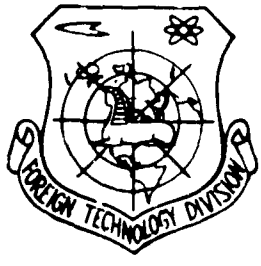
FTD-HT-23-1615-67

FOREIGN TECHNOLOGY DIVISION

DESCRIPTIONS OF INVENTIONS

(A COLLECTION OF SOVIET PATENTS)



FTD-HT-23-1615-67

EDITED TRANSLATION

DESCRIPTIONS OF INVENTIONS

(A COLLECTION OF SOVIET PATENTS)

English pages: 12

Translated by: E. Harter/TDBRO-2

TA8001046-1050

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FTD-HT-23-1615-67

Date 27 May 19 68

DATA HANDLING PAGE

01-ACCESSION NO.	02-DOCUMENT LOC	20-TOPIC TAGS
TA8001046		bearing stability, gas bearing, vibration damping

09-TITLE: GASOSTATIC BEARING OF HIGH ROTARY VELOCITY

97-SUBJECT AREA: 13

16	42-AUTHOR/CO-AUTHORS	10-DATE OF INFO
	VORONIN, G. I.; 16-SLOTIN, V. I.; BRAGIN, A. N.; POPOVA, A. T.; ZHORIN, M. YE. 16	21MAR64

43-SOURCE	66-DOCUMENT NO.
PATENT 180021 (889410/25-27) CLASS 47b, 7 (RUSSIAN)	FTD-HT-23-1615-67
	69-PROJECT NO. 72301-78

63-SECURITY AND DOWNGRADING INFORMATION	64-CONTROL MARKINGS	95-HEADER CLASN
UNCL, 0	NONE	UNCL

76-REEL/FRAME NO.	77-SUPERSEDES	78-CHANGES	40-GEOGRAPHICAL AREA	NO. OF PAGES
1884 2102			UR	2

CONTRACT NO.	X REF ACC. NO.	PUBLISHING DATE	TYPE PRODUCT	REVISION FREQ
94-00	65-AP6011264		Translation	NONE

STEP NO.	ACCESSION NO.
02-UR/0000/66/000/000/0001/0002	

ABSTRACT: This Author Certificate presents a gasostatic bearing of high rotary velocity. The bearing contains gas ducts located in two rows at the circumference. To lead away the dirt from the stagnant zone of the working space in the bearing and to increase the resistance of the shaft to vibrations, the internal surface of the bearing contains an axial duct connected by a radial hole to the surface of the bearing. The polarly opposite side carries another axial hole connecting both rows of the ducts. Orig. Art. has: 1 figure.

DATA HANDLING PAGE

01-ACCESSION NO.	98-DOCUMENT LOC	30-TOPIC TAGS
TA8001047		hydraulic pump, pump, rotational flow

09-TITLE ROTARY REVERSIBLE PUMP (HYDRAULIC ENGINE)

47-SUBJECT AREA

13

42-AUTHOR/CO-AUTHOR				10-DATE OF INFO
GUREVICH, L. M.				12MAY64
43-SOURCE				68-DOCUMENT NO.
PATENT 180489 (899607/25-8) CLASS 59e, 1 (RUSSIAN)				FTD-HT-23-1615-67E
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				72301-78
63-SECURITY AND DOWNGRADING INFORMATION			64-CONTROL MARKINGS	97-HEADER CLASN
UNCL, 0			NONE	UNCL
76-REEL/FRAME NO.	77-SUPERSEDES	78-CHANGES	40-GEOGRAPHICAL AREA	NO. OF PAGES
1884 2103			UR	3
CONTRACT NO.	X REF ACC. NO.	PUBLISHING DATE	TYPE PRODUCT	REVISION FREQ
94-00	65-AP6012173		Translation	NONE
STEP NO.			ACCESSION NO.	
02-UR/0000/66/000/000/0001/0003				

ABSTRACT This Author Certificate presents a rotary reversible pump (hydraulic engine) with an irregularly curved rotor and gates distributed in the openings of the stator, and with two hollow zones in the stator. Each of these hollow zones represents either a pressure or a suction (overflow) opening, depending on the direction of rotor revolution. To diminish the wear at the gates and the rotor, the pump (hydraulic engine) is provided with reversed valves with an adjustable or a fixed backwater flow. These valves connect the opening above the gates to the suction (overflow) opening at any direction of the rotor rotation. The working liquid enters the opening above the gates only through the slits in the gate openings. Orig. Art. has: 1 figure.

