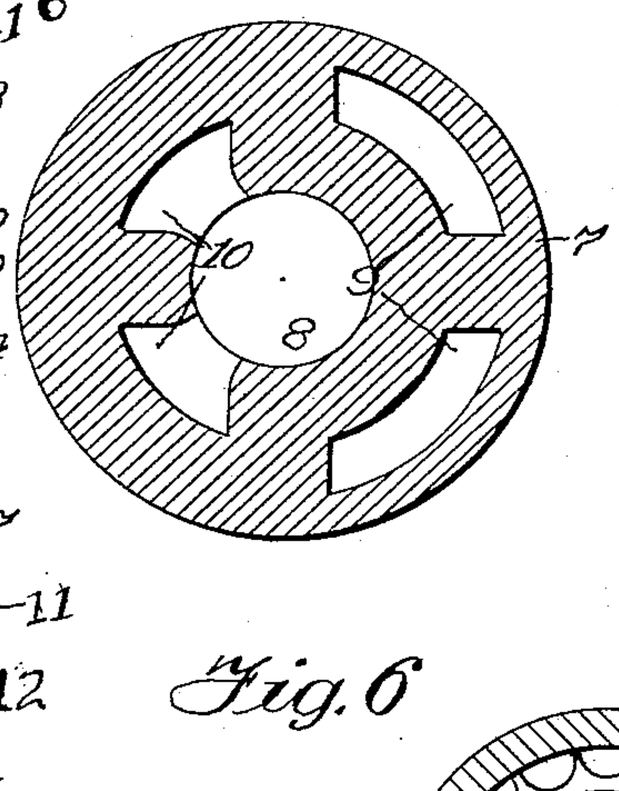


Fig. 5

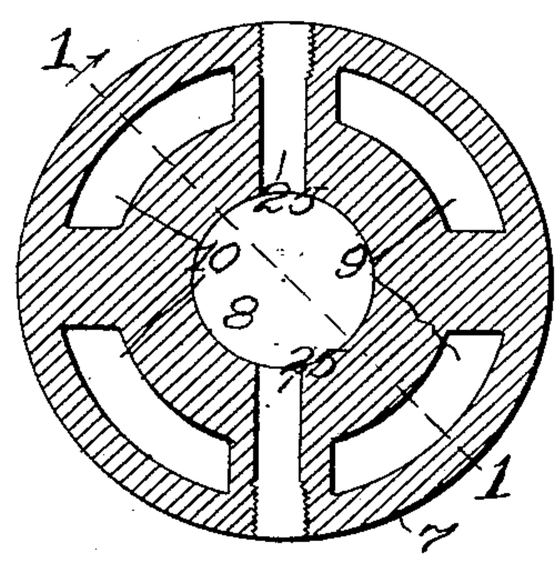
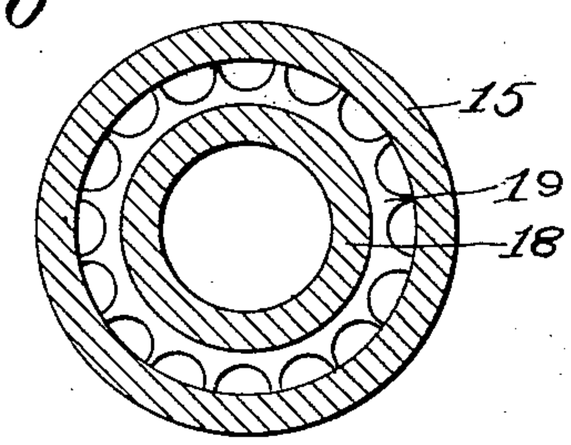


Fig. 6



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No. 750,715. Patented January 26, 1904.

UNITED STATES PATENT OFFICE.

WILLIAM W. SLEEMAN, OF OIL CITY, PENNSYLVANIA.

WORKING BARREL FOR WELLS.

