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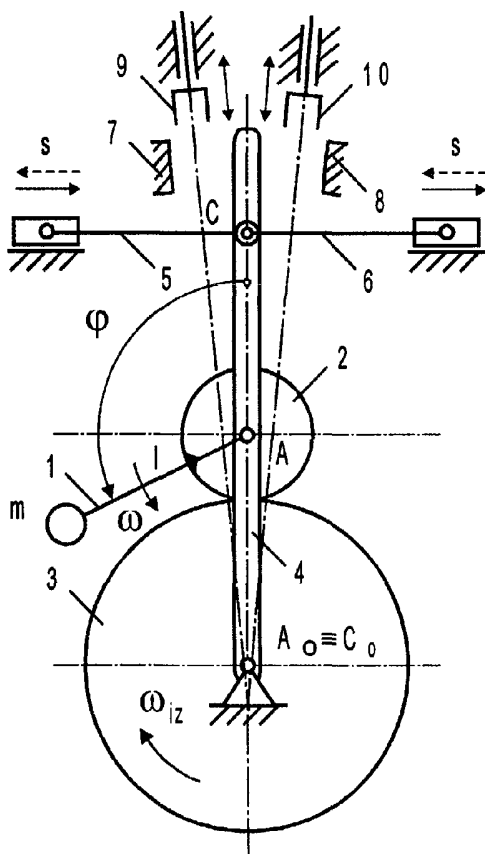
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(54) Title: INERTIAL MECHANISM ENABLING TRANSFORMATION OF AN OSCILLATORY MOTION INTO A ONE-WAY CIRCULAR MOTION



(57) Abstract: This invention solves the problem of transformation of the oscillating motion into one-way circular motion providing for the high coefficient of efficiency. The base of the mechanism is a pendulum (1) with a movable suspension so that generally speaking the mechanism has two degrees of freedom. Short-lived, impulsive displacement of suspension point for the angle of $\phi = 0, \Pi, 2\Pi \dots$ in the directions reverse to those of the instantaneous velocity of the mass m enables the transformation of motion. The mechanism has a variable structure so that in the intervals of oscillating lever (4) travelling, pendulums have two degrees of freedom, whereas in other intervals the mechanism retains only one degree of freedom. The basic advantage of this mechanism in reference to the existing piston mechanism is its high coefficient of efficiency because the maximum pressure of combustion gases can be brought into harmony with the optimal parameters of the mechanism enabling transformation of motion by appropriate selection of the moment of its application. It is possible to achieve completely dynamically balanced mechanism by symmetrically arranged elements.



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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 34 37 841 C (FREUDENAU GUENTER) 24 April 1986 (1986-04-24) the whole document	5
X	& DE 30 14 770 A (FREUDENAU GUENTER) 22 October 1981 (1981-10-22)	5
X	DE 348 110 C (DET TEKNISKE FORSOEGSAKTIESELS) 30 January 1922 (1922-01-30) the whole document	5
A	US 4 274 367 A (GERBER ALFRED ET AL) 23 June 1981 (1981-06-23) the whole document	1-3
A	US 4 516 539 A (ANDREEN JOHN F) 14 May 1985 (1985-05-14) the whole document	1-3
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 10 089075 A (TANIGAWA HIROYASU; TANIGAWA KAZUNAGA) 7 April 1998 (1998-04-07) abstract; figures ---	1
A	GB 234 317 A (GEORGE CONSTANTINESCO) 14 May 1925 (1925-05-14) the whole document ---	1
A	EP 0 882 875 A (LONGWELL JAPAN CO LTD) 9 December 1998 (1998-12-09) the whole document -----	1

INTERNATIONAL SEARCH REPORT

ation on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 3437841	C	24-04-1986	DE 3437841 C1	24-04-1986
			DE 3510577 A1	09-10-1986
			DE 3523703 A1	08-01-1987
			DE 3612492 A1	15-10-1987
DE 348110	C	30-01-1922	NONE	
US 4274367	A	23-06-1981	CH 620737 A5	15-12-1980
			CH 620738 A5	15-12-1980
			CH 624452 A5	31-07-1981
			AR 214795 A1	31-07-1979
			AU 528672 B2	12-05-1983
			AU 3569178 A	08-11-1979
			BR 7802972 A	26-12-1978
			CA 1119101 A1	02-03-1982
			CS 216913 B2	31-12-1982
			DD 136518 A5	11-07-1979
			DE 2723270 A1	23-11-1978
			ES 469741 A1	01-01-1979
			FR 2390586 A1	08-12-1978
			GB 1601420 A	28-10-1981
			IT 1094992 B	10-08-1985
			JP 53139005 A	05-12-1978
			NL 7804532 A	14-11-1978
			SE 7805313 A	12-11-1978
			SU 1190997 A3	07-11-1985
			YU 111178 A1	30-06-1982
			ZA 7802390 A	25-04-1979
			DE 2723269 A1	23-11-1978
			CS 241051 B2	13-03-1986
			CS 7800621 A2	13-06-1985
			DE 2824671 A1	25-01-1979
			FR 2397524 A1	09-02-1979
			SU 1114351 A3	15-09-1984
US 4516539	A	14-05-1985	CA 1221311 A1	05-05-1987
JP 10089075	A	07-04-1998	JP 10089001 A	07-04-1998
			JP 10089074 A	07-04-1998
GB 234317	A	14-05-1925	NONE	
EP 0882875	A	09-12-1998	WO 9826165 A1	18-06-1998
			EP 0882875 A1	09-12-1998
			JP 9125981 A	13-05-1997
			US 6024067 A	15-02-2000