DATA HANDLING PAGE

01-ACCESSION NO.	98-DOCUMENT LOC	20-TOPIC TAGS
CA8001048		antifriction bearing, friction, gyroscope component, rotation

09-TITLE: METHOD DECREASING THE FRICTION IN BEARINGS

47-SUBJECT AREA: 13

42-AUTHOR/CO-AUTHORS	10-DATE OF INFO
KARGU, L. I.	17SEP64
43-SOURCE	68-DOCUMENT NO.
PATENT 185502 (920983/26-10) CLASS 42c, 25/51 (RUSSIAN)	FTD-HT-23-1615-67
	69-PROJECT NO. 72301-78

63-SECURITY AND DOWNGRADING INFORMATION	64-CONTROL MARKINGS	97-HEADER CLASN
UNCL, 0	NONE	UNCL

76-REEL/FRAME NO.	77-SUPERSEDES	78-CHANGES	40-GEOGRAPHICAL AREA	NO. OF PAGES
1884 2104			UR	2
CONTRACT NO.	**X REF ACC. NO.**	**PUBLISHING DATE**	**TYPE PRODUCT**	**REVISION FREQ**
94-00	65-AP6032507		Translation	NONE

STEP NO.: 02-UR/0000/66/000/000/0001/0002 — ACCESSION NO.:

ABSTRACT: An Author Certificate has been issued for a method of decreasing friction in bearings in a gyroscope component by variously directed reverse rotation of bearings of the axis of precession. To increase sensitivity, speed of response, and precision of operation of the device along with forced reverse rotation of the bearings, the sensitive element is set into reciprocal motion in its axial direction with the aid of an electromagnetic field.

DATA HANDLING PAGE

01-ACCESSION NO.	98-DOCUMENT LOC	30-TOPIC TAGS
TA8001049		anticorrosion additive, antiseize additive, lubricant additive, lubricant refining, thermal oxidation, thermal stability, xanthic acid

09-TITLE: METHOD OF IMPROVING THE ANTISEIZURE AND ANTICORROSION PROPERTIES AND THERMAL OXIDATIVE STABILITY OF LUBRICANTS

47-SUBJECT AREA: 11

42-AUTHOR/CO-AUTHORS	10-DATE OF INFO
FAL'KOVSKAYA, A. A.; 16-OBERFEL'D, M. SH.; KHEYFETS, YA. M.; RAPOPORT, I. B.; PUCHKOV, N. G.	02JUL65
43-SOURCE: PATENT 189109 (1015892/23-4) CLASS 23c, 1/02 (RUSSIAN)	68-DOCUMENT NO.: FTD-HT-23-1615-67 69-PROJECT NO.: 72301-78

63-SECURITY AND DOWNGRADING INFORMATION	64-CONTROL MARKINGS	97-HEADER CLASN
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76-REEL/FRAME NO.	77-SUPERSEDES	78-CHANGES	40-GEOGRAPHICAL AREA	NO. OF PAGES
1884 2105			UR	3

CONTRACT NO.	X REF ACC. NO.	PUBLISHING DATE	TYPE PRODUCT	REVISION FREQ
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STEP NO.	ACCESSION NO.
02-UR/0000/66/000/000/0001/0002	

ABSTRACT: 16-Co-Authors Cont. - BOROVAYA, M. S.; REZNIKOV, V. D.

An Author Certificate has been issued for a method of improving the antiseizure (EP) and anticorrosive properties, and thermal oxidative stability of lubricants. The method provides for the addition to the lubricants of xanthates of the formula $ROCSSR_1$, where R and R_1 are higher and branched alkyl radicals.

