G. E. Mills,

Well Packing.

No. 49,778, Patented Sept. 5, 1865.

Fig. 1

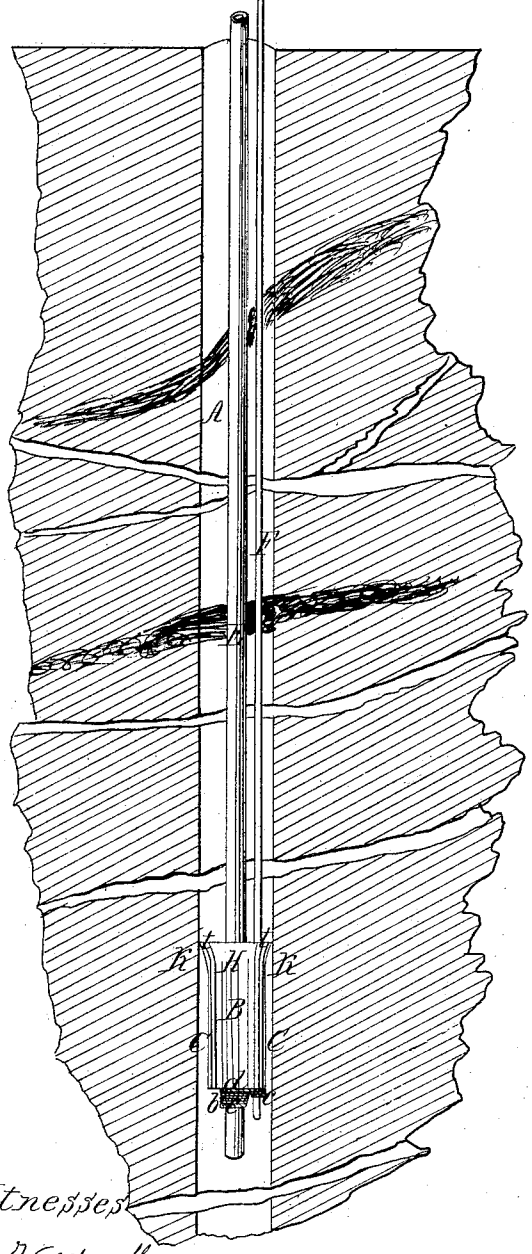


Fig. 2

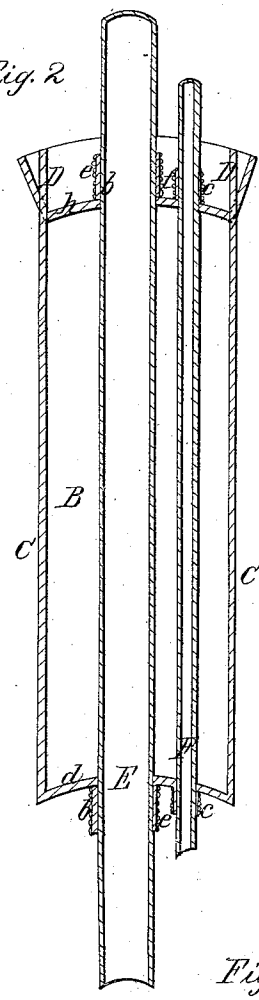
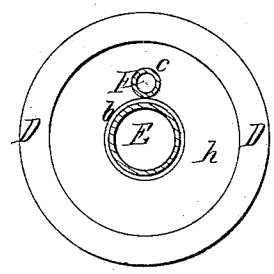


Fig. 3



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UNITED STATES PATENT OFFICE.

GEO. E. MILLS, OF NEW YORK, N. Y.

IMPROVEMENT IN PACKING FOR OIL-WELL TUBES.

Specification forming part of Letters Patent No. **49,778**, dated September 5, 1865.

To all whom it may concern:

Be it known that I, GEORGE E. MILLS, of the city, county, and State of New York, have invented certain new and useful Improvements in Packing for Oil-Wells; and the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a vertical section of an oil-well, with the packing or device for cutting off the water-courses from the oil-veins. Fig. 2 shows a section through the apparatus or cut-off when not in use in the well. Fig. 3 is a top-end view of the device, showing the discharge-pipe and gas-tube.

