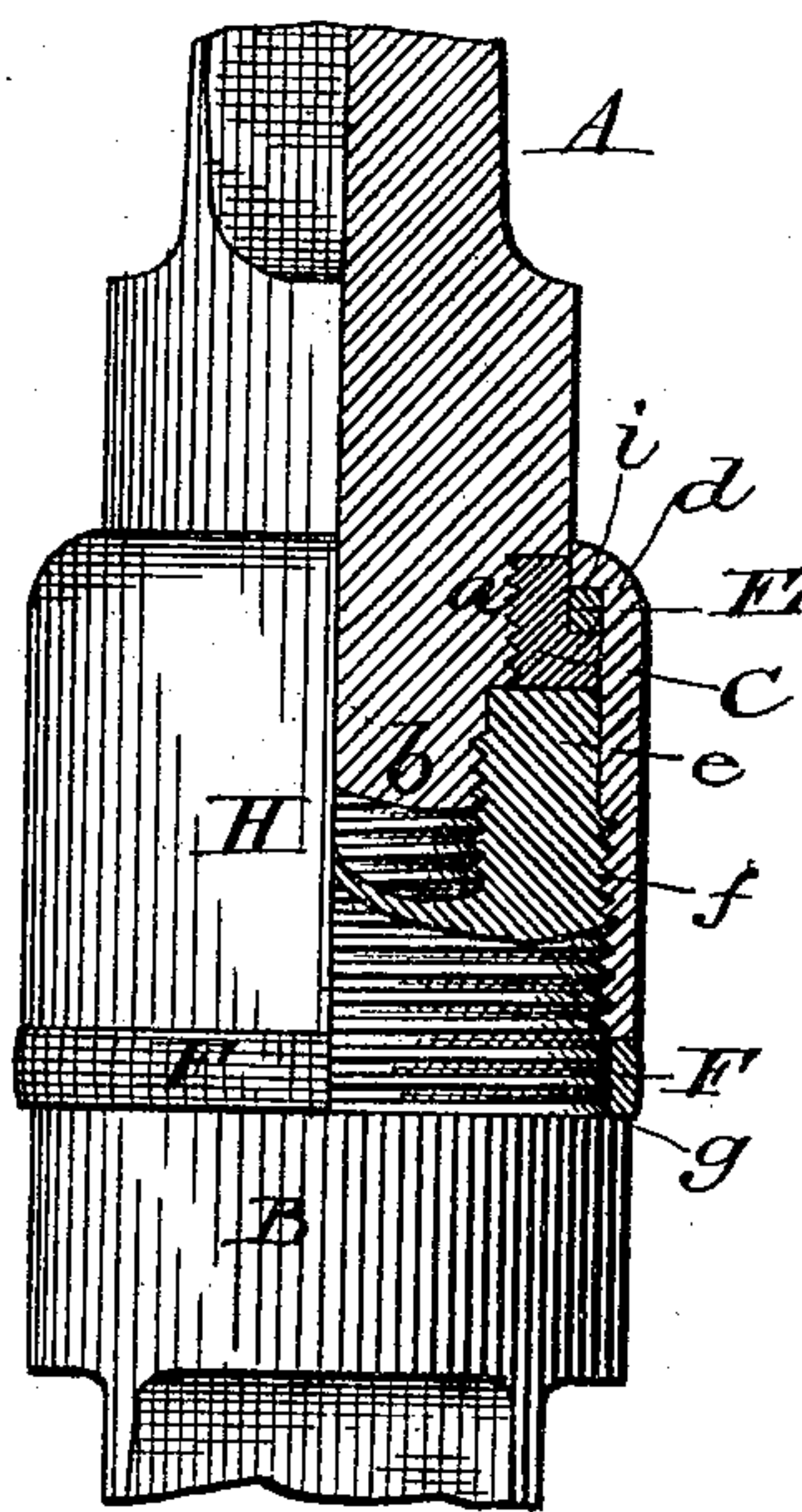


(Model.)

E. E. HARDY.  
COUPLING FOR DRILL RODS.

No. 254,477.

Patented Mar. 7, 1882.



Witnesses.

*Sidney P. Hollingsworth.*

*Walter S. Dodge.*

Inventor.

*E. E. Hardy*

*By his atty.*

*Philip T. Dodge.*

# UNITED STATES PATENT OFFICE.

EMERY E. HARDY, OF KENDALL CREEK, PENNSYLVANIA.