DATA HANDLING PAGE

01-ACCESSION NO.	98-DOCUMENT LOC	30-TOPIC TAGS
TA8001050		alumina, beryllium, fiberglass, glass composition, specific resistance, strontium

09-TITLE GLASS FOR PRODUCING CONTINUOUS FIBER GLASS

47-SUBJECT AREA

11

42-AUTHOR/CO-AUTHORS	10-DATE OF INFO
16 MATVEYEV, M. A.; MAZO, E. E.; KUSHAKOVA, L. K.; ZHOS, F. T.; BRAZGOVSKAYA, A. I.	22JAN66
43-SOURCE	66-DOCUMENT NO.
PATENT 196266 (1050239/29-14) CLASS 32b, 13/00 (RUSSIAN)	FTD-HT-23-1615-67
	69-PROJECT NO.
	72301-74

63-SECURITY AND DOWNGRADING INFORMATION	64-CONTROL MARKINGS	97-HEADER CLASN
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76-REEL/FRAME NO.	77-SUPERSEDES	78-CHANGES	40-GEOGRAPHICAL AREA	NO. OF PAGES
1884 2106			UR	2
CONTRACT NO.	X REF ACC. NO.	PUBLISHING DATE	TYPE PRODUCT	REVISION FREQ
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STEP NO.	ACCESSION NO.
02-UR/0000/67/000/000/0001/0001	

ABSTRACT

This Author Certificate presents a glass for producing continuous fiber glass, and containing SiO_2, Al_2O_3, CaO, MgO, SrO. To increase the mechanical strength of the fiber and its resistance to water, the above components are introduced in the following proportions (weight %): SiO_2 46--54, Al_2O_3 7--9, CaO 10--12, MgO 6--7, SrO 13--30. Moreover, BeO 4.5--5.5 is also introduced into the glass.

TABLE OF CONTENTS

GASOSTATIC BEARING OF HIGH ROTARY VELOCITY

G. I. Voronin, V. I. Slotin, et al.

Gasostatic bearings are known with gas-supply channels arranged along the circumference in two rows. In such bearings between the rows of the gas-supply channels there is formed a dead zone with heightened pressure from which the leaking of gas to the ends of the bearing is very limited. The pressure of a dead zone brings about an accumulation in the gap of dirt breaking down its normal operation. Besides this, as a result of the high carrying capacity, the eccentricity of the position of the shaft approaches zero, which leads to a resonance vibration.

The proposed bearing differs from the known ones by the fact that on its inner surface there is made an axial groove joined by a transverse radial channel with its outside surface, and on the diametrically opposed side there is another axial load groove joining the two rows of the gas-supply channel of the bearing.

In the drawing there is shown the bearing in cross section.

The bearing is provided with the gas-supply channels 1, equally spaced along the circumference in two rows. The distance of the rows from the ends of the bearing is equal to 0.12-0.25 of the whole length of the bearing.

In the upper part of the bearing there is made the axial channel

2, joined by channel 3 with the air. Diametrically opposite to the channel 3, there is the load groove 4, located axially and joining the two rows of gas-supply channels.

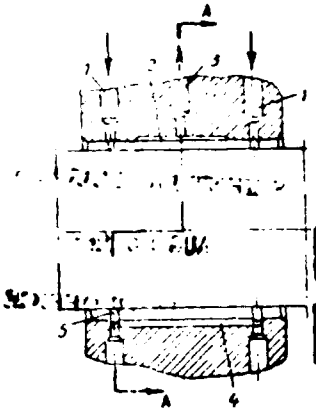


Fig. 1.

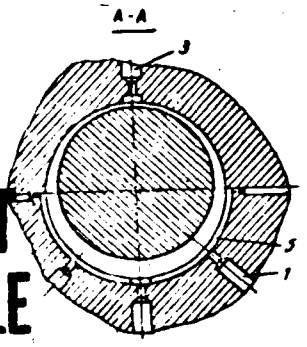


Fig. 2.

Due to the existence of the axial groove 2 and the load channel , the shaft occupies an eccentric position, as a result of which at high speeds of revolution, its vibration resistance increases.

For increasing the carrying capacity of the bearing under low pressure of the gas, the channels 1 are joined with each other by the ring grooves 5.

Object of the Invention

A high-speed gasostatic bearing with gas-supply channels located on the circumference in two rows, which has the distinguishing feature that for the purpose of carrying away of the dirt from the dead zone of the operative gap of the bearing and improving the vibration stability of the shaft, on the inner surface of the bearing there is made an axial groove joined by a through radial channel with its outer surface, and on the diametrically opposed side there is made another axial groove joining the two rows of channels.

