



Office de la Propriété
Intellectuelle
du Canada
Un organisme
d'Industrie Canada

Canadian
Intellectual Property
Office
An agency of
Industry Canada

CA 2310062 C 2005/02/01

(11)(21) 2 310 062
(12) BREVET CANADIEN
CANADIAN PATENT
(13) C

(83) Date de dépôt PCT/PCI Filing Date: 1998/11/24
(87) Date publication PCT/PCI Publication Date: 1999/05/03
(42) Date de délivrance/issue Date: 2005/02/01
(85) Entrée phase nationale/National Entry: 2000/05/16
(86) N° demande PCT/PCI Application No.: RU 1998/000356
(87) N° publication PCT/PCI Publication No.: 1999/02/25/
(88) Priority/Pronty: 1997/11/25 (9/120198) RU

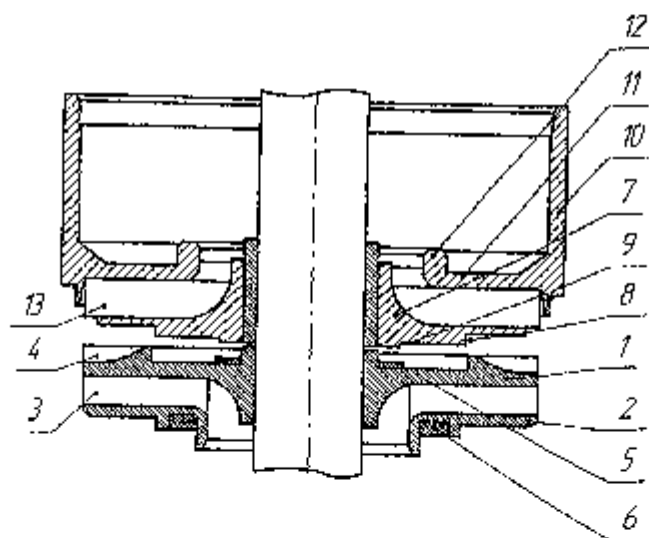
(51) Cl. Int.⁸/Int. Cl.⁸: F 04 D 13/10, F 04 D 3/06, F 04 D 31/00

(67) Inventeurs/Inventors:
RABINOVICH, ALEXANDR ISAAKOVICH, RU;
PILBILMAN, OLEG MIKHAILOVICH, RU;
KUPRIN, PAVEL BORISOVICH, RU;
MILNIKOV, MIKHAIL JURII VICH, RU;
DOROGOKUPETS, GENNADY LEONIDOVICH, RU;
WANGOV, OLEG VIGORIL VICH, RU;
TREGUBOV, GRIGORY SAMARIEVICH, RU;

(73) Propriétaire/Owner:
ZAKRYTOE AKTSIONNOE OBSHCHESTVO
"NOVOMET-PERN", RU

(74) Agent: DILLIETHWILLIAMS WYNELLEP

(54) Titre: ETAGE DE POMPE IMMERGEE A PLUSIEURS ETAGES
(54) Title: STAGE IN A SUBMERGED MULTIPLE-STAGE PUMP



(57) Abrégé/Abstract

The invention relates to oil-industry mechanical engineering and more particularly, to multistage oil-well pumps for pumping out formation fluid. The attainable technical result resides in a higher pressure head at low delivery rates and higher stability of performance characteristics when gas pockets are present in the medium being transferred. To this end, in the stage of a multistage submersible pump, having an impeller which comprises a driving disk and a driven disk with vanes interposed therebetween, and a guide vane assembly with shaped vanes whose leading edges extend beyond the outside diameter of the external lid of the guide vane assembly, triangular cells are provided at the periphery of the impeller driving disk on the lateral surface thereof, which cells are open towards the disk outer side, and a side annular channel is provided on the surface of the external lid of the guide vane assembly, which surface mates with the impeller. The surface of the lateral annular channel is spaced apart from the upper edge of the impeller cells at least 0.3 the depth of the latter, and the radial length of the cells is not in excess of 0.3 the driving disk radius.

Canada

<http://cipo.gc.ca> • Ottawa-Hull K1A 0G9 • info@cipo.gc.ca

©/10: 03/01 101

OPIC



CIPQ