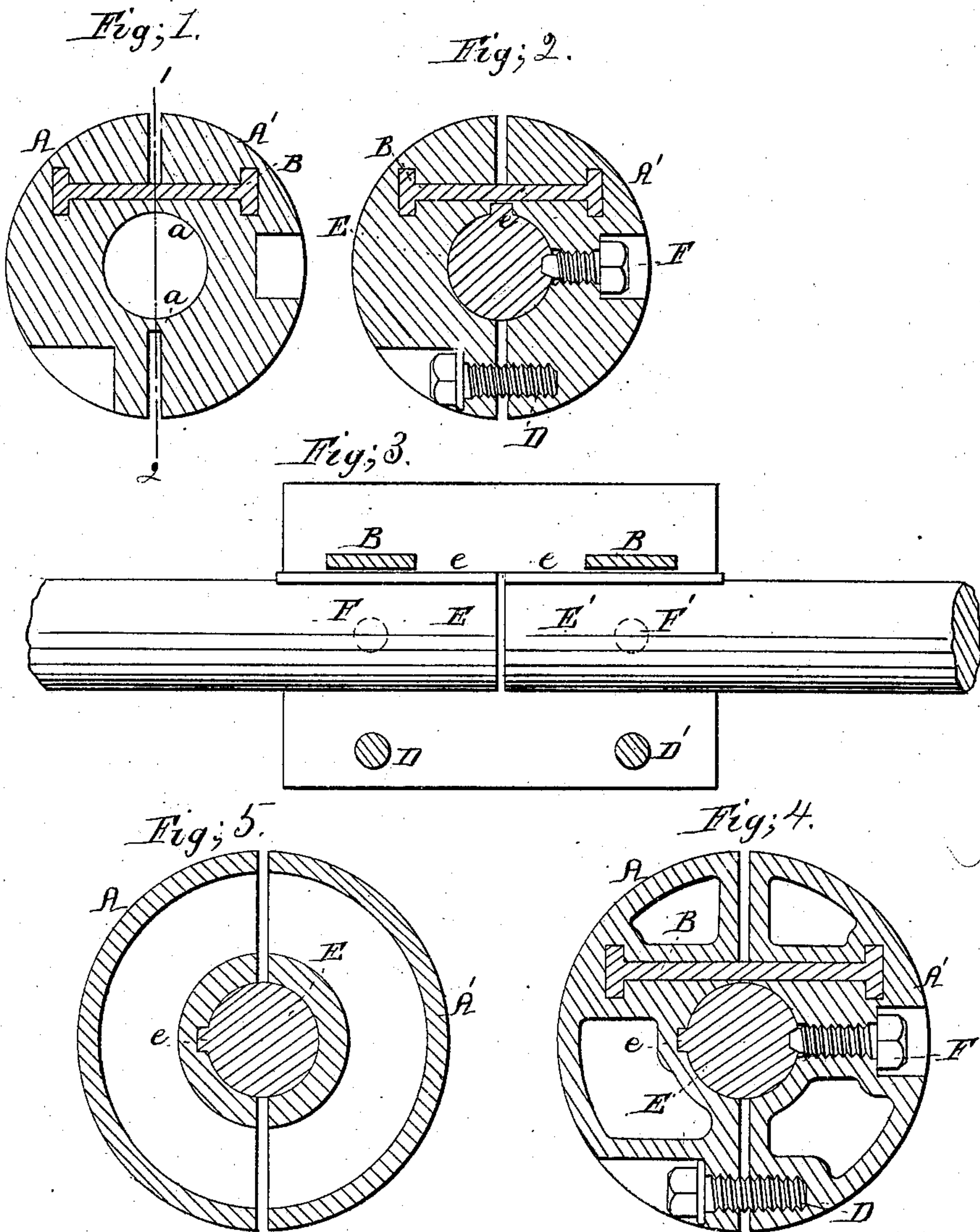


*W. Crandell,*

*Shaft Coupling.*

*N<sup>o</sup> 80,061.*

*Patented July 21, 1868.*



*Witnesses;*

*Wm. Steel  
John Parker.*

*Inventor;*

*Wm. Crandall  
By his Atty  
H. Howson*



# United States Patent Office.

WILLIAM CRANDELL, OF PHILADELPHIA, PENNSYLVANIA.

