

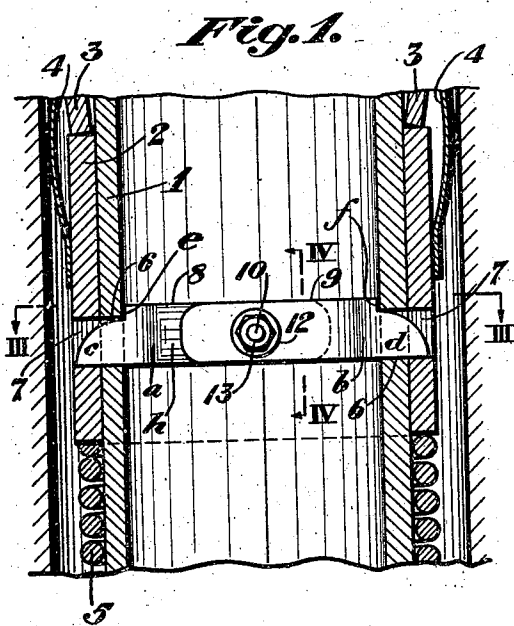
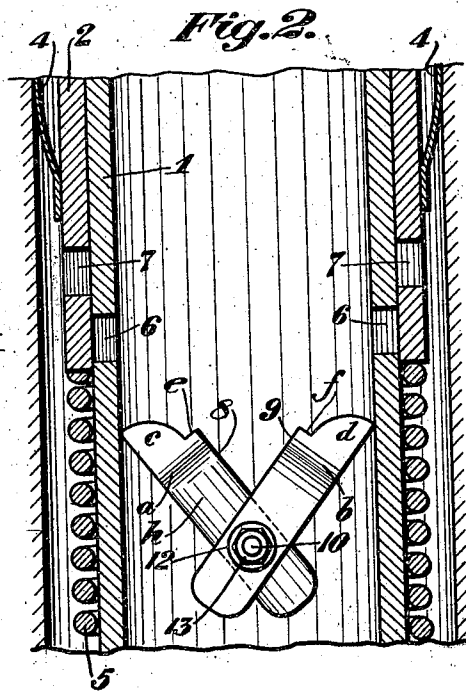
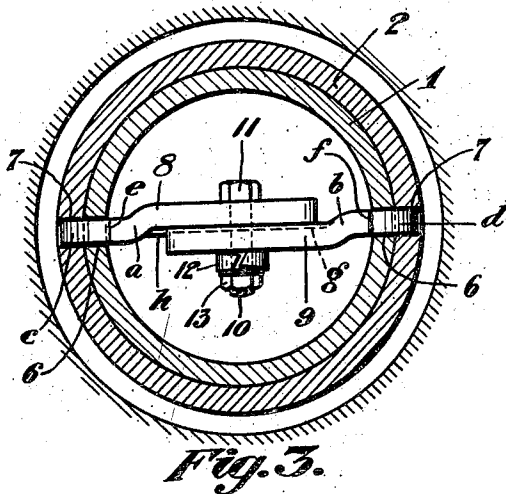
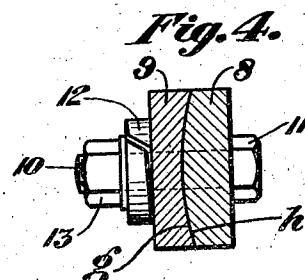
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P. H. MACK

DISK OR RETAINING MEANS FOR WELL PACKERS

Filed Nov. 28, 1919



Witnesses:

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UNITED STATES PATENT OFFICE.

PATRICK H. MACK, OF BRADFORD, PENNSYLVANIA, ASSIGNOR TO OIL WELL SUPPLY COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

DISK OR RETAINING MEANS FOR WELL PACKERS.

Application filed November 28, 1919. Serial No. 341,175.

To all whom it may concern:

Be it known that I, PATRICK H. MACK, a citizen of the United States, residing at Bradford, in the county of McKean, State of Pennsylvania, have invented certain new and useful Improvements in Disk or Retaining Means for Well Packers, of which the following is a specification.

My invention relates to well packers and more particularly to devices employed in connection with packers, commonly and commercially known as packer disks, said devices being designed to temporarily prevent a relative longitudinal movement between telescoping parts of a well packer structure, such for example, as a sleeve or cage and the tubular body member.

