

1,018,333.

Patented Feb. 20, 1912.

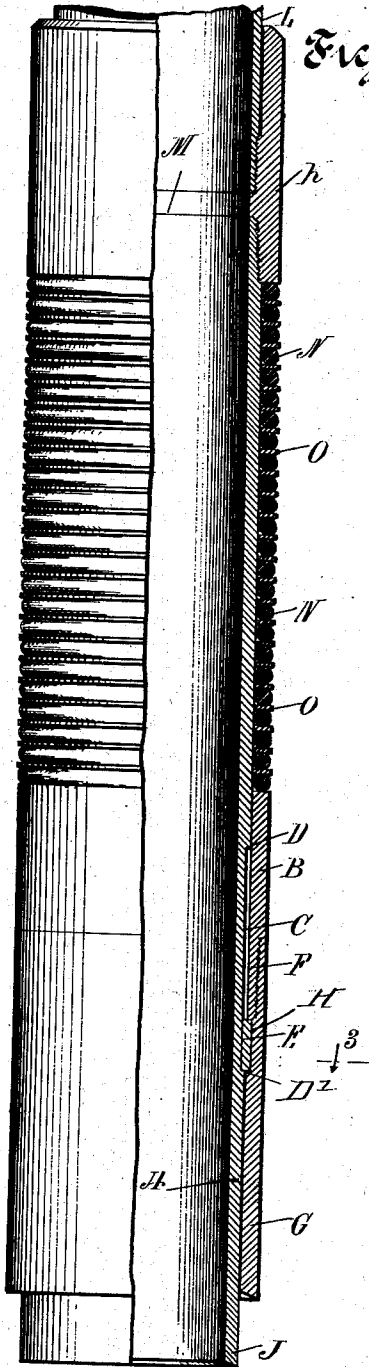


Fig. 1.

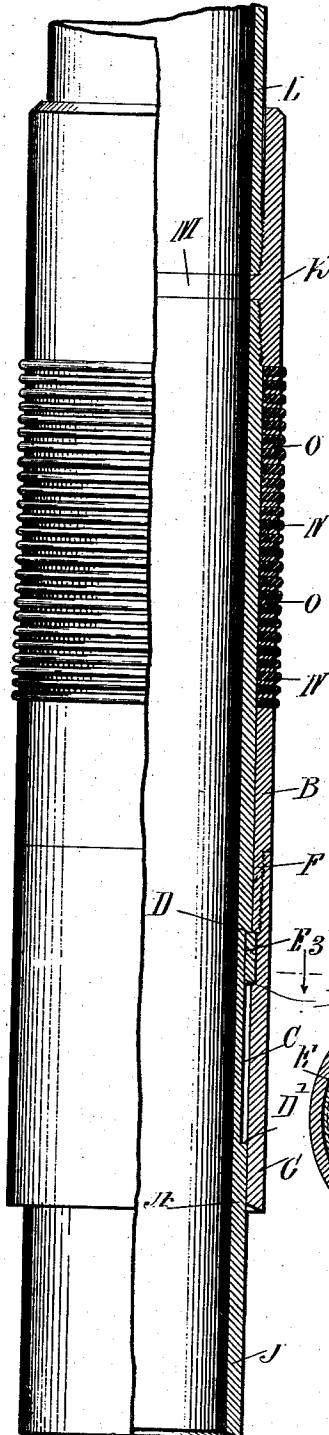


Fig. 2.

Fig. 3.

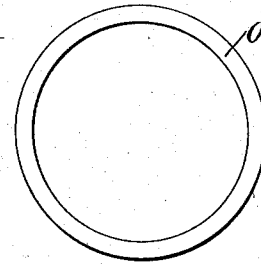


Fig. 4.

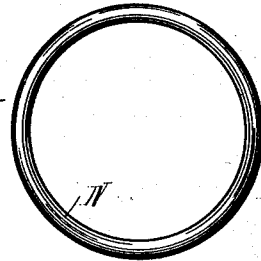
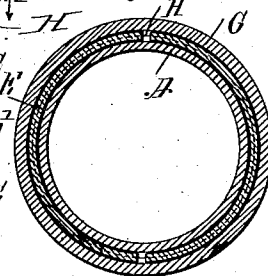


Fig. 5.



WITNESSES
Benedict J. J.
L. J. Gallagher.

INVENTOR
Gerhard Meyer
BY *Mumford & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

GERHARD MEYER, OF SHREVEPORT, LOUISIANA.

PACKING-SHOE.

1,018,333.

Specification of Letters Patent.

Patented Feb. 20, 1912.

Application filed June 19, 1911. Serial No. 633,957.

To all whom it may concern:

Be it known that I, GERHARD MEYER, a subject of the Queen of the Netherlands, and a resident of Shreveport, in the parish of Caddo and State of Louisiana, have invented a new and Improved Packing-Shoe, of which the following is a full, clear, and exact description.

My device involves an improved form of packing shoe, especially adapted for use in well boring, and the object of my invention is to provide an improved shoe which when placed within a well bore will prevent leakage of water into the bore.

