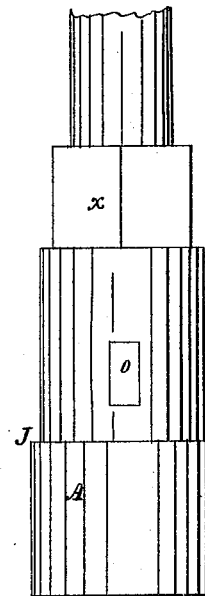


*R. Gracey,*  
*Shaft Coupling,*

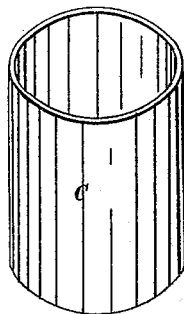
*No 55,086,*

*Patented May 29, 1866.*

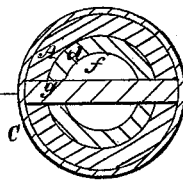
*Fig. 2.*



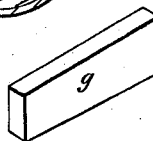
*Fig. 4.*



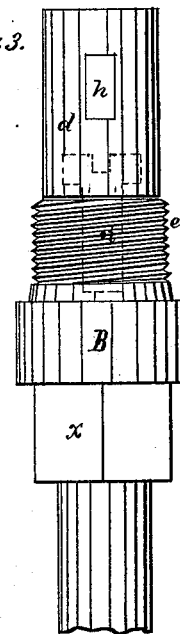
*Fig. 5.*



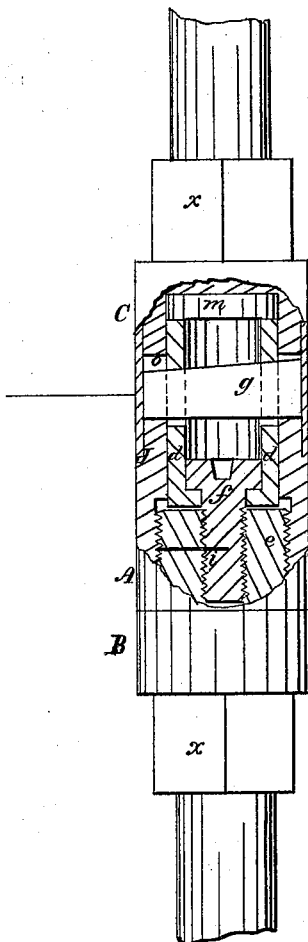
*Fig. 6.*



*Fig. 3.*



*Fig. 1.*



*Witnesses.*

*James Johnston*  
*James Northbridge*

*Inventor*

*Robert T. Gracey*

# UNITED STATES PATENT OFFICE.

ROBERT GRACEY, OF PITTSBURG, PENNSYLVANIA.

## IMPROVED SOCKET-JOINT FOR OIL-TOOLS.

Specification forming part of Letters Patent No. 55,086, dated May 29, 1866.

*To all whom it may concern:*

Be it known that I, ROBERT GRACEY, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Socket-Joints for Oil-Tools; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in providing the screw of the male part of a socket-joint with a swivel-head furnished with an opening for a key, and also in providing the female part of the joint with a chamber for said swivel-head, said chamber being furnished with openings which in form, size, and position correspond to the openings for the key in the swivel-head, said male and female parts of the socket-joint, with the swivel-head, chamber, and openings for the key, being used in combination with a key and sleeve, the whole being constructed, arranged, and operating in the manner hereinafter described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, Figure 1 represents a front elevation and a sectional view combined of my improved socket-joint for oil-tools. Fig. 2 represents a front elevation of the female part of the joint. Fig. 3 represents a front elevation of the male part of the joint. Fig. 4 represents a perspective view of the sleeve used for holding the key in its place. Fig. 5 represents a transverse section of the joint cut through at the line marked 1 in Fig. 1. Fig. 6 represents a perspective view of the key used in connection with the swivel-head and sleeve of the joint.

In the drawings, A represents the female part of the joint, and is furnished with a female screw and chamber, *m*, for the swivel-head, and openings *o* for the key *g*, and with a shoulder, J, for the sleeve C to rest on.

B represents the male part of the joint, the screw *e* of which is furnished with a swivel-head, *d*, which is screwed to the screw *e* by

means of screw-bolt, (marked *f*;) which is prevented from turning by the use of a pin, (marked *i*.) This swivel-head *d* is provided with openings *h* for the key *g*. The openings *o* and *h* should be so arranged so as to allow the key *g* to draw on the swivel-head *d*.

The manner of constructing and the relation that the several parts bear to each other will readily be seen and understood by the skillful mechanic. I will therefore proceed to describe the operation of my improved socket-joint.

The swivel-head is placed in the chamber provided for it in the female part of the joint, care being taken to have the openings *h* to come opposite to the openings *o*. The joint is then screwed together in the ordinary way; and after the joint is properly screwed up I then drive the key *g* in the openings so as to draw on the swivel-head. I then place the sleeve C over that part of the female part of the joint through which the key passes, so that the lower end of the sleeve will rest on the shoulder J. This sleeve will prevent the key *g* from becoming loose and dropping out of its place.

The advantages of my improvement consist in providing means for relieving the screw of the socket-joint from undue strain and for preventing the joint from unscrewing and becoming separated by the jarring action of the tools in boring the well. The shoulders *x* are used for the wrench for screwing up and unscrewing the joint.

Having thus described the nature, construction, and operation of my improvement, what I claim as my invention is—

The use of the swivel-head *d*, key *g*, and key-seats *o* and *h*, when used in combination with the male and female parts of the joint and the sleeve or band C, the whole being constructed, arranged, and operating substantially as herein described and for the purpose set forth.

ROBERT GRACEY.

Witnesses:

JAMES J. JOHNSTON,  
ALEXANDER HAYS.