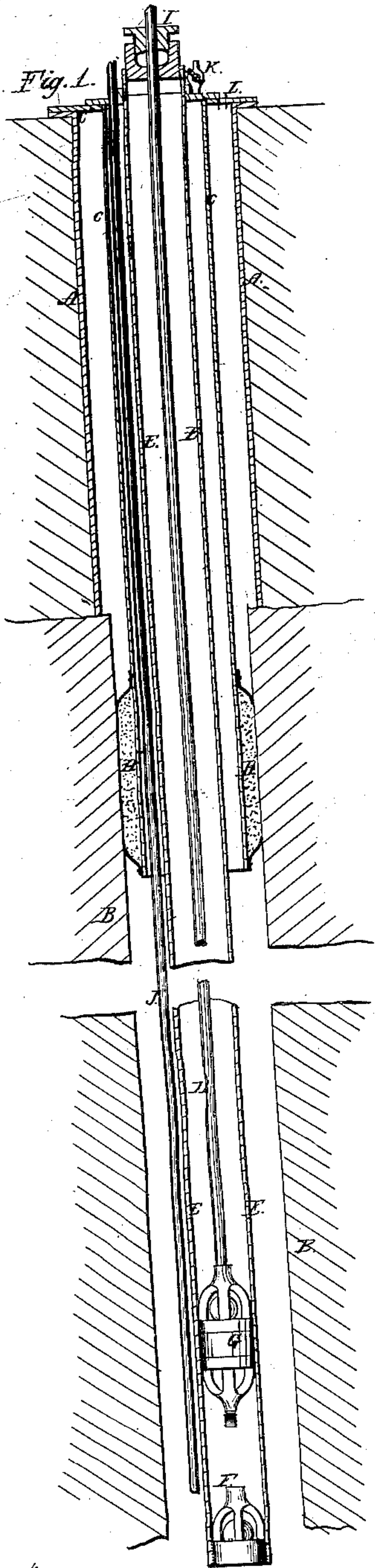


*Dickerson & Stuber,*

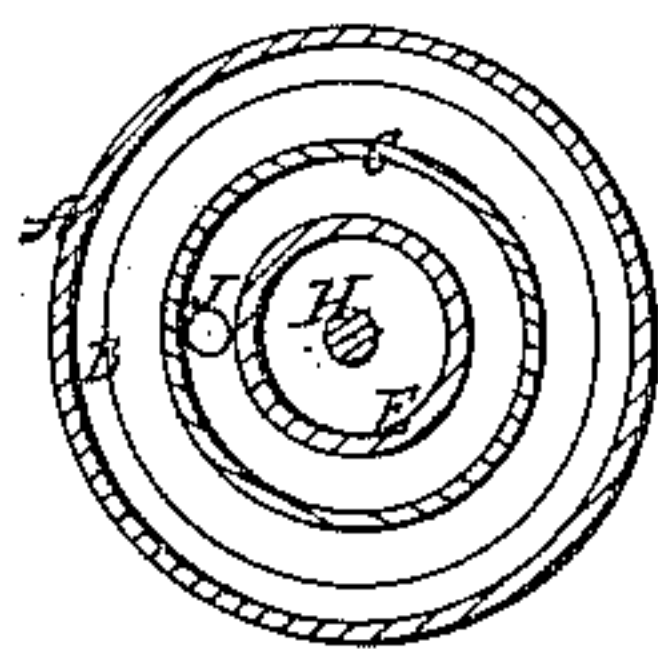
*Well Packing.*

*Patented Nov. 14, 1865.*

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*Fig. 2.*



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# UNITED STATES PATENT OFFICE.

M. J. DICKERSON, OF TITUSVILLE, PENNSYLVANIA, AND JACOB STUBER,  
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## IMPROVEMENT IN TUBULAR APPARATUS FOR DEEP WELLS.

Specification forming part of Letters Patent No. 50,919, dated November 14, 1865.

*To all whom it may concern:*

Be it known that we, M. J. DICKERSON, of Titusville, county of Venango, and State of Pennsylvania, and JACOB STUBER, of the city of Utica, county of Oneida, and State of New York, have invented a new and Improved Method of Packing Artesian Wells, so that oil and other liquids may be more advantageously raised therefrom; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure I is a longitudinal section representing the driving-tubing and the walls of the well, eduction-tubing, packing-tubing, steam or air pipe, arranged and combined according to the principles of our invention. Fig. II is a transverse section.

