Robinson & Strong,

Well Packing,

No. 52,448. Patented Feb. 6, 1866.

Fig: 1

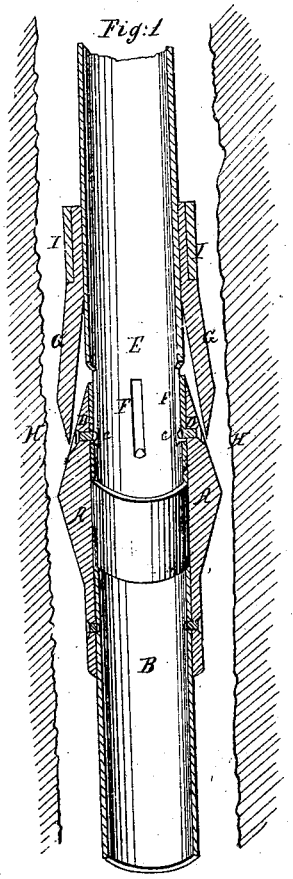


Fig: 2

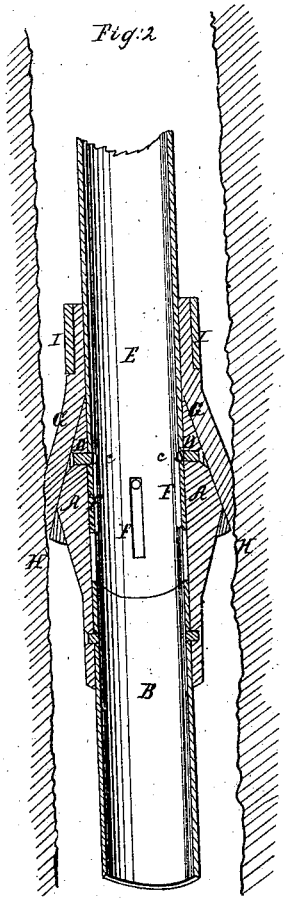


Fig: 3

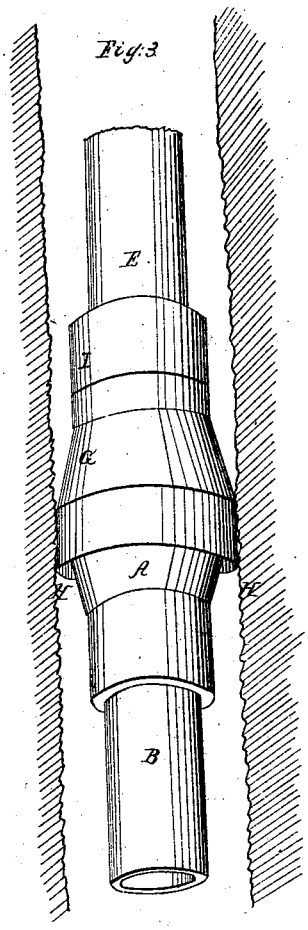


Fig: 4

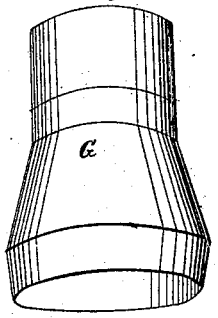
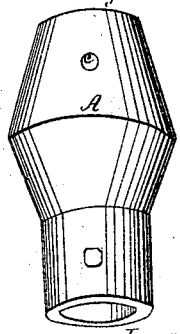


Fig: 5



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UNITED STATES PATENT OFFICE.

JOHN K. ROBINSON AND DAVID A. STRONG, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN PACKINGS FOR DEEP WELLS.

Specification forming part of Letters Patent No. **52,448**, dated February 6, 1866.

To all whom it may concern:

Be it known that we, JOHN K. ROBINSON and DAVID A. STRONG, both of Washington city, District of Columbia, have invented certain new and useful Improvements in Packing the Tubing for Oil or Artesian Wells, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which make part of the specification, in which—

Figure 1 represents a perspective view of our improved packing in extension. Fig. 2 represents a perspective view of the packing as expanded to suit the external sides of the well. Fig. 3 represents a full view of the packing when at rest. Figs. 4 and 5 represent sectional views of the cone and concave.

