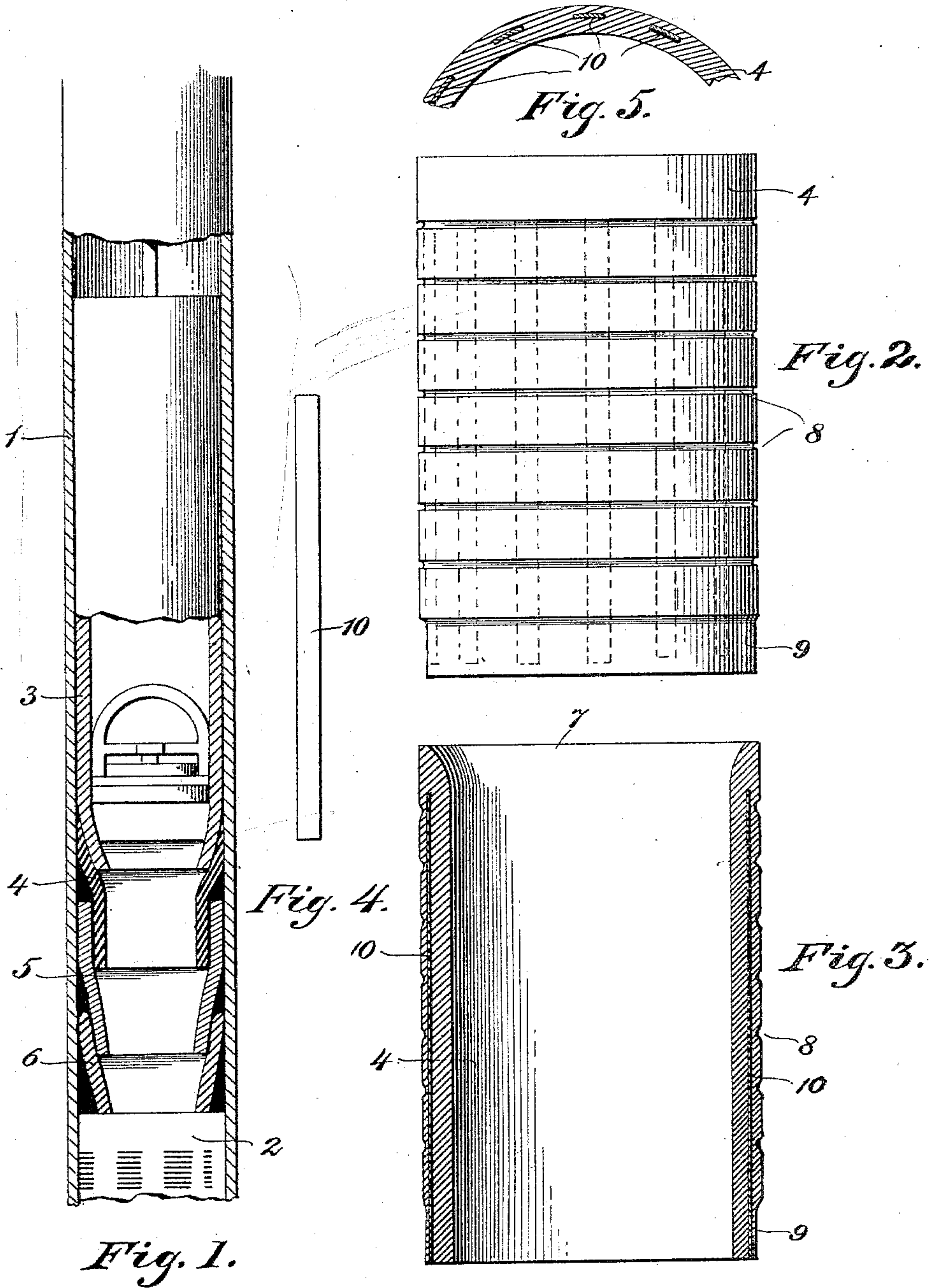


(No Model.)

A. D. COOK.
PACKER FOR TUBULAR WELLS.

No. 597,493.

Patented Jan. 18, 1898.



Witnesses:
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O. D. Jones

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UNITED STATES PATENT OFFICE.

AUGUST D. COOK, OF LAWRENCEBURG, INDIANA.

PACKER FOR TUBULAR WELLS.

SPECIFICATION forming part of Letters Patent No. 597,493, dated January 18, 1898.

Application filed August 21, 1897. Serial No. 648,997. (No model.)

To all whom it may concern:

Be it known that I, AUGUST D. COOK, a citizen of the United States, residing at Lawrenceburg, in the county of Dearborn and State of Indiana, have invented certain new and useful Improvements in Packers for Tubular Wells; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in tubular wells, and especially to the gum packing employed as a connection between the lower end of the working barrel and the brass tube therebelow. My improved packer can also be used to advantage on the strainers in suction-wells.

