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CROSS WIRE PIVOT FOR SHAFT

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The present invention relates to a pivot for permitting a shaft to rotate through a small angle, and particularly to a cross wire pivot for permitting a shaft to rotate through a small angle.

The main object of the present invention is the provision of a new and improved pivot for permitting shafts to rotate through small angles.

Another object of the present invention is the provision of a new and improved pivot for permitting shafts to rotate through small angles and to prevent lateral movement of said shafts.

Still another object of the present invention is the provision of a new and improved pivot for permitting shafts to rotate through small angles, which pivot is simple and inexpensive to fabricate.

A better understanding of the present invention may be had from the following detailed description when read in connection with the accompanying drawing, in which:

Fig. 1 is a perspective view of a shaft mounted on a pivot embodying the present invention; and

Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1.

Referring now to the drawing in detail, a shaft 10 is mounted for rotation through a small angle on a cross wire pivot 12 embodying the present invention.

Shaft 10 is provided with two crossed diametrically extending and counterbored holes 24 and 26. As shown herein, holes 24 and 26 are spaced from one another along the longitudinal axis of shaft 10 and extend perpendicularly of one another. Disposed through hole 24 is a relatively rigid wire 28 of a fixed diameter which is of substantially smaller cross section than the upper portion of hole 24 and of only a slightly smaller diameter than the lower reduced diametral portion 25 of the hole 24. At one end, wire 28 is fixed as in a fixed block 30. Block 30 may be part of a housing. As shown herein, wire 28 is fixed to block 30 by extending through an aperture in said block and being bent down onto the upper surface of said block. Other means of securing wire 28 to block 30 may be employed. At the other end 32, wire 28 is bent as at 34 so that the end 32 lies in surface-to-surface relation with the shaft. Another wire 36 of a fixed diameter extends through the right end portion of hole 26 in shaft 10 through a left end portion 37 of the hole 26 which is of a greater reduced diameter. The wire is thence bent on said shaft and is secured to a fixed block 38 in a manner precisely the same as that described above with regard to wire 28. Block 38 may also be part of a housing. Wires 28 and 36 are made preferably of metal although other materials may be used.

The cross wire pivot 12 has sufficient resiliency or give to permit rotation of shaft 10 through small angles. However, with the wires 28 and 36 provided as shown, shaft 10 will rotate about an axis running through the projected point of intersection of the wires 28 and 36. Moreover, the pivot 12 will permit no transverse movement of shaft 10 and only rotary movement can be imparted to said shaft. The prevention of transverse move-

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ment of the shaft results from the fact that each wire acts as a stop against movement of the shaft along the transverse axis of the other wire.

The present invention thus provides a frictionless type of pivot for the shaft 10 that will permit the shaft to be rotated through small angles and which will further prevent lateral movement of the shaft from occurring while such angular rotation is taking place.

What is claimed is:

1. Means for mounting a shaft for limited rotary movement relative to a stationary object, said shaft being provided with two spaced apart angularly related counterbored holes which extend transversely therethrough, said means comprising a pair of wires, one for each of said holes, each of said wires extending through its associated hole and having one end thereof fixed to the outer periphery of said shaft, and the other end of each of said wires being fixed relative to said object.

2. Means for mounting a shaft for limited rotary movement relative to an object, said shaft being provided with two spaced apart angularly related counterbored holes which extend transversely therethrough, said means comprising a pair of wires, one for each of said holes, each of said wires extending through its associated hole and having one end thereof fixed relative to said object, the portion of each of said wires adjacent the opposite end thereof being a reflex portion in outer peripheral surface-to-surface relation with said shaft whereby to fix said opposite end relative to said shaft.

3. Means for mounting a shaft for limited rotary movement relative to an object, said shaft being provided with two spaced apart angularly related counterbored holes which extend transversely therethrough, said means comprising a pair of wires, one for each of said holes, each of said wires extending through its associated hole and having one end thereof fixed relative to said object, the portion of each of said wires adjacent the opposite end thereof being a reflex portion in outer peripheral surface-to-surface relation with said shaft whereby to fix said opposite end relative to said shaft, the portion of each of said holes in said shaft adjacent its said respective object being substantially larger in cross section than is the said wire passing therethrough and each of the opposite portions of said holes being only slightly larger in cross section than said wire.

4. Means for mounting a shaft for limited rotary movement relative to an object, said shaft being provided with two diametrically extending counterbored holes disposed at right angles to one another and spaced from one another along the longitudinal axis of the shaft, said means comprising a pair of wires, one for each of said holes, each of said wires extending through its associated hole and having one end thereof fixed to the outer peripheral portion of said shaft and the other end of each of said wires being fixed relative to said object.

5. Means for mounting a shaft for limited rotary movement relative to an object, said shaft being provided with two diametrically extending counterbored holes disposed at right angles to one another and spaced from one another along the longitudinal axis of the shaft, said means comprising a pair of wires, one for each of said holes, each of said wires extending through its associated hole and having one end thereof fixed relative to said object, the portion of each of said wires adjacent the opposite end thereof being a reflex portion in outer peripheral surface-to-surface relation with said shaft whereby to fix said opposite end relative to said shaft.

6. Means for mounting a shaft for limited rotary movement relative to an object, said shaft being provided with two diametrically extending counterbored holes disposed at right angles to one another and spaced from one another along the longitudinal axis of the shaft, said means

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comprising a pair of wires, one for each of said holes, each of said wires extending through its associated hole and having one end thereof fixed relative to said object, the portion of each of said wires adjacent the opposite end thereof being a reflex portion in outer peripheral surface-to-surface relation with said shaft whereby to fix said opposite end relative to said shaft, said holes in each of said shafts having a large longitudinal portion of same of a substantially larger cross sectional diameter than each of the said wires passing therethrough and another portion of only slightly larger cross section diameter than each of said wires.

7. Means for mounting a shaft for limited rotary movement relative to an object, said shaft being provided with two diametrically extending counterbored holes disposed at right angles to one another and spaced from one another along the longitudinal axis of the shaft, said means comprising a pair of wires, one for each of said holes, each of said wires extending through its associated hole and having one end thereof fixed relative to said object, the portion of each of said wires adjacent the opposite end thereof being a reflex portion in outer peripheral surface-to-surface relation with said shaft whereby to fix said opposite end relative to said shaft and said holes formed in said shaft each having a portion that is larger in cross

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section than its associated wire and a portion that is only slightly larger than its associated wire.

8. Means for mounting a shaft for limited rotary movement relative to an object, said shaft being provided with two spaced apart angularly related counterbored holes extending transversely therethrough, said means comprising a pair of wires, one for each of said holes, each of said wires extending through its associated hole and having one end thereof fixed relative to said object, the portion of each of said wires adjacent the opposite end thereof being a reflex portion in outer peripheral surface-to-surface relation with said shaft whereby to fix said opposite end relative to said shaft and each of said holes in said shaft having a portion that is larger in cross section than its associated wire and a portion that is only slightly greater than its associated wire.

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