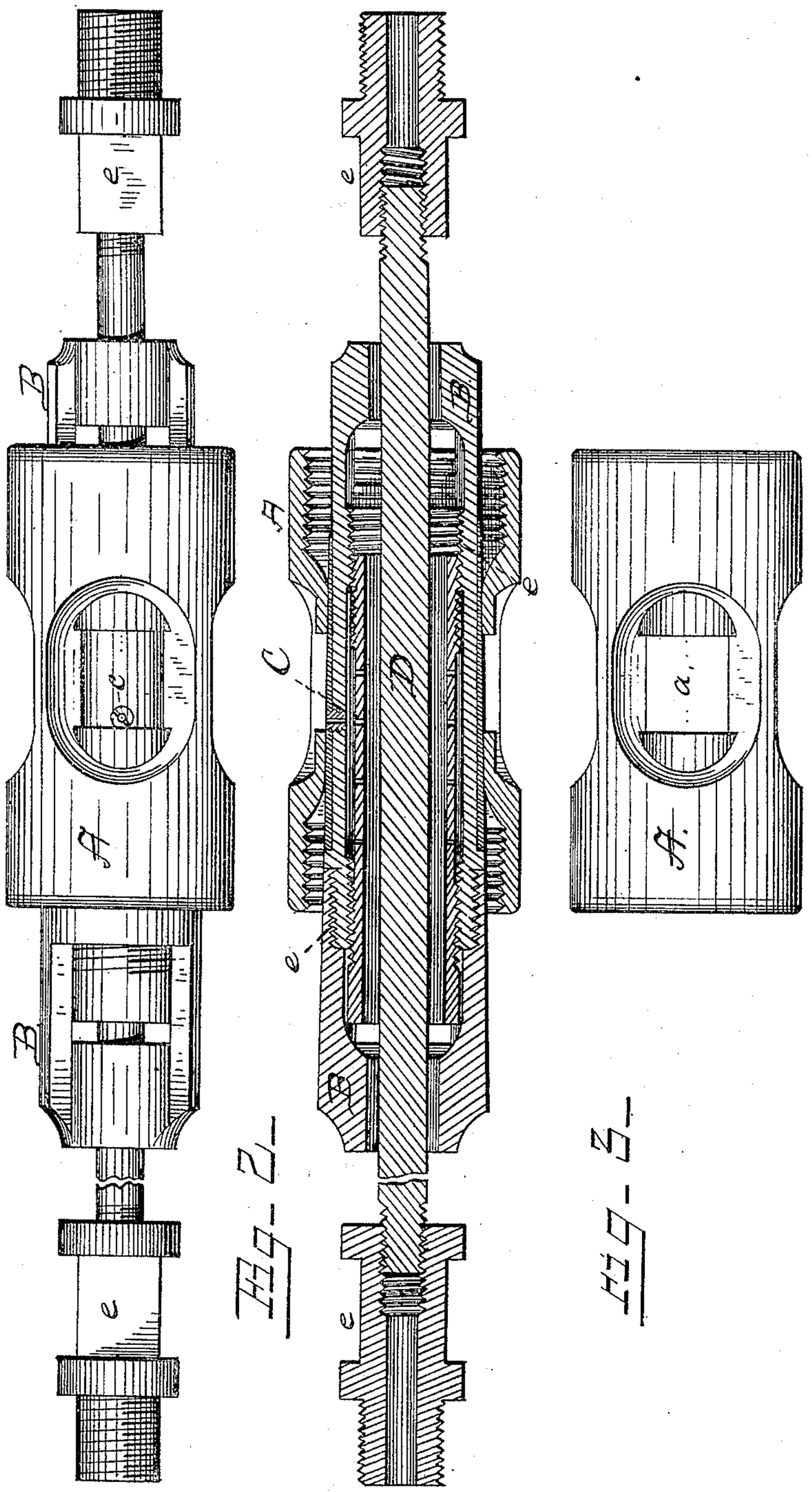
(No Model.)

2 Sheets—Sheet 1.

J. M. REARDON.

SIDE LEAK OR SAND WALL WASHER FOR OIL WELLS.

No. 277,607. Patented May 15, 1883.



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(No Model.) 2 Sheets—Sheet 2.

