A. McDONALD.

UNIVERSAL SHAFT-COUPLING.

No. 177,531. Patented May 16, 1876.

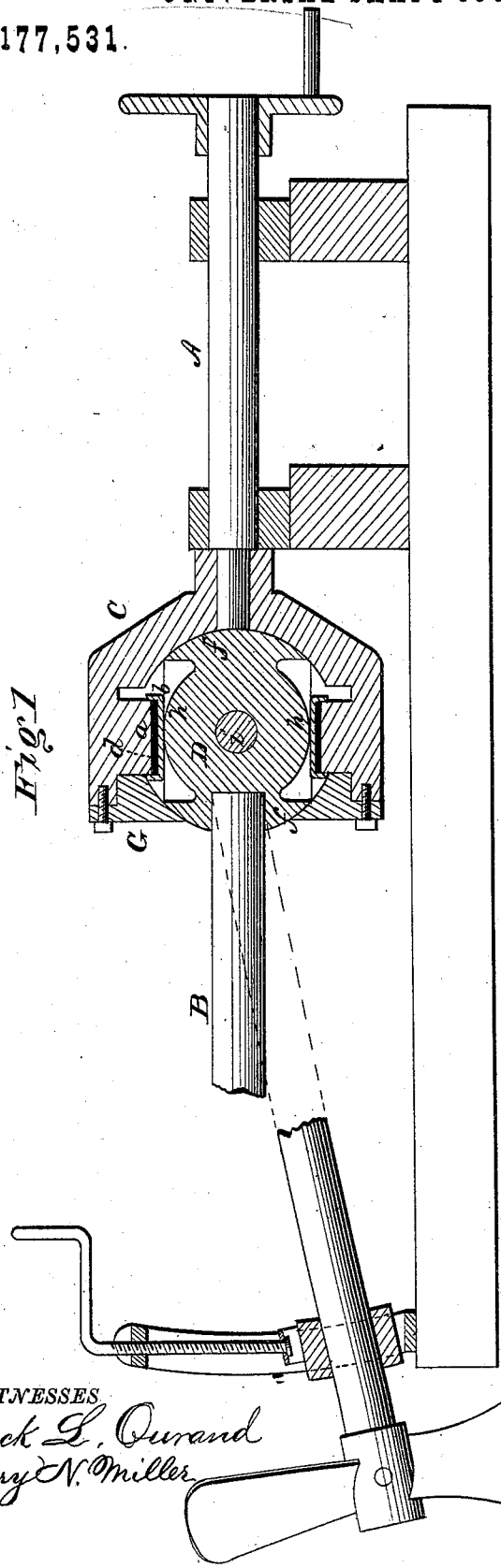

Fig. 1.

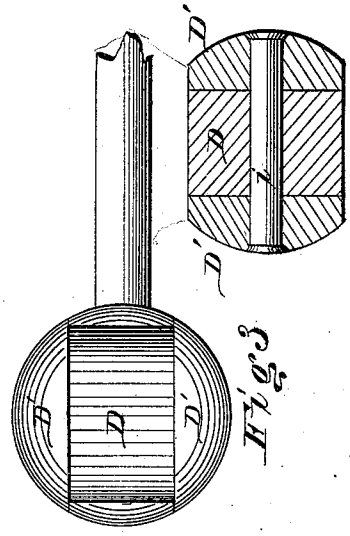

Fig. 3.

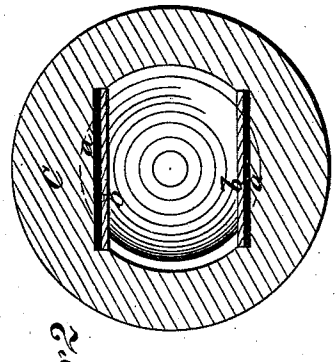

Fig. 2.

WITNESSES

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ALEXANDER McDONALD, OF CUMBERLAND, MARYLAND.

IMPROVEMENT IN UNIVERSAL SHAFT-COUPLINGS.

Specification forming part of Letters Patent No. **177,531**, dated May 16, 1876; application filed April 15, 1876.

To all whom it may concern:

Be it known that I, ALEXANDER McDONALD, of Cumberland, in the county of Allegheny and in the State of Maryland, have invented certain new and useful Improvements in Universal Shaft-Coupling; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a universal shaft-coupling, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a section of my universal shaft-coupling. Figs. 2 and 3 are detached views of parts thereof.

A and B represent two shafts to be coupled together. On the end of the shaft A is secured a box or case, C, of circular form, which may be provided with a stuffing-box at the connection between the box and shaft. The inner portion of the case C is made concave, as shown, and on opposite sides of its inner circumference are formed straight shoulders or offsets *a a*, over each of which is placed a flanged metal plate, *b*, with suitable rubber packing *d* interposed between said plate and shoulder. On the end of the shaft B is secured a head or hub, D, which is flat on both sides. The two ends *f f* of this hub are made convex, while the top and bottom *h h* are cut down, forming the arcs of smaller circles, as shown fully in Fig. 1. On each flat side of the head or hub D is placed a convex plate, D′, to partially complete the head, and form the same into a ball—except the arcs *h h*, the convexity of said plates corresponding with that of the ends *f* of the hub. This hub or head is then inserted in the case C—the plates D′ being connected to the hub by a pin, *i*, or left loose, as desired—so that the edges of the plates D′ and the arcs *h* of the main hub will be against the rubber-cushioned metal plates *b b*. A cap, G, is then fastened over the end of the case C, said cap having an enlarged central orifice for the passage of the shaft B, and the inner side of the cap made concave to form a ground joint with the head or hub *d*, as shown.

This coupling I have intended especially for propellers; but it may of course be used for any purpose whatever where it is desired for one shaft to run at an angle with an adjoining shaft.

With my coupling there is very little friction, and the interior of the case forms an oil-chamber, so that the head or hub D can run entirely in oil.

The rubber-cushioned plates *b b* take up any lost motion caused by wear.

The shaft B may be adjusted at any angle desired—within the limit of the central orifice in the cap G—and run equally as well as when in a line with the shaft A.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a shaft-coupling, the head or hub D, constructed as described, with arcs *h h*, convex ends *f f*, and flat sides, and the convex plates D′ D′ placed against the flat sides, in combination with the case C, having cap G, and made convex with straight shoulders *a*, substantially as and for the purposes herein set forth.

2. The rubber-cushioned plates *b b*, in combination with the case C and hub D, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 10th day of April, 1876.

A. McDONALD.

Witnesses:
M. L. STOWELL,
JAMES DUFFY.