The object of my invention is to save much time and expense in closing the communication between the water-courses which are above the oil-veins and the oil, so that the oil may be ejected or pumped out separately, the apparatus being so constructed and of such substance or material that it can be used more than once in a well or in different wells.

My invention consists in making a bag of thin sole-leather in form of a tube, it having a bottom firmly sewed in and a socket to secure it to the discharge-pipe, and also to a separate small gas-tube. The main body of the bag may be filled with pine shavings, sawdust, or other substances that will hold it from being crushed inwardly, above which is secured another head, leaving a cup of two or three inches (more or less) in depth in the top of the leather tube, so that it will expand outwardly against the sides of the bore of the well by the action of the suction produced by pumping from below, or by the pressure of the water from above, so that it forms a cone-shaped valve which effectually closes the communication between the oil-veins and the water-courses, so that whatever may be below the apparatus can be ejected or pumped up through the discharge-pipe, the gas being allowed to escape freely through the small pipe; or it may be conducted to the flue of the boilers and used as fuel for generating steam to work the engines for pumping or otherwise operating the wells.

To enable others skilled in the art to make and use my improved packing device, I will describe it more fully, referring to the drawings, and to the letters marked thereon.

In the shaft or bore A of Artesian or oil wells the different strata is interspersed with courses of salt, mineral, and fresh water, all of which are usually above the veins of the petroleum and the other ingredients and gases which usually accompany it, so that to attempt to work an ordinary oil-well without some device for separating the oil-veins from the water-courses at least fifty barrels of water have to be pumped out to one of oil. The course has been to fill a small sheep-skin bag with dry flaxseed, tie it top and bottom around the discharge-pipe, let it down into the well to some point, and there remain for forty-eight hours. By that time the seed will get soaked and swell in the bag so as to press against the walls of the well and close the communication. The well is then pumped. If the seed-bag happens to be anywhere near the proper place, it is all right; if not, it has to be demolished and got out the best way it can and another trial made.

By my improved bag or valve B no time is required for it to swell. The main tubular part C C is only a base or support for the cup D D, which expands and closes the sides of the well by the pressure of the water which is above it.

To the lower head or end, *d*, of my packing or tube C C are leather sockets *b c*, by which it is secured to the discharge-pipe E and the gas-pipe F by winding a strong cord around. The sole-leather bag is then stuffed with pine or other wood shavings, sawdust, or other substance. Then the upper head, *h*, is put in and secured to the leather bag and the discharge-pipe E and gas-pipe F in a similar manner to the lower end, by tying a cord, *e*, around the sockets *b c*, the head *h* being placed in the bag C several inches below the top D D, so that it forms a cup, H, into which the water or other substance from above presses and expands the leather, forcing it out against the walls of the well K K, so as to close all communication between the lower and upper portions of the well. The suction from below the sole-leather bag, in the process of pumping the well, will effectually expand the cup H, so that the leather D D will form a cone-shaped valve, and one which will so conform to the sides of the bore of the well that nothing can pass between. Thus an almost instantaneous cut-off is produced, and may be kept permanent, if desired.

Should the valve cut-off D D on trial prove

not to be in the right place, it can easily be raised or lowered by the tubing and tried again with the loss of very little time, which is not the case with the ordinary seed-bags. They being made of thin stretchy leather, can never be taken up in a fit condition to be used a second time. They often get cut or torn in putting down, so as to let the seed out, and are thereby rendered useless on the first trial.

By making my bag or tube of sole-leather it is not liable to any of the above accidents, as it can be filled with pine shavings or other substance, and is of sufficient durability for all practical purposes.

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

1. A packing consisting of a tube or bag of leather, having a bottom and top secured firmly to the discharge-pipe, the top forming a cup in the upper end of the leather tube which will expand and make a valve cut-off against the walls of the well, as herein described, for the purposes set forth.

2. In combination therewith, a gas-escape pipe arranged in relation to the cylinder and packing, substantially as described.

Witnesses: GEORGE E. MILLS.
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