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Fig-4

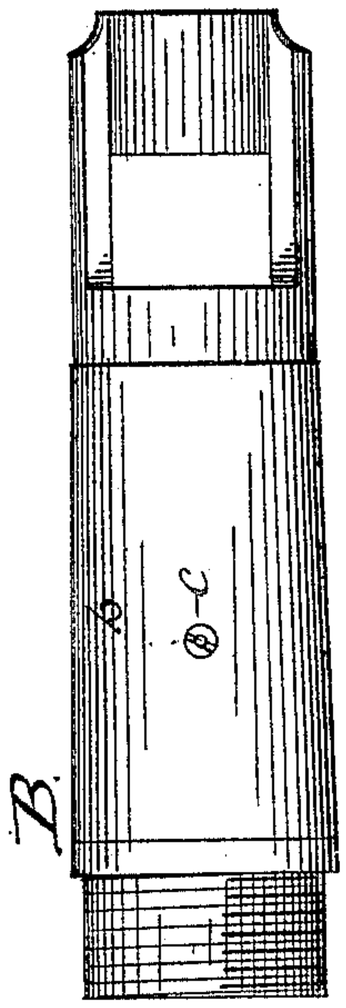
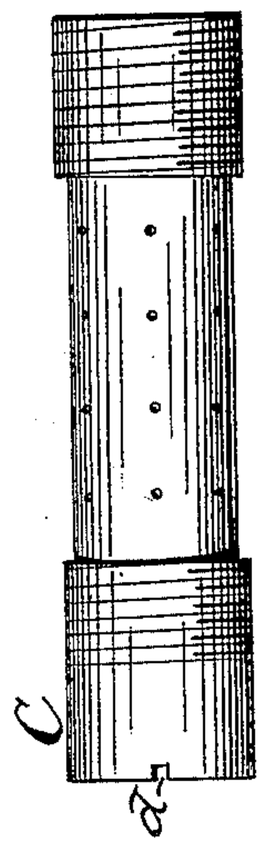


