

No. 814,312.

PATENTED MAR. 6, 1906.

E. M. NEVINS.
PUMP.

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FIG. 1.

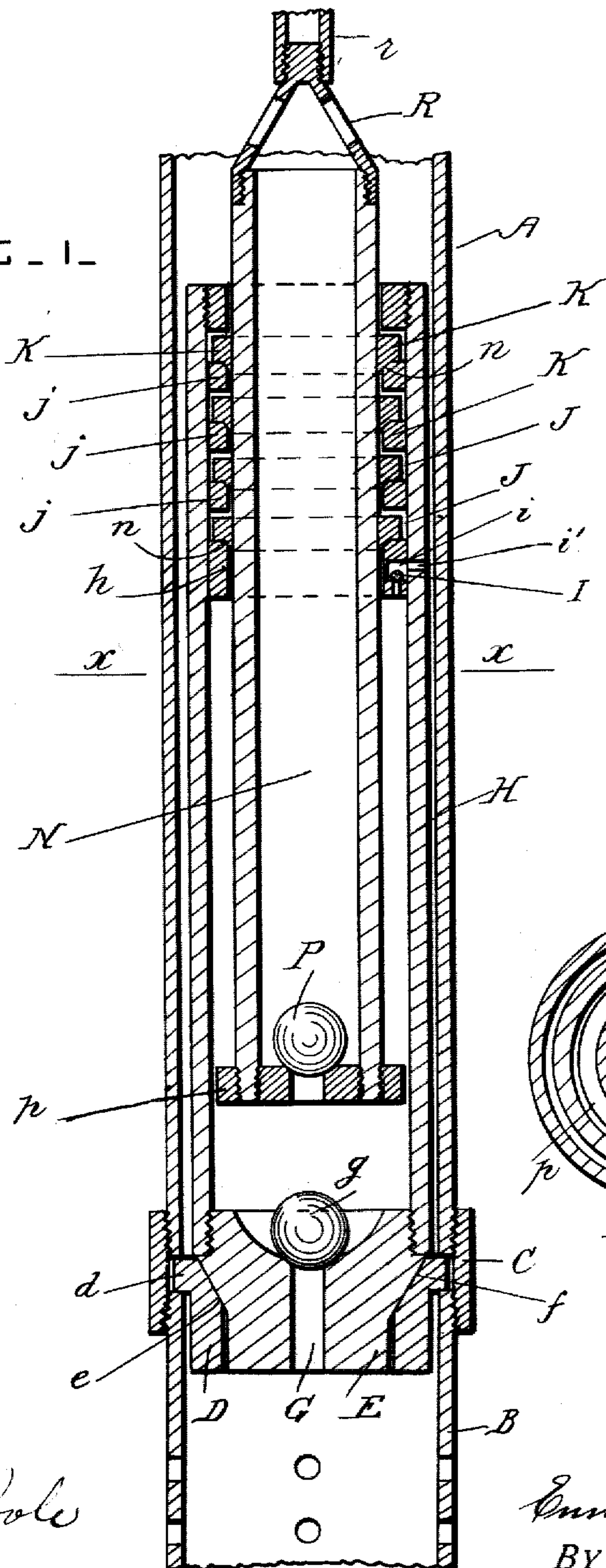
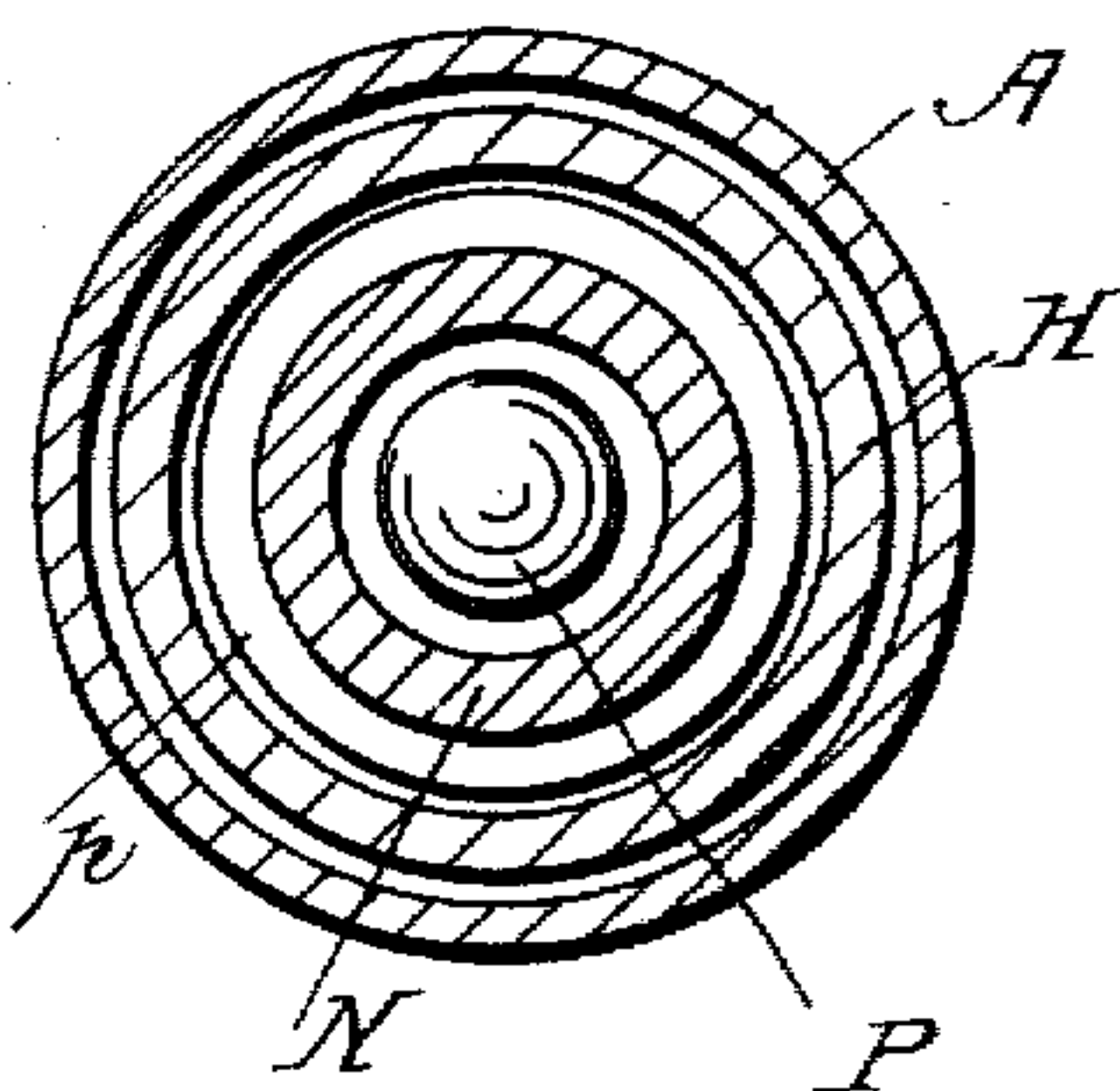


