

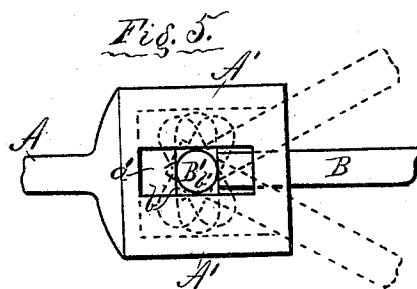
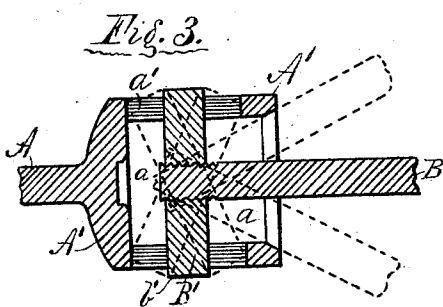
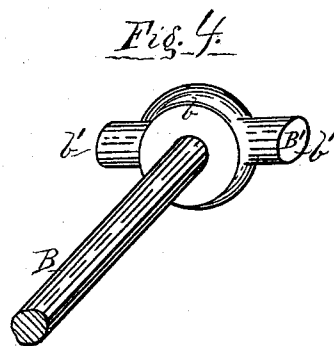
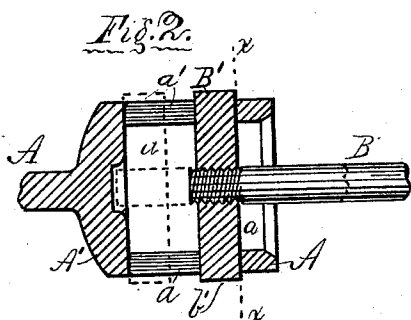
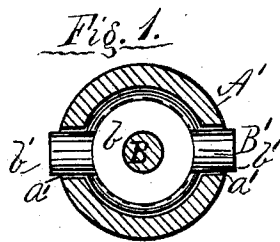
(No Model.)

J. J. WHEELER.

SHAFT COUPLING.

No. 283,940.

Patented Aug. 28, 1883.



Witnesses.
S. R. Richards.
Henry Conner.

Inventor.
James J. Wheeler
By W. B. Richards, Att'y.

UNITED STATES PATENT OFFICE.

JAMES J. WHEELER, OF GRINNELL, IOWA, ASSIGNOR TO CRAVER, STEELE & AUSTIN, OF SAME PLACE.

SHAFT-COUPLING.

SPECIFICATION forming part of Letters Patent No. 283,940, dated August 28, 1883.

Application filed March 29, 1882. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. WHEELER, a citizen of the United States, residing at Grinnell, in the county of Poweshiek and State of Iowa, have invented certain new and useful Improvements in Shaft-Couplings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to shaft-couplings or universal joints which are specially adapted for connecting the ends of two shafts in such manner that, supposing one to be fixed in position and the other placed so as to coincide with the produced direction of the first, the connection of the ends shall allow the movable shaft to be flexed at any angle with the fixed shaft within certain defined limits, and in any given plane which contains that shaft, and so that a rotation of the one shaft about its length will compel the other also to rotate about its own length.

The invention consists in a coupling formed by a tubular or socketed head on the end of one shaft which receives the end of the other shaft with a cross-bar thereon, the ends of which cross-bar project through slots in the wall of the tubular head, and thus form a coupling with all the capabilities of flexure of an ordinary universal-joint coupling, and with capabilities of an additional movement of either shaft toward the other, all as hereinafter described, and set forth in the claims hereto annexed.

In the accompanying drawings, which illustrate my invention, and which form a part of this specification, Figure 1 is a transverse sectional elevation in the line *xx* in Fig. 2. Fig. 2 is an axial sectional plan. Fig. 3 is same sectional plan as Fig. 2. Fig. 4 is a cabinet projection of the shaft with cross-head thereon. Fig. 5 is a side elevation, not shaded.

The same reference-letter designates the same part in the different figures in the drawings.

Letters A and B in the drawings represent, respectively, two shafts coupled by my invention. The shaft A has an enlarged end, A',

formed or secured in any suitable manner thereon. The end or head A' has a central socket or cavity, *a*, therein, open at its outer end.

a' a' are slots in the wall of the head A', on opposite sides of the transverse center of said head. The head A' may be circular in its cross-section, or of any other desired figure or form in its exterior surface; but I prefer the cavity *a*, circular in its cross-section, although other forms might be used successfully.

B' is a bar, with an enlarged part, *b*, which is rounded on its edge, as shown at Figs. 4 and 5, and fits loosely in the cavity *a*, as shown at Fig. 1. The ends *b'* of the bar B are preferably rounded, and are of such size as to fit snugly but loosely in the slots *a'*. The shaft B is screw-threaded and screwed into a central screw-threaded hole in the bar B' at right angles to said bar. It may be otherwise attached thereto, if desired. To effect the coupling, the bar B', disconnected from the shaft B, is put in place in the head A' by first turning the bar B' at an oblique angle to the axis of the shaft A, and after the bar B' is thus placed the shaft B may be screwed into or otherwise connected therewith.

The drawings show by dotted lines a few of the relative angular relations to each other which the shafts A and B may assume, and it will be readily seen that either shaft A or B may be flexed in any given plane which contains the other shaft, at any angle permitted, by the shaft B coming in contact with the outer end of the head A', as shown by dotted lines at Figs. 3 and 5. In addition to the foregoing functions of an ordinary universal-joint coupling, my coupling permits endwise movements of the shafts A and B toward and from each other by means of the bar B' sliding in the slots *a'*, as shown by dotted lines at Fig. 2. In all the angular movements of the shafts A and B relatively to each other the enlarged part *b* of the bar B', fitting against the walls of the cavity *a*, will retain a point in the shaft B, near its end in the socket *a*, in the transverse center of said socket. The slots *a'* may be extended entirely through the wall of the head A'; or the walls may be thickened at that part and the

slots only extend part way through, so as not to admit dirt or dust or other matter.

What I claim as new, and desire to secure by Letters Patent, is—

- 5 1. In a shaft-coupling, in combination with a socket head or shell having slots *a'* in its opposite sides, a bar fixed transversely on the end of the shaft to be coupled to said shell, and its ends resting in said slots, substantially as and
10 for the purpose specified.
2. The combination, in a shaft-coupling substantially as described, with a socket-head on one shaft, having slots in its opposite sides, of a transverse bar on the other shaft, having an
15 enlarged central part adapted to fit the socket in said head, and with ends adapted to fit said slots.
3. In a shaft-coupling, in combination with a shaft having a head, A, with socket *a* and
20 slots *a'*, a shaft, B, having a head, B', with

enlarged central part, *b*, and ends *b'*, substantially as and for the purpose specified.

4. In a shaft-coupling, in combination with a shaft having a head, A, with socket *a* and slots *a'*, a head, B', having ends *b'* and an
25 enlarged central part, *b*, and a shaft, B, adapted to be secured to said head B', substantially as and for the purpose specified.

5. In combination with a tubular or socketed head on one end of a shaft, a cross-bar on the
30 end of another shaft, the ends of which cross-bar project through slots in the walls of the socketed head, substantially as and for the purpose specified.

In testimony whereof I affix my signature in
35 presence of two witnesses.

JAMES J. WHEELER.

Witnesses:

JAMES M. WISHART,
R. RICKER.