Fig-5



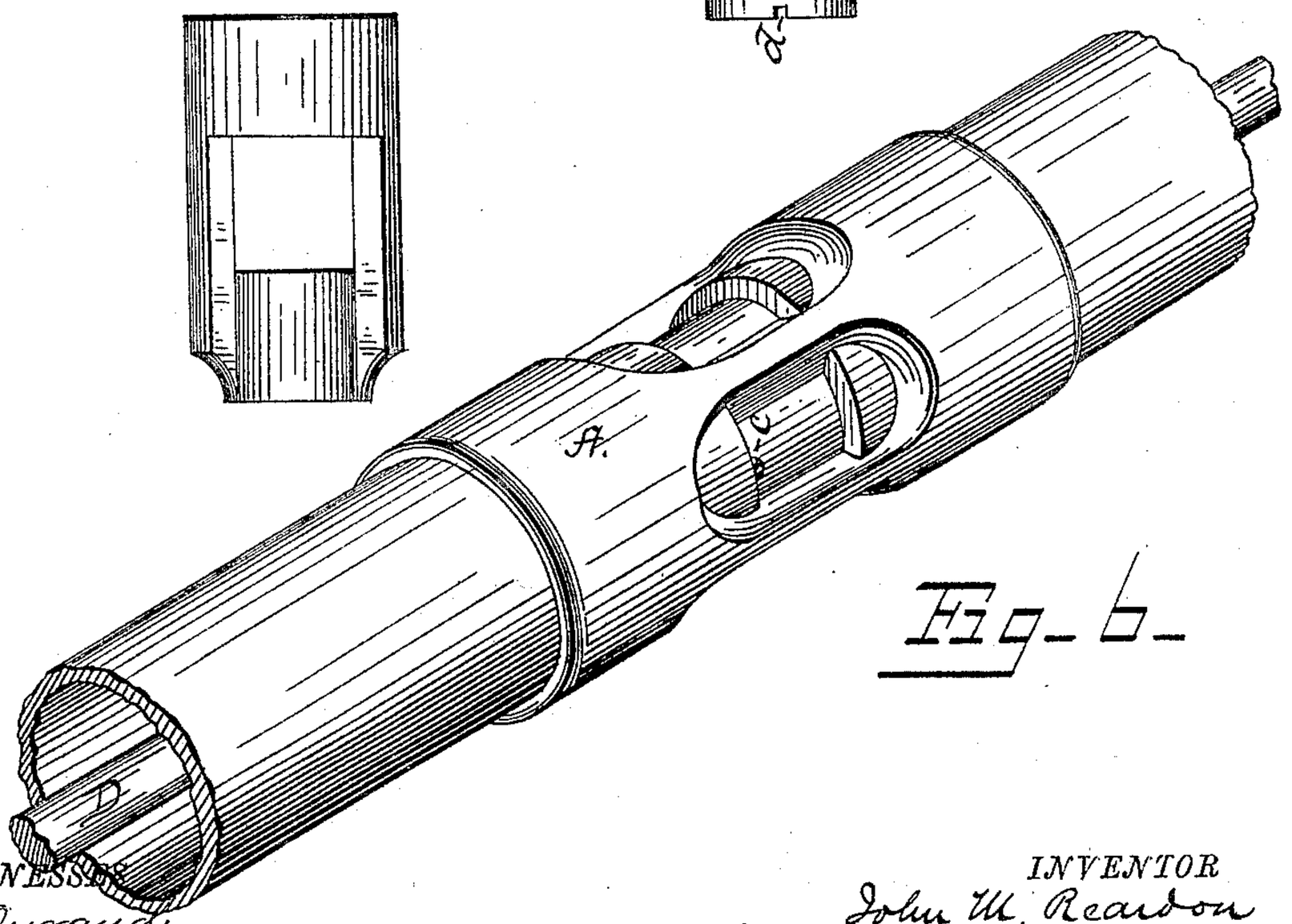


Fig-6

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UNITED STATES PATENT OFFICE.

JOHN M. REARDON, OF SHIPPENSVILLE, PENNSYLVANIA.

SIDE-LEAK OR SAND-WALL WASHER FOR OIL-WELLS.

SPECIFICATION forming part of Letters Patent No. 277,607, dated May 15, 1883.

Application filed January 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. REARDON, a citizen of the United States of America, residing at Shippensville, in the county of Clarion and State of Pennsylvania, have invented certain new and useful Improvements in Side-Leaks or Sand-Wall Washers for Oil-Wells; 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 has relation to means for washing the oil-producing rock in oil-wells and preventing the collection of paraffine on the walls of the well.

The object of my invention is to provide a leak or sand-wall washer for the purpose mentioned which can be drawn out of the well by the sucker-rod without pulling the tubing up or doing any injury to it.

In the ordinary means of a sand-leak in the wall of the tubing for washing the rock, if the apparatus becomes clogged by sediment or detritus, it is sometimes necessary to pull up the tubing to remove the difficulty; and to overcome this expensive and hazardous labor my invention is more specially designed.

My invention consists in a leak-valve adapted to fit within the bore of the tubular seat, provided with suitable packing, and formed so as to be separable and chambered to receive a strainer, as hereinafter set forth.

My invention further consists in a tubular seat provided with screw-threaded ends to receive and couple the ends of the tubing, and formed with one or more ports intermediately arranged, in combination with a leak-valve adapted to fit within the bore of the tubular seat, provided with suitable packing, and formed so as to be separable and chambered to receive a strainer.

My invention further consists in a tubular seat provided with screw-threaded ends to receive and couple the tubing, and formed with one or more intermediate side ports, a leak-valve adapted to fit within the bore of the tubular seat, provided with suitable packing, in combination with a strainer.

My invention further consists in the novel combination and arrangement of parts, as will be more fully hereinafter described, and specifically claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side view of the seat with the leak-valve and sucker-rod inserted. Fig. 2 is a sectional view of the same, and showing the strainer with internal construction. Fig. 3 is a side view of the seat. Fig. 4 is a view of the leak-valve, the part being separated to receive the strainer. Fig. 5 a view of the strainer. Fig. 6 is a view of the seat with the well-tubing connected thereto.