FIG. 2.



WITNESSES:

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PUMP.

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To all whom it may concern:

Be it known that I, ENNIS M. NEVINS, a citizen of the United States, residing at Beaumont, in the county of Jefferson and State of Texas, have invented certain new and useful Improvements in 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 appertains to make and use the same.

This invention relates to pumps for oil or water; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a vertical section through the pump. Fig. 2 is a cross-section through the pump, taken on the line $x x$ in Fig. 1.

A is a section of the tubing of the well, and B is a lower section of the tubing, which is perforated and which is connected to the section A by a tube-coupling collar C.

D is a cylindrical bush provided with a flange d , which is secured between the tube-sections A and B. This bush is provided with a conical seat e at its upper part.

E is a base provided with a seat f , which comes down onto the seat e , so that the base is supported by the bush D. This base has a passage G, and g is the suction-valve, which opens upward and which normally closes the said passage G.

H is a pump-barrel, the lower end portion of which is secured to the base E. This pump-barrel has an inwardly-projecting ring h at its upper part.

I is a relief-valve for air, which is arranged in a small chamber i in the ring h and provided with passages, so that when air accumulates under pressure in the pump-barrel the valve I will rise and let the air pass from the pump-barrel into the space between it and the tubing. The air-passage i' is in the wall of the pump-barrel, and as no projection is formed outside the barrel it can be arranged close to the casing. The valve I is light, and the air-passages are small, but they are sufficient to let out a small stream of air and gas at all times, and they do not let out any material quantity of oil when the pump is at work.

J represents annular chambers formed by inwardly-projecting rings j , which are secured to or formed integral with the upper end portion of the pump-barrel.

K represents packing-rings of any approved construction, which fit closely around the pump-plunger N in the chambers J. These packing-rings are free to slide in the said chambers to a limited extent, and they have conical seats n at their lower edges, which bear on the beveled edges of the rings j . These rings rise when there is too much pressure in the pump-barrel during the descent of the plunger. These rings K and the small ball-valve I can be used on the same pump, if desired. The ball-valve I is light, and it has very small passages; but it is sufficient to allow all air and gas given off by the oil in the well to pass upward through the pump-barrel while the pump is not at work. The rings K only come into action as air-relief valves during the descent of the plunger and when the pressure in the barrel is excessive, as the said rings are comparatively heavy and considerable pressure is required to force them upward from their seats. The escape-passage of the valve I is too small to afford any effective relief from excessive pressure during the descent of the plunger, and the rings K are too hard to raise to let out any gas while the pump is not at work.

The pump-plunger N has an outwardly-projecting ring p screwed on its lower end portion in the path of and under the ring h on the pump-barrel.

P is the delivery-valve, which is of any approved construction and which is carried by the pump-plunger.

R is a cage secured to the upper end portion of the pump-plunger, and r is a tubular plunger or pump-rod which is screwed to the said cage.

The whole pump, including the suction-valve and its seat, can be removed by means of the pump-rod whenever desired. The tubing is not disturbed when the pump is removed, and the perforated section of the tubing can be cleaned out with great facility.

What I claim is—

1. In a pump, the combination, with a pump-barrel provided with an air-outlet passage in its side wall, of a ring secured inside the upper part of the said barrel and provided with a valve-chamber which communicates with the said outlet-passage, said ring having also a valve-seat and an air-passage, an air-relief valve normally resting on the said seat, and a pump-plunger slidable in the said barrel.

2. In a pump, the combination, with a pump-barrel provided with a suction-valve at its lower part and a series of annular chambers and rings at its upper part, of a slidable
5 pump-plunger provided with a delivery-valve, and packing-rings arranged in the said chambers and fitting around the said plunger and provided with seats at their lower edges which rest on the said rings, said packing-

rings being free to rise when the pressure in the pump-barrel is excessive.

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

ENNIS M. NEVINS.

Witnesses:

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