The nature of our invention consists, first, in the application and use of a distinct packing-tube, around or to which the seed-bag is attached, and made of larger diameter than the eduction-tube, and through which the eduction-tube passes, so that the eduction-tube may be inserted, removed, or raised or lowered, adjusted, and placed in its proper position without disturbing the seed-bag or unpacking the well; second, in the combination and arrangement therewith of a steam or air pipe entering between the eduction-tube and the packing-tube, for the purpose of forcing air or steam into the well for any purpose for which air or steam may be used therein; third, in the connection and combination therewith of a stop-cock (to which a pipe may be connected) for directing the gas which collects in the well to the boiler for fuel, or for any other purpose for which such gas may be used.

Letters of like name and kind refer to like parts in each of the figures.

It is known to those who have much experience in sinking Artesian wells, and in raising oil and other liquids therefrom, that for the successful operation thereof the "surface-water" (so called) must be shut off from the oil or other liquids below which it is the object of the well to secure.

A device called a "seed-bag" has heretofore been used for this purpose, and has been applied in a manner to form an annular packing

around the eduction-tube and between it and the walls of the well; but this is attended with many practical difficulties, which it is the object of our improvement to overcome. For instance, it often becomes necessary to remove the eduction-tube to repair the same, or to repair the lower valve, or to change the position of its lower end, in order to get it in its right place to catch the oil. Every such removal or change of position of the eduction-tube causes the destruction of the seed-bag, and hence unpacks the well, and allows the surface-water (with its sedimentary deposits) to fill the well, and mingle with the oil or other liquids, which it is the purpose of the well to obtain, thereby greatly increasing the expenses of working the well and rendering its products less valuable. When the seed-bag becomes firmly packed around the eduction-pipe it requires great power applied to the eduction-pipe to release it from the pressure of the seed-bag. This often breaks or splits the eduction-pipe, (the seed-bag being necessarily destroyed in the operation,) and hence much loss and expense, besides waste of time, is incurred; also, in the old way of packing these wells, if steam or air is used therein, the steam or air pipe must be carried through the seed-bag, and the hot steam will heat the pipe sufficiently to burn or shrink the seed-bag, causing it to leak, so that the surface-water will trickle through and injure and retard the working of the well.

Our improvement affords a remedy for all these and other difficulties not herein mentioned.

A represents the driving-tube, which is usually made five or six inches in diameter, more or less. This is driven into the soft earth until it reaches the rock in a common manner.

B represents the walls of the well below the driving-tube.

C represents a distinct packing-tube, which is made of larger diameter than the eduction-tube, so that the eduction-tube has ample room to pass through it, and of smaller diameter than the driving-tube and bore of the well, so that the seed-bag may be fitted around it and form a packing between it and the walls of the well. This packing-tube is given any required length sufficient to reach below the driving-tube and support the seed-bag at such



place in the well as may be selected for the most advantageous packing thereof.

The seed-bag is shown at D, and is, so far as the bag itself is concerned, of ordinary construction. It is combined with and made fast to the packing-tube *c*, as shown, so as to form a packing between the tube and the walls of the well. When this packing-tube and seed-bag connected therewith are placed in the proper position in the well so as to shut off the surface-water, they may remain there permanently without being disturbed by the placing or removing or changing the position of the eduction-tube. They may be placed in position before the eduction-tube is put in. They form a surface-water chamber entirely separate from and independent of the eduction-tubing, pump, and steam and air pipe. A collar is formed around the top of the packing-tube, as shown at *c'*, which may be tightly fitted by a screw or otherwise to the driving-tube, as shown.

The eduction-tube is represented at E. This is of ordinary construction and use, and is inserted into the well, passing through the packing-tube. Appropriate valve, valve-piston, and piston or pump rod are inserted therein to form a pump, as in a common manner, or the eduction-tube may be used without these when steam or compressed air is used to force the liquid out.

F is a valve; G, valve-piston; H, piston-rod. I is an ordinary stuffing-box, through which the piston-rod works.

J represents a steam or air pipe, which is conducted into the well through the packing-tube, and through which steam or air may be

forced in a common manner whenever it is desirable to use steam or air in the well for any purpose.

K represents a stop-cock, which is fitted into the head-cover of the well and opens into the well, so as to let off any gas which may collect therein. A pipe is connected to this stop-cock, which may be led off to the boiler or furnace, and the gas used for fuel or for other useful purposes. The steam-pipe does not pass through the seed-bag, as heretofore, when the seed-bag was packed around the eduction-pipe, but is entirely free therefrom.

L is an opening from the surface-water chamber, into which a pipe may be inserted for the purpose of conducting off any surplus water that may collect therein.

What we claim, and desire to secure by Letters Patent, is—

1. The formation of a surface-water chamber separate from the eduction-tube by means of the application and use of a packing-tube, C, driving-tube A, and seed-bag (or other packing) D, for the purposes and substantially as described.

2. The combination and arrangement of the steam-pipe J, stop-cock K, and packing-tube C, substantially as described.

M. J. DICKERSON.

JACOB STUBER.

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