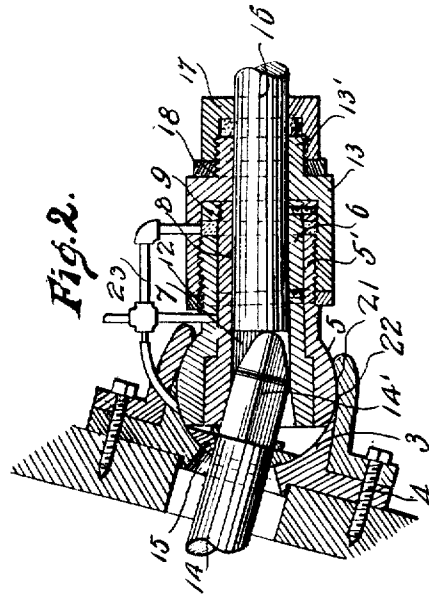
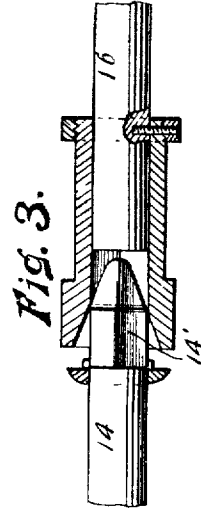
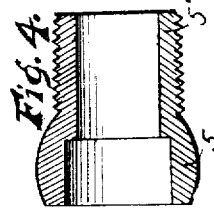
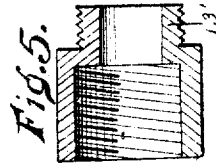
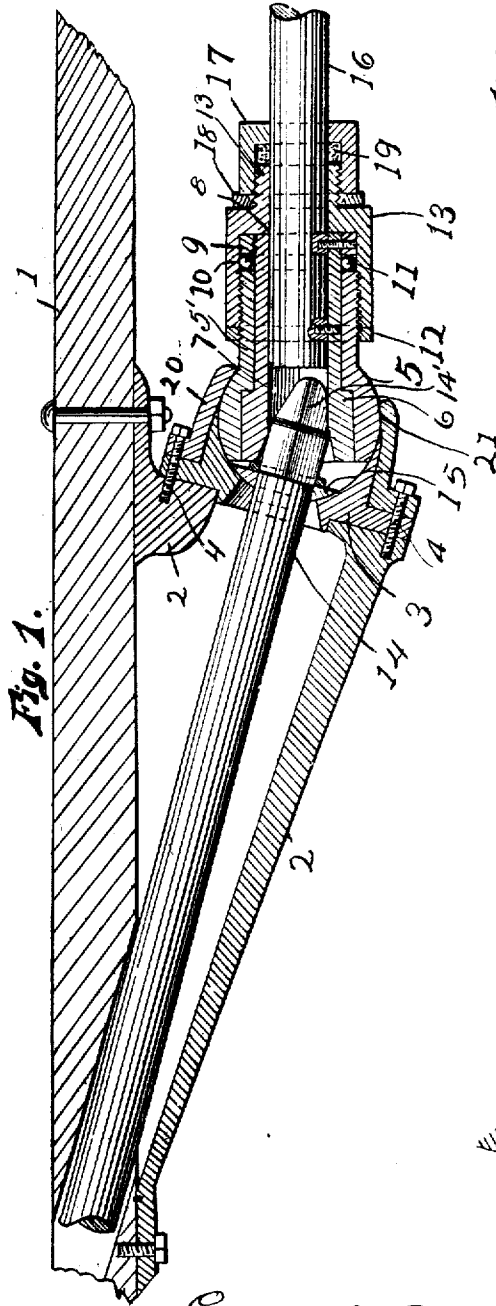


1,012,443.

Patented Dec. 19, 1911.



Witnesses, *Edgar L. Bedell* Inventor,
Thomas Connors *Alfred Davis Robbins*

UNITED STATES PATENT OFFICE.

ALFONZO DAVIS ROBBINS, OF FREEPORT, NEW YORK, ASSIGNOR TO GRACE R. ROBBINS,
OF FREEPORT, NEW YORK.

