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R. L. McCARTNEY
PACKER FOR WELLS AND THE LIKE

Filed March 11, 1922

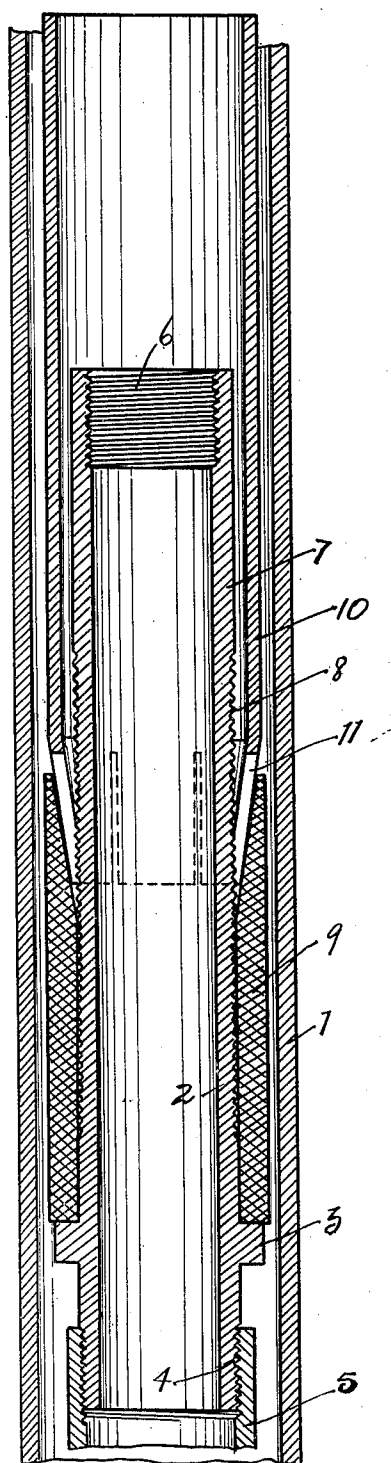


Fig. 1.

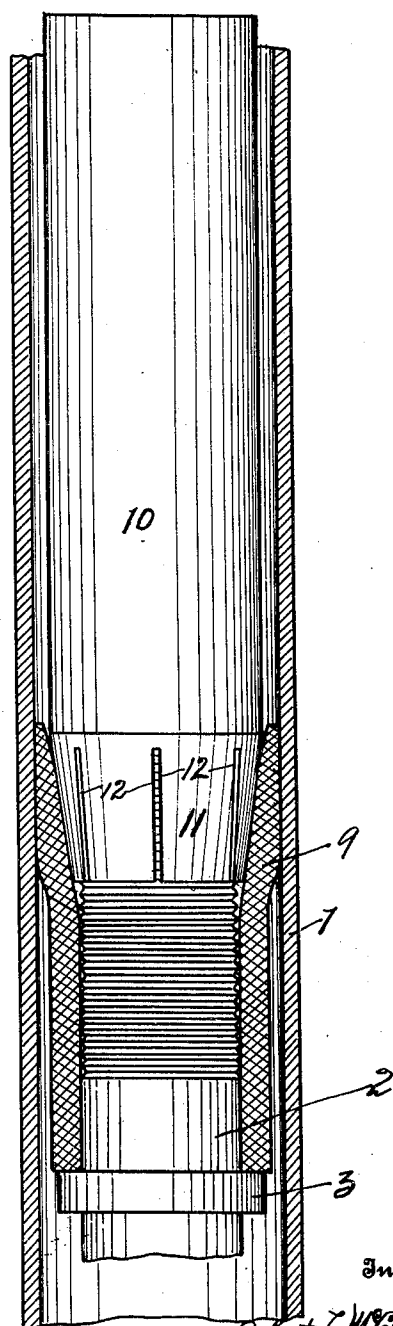


Fig. 2.

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PACKER FOR WELLS AND THE LIKE.

Application filed March 11, 1922. Serial No. 542,866.

To all whom it may concern:

Be it known that I, ROBERT L. McCARTNEY, citizen of the United States, residing at Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in a Packer for Wells and the like, of which the following is a specification.

This invention relates to new and useful improvements in a packer for wells and the like.

One object of the device is to provide a device of the character described specially designed for the purpose of forming a fluid tight joint between an outer and an inner pipe in a well bore.

