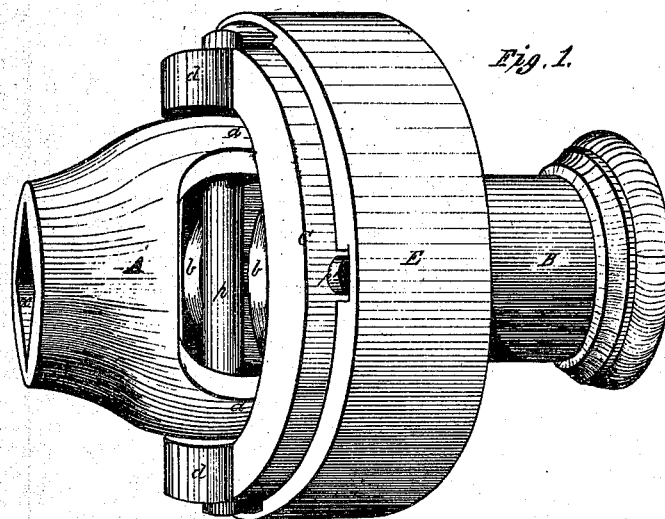
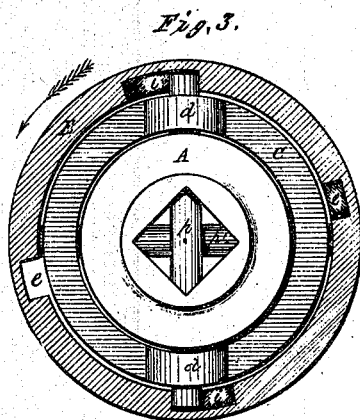


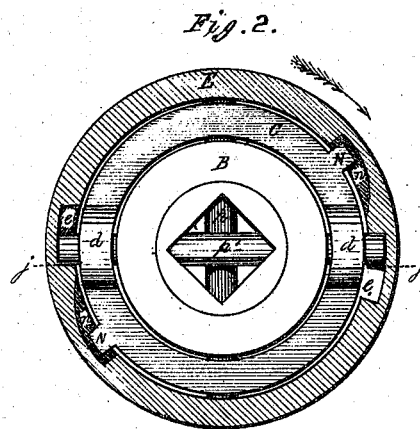
*F. G. Shepard,*  
*Shaft Coupling.*  
*No. 112,641. Patented Mar. 14, 1871.*



*Fig. 1.*



*Fig. 3.*



*Fig. 2.*

*Witnesses.*  
*C. J. Cook*  
*G. H. Chapman*

*Inventor.*  
*F. G. Shepard,*  
*by Atty in fact. George Johnson.*

# United States Patent Office.

FREEDOM G. SHEPARD, OF BATTLE CREEK, MICHIGAN.

Letters Patent No. 112,641, dated March 14, 1871.

## IMPROVEMENT IN SHAFT-COUPPLINGS.

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

I, FREEDOM G. SHEPARD, of the city of Battle Creek, in the county of Calhoun and State of Michigan, have invented certain Improvements in Shaft-Couplings, of which the following is a specification.

These improvements are intended to apply more especially to that class of shaft-couplings which permits the working of shafts or tumbling-rods when out of alignment with each other, and which is mainly used to connect portable machines with their powers, and to transmit motion and power from the one to the other.

The first part of my invention relates to the combination with the coupling-ring (to which the coupling-forks are usually pivoted) of an exterior guard-ring, for the purpose of covering the ends of the coupling-pins and securing the pins in place without impairing the strength of the inner coupling-ring, and to obviate the necessity of external projections, such as bolt-heads, points, or nuts on the periphery of the coupling, which projections are very dangerous, from their tendency to catch into any article of clothing that may come into momentary contact.

The second part of my invention relates to a recessing, slotting, and keying arrangement, in which the coupling-pins are made the sole basis of attachment to keep the guard-ring in place, my object being to preserve the main coupling-ring intact, and at the same time furnish a ready means of coupling and uncoupling the detachable shafts by a simple hand manipulation, and without detaching the guard-ring, as will hereinafter more fully appear.

### *Explanation of the Accompanying Drawing.*

Figure 1 is a perspective view of a pair of couplings embodying my invention, and showing the guard-ring as it appears after being unkeyed, revolved, and drawn back so as to uncover one of the coupling-pins prior to uncoupling the shaft.

