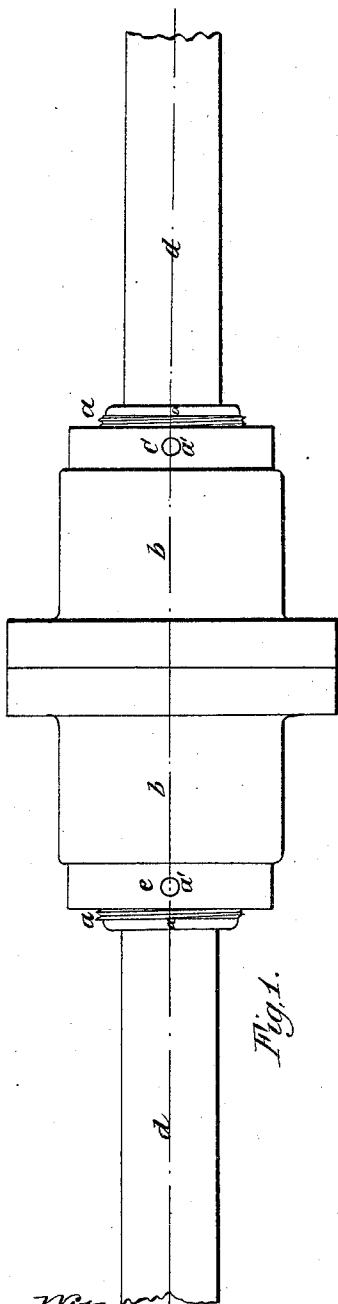


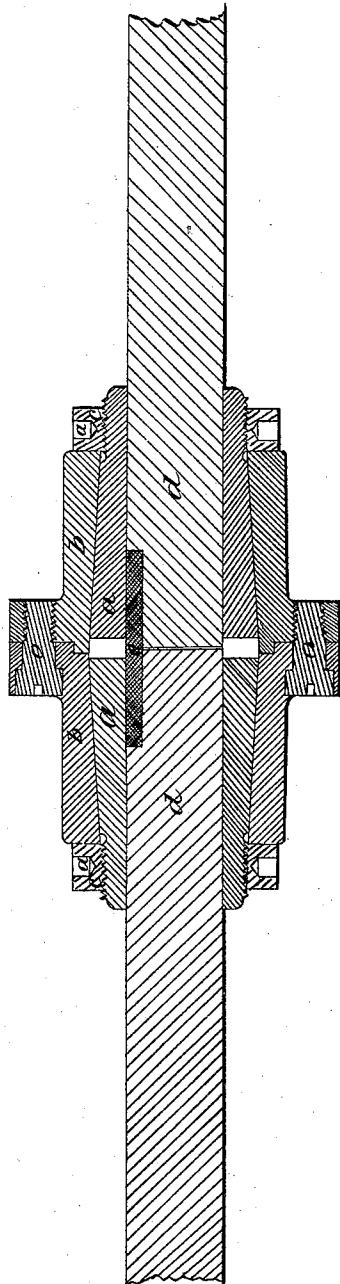
*London & Richards,  
Shaft Coupling.*

*N<sup>o</sup> 65,821.*

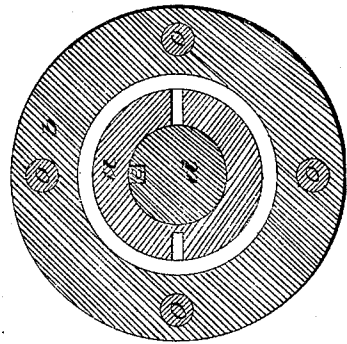
*Patented June 18, 1867.*



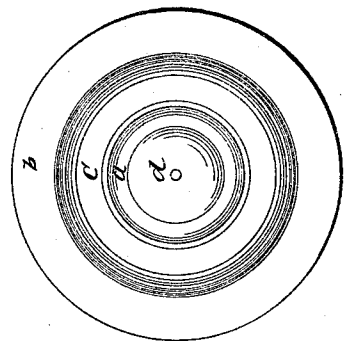
*Fig. 1.*



*Fig. 2.*



*Fig. 4.*



*Fig. 3.*

*Witnesses.  
Charles Hoerrmann.  
W. R. Hyde.*

*Inventors.  
W. E. Loudon  
John Richards.*

# United States Patent Office

WILLIAM E. LONDON AND JOHN RICHARDS, OF CINCINNATI, OHIO.

Letters Patent No. 65,821, dated June 18, 1867.

