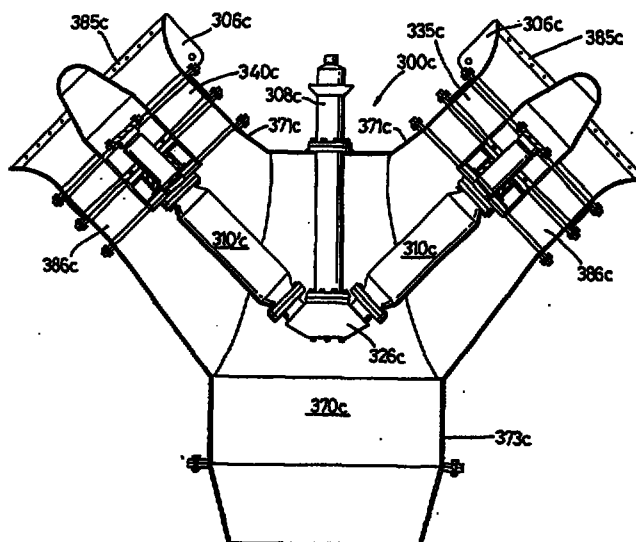




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : E02F 5/28	A1	(11) International Publication Number: WO 98/27286 (43) International Publication Date: 25 June 1998 (25.06.98)
(21) International Application Number: PCT/GB96/03148 (22) International Filing Date: 19 December 1996 (19.12.96) (71) Applicant (for all designated States except US): LEDINGHAM CHALMERS TRUSTEE COMPANY LIMITED [GB/GB]; 1 Golden Square, Aberdeen AB10 1HA (GB). (72) Inventors; and (75) Inventors/Applicants (for US only): SUSMAN, Hector, Fillipus, Alexander, Van, Drentham [GB/GB]; 9 Craigston Gardens, Westhill Estate, Aberdeen AB32 6NL (GB). STEWART, Kenneth, Roderick [GB/GB]; 58 Angusfield Avenue, Aberdeen AB2 5AS (GB). (74) Agent: FITZPATRICKS; 4 West Regent Street, Glasgow G2 1RS (GB).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published With international search report. With amended claims. SG 990281-0

(54) Title: IMPROVEMENTS IN OR RELATING TO UNDERWATER EXCAVATION APPARATUS



(57) Abstract

There is disclosed an improved underwater excavation apparatus (300a, b, c). Known apparatus suffer from a number of problems, e.g., efficiency and control of movement. Accordingly, the invention provides an underwater excavation apparatus (300a, b, c) comprising a hollow body (370a, b, c) having at least one inlet (371a, b, c) and at least one outlet (373a, b, c), at least one pair of impellers (335a, b, c), (340a, b, c) coaxially displaced one from the other and rotatably mounted in the hollow body (370a, b, c), and means for driving the impellers in contrary rotating directions. The underwater excavation apparatus (300a, b, c) comprises a pair of horizontally opposed inlets (371a, b, c) communicating with a single outlet (373a, b, c) the outlet (373a, b, c) being disposed vertically downwards substantially midway between the two inlets, in use. The excavation apparatus (300a, b, c) may, therefore, be substantially "T" or "Y" shaped. The means for driving the impellers (335a, b, c), (340a, b, c) may include at least one drilling motor (310a, b, c).