

J. R. Cross,

Well Packing.

N^o 50,910.

Patented Nov. 14, 1865.

Fig: 2.

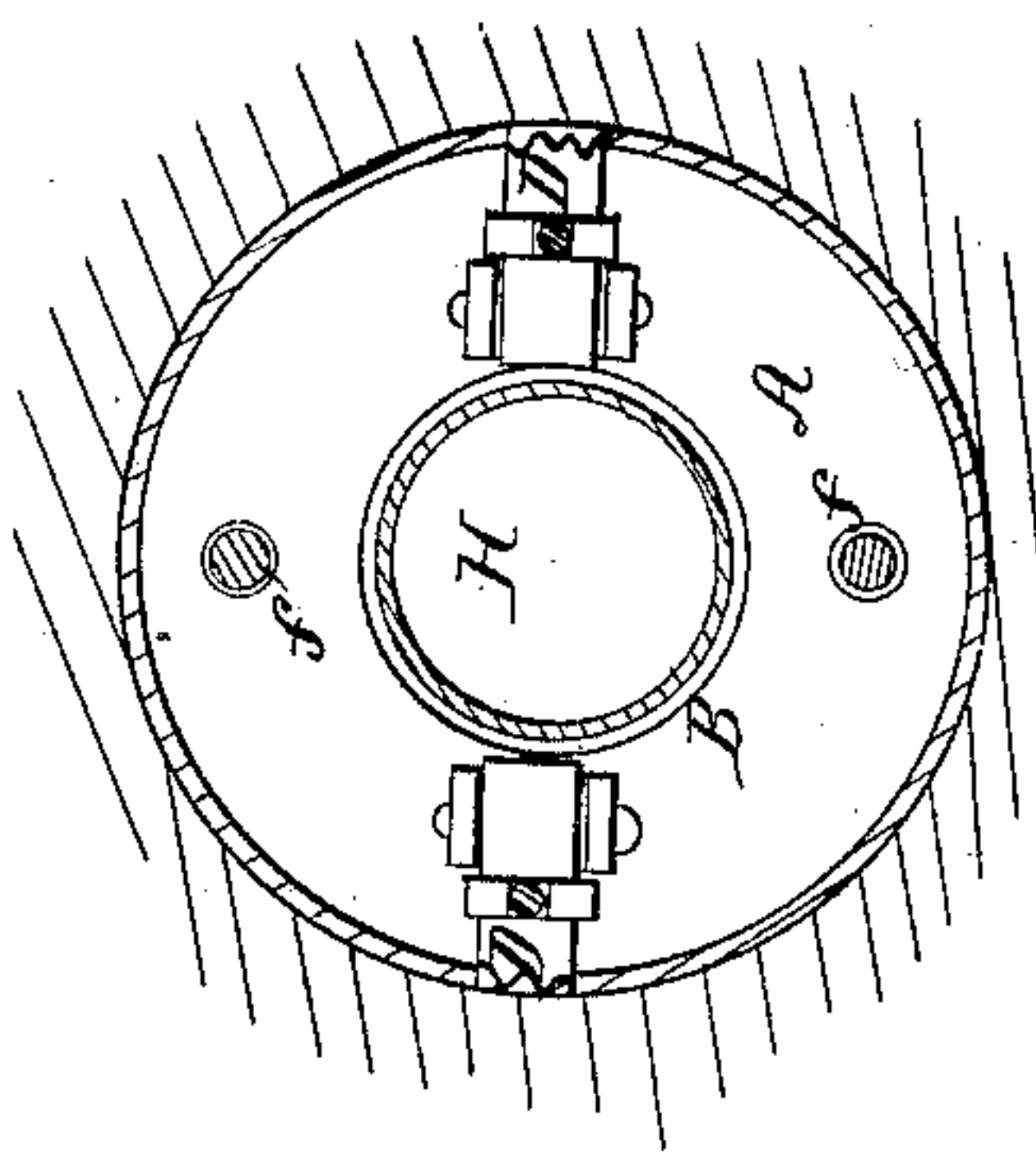
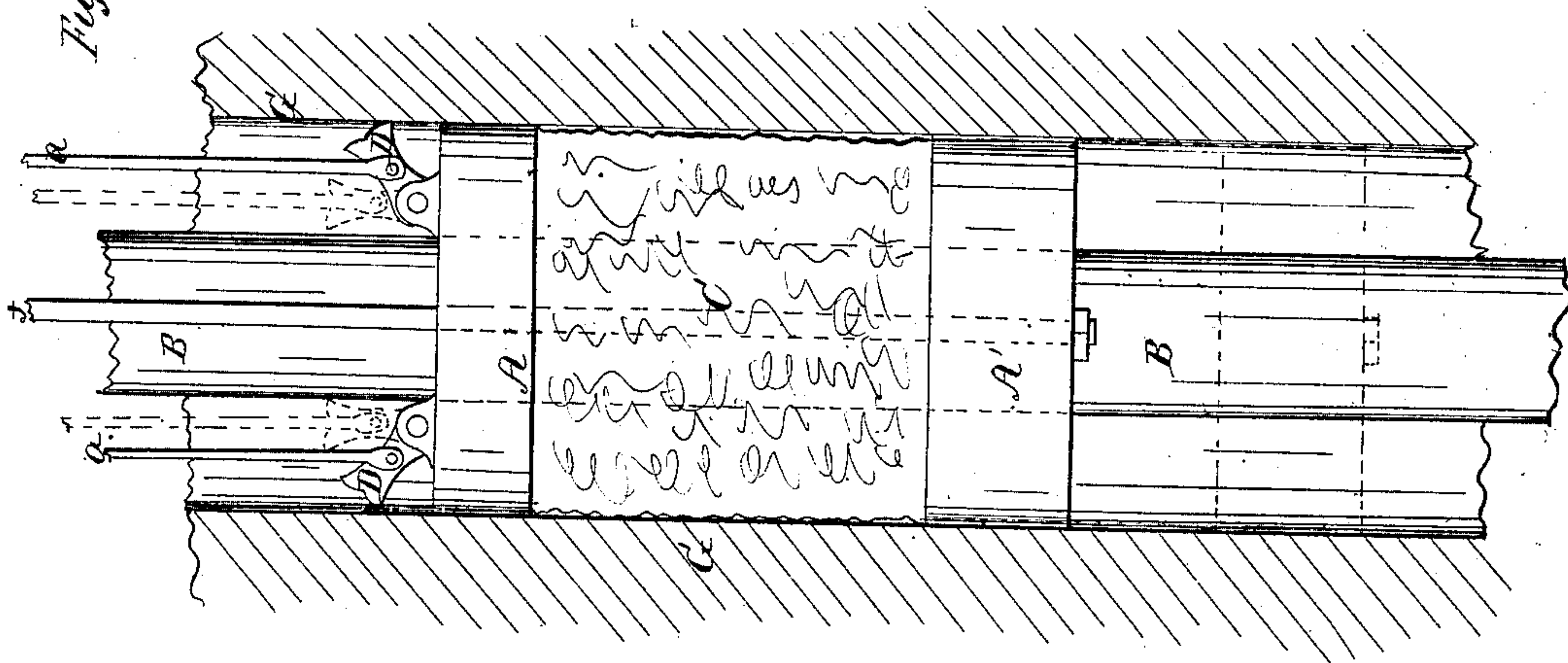


