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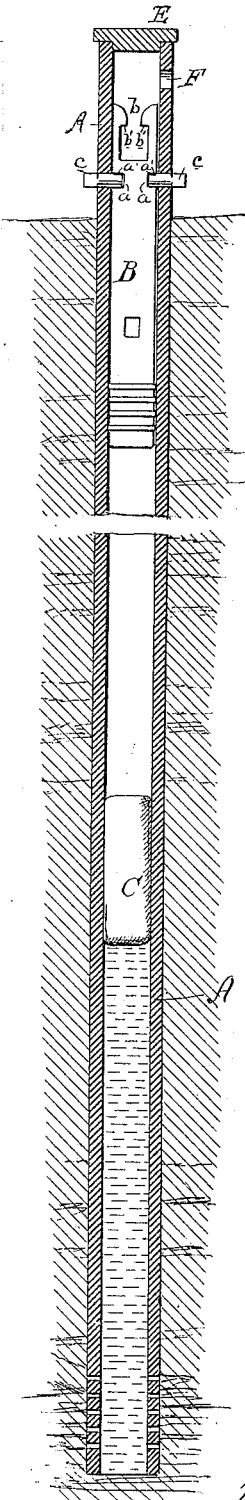
A. ALEXANDER. Ram for Opening Crevices in Oil-Wells.

No. 199,488.

Patented Jan. 22, 1878.

19,488. RAMS FOR OPENING CREVICES IN OIL-WELLS. Abram Alexander, Pittsburg, assignor of one-half his right to Samuel M. Boyd, same place, and Chas. B. Moore, St. Petersburg, Pa. Filed D. C. 10, 1877.

- 1. Claim.—1. The herein-described method of opening the crevices in oils by percussive blows *in vacuo* on water or other body of intermediate fluids, substantially as and for the purpose set forth.
- 2. The combination, with a well-tube, of a seed packing and weighted drop or ram, substantially as and for the purpose set forth.
- 3. The weighted drop or ram provided with the opening *a* and lip or lips substantially as and for the purpose specified.
- 4. The weighted drop or ram provided with the shoulders *a'*, in combination with the rods or bars *c*, substantially as described.
- 5. The weighted drop or ram having the rubber packing ring or rings, substantially as and for the purpose set forth.



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WITNESSES:

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UNITED STATES PATENT OFFICE.

ABRAM ALEXANDER, OF PITTSBURG, ASSIGNOR OF ONE-HALF HIS RIGHT TO SAMUEL M. BOYD, OF SAME PLACE, AND CHARLES R. MOORE, OF ST. PETERSBURG, PENNSYLVANIA.

IMPROVEMENT IN RAMS FOR OPENING CREVICES IN OIL-WELLS.

Specification forming part of Letters Patent No. **199,488**, dated January 22, 1878; application filed December 10, 1877.

To all whom it may concern:

Be it known that I, ABRAM ALEXANDER, of Pittsburg, county of Allegheny, and State of Pennsylvania, have invented certain new and useful Improvements in Rams for Opening Crevices in Oil-Wells, of which the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, making a part of this specification, in which the figure is a vertical section of an oil-well tube with my improvements attached.

This invention relates to improvements in the method of opening crevices in oil-wells; and the invention consists in the method and devices for carrying out the method, all as hereinafter fully described.

To enable others skilled in the art to make and use my invention, I will proceed to describe the exact manner in which I have carried it out.

In the drawing, A represents the tubing for an oil-well, perforated at its lower end, in the usual manner. B represents the ram, and C a bag filled with seed, forming a packing in the well.

The manner of carrying out my method is as follows: The bag with the seed is lowered in the well, and at any distance desired into the water contained in the oil-well. The seed in the bag then swells, forming a water-tight packing between the water above and that below the seed-bag. A pump is then applied to the oil-well, and the water and air above the seed-bag drawn out, thus creating a vacuum above the seed-bag, and through which space the ram is allowed to fall, striking the seed-bag first, thus preventing the water from escaping upward on account of the great pressure of the ram, and causing the water, under the heavy pressure applied to it, to be forced out through the openings in the well-tubing, thus opening the crevices in the well.

The following illustration will more clearly set forth my invention: Suppose I want the ram to fall eight hundred feet before striking the water. The well is one thousand feet deep, and I only want two hundred feet of water in the oil-well, but said well contains three

hundred feet of water. I let the seed-bag down into the well one hundred feet below the surface of the water. The seed in the bag then swell, forming a water-tight packing between the water above and that below the seed-bag. A pump is then applied to the oil-well for removing the water and air above the seed-bag, and creating a vacuum between the ram and the seed-bag, and through which space the ram falls; and the ram, falling the eight hundred feet, is intended to have a pressure of about seventy-seven thousand pounds to the inch, and it is this pressure upon the water below the seed-bag that causes said water to open the crevices in the well.

The ram is intended to weigh one thousand two hundred pounds, and should be about thirty-seven feet long and three and one-half inches in diameter.

The lower end of the ram is provided with gum rings, that are forced out against the sides of the tubing or mill, forming a packing to keep the water from escaping upward. The ram is provided at its upper end with an opening, *b*, and two lips, *b' b'*, by which a grappling-hook is adapted to be let down into the oil-well and connected with said ram for drawing it out of the well.

E represents a removable cap at the top of the well, when it is desired to insert the grappling-hook. F represents the nozzle through which the water and air are drawn out of the well. The ram is also provided with the slots *a a*, forming shoulders *a' a'*, which rest on the rods or bars *c c*, for holding the ram in position in the upper part of the tubing.

I do not desire to limit my invention to oil-wells, as it may be applied to other wells, and water placed therein to the required depth, and the seed-bag just forced below the surface of the water enough to get well soaked, and therefore swell, after which the water and air above the seed-bag are pumped out, thus producing a vacuum, through which the ram is allowed to fall.

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

1. The herein-described method of opening

the crevices in oil-wells by percussive blows *in vacuo* on water or other body of intermediate liquids, substantially as and for the purpose set forth.

2. The combination, with a well-tube, of a seed packing and weighted drop or ram, substantially as and for the purpose set forth.

3. The weighted drop or ram provided with the opening *a* and lip or lips *b*, substantially as and for the purpose specified.

4. The weighted drop or ram provided with the shoulders *a'*, in combination with the rods or bars *c c*, substantially as described.

5. The weighted drop or ram having the rubber packing ring or rings, substantially as and for the purpose set forth.

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Witnesses:

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