UNIVERSAL JOINT.

1,012,443.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed March 25, 1911. Serial No. 616,950.

To all whom it may concern:

Be it known that I, ALFONZO D. ROBBINS, a citizen of the United States, residing at Freeport, in the town of Hempstead, in the
5 county of Nassau and State of New York, have invented a new and useful Improvement in Universal Joints in Connection with Stern-Bearings for Boats, of which the following is a specification.

10 My invention relates to certain new and useful improvements in universal joints especially designed for use in connection with marine propeller shafts.

The principal object of the invention is
15 to provide an outside universal joint in connection with a stern bearing which may be adjusted to permit the propeller shaft to be run at an angle to the driving shaft and parallel with the water line. It is also
20 adapted to take the thrust of the propeller from the motor or engine and communicate said thrust to the shaft-log or deadwood of the boat.

It is universal in practice to run a continuous shaft, in connection with a strut,
25 from motor or engine through the stern bearing and strut so that no matter how accurately lined up they may be there is in most cases a vibration due to the action of
30 the motor or engine, thus buckling the shaft at the stern bearing occasioning an excessive wear on said shaft at that point, and also reducing the speed of the boat. If a universal joint be installed on the shaft in the
35 interior of the boat there still remains the third bearing through which a continuous shaft passes, thus giving little or no relief. Again, it is common practice in power boat fitting to allow the motor or engine to take
40 the thrust of the propeller, thus causing an excessive strain on the hull and, in some instances, causing what is termed a "broken back". Also, a propeller revolving with a shaft running at an angle with the water
45 line affords less forward thrust than one adjusted to run parallel with the water line.

The object of this invention, therefore, is to overcome the above mentioned objections incident to the old method of shaft alignment and propeller thrust, and this is accomplished by providing a new and simple outside universal joint in connection with a
50 stern bearing, which I will now proceed to describe in detail so that others skilled in the art may be enabled to make and use said

invention, reference being had to the accompanying drawings, wherein similar reference characters indicate similar parts in all the figures.

Figure 1 is a side elevation of a portion
60 of a boat with the device applied; Fig. 2 is an enlarged detail sectional view showing the device applied to the deadwood of the boat; Fig. 3 is a detail side elevation of the working parts of this improved universal
65 joint; Fig. 4 is a longitudinal section of the hollow sleeve; Fig. 5 is a similar view of the cap.

Referring to the embodiment illustrated in the accompanying drawings, 1 indicates
70 the keel of a boat on which is secured a metal shaft log 2.

3 is a flanged spherical seat having in its flanges apertures through which bolts 4 may be passed. Seated upon said spherical seat
75 3 is a hollow spherical head 5 provided with an off-standing sleeve 5' which is shown exteriorly threaded substantially its entire length. Passing through said hollow head and off-standing sleeve is a connecting chuck
80 6 containing a square and tapered cavity 7 in one end and a cylindrical tubular extension 8 at its opposite end, which end 8 extends beyond the end of the off-standing sleeve of the head 5 and is exteriorly screw
85 threaded. A collar 9 is threaded internally and secured on the projecting end 8 of the connecting chuck 6 and between said collar and the end of the off-standing sleeve 5' of the head 5 is a cavity or recess 10 formed by
90 the concaved adjacent ends of said collar and the off-standing sleeve 5' of the head 5 forming a ball race in which are disposed balls 11 thus creating a ball bearing which takes the thrust of the propeller. When a
95 motor or engine of low power is to be used, the above described cavity 10 is dispensed with and a space left in which Bab-bitt metal washers are inserted which answer the same purpose as the balls. Over
100 the collar 9 and threaded on the sleeve 5' of the head 5 and engaged and locked by a lock nut 12 is a sleeved cap 13, the sleeve 13' of which is exteriorly threaded throughout its entire length.