Figures 2 and 3 are exterior end views of the respective couplings shown in fig. 1.

A and B constitute a pair of ordinary forked couplings, the forks being shown respectively at *a a* and *b b*.

The bodies of these couplings are cored out, as may be seen at *x*, to receive the ends of the shafts to be riveted on or form slip sockets, or otherwise connected with the coupling in any of the well-known and approved ways.

C is the coupling-ring, inside of which the forks play on the coupling-pins *p p*, which pass through said forks and ring, and I usually cast reinforces *d d* opposite the pin-bearings to save metal.

E is the guard-ring, made smooth on the periphery, and cast usually a little wider than the coupling-ring, and of such relative radius as to slip freely over it.

The two rings may be connected together by flush-headed tap-bolts, or any other of the well-known contrivances for such purposes; but in that case the ends of the coupling-pins may be made flush with the ring C, and the guard-ring have a snugger fit; but the readiest and best mode is to lock the outer ring with the coupling-pins in the manner I will now proceed to describe, reference being had to the drawing, in which fig. 2 represents the edges of the two rings as facing coupling B, and fig. 3, the opposite edges facing the coupling A.

The guard-ring E is formed with two inside cross-grooves, to permit the passage of the projecting ends of the coupling-pin *p*, and also to serve as a key-way, as shown at *e e*, and with two recesses, *i i*, sunk to a proper depth, to receive the projecting ends of the coupling-pin *p*, as seen in fig. 3.

Two shorter recesses, *j j*, are also sunk from the opposite edge next the grooves, to catch the ends of the pin *p*, as exhibited in fig. 2, when the guard-ring has been turned round a little in the direction of the arrow.

The stops *N N* on the coupling-ring and the deep recesses *n n* in the guard-ring are simply for the purpose of preventing the guard from being drawn back any further than is necessary to permit the coupling-pin *p* to be taken out, as clearly shown in fig. 1.

The forks of the coupling B being first coupled to the ring C by the pin *p*, the ring E is slipped over the ring C until arrested by the stops *N n*. The forks of the coupling A are now coupled to the ring C by inserting the pin *p*; the ring E is drawn back until the projecting ends of said pin enter the recesses *i i*, and the ring being now revolved as far as the length of the recesses permits in the direction of the arrow, the recesses *j j* on the opposite side have been moved over the projecting ends of the pin *p*, and the guard-ring is securely interlocked with the ends of the coupling-pins, so as to cover the pins and confine them in place, while the covering-ring is itself secured against displacement.

A key, of leather or other material fit for the purpose, inserted by the hand into one of the grooves *e*, makes every thing safe, such key being indicated by the hatched border around *e*.

The uncoupling is of course effected by reversed motions in reversed order; but when the coupling A and its shaft are detached, the pin *p* should be replaced in the ring C and the ring E interlocked and keyed as before.

My arrangement of the guard-ring renders the forked coupling perfectly safe for all kinds of portable and many kinds of stationary uses, where an exact alignment of the shafting cannot be maintained, and, being

independent of the coupling-rings, can be readily applied to all these kinds of couplings already made.

The additional projection of the guard-ring, of a smooth unbroken exterior, beyond the bodies of the coupling-forks is an additional element of safety, for it helps to ward off any thing from the contact and entanglement with these more dangerous parts.

The guard-ring is easily manipulated, and as the recesses, grooves, &c., are formed in the casting process, all the expense attending its construction beyond its cost as a casting is the making its exterior surfaces tolerably smooth.

*Claims.*

I claim as my invention—

1. The combination of a separate smooth metal

guard-ring, E, with the ordinary coupling-ring C of a pair of forked shaft-couplings, when said guard-ring is so placed and attached as to cover the ends of the coupling-pins and secure them in place, substantially as and for the purpose specified.

2. In forked shaft-couplings, the arrangement and combination of the separate grooved and recessed guard-ring E, ordinary coupling-ring C, and projecting coupling-pins *p p'*, to the end that said pins and guard-ring may mutually secure and protect each other, substantially as set forth.

FREEDOM G. SHEPARD.

Witnesses:

FRANK T. ROBERTS,  
GEO. W. HYATT.