*Letters Patent No. 80,061, dated July 21, 1868.*

## 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 I, WILLIAM CRANDELL, of Philadelphia, Pennsylvania, have invented an Improved Shaft-Coupling; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention consists—

First, of a coupling, composed of two halves, connected together on one side of the shaft by bars, or their equivalents, and at the opposite side of the shaft by screws or bolts, as described hereafter.

Second, in arranging the said bars, or their equivalent, nearer to the shaft than the screws or bolts, so that the exertion of a comparatively slight force to tighten the bolts, will insure the tightest gripping of the shafts by the coupling.

Third, in embedding the bars in the coupling during the process of casting the same, as described hereafter.

Fourth, in a certain application of set-screws, described hereafter, for preventing the end play of the shafts.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a transverse section of the coupling as it appears immediately after being cast.

Figure 2, the same of the coupling when finished.

Figure 3, a longitudinal section on the line 1-2, fig. 2.

Figures 4 and 5, transverse sections of modifications of the coupling.

Although the coupling when finished consists of two semi-cylindrical pieces or halves, A and A', held together by the wrought-iron bars B and B' and screws D and D', referred to hereafter, the two pieces are united in casting at *a a*, fig. 1, and remain thus united while the coupling is being bored out, turned, and otherwise finished, when the connections *a a* are cut away, the only remaining connecting media being the said bars and screws.

The bars B and B' are of good tough wrought iron, enlarged at the opposite ends, and are introduced into the moulds, so that when the coupling is cast the bars are permanently embedded in the iron.

E and E' are the ends of two adjacent shafts, each fitting in and projecting half way through the coupling, in which is cut a groove for the reception of keys or feathers, *e e*, on the shafts.

The set-screws D and D' pass through the portion A into the portion A' of the coupling, there being recesses for the reception of the heads of the screws, as shown in fig. 2.

On tightening these screws they have a tendency to draw the lower portions of the two halves of the coupling together, and their tendency to force apart the upper portions is resisted by the permanent bars B and B'; hence the tightening of the screws must result in the ends of the two shafts being firmly gripped by and between the two halves.

The nearer the permanent bars are to the centre of the shaft, and the further away the screws are from the latter, the greater will be the leverage exerted to gripe the shafts; hence it will be seen, on reference to fig. 2, that the bars are nearer to the shaft than the screws.

The advantages of this feature, however, will be most apparent on referring to fig. 4, which represents my improved coupling made of larger diameter, and cast hollow for the sake of lightness.

In this case the screws D and D' are twice as far from the centre of the shaft as the permanent coupling-bars, so that a comparatively slight force exercised in tightening the screws will insure the confinement of the shafts by the coupling with the tightest gripe.

In that class of couplings, which are known as clamp-couplings, however tight the shafts may be gripped, they have a tendency at times to work endways. In order to prevent this, I use set-screws, F, applied to the coupling, as shown in figs. 2 and 4, the point of one screw penetrating a recess in one shaft, and that of the other screw a recess in the other shaft, and these screws effectually prevent any end play of the shafts.

I claim as my invention, and desire to secure by Letters Patent—

1. A coupling, composed of two halves, connected together on one side of the shaft by bars or links B and B', or their equivalents, and on the opposite side of the shaft by set-screws or bolts, all substantially as set forth.
2. Arranging the said bars or links, or their equivalents, nearer to the shaft than the said screws or bolts, as and for the purpose set forth.
3. The bars B and B', embedded in the coupling during the process of casting the same, as specified.
4. In combination with a gripping-coupling, set-screws F, applied to prevent the end play of the shafts, as set forth.

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

WM. CRANDELL.

Witnesses:

J. P. DELANEY,

WM. A. STEEL.