SPECIFICATION forming part of Letters Patent No. 750,715, dated January 26, 1904.

Application filed October 14, 1903. Serial No. 177,010. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. SLEEMAN, a citizen of the United States of America, residing at Oil City, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Working Barrels for Wells, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in working barrels for wells, and relates more particularly to a barrel which is adapted to be used in oil-wells in connection with pumping-valves located adjacent to said valve and is an improvement over my previous invention, for which application for patent was filed July 14, 1902, Serial No. 115,450.

The object of this invention is to provide a working barrel wherein a much greater amount of oil or other material in the well may be pumped from said well in a given time.

A further object of this invention is to construct a barrel in such a manner that the same may be easily and cheaply made.

The invention consists in the novel construction, combination, and arrangement of parts to be hereinafter more fully described, and specifically pointed out in the claims.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate like parts throughout the several views, in which—

Figure 1 is a sectional elevation of my improved barrel, taken on the line 1 1 of Fig. 5, the parts immediately connected with the barrel and the operating-valves also being shown in connection with said barrel, the said parts being partly broken away. Fig. 2 is a plan view of the barrel, taken on the line 2 of Fig. 1. Fig. 3 is a sectional plan taken on line 3 of Fig. 1. Fig. 4 is a sectional plan taken on line 4 of Fig. 1. Fig. 5 is a sectional plan view taken on line 5 of Fig. 1. Fig. 6 is a sectional plan taken on line 6 of Fig. 1

Referring to the drawings, the reference-numeral 7 indicates the barrel, formed concentrically in which is a cylinder 8, and also formed in the said barrel are passages 9 9 and 10 10, the ends of the barrel having enlarged cut-away portions 11, the interior of which is screw-threaded, as at 12, and threadably secured therein are pipes 14 15. The ends of the cylinder 8 are also screw-threaded, as at 16, and threadably connected therewith are the cylinder-pipes 17 18. The outer ends of these pipes 17 18 are maintained in the relative position to the pipes 14 15 by the spacing-rings 19, which are connected with the pipes 17 18. Adapted to operate in the cylinder-pipes 17 18 are the usual pistons 20 21, which are suitably connected by a rod 22, which intermediate its length passes through the stuffing-box 24, located in cylinder 8. The passages 10 in the cylinder 7 are so formed that their lower ends connect with the space between the pipe 15 and cylinder-pipe 18, the upper end of said passages connecting with the cylinder 8 at its upper end. The passages 9 are so formed that their lower ends connect with the lower end of the cylinder 8, their upper ends connecting with the space formed between the pipe 14 and the cylinder-pipe 17. The ports 25 are formed in the barrel 7 intermediate its length, the said ports being in the ribs, which are formed between the passages 9 10 on either side, the said ports 25 being screw-threaded in order that the same may be plugged, if desired, and the stuffing-box 24 is of sufficient length whereby these ports 25 will normally be covered when the pistons 20 21 are working, and should the said stuffing-box 24 be lowered or elevated further by actuating the pistons than would be the case in actual pumping the said ports 25 will be uncovered, whereby the tubing may be drained. Connected to the lower end of the pipe 15 is a coupling 26, the interior of which has the valve 27 connected thereto and to the lower end of which a strainer 28 is connected in the usual manner, and to the upper end of pipe 14 a reducer 15 is secured, said reducer having a riser 16 connected to its upper end. The piston-operating rod 29 operates in this riser 16 and is connected to the piston 20 in the usual manner. The construction of the stuffing-box 24 is as follows: In the main portion 29 of the said box an enlarged aperture is formed in which suitable

packing material may be placed, said material being held in the compressed state by a follower and spring, said spring being forced against the follower by the cap 30, which is threadably connected with the interior of part 29, and between the cap 30 and part 29 is a packing-ring 31, of any suitable material. The packing-ring 32 is provided at the lower end of part 29 and is held thereon by cap 33, which is screwed onto the threaded projection of part 29. The rod 22, passing through the stuffing-box, as clearly shown in Fig. 1, may work freely therein, and at the same time the stuffing-box forms a tight joint between the cylinders in which the pistons are operated.