## IMPROVEMENT IN SHAFT-COUPLING.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that we, WILLIAM E. LONDON and JOHN RICHARDS, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and improved Coupling for Shafts; and we do hereby declare the following to be a full and exact description of the same, reference being had to the drawings, accompanying and forming part of this specification, in which—

Figure 1 is a side elevation.

Figure 2, a longitudinal section.

Figure 3, an end view; and

Figure 4, a transverse section through the centre.

Similar letters of reference on the different figures indicate corresponding parts.

The nature of this invention consists in a shaft-coupling, with two conical sleeves within two separate conical shells, arranged to act independently on the ends of separate shafts, and when bolted together forming a shaft-coupling for connecting shafts of different or the same diameters, as set forth and described in this specification.

This coupling belongs to that class of shaft-couplings where a split conical sleeve or sleeves are used to clamp the ends of shafts, so arranged as to be readily disengaged for mounting pulleys, or in removing a shaft or parts thereof. In couplings of this class, where two independent conical sleeves have been employed, the outer shell or casing has been made whole and of a single piece, making the removal of the coupling necessary in transportation or in removing sections of the shaft. The arrangement here shown, in which the coupling is formed in two independent halves, enables the machinist to fit the coupling to the shaft and leave them during the erection or transportation of the shafts. Either shaft can be removed from the coupling without loosening the other, or both can be removed without separating the coupling, or the coupling can be unbolted and separated in the centre, leaving each independent half attached to the ends of the shaft. Another peculiarity of a coupling so constructed, is that the internal compressing sleeves being drawn or moved by means of a revolving nut, and by means of a screw-thread on their periphery, cannot be made to spring or bend the shaft, as in the case of split sleeves moved by bolts, when the strain may fall unequally on the different sides of the sleeve, causing a bend in the shaft by such unequal strain.

To enable others skilled in the art to make and use our invention, we will proceed to describe the manner of its construction and mode of application, with the aid of the drawings.

The main parts of the coupling, consisting of the flanged hubs *b b*, are not unlike the common flange-coupling and are bolted together in the same manner with flush bolts, as shown, or in any other manner to connect them firmly together. The hubs *b b* are bored larger than the shaft, and of taper form to receive the sleeves *a a*. These sleeves *a a* are made of wrought iron or other strong material, are bored to fit the shaft, and turned on their exterior to fit the conical bore in the hubs *b b*, with a parallel extension to receive the ring-nuts *C C*. These nuts are threaded on the sleeves *a a*, and draw them from the centre by working against the hub *b* in the manner shown. The sleeves *a a*, when drawn from the centre against the taper on their exterior, are closed concentrically upon the shaft, clamping it firmly, and holding it for ordinary uses without the key *e*. The sleeves *a a* are split on one side, to admit of their being expanded and closed to fit shafts of different diameters, when such variation is slight; and can also be grooved at one or more points, as shown in fig. 4, to make them more flexible without altering their functions.

In applying the coupling, the ring-nut *C* is first put over the end of the shaft, the main shell *b* is then put on, and lastly the sleeve *a*. The end of sleeve *C* being set flush with the end of the shaft, the shell *b* is then put on over sleeve *a*, and the nut *C* turned on the threaded extension, as shown in fig. 2, forcing hub *b* on to sleeve *a* until the necessary pressure is secured. The coupling can then be bolted together in the same manner as a common flange-coupling. When a key, *e*, is used, the ends of the two shafts *d d* are brought together after putting on the parts of the coupling; the sleeve *a* passing over this key, the different ends are tightened in the same manner as before described. The key *e* can also be made to fit the slot or split in sleeve *a*, shown at *g'*, fig. 4, or a corresponding mortise on the opposite side, so as to use the strength of sleeves *a* in communicating the force from one shaft to the other. Either shaft can be removed from the coupling by loosening the nut *C*, or

both shafts can be removed without separating the coupling in the centre. The coupling can also be separated by removing the bolts O' O in the flanges, leaving each half upon the shaft, and without loosing the cone-sleeves *a a*. The nuts C C are turned by a wrench fitting into holes shown at *a' a'*.

Having thus described the nature of our invention, its mode of construction and manner of operation, we do not claim the use of a split cone or sleeve in a shaft-coupling; but what we do claim, and desire to secure by Letters Patent, is—

The use of two conical sleeves within two separate conical shells, arranged to act independently on each shaft, and forming the two halves of a shaft-coupling, as herein set forth and described.

W. E. LONDON,  
JOHN RICHARDS.

Witnesses:

W. C. HARD,

W. S. KELLEY.