

P. C. Heinz,

Well Packing.

No. 27,670,

Patented Mar. 9, 1869.

Fig. 1

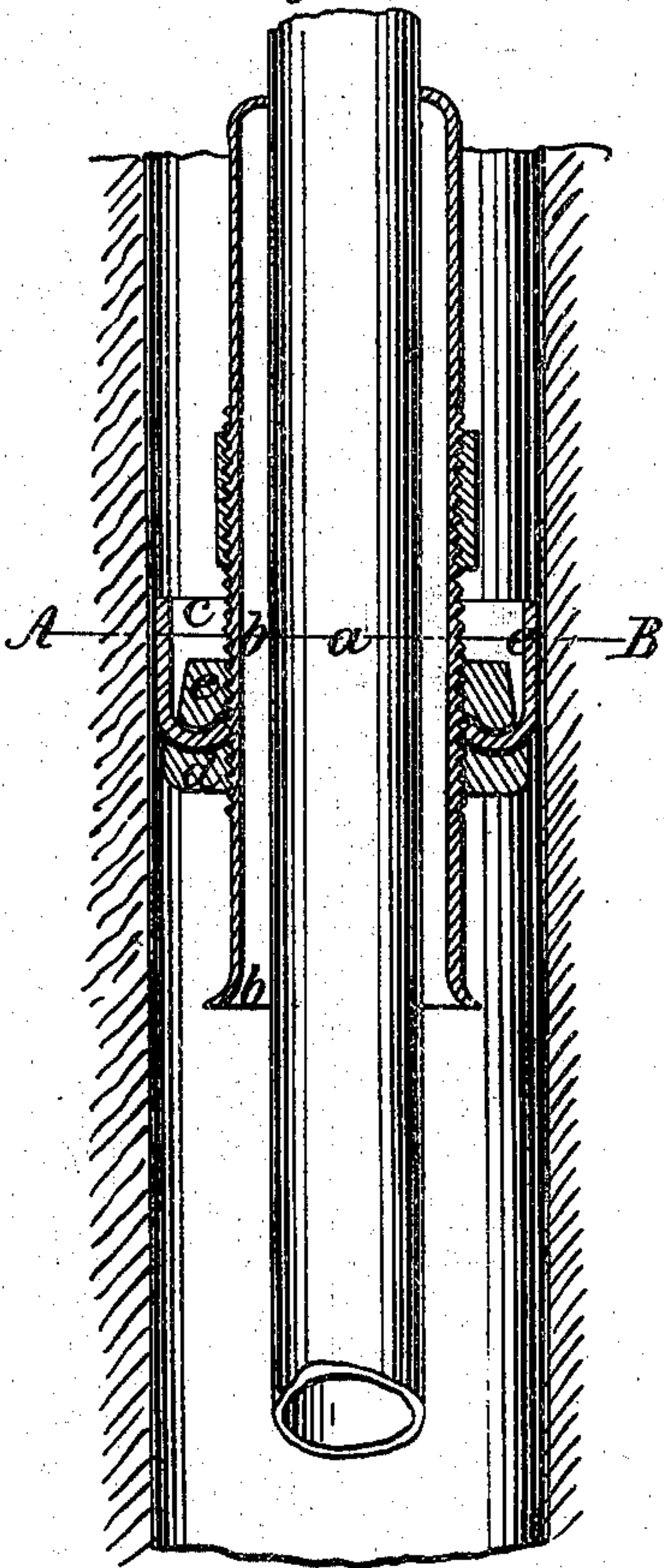


Fig. 2

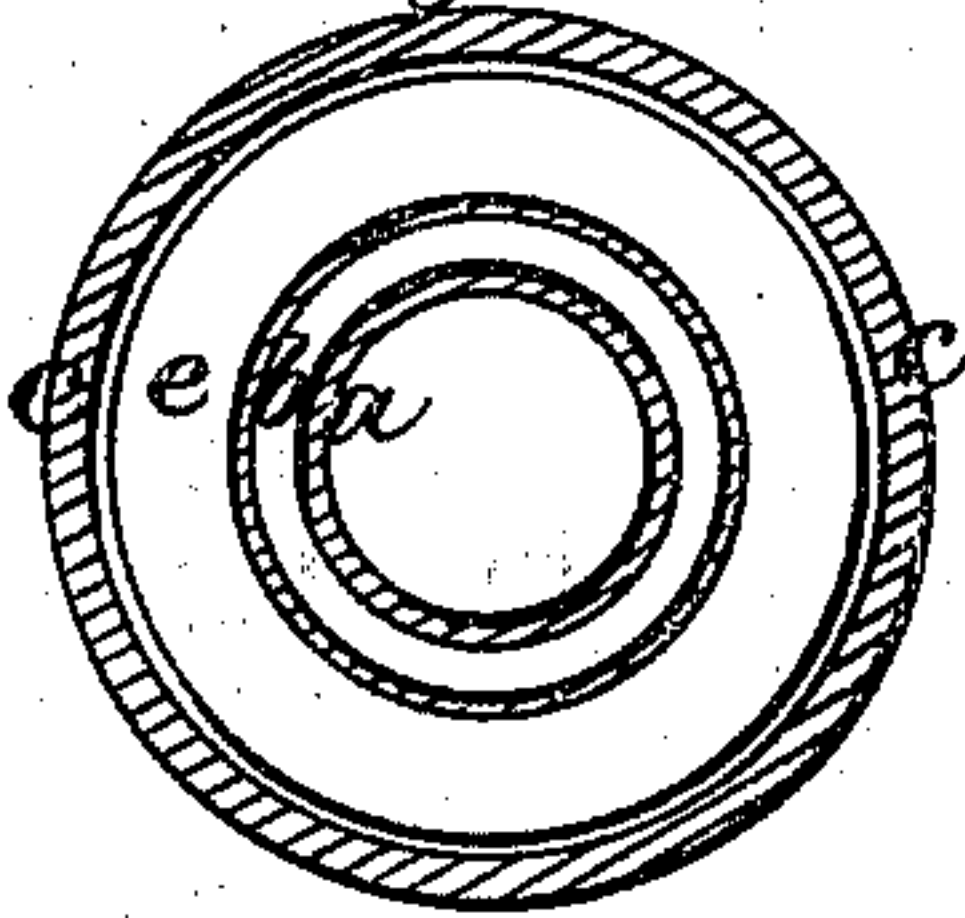
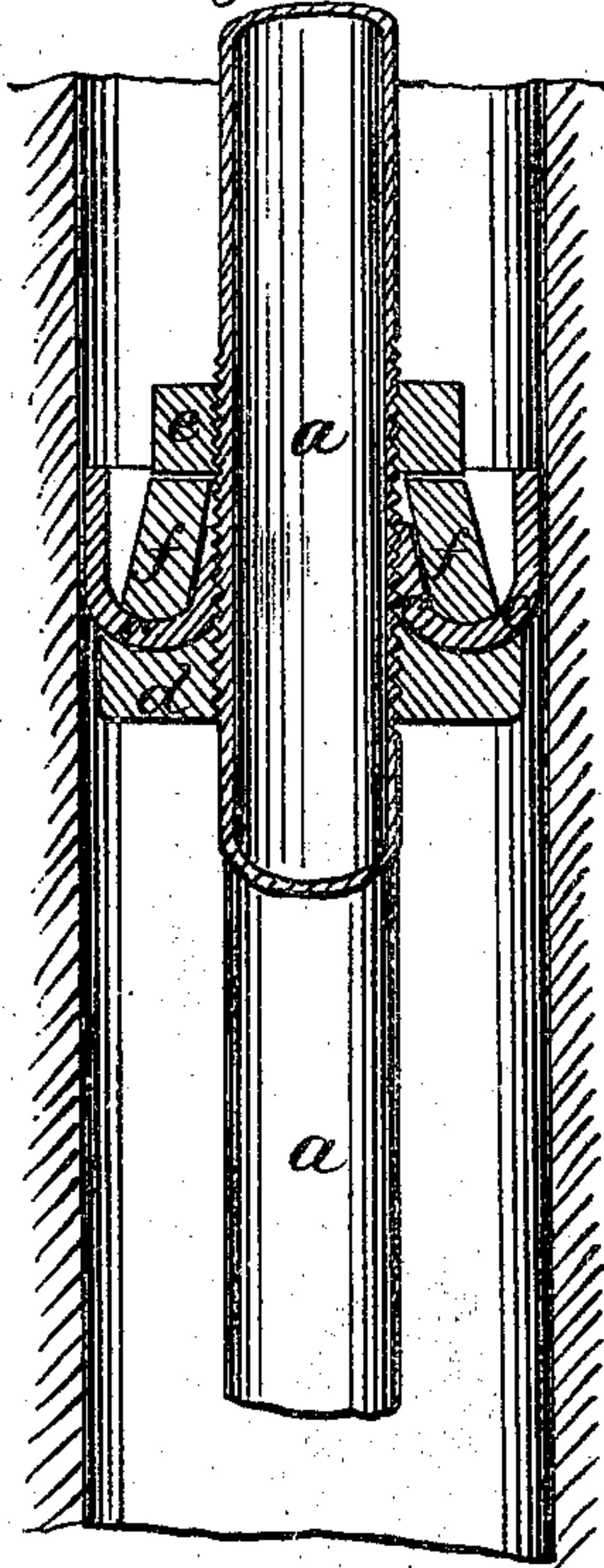


Fig. 3



Witnesses
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IMPROVEMENT IN PACKINGS FOR ARTESIAN WELLS.

Specification forming part of Letters Patent No. 87,670, dated March 9, 1869.

To all whom it may concern:

Be it known that I, PETER C. HEINZ, of Pioneer, county of Venango, and State of Pennsylvania, have invented certain new and useful Improvements in Packing for Artesian-Well Tubes and Casings; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification, and in which similar parts are indicated by similar letters in all the views.