A driving shaft 14 provided with a square and tapered inner end 14' passes through an enlarged aperture in the spherical seat 3 and enters the square and tapered cavity 7 in the
105 connecting chuck 6 engaging and revolving

said chuck when said shaft is actuated. A convexed washer 15 encircles said driving shaft and is fitted against the inside wall of the spherical seat to prevent the escape of the lubricant. A propeller shaft 16 enters and is secured in the cylindrical extension 8 of the connecting chuck 6 revolving with said connecting chuck and driving shaft 14. A packing cap 17 threaded onto the sleeve 13' of the cap 13 is engaged and prevented from revolving with the propeller shaft 16 by a lock nut 18 forming a chamber 19 into which and surrounding said propeller shaft is placed a suitable packing (not shown) to prevent leakage. A flanged clamping cap 20 is concaved to make a neat fit around the surface of the spherical head 5 between which cap and head is interposed a packing composed of graphite or white lead to make a water tight joint. Apertures in the flanges correspond with the apertures in the flanges of the spherical seat 3 through which the bolts 4 are passed. The propeller shaft 16 passes through a strut (not shown) to obtain the desired angle of said propeller shaft. When said strut has been attached to the boat and the propeller shaft is in its bearing in said strut and secured in the cylindrical extension 8 and the bolts 4 are in place, but not turned up enough to hold the sleeved spherical head 5 rigid, the universal joint will adjust itself. Tightening the bolts 4 and clamping cap 20 in conjunction with said strut, holds the propeller shaft and universal joint in place and at the same time secures the completed device to the shaft log or deadwood of the boat. An oval shaped stop 21 in the flanged clamping cap 20 and an oblong slot 22 in the wall of the hollow head 5 coact and prevent said hollow sleeved head from revolving. The slot, being longer than the stop, which is oval in shape, admits of the necessary movement of the sphere in the socket for adjustment of the propeller shaft to a desired angle. Means are provided for lubricating the working parts of said device by tubes 23 (see Fig. 2) passing from the interior of the boat into the working parts of the device.

I do not wish to be understood as limiting myself to the precise details of construction herein shown and described, except as I may be limited by the terms of the appended claims for I am aware that minor changes may be made without departing from the spirit of the invention.

I am aware that a stuffing box with a socket and ball is not broadly new, but I am not aware that a universal joint combined with a stern bearing with a socket and sphere

designed to change the angle of the shaft after leaving the interior of the boat and to take the thrust of the propeller from the motor or engine, has been patented or used. 65

I claim as my invention:—

1: An outside universal joint in connection with a stern bearing for a propeller shaft comprising a flanged spherical seat, and a flanged clamping cap having registering bolt apertures in the flanges thereof, bolts passing through said apertures for securing said seat and cap together and to the object to which it is to be attached, said cap and seat when connected forming a socket, a hollow spherical head mounted in said socket and provided with a tubular extension, a revoluble connecting chuck arranged in said head and extension and having an angular tapered cavity in one end and a cylindrical bore in the other end, a driving shaft having an angular tapered end engaged with the cavity of said chuck, a convex washer arranged on said shaft within said socket to close the aperture in said spherical seat, a sleeved cap engaging the sleeve of said head, means for connecting a propeller shaft with said chuck, a packing cap engaging the sleeve of said sleeved cap, and means for preventing said packing cap from revolving with the propeller shaft. 70 75 80 85 90

2. An outside universal joint in connection with a stern bearing for a propeller shaft comprising a flanged spherical seat and a flanged clamping cap having registering bolt apertures in the flanges thereof, bolts passing through said apertures for securing said seat and cap together and to the object to which it is to be attached, said cap and seat when connected forming a socket, a hollow spherical head mounted in said socket and provided with a tubular extension, a revoluble connecting chuck arranged in said head and extension and having an angular tapered cavity in one end and a cylindrical bore in the other end, means for securing said chuck in operative position, means for securing a propeller shaft in said chuck, said spherical head having an elongated recess in one wall thereof, and an oval projection formed on the inner face of said clamping cap in position to engage the recess of said head whereby said head is held against turning while permitted to move longitudinally. 95 100 105 110 115

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ALFONZO DAVIS ROBBINS.

Witnesses:

EDGAR C. BEDELL,

THOMAS CONNORS, Jr.