ROTARY REVERSIBLE PUMP (HYDRAULIC ENGINE)

L. M. Gurevich

Rotary pumps are known.

The proposed rotary reversible pump differs from the known ones by the fact that it is provided with return valves with regulable or constant head communicating a cavity above the gate with pressure and suction (overflow) hollows of the stator in such a way that with any direction of turning of the rotor, the working liquid passing through into the cavity above the gate only through the gaps in the gate slots can flow out from it through the return valve only into the suction cavity.

This difference assures the lowering of the pressure in the cavity above the gate which, as a result of the lessening of the forces of compression of the gates, lessens the wear of the gates and the rotor of the pump.

In Fig. 1 there is shown the principle of the design of the rotary reversible pump, in Fig. 2 the pump in three projections, and in Fig. 3 the system of packing the stator groove by the gate.

The pump contains the rotor 1, the stator 2, the gate 3, and the valves 4 and 5.

The pump works in the following fashion.

The rotor in turning clockwise (counterclockwise) pumps the working medium brought to the cavity 6 (7) and forces it into the cavity 7 (6) by the device of change in the area of the sections limited by the contours of the rotor 1, stator 2 and gate 3.

The tightening of the gates is accomplished by the equalizing springs 8 (Fig. 2) and pressure effected in the cavity 9 through the gaps in the gate slots and the tongues on the outer edge of the gates (Fig. 3).

The pressure in the cavity 9 is regulated by the valve 4 (5) letting the working medium go across into the cavity 6 (7) with increase in the established pressure.

The overflows through the gaps at the ends of the rotor pass into the drainage cavity 10.

The manner of working of the motor is the following.

The working medium forced into the cavity 6 (7) turns the rotor clockwise (counterclockwise) through the pressure of the projections of the rotor separated by the gates. In proportion to the turning of the rotor the working medium is squeezed out of its hollows into the cavity 7 (6) when it passes to the overflow. Otherwise the working process is analogous to the system of the working of a pump.

From the scheme of tightening the stator slot by the gate (Fig. 3) it is seen that $R_v > R_n$, due to which there is assured compensation of the overflow from the cavity 9 into the cavity 6 through replacement from cavity 7 (P is the equalizing of the pressure of the medium; R_v and R_n are the reactions of the inner and outer edges of the slot).

Object of the Invention

A rotary reversible pump (hydraulic motor) with a profiled rotor and slide gates arranged in the slots of the stator and also with two cavities in the stator, each of which is the forcing or sucking (overflow) cavity, as depended on the direction of the turning of the rotor,

which has the distinguishing feature that for decreasing the wear of the gates and the rotor, the pump (hydraulic motor) is furnished with reversible valves with regulable or constant pressure heads connecting the cavity above the gate with the sucking (overflow) cavity in either direction of the turning of the rotor while the working liquid penetrates into the cavity over the gate only through gaps in the gate slots.

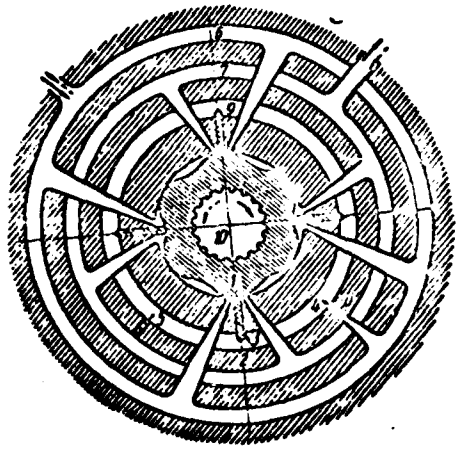


Fig. 1.

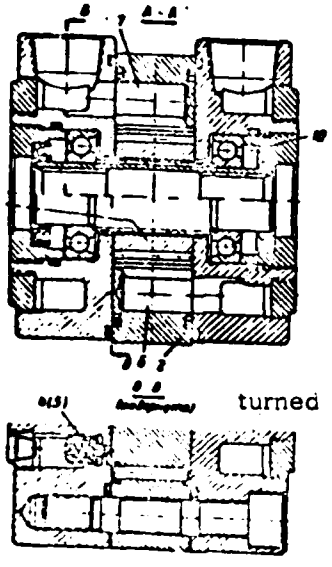


Fig. 2.