In the operation of oil or Artesian wells the tubing and sides of the well are required to be made water-tight at a certain depth in the well, for the purpose of shutting off the surface-water or other extraneous matter; but the mode of packing the well has been liable to a great many objections. Several devices have been employed to effectually dispose of these objections. Some which are very complex and expensive have been resorted to for the purpose of obviating the evil; but so far as our knowledge extends no device has yet been applied which accomplishes this result in an entirely satisfactory manner, for they all create difficulties almost, if not quite, as troublesome as those they profess to overcome.

After much thought and experiment with a view to obviate the objections to which the packing for oil or Artesian wells is subject, we at length conceived the idea of doing away with all appliances now in use, and of causing the weight or pressure of the tubing itself to keep the packing, which is made of any elastic or fibrous material, pressed tight to the interal sides of the well; and to this end our invention consists—

First, in connecting the tubing at any desired section, either above or below the pump.

Secondly, in forming a cone of a varying diameter on the end of one of the segments of the tubing arranged upon any desired section. This cone can be attached as a seperate device by screws, or can be solidly attached or form part of the tube itself. It at the same time forms a sleeve or female seat for the upper tube, which keeps the tubing in a direct vertical position.

Thirdly, in arranging a concave formed so as to fit neatly to the upper tubing, which is so constructed of elastic or fibrous material that when the lower tubing reaches its seat the upper tubing, in combination with the elastic or fibrous material, in descending upon the cone below, presses out the elastic substance to the internal sides of the well, which effectually prevents the water or other extraneous matter from escaping therefrom around the packing to interfere with the operation of the pump or blower below.

Fourthly, in the introducing of one or more slots cut vertically in the upper pipe or tube, or lower pipe or tube, as may be desired, of a suitable width and length, in combination with two or more screws passing horizontally through the upper end of the conical device of the lower tube far enough to extend through the slot or slots of the upper tube. Thereby, when necessary to lower the tubing in the well, the lower end of the slot is sustained by the horizontal screws until it reaches its desired seat, so when necessary to raise the tubing out of the well the pressure from the sides of the well is relaxed and the tubing is withdrawn by the same process.

The accompanying drawings represent the tubing and devices embracing our improvements, which consist, in this instance, of the cone A, which is screwed or formed solid upon a hollow tube, B. The cone A has one or more holes, *c c*, which are adapted for the screws D D. These screws are let in flush with the external surface of the cone A, and at a depth sufficient to reach inside of the tube E and slots F F. The internal diameter of the cone A is made of sufficient size by which the tube E passes freely into it the requisite depth, until the elastic concave G is thereby expanded sufficiently to prevent any leakage of water or other extraneous matter between the wall of the well H and the elastic concave or packing G.

The operation of the device is as follows: The pump and tubing are attached and allowed

to pass down the well H to a desired depth, when the tube B is also attached, having the cone A firmly attached to the tube B. The tube E is then slipped into the hollow cone or sleeve A, care being taken so that when the slots F F, which are on the end of the tube E, come opposite the screws D D in cone A, the screws D D are then screwed in, being of the requisite depth to extend through the slots F F in tube E. The elastic packing G is then slipped on the tube E and fastened by the clamp I. The full length of the tubing B and E is allowed to descend. When the pump attached to tube B reaches its seat, the weight of the tube E being free to press down, the packing G is fully expanded and the packing of the well H is then perfected.

Our improvement is adapted to be placed at any point below the pump, as well as above it.

We do not claim the application of elastic substances or material, as that has been known and used before.

What we do claim as our invention, and desire to secure by Letters Patent, is—

1. The tubes B and E, forming a telescopic joint, in combination with the flexible packing G, substantially as described.

2. In combination with a telescopic joint, the conical enlargement A, slots F, and screws or pins D, substantially as described.

3. The cone A and flexible packing G, arranged and operating substantially as described, forming a packing both for the well and for the tube.

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