Another object of the invention is to provide an expansible packing element carried by one pipe and means whereby said element may be so expanded as to form a seal between the pipes to prevent fluid from passing between said pipes.

With the above and other objects in view the invention has particular relation to certain novel features of construction, operation and arrangement of parts, an example of which is given in this specification and illustrated in the accompanying drawings, wherein:—

Figure 1 shows a vertical sectional view showing the packer in readiness to be expanded; and,

Figure 2 shows a vertical view with the packer set, or expanded.

Referring now more particularly to the drawings wherein like numerals of reference designate similar parts in each of the figures, the numeral 1 refers to the well casing, and the numeral 2 refers to the tubular packing support which has the annular rib 3 intermediate its ends. This ring may be swedged, welded onto, or an integral part of, said support. The lower end of the support 2 is outwardly threaded as at 4, and the inwardly threaded end of pipe 5 is screwed thereon. This pipe 5 may be either the strainer or a section of pipe between the strainer and support 2.

The upper end of the support 2 is internally threaded as at 6, to receive a setting tool of the usual and well known construction. The upper portion of the support 2 has a smooth exterior as at 7, while intermediate this smooth portion and the rib 3 are

corrugations 8, over which the packer 9 is forced to abut against the rib 3; then a female member 10 is fitted over the support 2. The lower end of this female member is contracted or beveled as shown at 11, and slotted as at 12, forming fingers which will fit closely around the support and yield in passing over the corrugations of said support. The inner sides of these fingers are corrugated to match the corrugations of the support 2, and the meshing of these corrugations increases the difficulty of withdrawing the female member 10, but does not render it impossible to do so.

As the female member is forced down over the packer support, the beveled fingers are forced into the outwardly flared upper end of the packer member 9, and the packing is forced out against the casing 1, and the space between the casing and packer support 2 is sealed by this packing and no fluid can pass between said casing and said support and female member.

In case it be desired to pull the strainer below the packing the female member is pulled upwardly through the usual and well known method and released from the support 2, its fingers yielding to permit this, and it is withdrawn from the casing. This releases the packing and it contracts, leaving a space between the casing wall and the packing so that the well may be washed free of sand and other material which might render the removal of the strainer and other sections of pipe difficult by forcing water down around the packer and the pipe sections beneath it. The packing may then be pulled out, the rib 3 engaging with the packing 9, for this purpose.

Before the packing is set, or expanded as shown in Figure 2, the well may be thoroughly washed by forcing fluid down the female member, and packer support 2, said fluid returning up on the outside the same, and this method may be again employed after the female member has been withdrawn, preparatory to pulling the casing.

What I claim is:—

1. The combination with a casing of a tubular support therein, a packing mounted on said support, a female member having a contracted end adapted to wedge between said support and packing, to expand the

packing, said contracted end of the female member being adapted to grip said support but being expansible to permit the ready movement of said female member relative to the support.

2. The combination with a well casing, of a packing support having a ring intermediate the ends thereof, corrugations around said packing support, a packing surrounding said male member and corrugations, and a female member whose lower end is slotted and tapered and having corrugations corresponding to the corrugations of said packing support, adapted to pass between said packing support and said packing to force said packing to seal the space between said packing support and said casing.

3. The combination with a well casing of a packing support, having corrugations around the exterior thereof, an enlarged portion on said packing support, packing surrounding said packing support and abutting against said enlarged portion and a female member one end of which is expansible and fitting closely around said support, the interior of said expansible end also having corrugations, and being adapted to pass between said packing support and said pack-

ing, and securely grip said packing support and force said packing against said casing.

4. A packing device including a tubular support having an annular rib thereon, and being corrugated above said rib, a packing surrounding said support above and abutting against the rib, a female member whose lower end is slotted forming expansible fingers which grip said support, and whose inner sides are corrugated, said lower end being contracted and adapted to wedge between the support and packing to expand the packing.

5. A packing device including a tubular support having an annular rib thereon whose upper side forms an abrupt shoulder, threads on said member above said rib, expansible packing surrounding the support above, and abutting against the rib, a female member whose lower end is expansible, the inside of said lower end being formed to engage said threads, said lower end being contracted and adapted to wedge between the support and the packing, to expand the packing.

In testimony whereof I have signed my name to this specification.

ROBERT L. McCARTNEY.