## COUPLING FOR DRILL-RODS.

SPECIFICATION forming part of Letters Patent No. 254,477, dated March 7, 1882.

Application filed July 7, 1881. (Model.)

*To all whom it may concern:*

Be it known that I, E. E. HARDY, of Kendall Creek, in the county of McKean and State of Pennsylvania, have invented certain Improvements in Couplings for Drill-Rods, &c., of which the following is a specification.

My invention relates to an improved coupling for connecting drills to drill-rods, uniting pump-rod sections, &c., being adapted generally for use wherever two rods or equivalent devices are to be connected end to end.

The particular objects of my invention are to produce an exceedingly strong and durable coupling without rendering the same excessively large, to prevent the threaded ends from being broken by shocks and concussions to which the rod is subjected, and to prevent water from entering the joint and rusting the parts fast to each other.

The accompanying drawing represents an elevation of my coupling with one-half shown in section through the center.

A represents the drill-rod or equivalent device, and B the tool or equivalent connected thereto. The rod A is provided at the lower end with a short threaded neck, *a*, of slightly less diameter than the body of the rod, and also provided below the neck *a* with a terminal neck, *b*, of considerably less diameter.

Upon the neck *a* there is secured from the lower end a collar, C, the upper portion of which is of the same diameter as the rod A, but the lower edge of which is enlarged to form a flange or shoulder, *d*, the purpose of which shoulder is to sustain a leather, rubber, or equivalent elastic packing-ring, E, which is mounted thereon, as shown in the drawing. By making the collar C in a separate piece detachable from the rod the ready application and renewal of the packing-ring are permitted. The small neck *b* of the rod A is secured into a threaded hole or seat in the upper end of the tool B, as shown in the drawing, the neck *a* and collar C bearing directly and firmly against the upper end of the tool B, as shown.

The tool B has its exterior provided at the upper end with a smooth cylindrical portion, *e*, and below this smooth portion with a screw-thread, *f*, terminating at the lower end in a shoulder, *g*, as shown. Upon the shoulder *g* a second packing-ring, *h*, is seated, as shown.

The neck *b* serves as a strong connection between the rod and tool, and would under favorable conditions alone answer all the requirements; but in order to prevent the packing from being jarred loose, to give them additional strength, and to relieve the neck *b* from a portion of the strain, I apply over the contiguous ends of the rod and tool the sleeve or thimble H, the upper end of which is provided with a lip, *i*, to bear upon the packing F, while its lower end, which bears firmly upon the packing F, is provided with an internal screw-thread engaging with the external screw-thread, *f*, of the tool.

It is to be noticed that the upper portion of the sleeve H is made of a true cylindrical form in the interior and arranged to fit closely and firmly around the cylindrical portion *e* of the tool, the collar C, and the lower end of the rod A. By thus constructing and applying the collar a firm connection between the parts is secured and lateral strain upon the neck *b* effectually prevented. The elastic packing, applied as shown, serves the twofold purpose of excluding water from the interior of the joint and of relieving the parts in a measure from the shock and concussion to which they would be otherwise subjected.

In order to prevent the parts from jarring apart when in use, the thread of the neck *b* and the thread *f* should be cut in reverse directions or with different pitches.

I am aware that drill-rods have been connected by means of right and left hand threads and a straight collar or sleeve screwed thereon, and this I do not claim. I am not aware, however, that any one has constructed and united the parts in the manner shown in the drawing, or made use of the elastic packing-rings in any similar connection.

Having thus described my invention, what I claim is—

1. The combination of the rod A, having threaded neck *b*, tool B, having the external thread, packing F, and sleeve H.

2. The combination of the rod A, having threaded neck *b*, the tool B, having thread *f*, the sleeve H, and packing E.

3. In combination with the rod A, tool B, and connecting-sleeve H, the collar C and packing E, applied as shown.



4. In a drill-rod coupling, the combination of an external connecting-sleeve and elastic packings, applied at the ends of said sleeve, substantially as shown, to exclude water from the interior of the coupling.

5 In combination with the rod A, having neck *b*, the externally-threaded tool B, having the cylindrical portion *e*, and the external connecting-sleeve, H, arranged to bear closely

upon the exterior of the portion *e*, substantially as shown.

6. The combination of the rod A, tool B, sleeve H, and packings E and F.

EMERY E. HARDY.

Witnesses:

GEO. A. STURGEON,  
F. H. MATHEWS.