The objects of my invention are to produce a gum packer that is capable of expansion and contraction to receive the lower end of the working barrel of the pump and to enter the upper end of the adjacent brass tube and to be forced into these positions without danger of crushing or buckling and thereby decreasing the water-passage in any way whatever; in other words, to preserve to the highest degree the circumferential contractive and expansive tendencies of the gum packer so necessary to its use and yet at the same time render it incapable of contraction in a longitudinal direction. This crushing or buckling of the gum washer occurs by reason of the crushing force to which the same is subjected during the driving together of the parts for the purpose of fitting the same and producing the necessary tight joints, and as a result of such operation the gum washer is crushed and buckled oftentimes to such an extent as to form a stricture at this point and thus decrease the water bore or passage. By my invention, however, this danger and objection is entirely obviated.

With the foregoing objects in view my invention resides in a gum washer in the wall of which are located in annular series a plurality of longitudinally-disposed thin flexible brass stiffening strips or stays which extend from the lower end of the packer to a point near the upper end thereof, so that the upper or flared end is left perfectly flexible to expand, receive, and grip the lower end of the

working barrel, the stiffening-stays extending above that point coincident with the lower end of the said working barrel and therefore incapable of crushing or buckling at any point below the same.

Referring to the drawings, Figure 1 is an elevation of the lower portion of a tubular well, the lower part of the working barrel and the connections between it and the strainer being shown in longitudinal section. Fig. 2 is a side elevation in detail of the gum packer. Fig. 3 is a similar view in longitudinal section. Fig. 4 is a detail of one of the brass stiffening-stays. Fig. 5 is a transverse section of a portion of the packer.

Like numerals of reference indicate like parts in all the figures of the drawings.

To fully illustrate the applicability of the gum packing, I have shown in Fig. 1 that portion of a pump at which the same is located, and referring thereto 1 designates the pump-tube, in the lower end of which is located the usual strainer 2 and above the working barrel 3, the latter being contracted at its lower end to enter the upper end of the gum packing 4. The lower end of the gum packing enters the upper end of the brass tube 5, and it in turn enters the upper end of the lead packer 6, the lower end of the lead packer entering the upper end of the afore-said strainer 2.

As best shown in Figs. 2, 3, and 5, the gum packer is of tubular form and of slightly less diameter than the working barrel. The packer is formed of molded rubber or gum, and at its upper end may be internally beveled or flared, as indicated at 7, the beveling or flaring extending some little distance within the same. In order to increase the circumferential flexibility of the packer, the exterior thereof may be provided with a series of circumferential grooves 8 of a shallow nature that are parallel to each other and extend entirely therearound. Thus the packer is increased in flexibility and may be spread or distended at one end only without danger of injury. The lower end of the packer may be decreased exteriorly to a slight degree, as indicated at 9, to facilitate its entrance into the upper end of the brass tube 5.

Located at brief intervals in the annular wall of the gum packer 4, extending parallel

and in a longitudinal direction from the bottom end to a point about coincident with the beginning of the bevel 7, is a series of thin highly-flexible narrow strips 10, preferably
5 formed of brass and molded in position immediately below the outer surface or skin of the wall of the gum packing, so that a preponderance of the stock forming the wall of the packing will be at the inside of the strips
10 or stays to resist the wear of the water. These strips although so thin as not to interfere with the circumferential expansion or contraction of the packing, yet all combined produce an agency of resistance that renders
15 the packing incapable of crushing or breaking during its application, so that the water-passage remains unrestricted, and the flow of water cannot be decreased by its presence. In order that not the slightest impediment
20 may be offered to the circumferential expansion of the upper end of the gum packer that receives the lower end of the working barrel, the flexible or resilient strips or stays 10 are made to terminate below the upper edge of
25 the packer, as before explained, and the upper end of the packer is thus provided with an unreinforced, expansive, and tight-gripping neck.

Having thus fully described my invention,

what I claim, and desire to secure by Letters Patent, is—

1. As an article of manufacture, a tubular gum packer for the purposes described, the same having its exterior provided with a series of circumferential parallel grooves, and
35 its upper end internally beveled, and a series of longitudinally-disposed flexible resilient strips of metal located in the wall of the packer and terminating below the upper beveled end thereof.

2. As an article of manufacture, a tubular gum packer for the purposes described, the same having its wall provided with a series of longitudinally-disposed thin metallic resilient strips forming stays.

3. As an article of manufacture, a tubular gum packer for the purposes described, the same having its wall provided with a series of longitudinally-disposed resilient spring-strips forming stays, the preponderance of
50 the stock forming the wall of the packer being at the inside of the said strips.

In testimony whereof I affix my signature in presence of two witnesses.

AUGUST D. COOK.

Witnesses:

CHARLES L. SKINNER,

WILLIAM F. COOK.