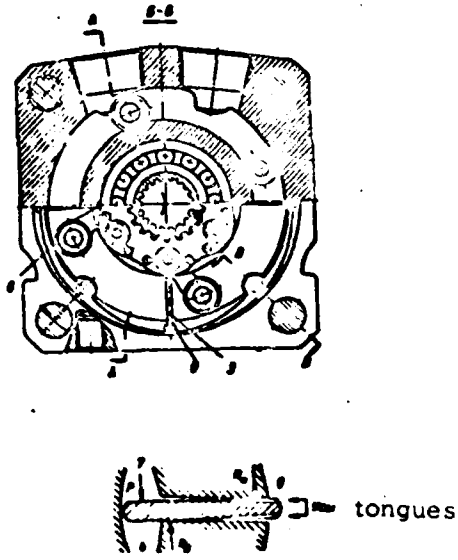


Fig. 3.

METHOD DECREASING THE FRICTION IN BEARINGS

L. I. Kargu

Different methods are known for lessening the friction in the bearings of hydroscopic devices.

The proposed method of lessening the friction in bearings differs from the known ones by the fact that simultaneously with a forced reversible rotation of bearings to the sensitive element in the axial direction, there is given a regressive-progressive displacement, for example, with the aid of an electromagnetic field. This heightens the sensitivity, rapid action, and precision of the working of the device.

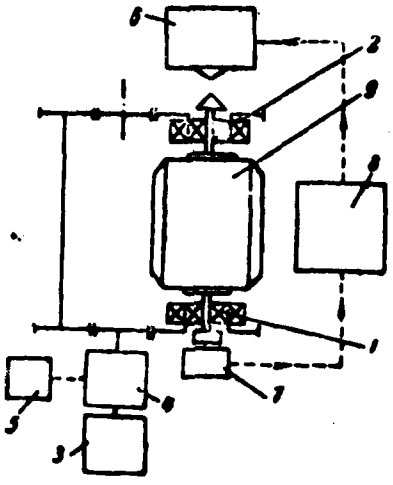
In the drawing there is shown the device for accomplishing the described method.

The method of lessening the friction in bearings consists in this that from the three-ring bearings 1 and 2, applicable in different-sided reversible rotation with the aid of the electric motor 3, clutch 4 and the throw-over switch 5, there is taken the axial load by the electric motor 6, which is controlled by the sensor of the linear displacement 7 through the amplifier-converter 8 operating in the mode of automatic oscillations and thereby there is assured a regressive-progressive movement of the sensitive element 9.

Object of the Invention

The object of the invention is lessening the friction in bearings, for example, of

a gyroscopic device, by means of differently directed reversible rotation of the bearings of the axis of precession, which has the distinguishing feature that for the purpose of improving the sensitivity, the rapid action and the precision of the working of the device simultaneously with the forced reversible rotation of the bearings, there is applied to the sensitive element in the axial direction a regressive-progressive displacement, for example with the aid of an electromagnetic field.



Figure

METHOD OF IMPROVING THE ANTISEIZURE AND ANTICORROSION PROPERTIES AND THERMAL OXIDATIVE STABILITY OF LUBRICANTS

A. A. Fal'kovskaya, M. Sh. Oberfel'd, et al.

A method is known for improving the antiseizure and anticorrosion properties and thermal oxidative stability of lubricants by the addition to them in the quality of admixture diester of alkylxanthogenic acid.

It is proposed to put into lubricants, as an additive, esters of alkylxanthogenic acids of the general formula $ROCSSR_1$, where R and R_1 are the alkyl radicals containing from 3 to 12 atoms of carbon, which considerably improves the antiseizure and anticorrosion properties of the materials.

The optimum concentrations of esters of alkylxanthogenic acids vary within broad limits as depends on the conditions of the application. For motor oils, there is recommended a concentration of from 1 to 10% (presumably from 3 to 5%).

In Table 1 there are presented the physicochemical characteristics of the esters of alkylxanthogenic acids.

Most fully checked was the effectiveness of decyl ester of nonylxanthogenic acid of the conventionally called additive V15/4ND as a multifunctional additive to motor oils.

The results of the laboratory tests of the motor oils are given in Table 2.

Table 1.

