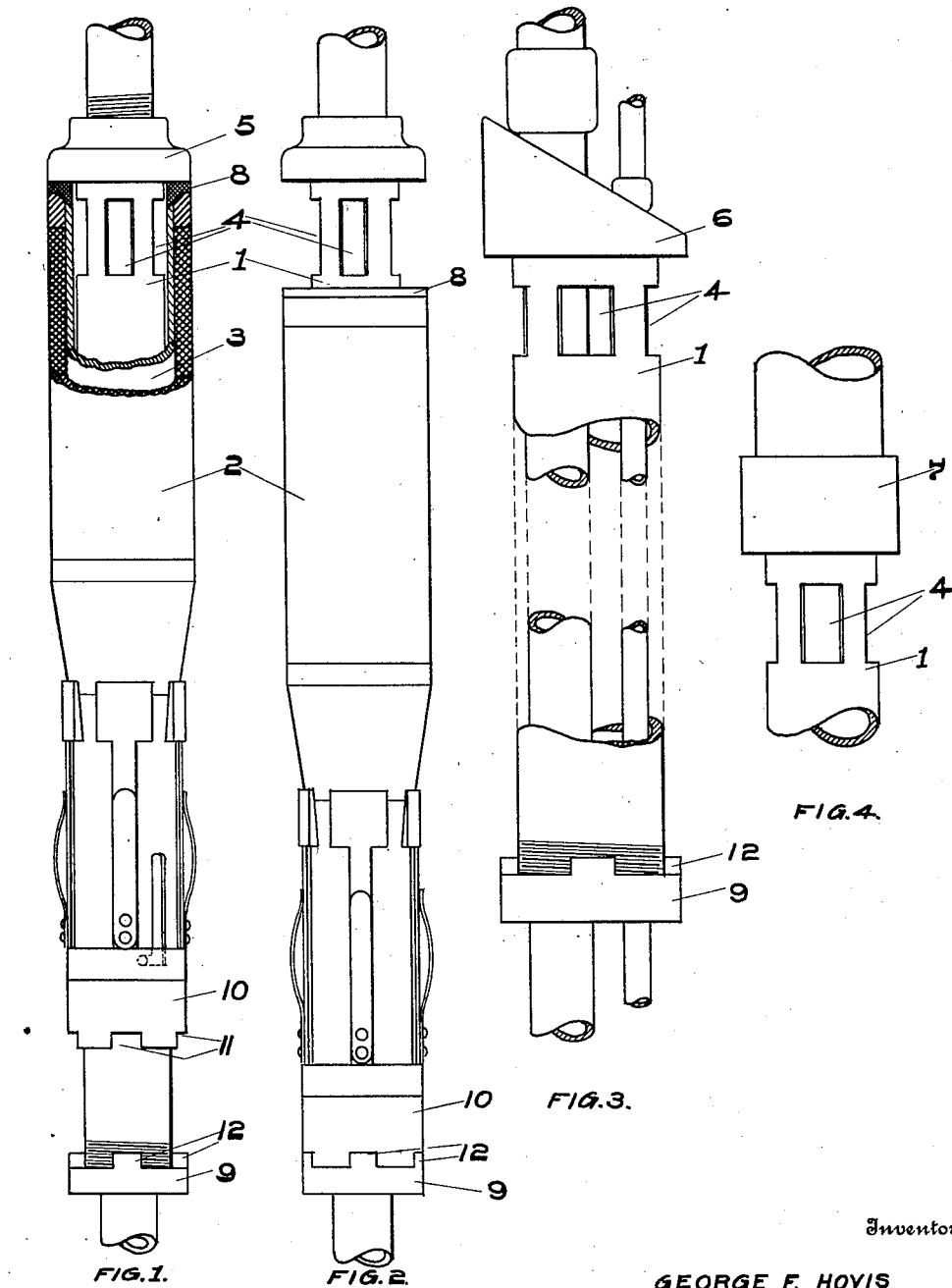


G. F. HOVIS.
 WATER DISCHARGE ATTACHMENT FOR DEEP WELL PACKERS.
 APPLICATION FILED DEC. 5, 1910.

997,915.

Patented July 11, 1911.



Witnesses

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GEORGE F. HOVIS, OF CLINTONVILLE, PENNSYLVANIA.

WATER-DISCHARGE ATTACHMENT FOR DEEP-WELL PACKERS.

997,915.

Specification of Letters Patent.

Patented July 11, 1911.

Application filed December 5, 1910. Serial No. 595,726.

To all whom it may concern:

Be it known that I, GEORGE F. HOVIS, citizen of the United States, residing at Clintonville, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Water-Discharge Attachments for Deep-Well Packers, of which the following is a specification.