A is the seat, (see Figs. 1 and 3,) which is tubular in construction, and reamed out slightly tapering, with the small end of the bore in the direction of the bottom of the well, the object of which is to afford a seat for the leak-valve, so as to prevent it from passing through beyond a given point. In the sides of the seat are formed one or more ports, *a*, arranged intermediately between the ends of the seat, and in the ends of the seat are screw-threads to receive the screws cut on the tubing and secure the same in the seat.

B is the leak-valve, formed in two parts, with open caged ends, and are connected and secured by the one screwing into the other. This leak-valve is shaped exteriorly to accurately fit the taper of the bore of the seat, and is preferably provided or formed with a soft-metal packing covering the part *b*, in order to insure a tight connection between it and the bore of the seat. In the body of this leak-valve, at a point therein which will come below the top of the ports in the seat, is formed the side-leak *c*, which is a screw-plug let in the leak-valve and perforated to admit of the flow through it. In both ends of the leak-valve, in the inside for a proper distance, are cut screw-threads *c*, and the body between the terminus of these is reamed out to a larger diameter than the diameter of the bore through the screw-threaded portions. This construction enlarges the space between the surface of the strainer and the wall of the leak-valve, and admits the body of the strainer to pass through the bore of the valve and engage with the screw-threads in the lower end.

C is the strainer, made of metal pipe, and provided with screw-threads on one end, and another screw-thread portion at near the other end so arranged as that they respectively en-

gage with the screw-threads cut in the bore of the leak-valve. The body intermediate between the screw-threaded portions is turned down of a smaller diameter, and this part is perforated with a series of small holes, the purposes of which are well understood. For convenience in placing and removing the strainer the upper end is recessed at *d*, to afford means for inserting a bit or lever.

D is the rod passed through the leak-valve and strainer and connecting with the sucker-rod. This section of the rod is provided with ordinary screw-couplings, *e*, made larger than the bore of the cages, in order that when drawn up against the lower cage a seat will be afforded for the device, and by which means the leak-valve with the strainer can be drawn up out of the tubing.

The adjustment, uses, and operation of my device are obvious to those acquainted with the art. In adjusting the device in the well within the working-barrel, or at any other point where necessary, sections of the tubing are secured in the seat, and the leak-valve with the strainer adjusted therein is passed over a section of the rod and let down until it finds its rest in the seat. The operation is that when the oil is pumped up it must pass through the strainer, as nothing can pass through the perforations of the strainer which would not readily pass through those of the leak-valve.

In case the leak or the strainer becomes clogged, the device is readily withdrawn and cleaned, and again returned for uses intended.

If two or more of these devices are used in the same well, it is seen that the lower one must be smaller in order that it may pass through the bore of the upper one.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A leak-valve provided with a side-leak, and adapted to fit within the bore of a tubular tapered seat, and formed in two parts, the inside being chambered and provided with screw-threads to receive and retain a strainer, substantially as described.

2. A leak-valve provided with a side-leak, and adapted to fit within the bore of a tubular tapered seat provided with a suitable packing, and formed in two parts, the inside being chambered and provided with screw-threads to receive and retain a strainer, substantially as described.

3. A tubular seat formed with one or more side ports and provided with screw-threaded ends, in combination with a leak-valve provided with a side-leak and adapted to fit within the tubular tapered seat, and formed of two parts, the inside being chambered and provided with screw-threads to receive and retain a strainer, substantially as described.

4. A tubular seat formed with one or more side ports and provided with screw-threaded ends, in combination with a leak-valve provided with a side-leak, and suitable packing adapted to fit within the tubular tapered seat, and formed of two parts, the inside being chambered and provided with screw-threads to receive and retain a strainer, substantially as described.

5. In combination with a tubular seat formed with one or more side ports and screw-threaded ends, and a leak-valve formed with a side-leak and adapted to fit within the tapered tubular seat, a strainer provided with screw-threaded ends and body of smaller diameter, substantially as described.

6. In combination with a leak-valve, a side-leak formed of a perforated plug, substantially as described.

7. In combination with the tubing of an oil-well, a tubular seat formed with side ports, a leak-valve provided with a side-leak and adapted to fit within the tapered bore of the tubular seat, and a strainer, substantially as described.

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

JOHN M. REARDON.

Witnesses:
L. RICHARDSON,
JOHN B. PATRICK.