The operation of my device is as follows: The rod 29 being actuated in the usual manner, the pistons 20 21 will be lowered within the cylinder-pipes 17 18, and upon elevating the same the oil or other liquid within the well will be drawn from the same by suction, the piston 21 in the cylinder-pipe 18 acting almost directly upon the liquid, while the piston 20 in the cylinder-pipes 17 will draw the liquid through the valve 27 to the space formed between pipe 15 and cylinder-pipe 18 through the passage 10 and into the cylinder 8 and the interior of the cylinder-pipe 17. Now upon the lowering of these pistons the liquid which has been drawn into the ports, as just described, will pass through said pistons, whereby the liquid above the piston 21 will be within the lower portion of the cylinder 8 and interior of the cylinder-pipe 18, and the liquid above the piston 20 will be on the interior of the cylinder-pipe 17 and riser 16 above the same. Upon elevating the piston the liquid above the lower piston 21 will be forced through the passages 9, thence through space formed between the pipe 14 and cylinder 17 and into the riser 16, while the liquid above the piston 20 will be forced upwardly into the riser, this moving of the piston upwardly also drawing in the new supply of liquid, as described.

While I have shown and described my invention in detail, it will be obvious that various slight changes may be made in the location, arrangement, and construction of the parts which coact therewith and also in the details of arrangement of the barrel without departing from the general spirit of my invention.

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

1. In a device of the character described, the combination of a casing, a plurality of passages, formed in said casing, a cylinder formed in said casing, part of said passages connecting with said cylinder at its lower end, the remainder of said passages connecting with the cylinder at its upper end, cylinders connected with the said cylinders at either end thereof, pipes connected with said casing at either end thereof outside of the last-named cylinders, the part of said passages formed in said casing which connect with the lower end of the cylinder formed in said casing connecting with the annular space formed between the cylinder and the pipe at the opposite end of the casing, the remaining passages which connect to the upper end of the cylinder within the casing connecting with the annular space formed between the cylinder and the pipe at the lower end of the casing, and a piston in each cylinder which is connected with the cylinder formed within the casing, substantially as described.

2. In a device of the character described, the combination of a casing, a cylinder formed in said casing, pipes connected with said cylinders at either end thereof forming pumping-cylinders, pistons operatively placed within said pumping-cylinders, pipes connected with each end of said casing and surrounding said pumping-cylinders, a plurality of vertical passages formed in said casing a portion of which connects the lower end of the cylinder formed within said casing with the annular space formed between the upper pumping-cylinder and the pipe surrounding the same, the remaining vertical passages connecting the annular space formed between the lower pumping-cylinder and the pipe surrounding the same with the upper end of the cylinder formed within the casing, outlet-ports formed in said casing, and means whereby the said outlet-ports may be controlled, substantially as described.

3. In a device of the character described, the combination of a casing, said casing being formed as a cylinder, pipes connected with said cylinder at each end thereof, said pipes forming pumping-cylinders, pipes connected to said casing and surrounding said pumping-cylinder pipes, pistons operatively placed within said pumping-cylinders, passages formed in said casing which connect the lower end of the cylinder formed in said casing with the annular opening formed between the upper pumping-cylinder and the pipe therearound, passages connecting the upper end of said cylinder formed within the casing with the annular opening formed between the lower pumping-cylinder and pipe therearound, ports connecting the cylinder formed in the casing with the exterior of the same, a stuffing-box which normally closes said ports, and connections between said pumping-valves and stuffing-box whereby the said stuffing-box may be actuated, substantially as described.

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

WILLIAM W. SLEEMAN.

Witnesses:
M. A. SPOOR,
WM. ULANDER.