As now generally constructed, well packers of the class to which the present invention relates embody a tubular body, a compressible and expansible packing element or elements adapted, when the packer is set, to be forced into engagement with the wall of the well, and means for supporting or anchoring the packer structure at the desired position in the well.

In lowering the packer structure into the well, it is necessary to provide means for maintaining the anchor structure free of the wall of the well until the desired position for setting the packer is reached. The means for locking or maintaining the anchor structure out of contact with the wall of the well until the desired point is reached constitutes the subject matter of the present invention.

In practice, the packer disk or locking means is operated to release the telescoping parts by dropping a weight or tool down through the well tubing, said weight or tool in its descent coming into contact with the packer disk or locking means, thereby releasing the same.

The primary object of the present invention is to provide a simple and efficient packer disk or retaining member of the character specified that may be manufactured cheaply and sold at a relatively low price, and a device that is positive and reliable in action.

In the accompanying drawings which illustrate an application of my invention,

Fig. 1 is a longitudinal sectional view of a portion of a packer structure showing the disk or retaining device constituting the

present invention in operative position on the packer;

Fig. 2 is a similar view showing the packer disk or retaining device free from the telescoping parts;

Fig. 3, a horizontal sectional view, the section being taken on line III—III of Fig. 1; and

Fig. 4, a part sectional and a part end elevational view of the packer disk or retaining device, the section being taken on line IV—IV of Fig. 1.

Referring to the drawings, 1 designates a portion of a tubular body member of the packer structure, and 2 a sleeve or cage designed to carry slips, not shown, included in the anchor or supporting means for the packer structure. As shown, 3 designates arms supported upon the cage and designed to be connected with the above referred to slips. Part of the anchor structure includes springs 4 secured to the sleeve and adapted, at their upper ends, to bear against the slips of the packer. 5 designates a spring surrounding the body 1 and adapted to bear upon the lower end of sleeve 2, the function of said spring being to force the sleeve, together with the slips, upwardly on the body for the purpose of setting the packer when the desired point in the well is reached.

The body 1 and the sleeve or cage 2 are respectively provided with openings 6 and 7, said openings being adapted, when in register, to receive the ends of the locking means or packer disk. The packer disk or locking means, as illustrated and as preferred, includes two overlapping members 8 and 9 pivotally connected by means of a threaded horizontally extending bolt 10. The outer face of member 8 is adapted to bear against head 11 of bolt 10, and the outer face of member 9 is disposed in contact with a split spring washer 12, the latter being mounted on the bolt and interposed between the outer face of member 9 and an adjusting nut 13.

Each of the members 8 and 9 is respectively provided with a slightly offset extension portion *a* and *b*, and said portions are formed with rounded ends *c* and *d* and shoulders *e* and *f*, the ends being adapted to be entered in the openings or slots formed in the packer body 1 and sleeve 2, and the shoulders to engage the interior surface of the body when the device is in operative position, as shown by Fig. 1. The body por-

tion of member 8 is formed with a convex contacting face or projecting portion *h*, and member 9 with a concave contacting face or recessed portion *g*, thus providing, when the members are assembled, interfitting or interlocking parts normally maintained in operative engagement by the pressure of the spring washer 12, but adapted to be forced out of contact when an object of sufficient weight strikes the device. Fig. 2 shows the position the parts of the packer disk or retaining means may assume after being hit by the weight dropped through the casing and its ends freed from the slots in the body and sleeve.

What I claim is:

1. A retaining device for use in connection with well packers or the like consisting of a pair of longitudinally arranged overlapping bridge members each having a socket engaging terminal, one member being provided with an inner transversely concave face and the other with an inner transversely convex face respectively, of a common radius in continuous normal bearing contact one with the other, and a middle transverse

connecting bolt and resilient washer, whereby to resiliently hold the members together and effect cumulative friction between said contacting faces upon deflection.

2. A retaining device for use in connection with well packers or the like consisting of a pair of longitudinally arranged overlapping bridge members each having an outer socket terminal deflected inwardly towards the other member to a common transverse alinement plane, one member being provided with an inner transversely concave face and the other with an inner transversely convex face respectively, of a common radius in continuous normal bearing contact one with the other, and a middle transverse connecting bolt and resilient washer, whereby to resiliently hold the members together and effect cumulative friction between said contacting faces upon reflection.

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

PATRICK H. MACK.

Witnesses:

W. E. BULLOCK,
RAY L. WHEELER.