The object of my invention is to provide an attachment for packers for deep wells, whereby the packer may be relieved from the weight of the water above it when the packer is to be pulled from the well.

My improved attachment may be adapted to be applied to many of the various forms of packers now upon the market, such, for instance, as that shown in Letters Patent to D. W. Black, No. 439,233 of Oct. 28, 1890, that to D. W. Black, No. 588,384 of Aug. 17, 1897, or that to B. Masseth, No. 439,166 of Oct. 28, 1890, and several others.

Referring to the drawings, Figure 1 shows one of the various forms of packers with my attachment applied thereto, a portion of the packer being broken away to expose the essential portion of my attachment to view. Fig. 2 shows my attachment in the water-discharging position. Figs. 3 and 4 show modified forms of my attachment.

My attachment consists essentially of a water-discharge pipe 1, inserted within and extending through the packer 2 and projecting below the bottom of the same for a short distance. The external diameter of pipe 1 is somewhat less than the internal diameter of the packer-sleeve 3, so that it may have a free longitudinal movement therein.

Approximate to the upper end of the discharge-pipe, ports 4 are formed, through which water may pass to the interior of pipe 1, and through the same to the space below the packer, thereby relieving the weight upon the packer. The upper end of the discharge-pipe 1 may be adapted for the attachment of any desired fitting, such as a tubing-coupling 5, as shown in Figs. 1 and 2, or a tubing and gas-escape pipe-fitting 6, as shown in Fig. 3, or a casing-collar 7 as shown in Fig. 4. Between the lower face of the coupling 5, 6 or 7, as the case may be, and the upper juxtaposed face of the packer, is interposed a packing-ring

8, which serves to form a tight joint at this point.

It often becomes desirable for various reasons to pull the tubing and casing and the thereto attached packer from the well, but with the usual form of packer, this is often very difficult, owing to the fact that there is no way of relieving the packer from the weight of the superimposed body of water, but with my improved attachment the discharge pipe 1 may be raised and the water resting upon the packer is thereby permitted to flow down through the packer, thus relieving it of all weight. Upon the lower end of the discharge pipe 1 is affixed a collar 9, which, when said discharge pipe is raised, abuts against the lower end of the packer and sustains the weight thereof and carries said packer upward with the tubing or casing as it is being withdrawn from the well. In cases, however, where the packer has remained undisturbed in the well for a considerable period of time, it may have become permanently set, and thus adheres so firmly to the wall of the well that it cannot be removed, and in this event it becomes necessary to allow the packer to remain in the well, hence, some provision must be made for permitting the withdrawal of the discharge pipe 1 from the packer. I make provision for such withdrawal in the following manner: In the lower face of the collar 10 of the packer I form several notches 11 and in the upper face of the collar 9 I form a corresponding number of lugs 12, adapted to enter and be engaged by said notches. Collar 9 is secured to pipe 1 by a left-hand screw-thread. When it is found that the packer has become permanently set and stuck in the well, pipe 1 may be unscrewed from collar 9 by causing the inter-engagement of the collar 9 with the lower end of the packer, as shown in Fig. 2, this prevents said collar from turning and when said pipe 1 is turned, it unscrews from said collar, and may then be freely withdrawn from the packer. All of the threads by means of which the tubing or casing is secured together are right-hand threads which insures the unscrewing of the collar 9 from pipe 1, as above stated.

I claim:—

1. The combination with a packer for deep wells, of a pipe having ports in the upper end thereof, said pipe extending

through and longitudinally movable within the packer for the purpose set forth, a tubing connection upon the upper end of said pipe, a packing ring interposed between the
5 opposing faces of said connection and said packer, a collar screw-threaded to the lower end of said pipe and means for causing the inter-engagement between said collar and the lower end of said packer for the purpose
10 of effecting the removal of said collar from said pipe to permit the withdrawal of said pipe from said packer.

2. A water-discharge attachment for packers for deep wells consisting, in combination with such packer, of a water-discharge pipe passing through and longitudinally movable in said packer and having water-discharge ports therein arranged to be withdrawn from and positioned above

the top of said packer for the purpose of
20 permitting the downward flow of water through said ports, a suitable pipe connection secured to the upper end of said pipe and adapted to seat upon the upper end of
25 said packer, a packing ring interposed between the opposing faces of said connection and said packer, a collar screw-threaded to the lower end of said pipe, and means for effecting a non-revoluble engagement between said collar and the lower end of said
30 packer for the purpose of effecting the removal of said collar from said pipe.

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

GEORGE F. HOVIS.

Witnesses:

E. K. SMILEY,

A. L. MYERS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."