Fig: 1.



Witnesses;
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UNITED STATES PATENT OFFICE.

JOHN R. CROSS, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN PACKING FOR OIL-WELLS.

Specification forming part of Letters Patent No. **50,910**, dated November 14, 1865.

To all whom it may concern:

Be it known that I, JOHN R. CROSS, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Packing the Tubes of Artesian Wells; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved packing apparatus, represented in the shaft of a well, which is shown in section. Fig. 2 is a horizontal view of the same from above.

Like letters indicate corresponding parts in both of the figures.

It is the object of my invention to furnish a packing that will be as secure as the ordinary seed-bag, and which shall possess the advantage of being adjustable to different positions in the well without having to remove the tubing for the purpose, and that may also be employed to close the aperture of the well entirely when the tube is withdrawn, to prevent fresh and surface water from flowing down the same.

As represented in the drawings, my packing consists of two annular pieces, A A', which may be made of cast-iron or other suitable material, which surround the tube B of the well, and are so loose thereon that they easily slide over the thimble-couplings of the pipe-sections when raised or lowered. These annular pieces are connected by strands or fibers of hemp, cotton, or other suitable material, C, which, when compressed between the two rings A A' with considerable force, will expand so as to press against the sides of both the well and pipe, and render the passage impervious to water.

The upper ring, A, is provided with two pawl-levers, D D, jointed at one end to the ring near the tube, and the other free to be raised or lowered by wires *a a*, extending to the top of the well. These pawls are of such length that when their free ends rest against the sides of the well they are inclined upward at an angle, and these ends are hardened and provided with teeth *e e*, or otherwise made to engage with the rock sides of the well G G and hold against a force applied from below them, and their arrangement is such that they act as a toggle-joint and press more firmly against the sides as the power is increased.

The lower ring, A', is suspended by two strong rods or wire ropes, *f f*, from the top of the well, where they are held by screw-nuts or by levers or other appliances by which they can be drawn in an upward direction with considerable force.

In operating, the packing apparatus may be lowered down the well, around the pipe B, and at the required point may be instantly fixed in position by drawing upward on the suspension-rods or wire ropes *f f* by means of the action of the pawls D D on the ring A, as described, and when the ring is so fixed the fibrous packing C is compressed to the requisite tightness by the tension of the rods or ropes *f f*.

When it is desired to loosen the packing it is done by simply letting down the rods or ropes *f f*, when the weight of the lower ring draws the ring A, by means of the fibers C, which connect them, and thereby the pawls are released. The lower ring is preferably made of considerable length, in order that its weight may thus act to relieve the upper ring, so that the whole may be lowered without exerting any pushing force on the rods *f f*. As length is not objectionable, the ring A' may be elongated into a tube of as many feet or yards as may be required for the purpose.

It is readily perceived that the pawls D D might act upon the pipe B in the same manner as on the well, if it were provided at intervals with bands or projections against which they would hold without slipping, and thus accomplish the same result; but I prefer to employ them against the sides of the well, which are usually of rock sufficiently soft to allow them to take hold in any place, and as it involves no expense. The wires *a a* are used to elevate the pawls so that they will not take effect when it is required to raise the apparatus.

Where oil-wells have ceased to produce it is customary to withdraw the tubes and leave the well open, by which water from the surface and from veins pierced by the well in boring is allowed to enter, which is a cause of vast injury and loss to other wells in the vicinity, as the influx of one well often forces away the supply of oil and renders a multitude of others unproductive. To prevent this the abandoned well should be plugged at a point below the veins of fresh water, which is often several hundred feet in depth. No adequate means

has heretofore existed for plugging Artesian wells without tubes at such depths.

A simple modification of my packing renders it equally effective when the tube is removed, and of inestimable value to producing wells in the neighborhood of those which have been abandoned. I cut off the pipe B a little above and below the packing apparatus, and screw a plug, H, into the top, Fig. 2, by which no water can pass through it. It is held after the tube is withdrawn, as before, by the suspension-rods or wire ropes *ff*, and by them may be raised or lowered, if required, to insure the cutting off of the lowest vein of fresh water. By making solid disks in place of the upper and lower rings, A A', and employing fibers enough to fill the entire area of the well, the same result is accomplished without retaining a portion of the tube. The rods *ff* are coupled in sections in the usual manner for purposes of this kind, and the wires *aa* may be wound on a reel. When the solid disks are employed, the upper disk, A, may be elongated

or have weights placed upon it to produce necessary compression, and by attaching to the center of said disk a rod and extending it to the top of the well, so as to sustain or raise the disk A, when it is desired to remove the packing or change its position, the use of the pawls D D may be dispensed with.

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

The combination of the pawls D D, with or without the wires *aa*, pivoted to the ring A to form a toggle-joint, fibrous packing C, and ring A', with suspension-rods or wire ropes *ff*, arranged and operating substantially as and for the purposes shown and described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN R. CROSS.

Witnesses:

JAY HYATT,
LYMAN P. PERKINS.