My invention consists of an improved arrangement for packing the tubing or casing of an Artesian oil-well, for the purpose of shutting off the surface water from the producing rock or cavities. The usual manner of accomplishing this is by means of a long leathern bag wrapped around the tubing or casing, within which is placed a quantity of flaxseed, the latter, as the tubing is lowered into the well, swelling and filling the hole and shutting off the water from below. This answers its purpose very well until the tubing has to be withdrawn, when the bursting of the bag discharges a large quantity of seed in the well, which not unfrequently fills up the crevices and entirely stops the yield of oil.

Several improvements have been made upon the old seed-bag by retaining the general form of the same without the use of any seed or filling, except the pressure of water from above, the bag being pressed out against the sides of the well by means of springs until pumping is commenced, and the water exhausted below it. These bags, although a great improvement upon the old seed-bag, are quite complicated, and present a serious obstacle to the withdrawal of the tubing when required, in consequence of their bulk and tendency to become gathered into a mass and wedged fast in the small space between the tube or casing and the rock-bore of the well, thereby resisting the force applied to withdraw the same.

My object is to provide a packing entirely free from all these objections, and one which shall be cheap, not liable to get out of order, and which shall leave no debris in the well on removal, while it can be applied at a few moments' notice, and pumping can be commenced immediately upon its insertion without waiting for seed or any other portion of the packing to swell, and that will admit of the ready

withdrawal of the tubing when required. Its construction will be understood by reference to the accompanying drawings, in which—

Figure 1 is a vertical section, and Fig. 2 a horizontal section on line A B, of my apparatus as applied to the outer tubing or casing of a well. Fig. 3 represents a somewhat different manner of construction, as hereinafter explained, and in said Fig. 3 my packing is shown as applied directly to the tubing.

a represents the tubing of the well, and *b* the outer tubing, usually termed "casing," of the same.

My packing consists of a crimped-leather cup, *c*, about two inches in height, placed around the tubing or casing, and held in place by means of lower and upper rings, *d* and *e*, of the form hereinafter described, both screwed upon the tubing, and holding the cup *c* between them, as shown. The upper surface of the lower ring, *d*, is made of annular concave form on its upper surface, the better to fit and hold the cup in place, and its outer and upper edge is made sharp, so that in drawing the tubing or casing said edge of the ring shall partially cut or break the leather cup and allow a portion of it to pass below the ring *d* without impeding the drawing of the tubing. The lower portion of the upper ring, *e*, is made of a convex form to correspond with the lower ring, and when screwed down tightly the two rings hold the leather cup *c* firmly in place between them by its inner edge, its outer or free edge being turned up and resting against the side of the well, thereby forming an annular cup.

In many cases I arrange the packing as shown in Fig. 3, in which a conical ring, *f*, is interposed between the cup *c* and ring *e*, and the cup is so formed by crimping that the inner portion of it passes upward around the tubing, as shown. The conical ring *f* is slipped over the same. The ring *e* is then applied and screwed down tightly upon the ring *f*, forcing the leather into the screw-threads of the tubing. By this arrangement of parts the cup is held in place even more tightly than in the preceding arrangement, and the cup cannot be torn from its place under any circumstances.

It is obvious that the use of the ring *f*, interposed between the screw-follower *e* and the leather, does not change the nature of my invention, but simply acts as a washer, prevent.

ing injury to the leather by abrasion when the follower *e* is turned, as the convexity of the lower surface to fit the seat *d* is a condition incident to the use of either the part *e* alone or of both together, and the turning up of the inner edge of the leather being alike, except as to degree in both cases.

In applying my packing the ring *d* is first screwed upon the tubing. The leather cup *c*, made of a single piece of flat leather crimped to the proper form, is next applied. Then the conical ring *f* is slipped on, (in case it is to be used,) and the upper ring, *e*, is applied and screwed down as tightly as possible. The outer diameter of the leather cup *c* should be made to fit the bore of the well, and the outer diameter of the supporting-ring *d* should be from one-fourth to one-half an inch less than that of the well, depending somewhat upon the roughness of the rock. When ready for use the tubing or casing is lowered into the well, and when the packing has arrived at the desired point pumping may be commenced at once. In case the packing proves to be too high in the well, (which can only be ascertained

by trial,) it can be lowered as many times as desirable without injury and without withdrawing the tubing; and this latter feature is an advantage which is not attainable with any other packing in use. As soon as the water is exhausted below the packing the weight of the water above it presses the cup *c* outwardly against the sides of the well, and prevents the passage of any water in a downward direction, while at the same time it may be moved without injury, as stated above.

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

In a packing for the tube or outer casing of an oil-well, the sustaining-ring *d*, with an annular concave seat, the outer periphery of which is provided with a cutting-edge, in combination with the leathern cup *c* and convex annular follower *e*, all substantially as and for the purposes set forth.

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Witnesses:

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