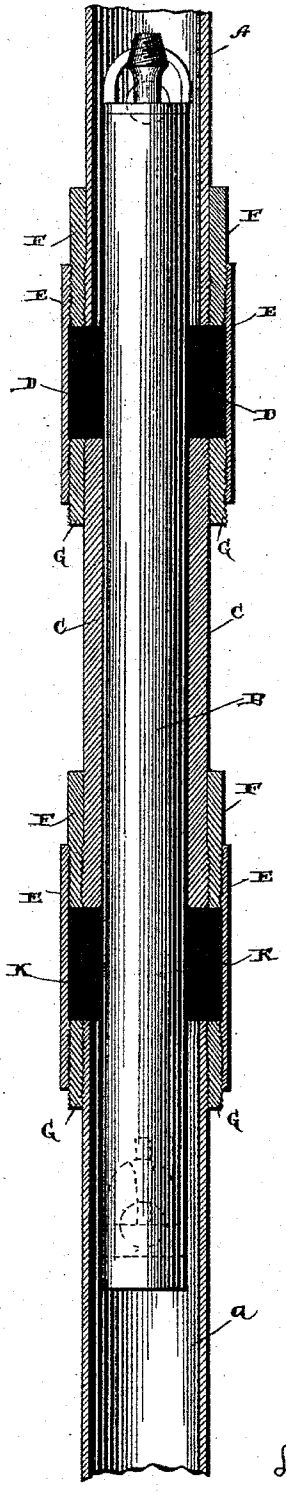
(No Model.)

L. M. FORD.

DEEP WELL PUMP.

No. 490,142. Patented Jan. 17, 1893.



Witnesses
Geo. E. Frech.
Wm. F. Fitzgerald.

Inventor
Lauren M. Ford
by Lehmann Pattison & Nesbit
Attorneys

UNITED STATES PATENT OFFICE.

LAUREN M. FORD, OF MILL VILLAGE, PENNSYLVANIA.

DEEP-WELL PUMP.

SPECIFICATION forming part of Letters Patent No. 490,142, dated January 17, 1893.

Application filed March 22, 1892. Serial No. 425,923. (No model.)

To all whom it may concern:

Be it known that I, LAUREN M. FORD, of Mill Village, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Deep-Well Pumps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in deep well pumps; and it consists in the construction and arrangement of parts which will be fully described hereinafter and particularly pointed out in the claims.

The object of my invention is to connect the upper and lower ends of the guiding sleeve of a deep well pump to the well tubing, by means of chambers or cylinders, which form chambers for the reception of an elastic or other suitable packing.

The accompanying drawing is a vertical section of a well tube showing my invention applied thereto complete.

A indicates an ordinary well tube, the lower end of the upper portion of which is screw threaded to receive a bushing F, which is screw threaded internally and externally as shown. Placed around this bushing and screwed thereto is a cylinder E. The lower end of this cylinder E is screw threaded internally and receives the upper externally screw threaded portion of a bushing G which is internally screw threaded and receives the upper end of the guiding sleeve C which is screw threaded externally to receive it. In this manner the upper end of the guiding sleeve C is connected with the lower end of the tube A, and which forms a packing chamber to receive an elastic packing D. The lower end of the guiding sleeve C is connected in a like manner to the upper end of the tube *a*, and forms a like chamber for the reception of a packing K.

A plunger B of the ordinary construction is placed within the guiding sleeve C, which has a smaller internal diameter than the tubing and through the packing rings D and K as illustrated. The lower packing K keeps the fine sand from getting between the guiding sleeve C and the plunger, and the upper packing D owing to its own elasticity forms a tight joint for the upper end of the plunger, as well as by the pressure thereon caused by the weight of the fluid in the tubing.

By means of the above construction, it will be seen that the working barrel is connected with the tubing by means of cylinders which form chambers for cylindrical packings, through which the plunger passes, the guiding sleeve serving to guide the plunger in its vertical movements, and keep it plumb. This produces a cheap and effective construction for connecting the guiding sleeve, as well as forming the packing chambers as before described. The packing rings can be forced or compressed against the working barrel to any desired degree by drawing the ends of the working barrel and the tubing together as will be understood. In this manner any wear of the packing from use, can be readily and easily taken up.

I here show bushings for enlarging the lower end of the tube A and the upper end of the tube *a*, to receive the cylinders E, yet it will be understood that the tubes themselves may be enlarged to form off-sets to receive the cylinders, and thus form chambers, without departing from the spirit of my invention. So also the ends of the guiding sleeve may be enlarged and screw threaded for the same purpose.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. A deep well pump comprising a guiding sleeve, a cylinder inclosing each end of the said sleeve and projecting beyond it, the opposite ends of the cylinders inclosing the adjacent ends of the tubing, whereby chambers are formed between the ends of the guiding sleeve and tubing, packings placed in the said chambers, and the interior diameter of the guiding sleeve being less than that of the tubing, a plunger rod passing through the guiding sleeve and guided thereby, substantially as specified.

2. A deep well pump comprising a guiding

sleeve having externally screw threaded ends, upper and lower tubings having externally adjacent screw threaded ends, externally and internally screw threaded bushings applied to the said ends of the guiding sleeve and tubing, externally screw threaded cylinders having their ends inclose the ends of the said bushings, packing placed within the said cylinders between the bushings and the adjacent ends of the tubing and guiding sleeve, and a plunger which passes through the packing and guiding sleeve, substantially as described.

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

LAUREN M. FORD.

Witnesses:
C. E. JUDD,
JOSEPH LESCURE.