Formula of synthesized esters	Found / Computed				n_D^{20}	D_{20}^4
	Mol. Wt.	Elementary compostion, % C	H	S		
$C_5H_{11}O \cdot \underset{\underset{S}{\|}}{C}-S \cdot C_{10}H_{21}$	286 / 304	63.0 / 63.5	10.1 / 10.5	20.3 / 21.0	1.5101	0.9508
$C_9H_{12}O \cdot \underset{\underset{S}{\|}}{C}-S \cdot C_{10}H_{21}$	337 / 360	66.3 / 66.6	11.0 / 11.1	16.5 / 17.7	1.4980	0.9356
$C_9H_{12}O \cdot \underset{\underset{S}{\|}}{C}-S \cdot C_{12}H_{26}$	358 / 388	68.9 / 68.0	11.6 / 11.3	14.9 / 16.5	1.4920	0.9482

Table 2.

Oil tested	Critical load of welding P Deg. / c-kg	General index of wear OPI GOST 9490-60	Thermal oxidat. stability GOST 9352-60	Test of viscosity of oil on DK-2 apparatus 220°C 50 h, %	Corrosion, g/m² On Pb at 140°C 25 h	On copper at 220°C 6 h
DS-11	29/158	26.0	28	6.5 24.0	175	Plate darkens
DS-11+3% V15/4ND	32/224	40.5	30	3.2 23.9	63	absent
DS-18+25% MASK	31/200	45.0	100	ab- 26.0	absent	"
DS+25% MASK+3% V15/ /4ND	32/224	53.0	119	sent " 21.8	"	"
DS+25% MASK+5% V15/ /4ND	33/254	58.8	124	" 22.7	"	"

In Table 3 there are represented results of 36 hours of stand tests on the Diesel compressor LK-2 of the oil M18-E, without anti-scoring additive and with additive V15-4ND.

Table 3.

Oil Tested	Wear of set of piston rings, %	Deposits on pistons (Eval. by Meth. 344-T) from side %	
		blow-through	exhaust
M 10-B	115	65	86
M 10-B-5% V15/4ND	85	42	65

Note. For 100% there are taken the results of tests of standard oil of the group Ye Mobil'gard-593.

Object of the Invention

A method of improving antiseizure and anticorrosion properties and thermal oxidative stability of lubricants by putting into the latter, additives - esters of alkylxanthogenic acids which has the distinguishing feature that for the esters of alkylxanthogenic acids, there are used esters of the general formula $ROCSSR_1$ where R and R_1 are the nigher and ramified alkyl radicals.

GLASS FOR PRODUCING CONTINUOUS FIBER GLASS

M. A. Matveyev, E. E. Mazo, et al.

A glass is known for making continuous fiber glass which contains SiO_2, Al_2O_3, CaO, MgO, SrO.

A glass is proposed for this purpose into which the indicated components go in the following percentages by weight.

SiO_2 46-54, Al_2O_3 7-9, CaO 10-12, MgO 6-7, SrO 13-30, and besides there is introduced into it BeO, 4.5-5.5.

The fiber made out of this glass has great mechanical strength and water resistance.

As raw materials for the proposed glass there serve sand, alumina (argillaceous earth), chalk, commercial carbonate of strontium, dolomite, and beryllium carbonate. The temperature of the founding of the glass is 1500°C. The complete melting and refining of the glass is attained by two-hour maintenance of it in a flame furnace.

The glass does not contain such short-supply and expensive components as TiO_2, ZrO_2, and Ce_2O_3, as a result of which the cost of the batch for founding is less by 50% than that for the known formulas.

The combination of high mechanical strength and water resistance [illegible] fiber [illegible] glass [illegible].

In the composition of the glass there are included (in % by weight): SiO_2 46-54, Al_2O_3 7-9, CaO 10-12, MgO 6-7, SrO 13-30, BeO 4.5-5.5.

Object of the Invention

A glass for making continuous fiber glass containing SiO_2, Al_2O_3, CaO, MgO, SrO, which has the distinguishing feature that for the purpose of improving the mechanical strength and water resistance of the fiber, the indicated components are put together in the following percentages by weight: SiO 46-54, Al_2O_3 7-9, CaO 10-12, MgO 6-7 SrO 13-30, and besides into this substance there is also included BeO 4.5-5.5.