



(51) International Patent Classification:
B63H 25/38 (2006.01) **F16D 1/092** (2006.01)

(21) International Application Number:
PCT/NO2009/000009

(22) International Filing Date:
9 January 2009 (09.01.2009)

(25) Filing Language: Norwegian

(26) Publication Language: English

(30) Priority Data:
20080155 9 January 2008 (09.01.2008) NO

(71) Applicant (for all designated States except US): **ROLLS-ROYCE MARINE AS** [NO/NO]; Sjøgata 98, N-6067 Ulsteinvik (NO).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **ELVESTAD, Stig** [NO/NO]; Kvistad, N-6165 Sæbø (NO).

(74) Agent: **BRYN AARFLOT AS**; P.O. Box 449 Sentrum, N-0104 Oslo (NO).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

[Continued on next page]

(54) Title: AN ARRANGEMENT FOR ATTACHING A SHIP RUDDER TO A RUDDER SHAFT, A RUDDER SHAFT, A SHIP RUDDER AND A METHOD FOR DISASSEMBLY OF A SHIP SHIP RUDDER FROM A RUDDER SHAFT

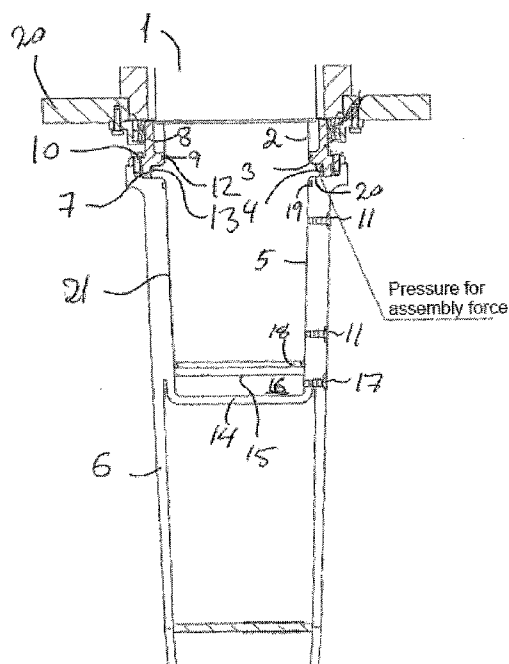


FIG. 2

(57) Abstract: The present invention concerns an apparatus and method for attaching a ship rudder to a rudder shaft (1). The rudder shaft (1) includes a cylindrical portion (2) and an expanded flange part (3) with a cylindrical portion (4), followed by a conical portion (5). The rudder includes a rudder element (6) and a flange element (8) for attachment to the rudder element (6). Flange element (8) includes an internally cylindrical portion (9) for mating, sliding and sealingly surrounding the cylindrical portion (2) of the rudder shaft (1) and an internally cylindrical portion (7) for sliding, mating arrangement around the cylindrical portion (4) of the flange part (3) of the rudder shaft. The rudder element (6) also includes a conical opening (21) for mating attachment to the conical portion of the conical portion (5) of the rudder shaft (1). It is provided channels for applying hydraulic pressure between the expanded flange part (3) of the flange element, and means (10) for tightening the flange element (8) to the rudder element (6). Furthermore the invention comprises a rudder shaft (1) for a ship rudder, a ship rudder with a conical opening, and a method for disassembly of a ship rudder from a rudder shaft (1).



— *with amended claims (Art. 19(1))*