Another object of my invention is to provide a shoe of the class described which will consist of few parts and when placed in final position will prevent the leakage of water into the bore, the shoe being efficient in operation and of a low cost of production.

A further object of the invention is to provide a packing shoe made up of two parts movable relatively to each other with resilient material spaced between ends of the said parts whereby movement of one of the parts over the other will cause the said resilient material to expand and come into form engagement with the side wall of the bore, thereby preventing the leakage of water across the said resilient material.

The principal object of my invention is to provide a packing shoe made up of a coupling and two concentric members, one of the members being secured to the packing shoe and the other member being movable along the first one for a suitable distance, there being a plurality of resilient elements positioned between the bottom of the coupling and the top of the second member, the outer diameters of the coupling, the packing members, and the second member being equal whereby the outer surfaces are flush, thereby enabling the construction to be easily inserted into a bore.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which like characters of reference denote corresponding parts in all the views, and in which—

Figure 1 is a side view, partly in section, of the shoe before the resilient members are expanded; Fig. 2 is a similar view showing the parts in final position with the resilient members expanded; Fig. 3 is a sectional view on the line 3—3 of Fig. 2; Fig. 4 is a plan view of one of the resilient members;

Fig. 5 is a plan view of one of the washers placed adjacent each of the resilient members.

My device is made up of two concentric parts A and B movable along each other a certain distance C; this distance is determined by the peripheral edges D, D' on the outside of the part A, the two-part ring E traveling between these edges; the depth of the removed portion of the part A along the distance C may be varied depending on the thickness of the parts and the nature of the work.

The part B is made up of two portions F, G, in screw-threaded engagement with each other, the construction being such that the outer surfaces thereof are flush. The part G adjacent the screw-threaded end is counter-bored for a suitable distance in order to provide a suitable seat H for the two-part ring E; as shown particularly in Figs. 1 and 2, this ring is also in engagement with the lower end of the portion F, such an arrangement insuring its security.

The lower edge of the part A is formed into a drive shoe J and the upper end of the part is screw-threaded in order to provide a suitable engaging means for attachment with a coupling K, to the upper end of which the casing proper L is attached by any suitable means, such as screw-threads. The interior of the coupling K is provided with a shoulder M against which the adjacent ends of the casing L and the part A abut, thereby providing a continuous smooth surface to the interior of the casing.

Surrounding the outside of the part A and resting on the upper end of the part B are a plurality of circular resilient members N, spaced from each other by suitable washers O, the outer diameter of the washers being substantially equal to the outer diameter of the part B; these washers and resilient members are retained in position (as shown in Fig. 1) by means of the part B and the coupling K. It is also to be noted from Fig. 1 that the outer diameter of the parts B, O, and K, being substantially equal permits the casing and shoe to be inserted into any suitable well bore. It may also be noted that the greater the number of resilient members N that are used the greater will be the distance C, this distance in any event being determined by the character of the work and the nature of these members.

After the well is drilled to the proper

depth and in order to go beyond the point where water enters therein, and where a good, stiff clay is found, a small hole is drilled in the clay and the casing is then set in position. The drive shoe J at the end of the packing shoe cuts into the clay, and, as soon as a firm seat is found, the entire weight of the casing above the shoe is allowed to press on the shoe, the inner part A being then moved downwardly relatively to the part B by reason of the weight, the result of which is to compress the resilient packing members N whereby some of the material thereof will be forced outwardly and beyond the outside wall of the packing shoe, as shown in Fig. 2, and into firm engagement with the clay which surrounds the shoe. The expansion of the resilient packing members is positive and in their outward movement will be forced with some pressure into the clay whereby water leaking into the bore above the point of contact of the resilient material will be prevented from entering into the well.

The plurality of resilient members N which I use insure a water-tight joint by reason of the fact that even though some of them fail to respond to the pressure of the casing, others will, thereby forming an outer surface which is roughened or, as it were, corrugated, so that the water is held back.

While I have shown my device as made up of a particular number and arrangement of parts, it is obvious that these may be varied as occasion may require, in order to adapt the device to uses in different bores, without departing from the spirit of the invention as defined in the following claim.

Having thus described my invention, I

claim as new, and desire to secure by Letters Patent:

A device of the class described made up of a coupling, two concentric parts movable relatively to each other, one end of one of the parts being secured to the lower end of the coupling, there being a removed portion on the outside of the said part and extending there-along for a suitable distance, the second part being made up of two members in engagement with each other, a ring secured to the inside of the second part and held in position by reason of the engagement of the two members with each other, the ring being positioned within the removed portion on the outside of the first part, together with a plurality of resilient members having washers therebetween positioned on the outside of the first part, the end resilient members being engaged by the bottom of the coupling and by the top of the second part whereby, the outer diameters of the coupling, the resilient members, and the second part being equal, the parts are flush with each other, movement of the second part relatively to the first one, when the device is inserted into a suitable bore, bringing the coupling nearer the second part whereby the resilient members are expanded and come into engagement with the inside of the bore.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GERHARD MEYER.

Witnesses:

H. L. ANDREWS,
F. L. THEROLD.