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WRIGHT-PATTERSON AFB OH V N BONDALETOV ET AL.
17 AUG 84 FTD-ID(RS)T-0341-84

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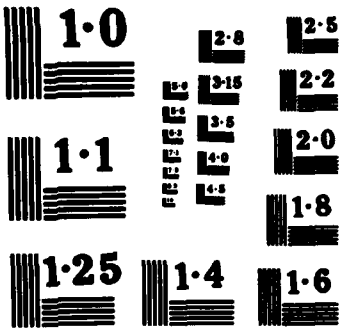
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FOREIGN TECHNOLOGY DIVISION

A HIGH-VOLTAGE DISCHARGER

by

V. N. Bondaletov, R. I. Golitsyn

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EDITED TRANSLATION

FTD-ID(RS)T-0341-84 17 Aug 1984

MICROFICHE NR: FTD-84-C-000826

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English pages: 4

Source: USSR Patent Nr. 347849, 22 September 1972, pp. 1-3

Country of origin: USSR
Translated by: Joseph E. Pearson
Requester: FTD/TQTD
Approved for public release; distribution unlimited.

U. S. BOARD ON GEOGRAPHIC NAMES TRANSLITERATION SYSTEM

Block	Italic	Transliteration	Block	Italic	Transliteration
А а	*А а*	A, a	Р р	*Р р*	R, r
Б б	*Б б*	B, b	С с	*С с*	S, s
В в	*В в*	V, v	Т т	*Т т*	T, t
Г г	*Г г*	G, g	У у	*У у*	U, u
Д д	*Д д*	D, d	Ф ф	*Ф ф*	F, f
Е е	*Е е*	Ye, ye; E, e*	Х х	*Х х*	Kh, kh
Ж ж	*Ж ж*	Zh, zh	Ц ц	*Ц ц*	Ts, ts
З з	*З з*	Z, z	Ч ч	*Ч ч*	Ch, ch
И и	*И и*	I, i	Ш ш	*Ш ш*	Sh, sh
Й й	*Й й*	Y, y	Щ щ	*Щ щ*	Shch, shch
К к	*К к*	K, k	Ъ ъ	*Ъ ъ*	"
Л л	*Л л*	L, l	Ы ы	*Ы ы*	Y, y
М м	*М м*	M, m	Ь ь	*Ь ь*	'
Н н	*Н н*	N, n	Э э	*Э э*	E, e
О о	*О о*	O, o	Ю ю	*Ю ю*	Yu, yu
П п	*П п*	P, p	Я я	*Я я*	Ya, ya

*ye initially, after vowels, and after ъ, ь; e elsewhere.
When written as ё in Russian, transliterate as yё or ё.

RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English	Russian	English	Russian	English
sin	sin	sh	sinh	arc sh	$\sinh^{-1}$
cos	cos	ch	cosh	arc ch	$\cosh^{-1}$
tg	tan	th	tanh	arc th	$\tanh^{-1}$
ctg	cot	cth	coth	arc cth	$\coth^{-1}$
sec	sec	sch	sech	arc sch	sech^{-1}
cosec	csc	csch	csch	arc csch	csch^{-1}

Russian	English
rot	curl
lg	log

GRAPHICS DISCLAIMER

All figures, graphics, tables, equations, etc. merged into this translation were extracted from the best quality copy available.

A High-Voltage Discharger

V. N. Bondaletov, R. I. Golitsyn

This invention belongs to the region of high-voltage technology and can be employed as a commutating element for the discharging of powerful low-induction capacitor banks.

At the present time for the commutating of capacitative energy storage elements discharger structures, containing two main electrodes and a trigger electrode,. are employed.

A deficiency of such dischargers is the considerable magnitude of their active and inductive reactances. Thus the employment of such dischargers for the commutation of low-induction capacitator banks leads in certain cases to an impermissibly large increase in the inductive and active reactances of the discharge circuit.

The purpose of the invention is to decrease the inductive and active reactances of the discharge circuit and to increase reliability.

This is attained by the fact, that the main electrodes of the discharger are executed in the form of plane-parallel (parallel-plate)buses, and the surface of the trigger electrode has a serrated form, which leads to a sharp distortion in the field between the main electrodes during the supply to the trigger electrode of the initiating voltage and to the

development of parallel discharges from the teeth.

Fig. 1 shows the described discharger, a general view; Fig. 2 shows the shape of the teeth of the trigger electrode; Fig. 3 shows the circuit diagram of the discharger connection.

The discharger (see Fig. 1) consists of two main electrodes 1 and 2, the trigger electrode 3, the insulating liners 4, and the common bus 5.

Included in the circuit diagram of the discharger connection (see Fig. 3) are: the voltage divider based on resistors 6 and 7, the device for the supplying of the initiating voltage to the trigger electrode 8, the load 9, and the capacitative energy storage element 10.

The capacitative energy storage element 10 is charged with negative voltage - V_1.

The potential of the trigger electrode (with the aid of the voltage divider) and its arrangement relative to the main electrodes are selected in such a manner, that the field is close to homogeneous. During the supply to the trigger electrode of positive initiating voltage U_2 with an amplitude not lower than the working voltage - U_1 a 15-20-fold excess voltage voltage is created. This is explained by the fact, that the field from the homogeneous one with breakdown voltage is broken down into two sections with sharply heterogeneous fields. Moreover, the total voltage is doubled, and the gap is broken down into two shorter ones.

The change in the field from practically homogeneous to sharply heterogeneous with a simultaneous decrease in the length of the gaps and an increase in the applied voltage ensures the appearance of parallel discharges.

Thus, the path of the current during the commutation of the charged capacitor is accomplished along four channels (in this case the trigger electrode has four teeth). The inductive and active reactances of each channel are connected parallel to each other, and the total inductive and active reactances of the discharger and, consequently, of the entire

discharge circuit is significantly decreased.

In this case the voltage to the trigger electrode is supplied to one point from one source of the initiating pulse, for example, a cable section.

Patent Claim

The high-voltage discharger, containing two main electrodes and a trigger electrode, is distinguised by the fact, that for the purpose of decreasing the inductive and the active reactances and increasing the reliability, the trigger electrode is made in serrated form.

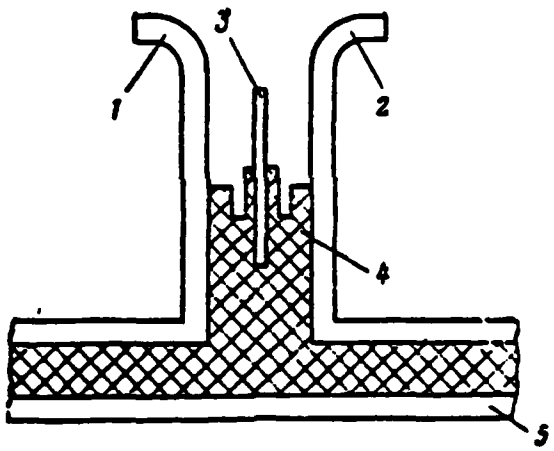

Fig. 1

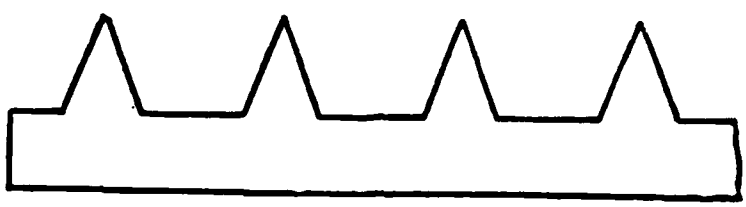

Fig. 2

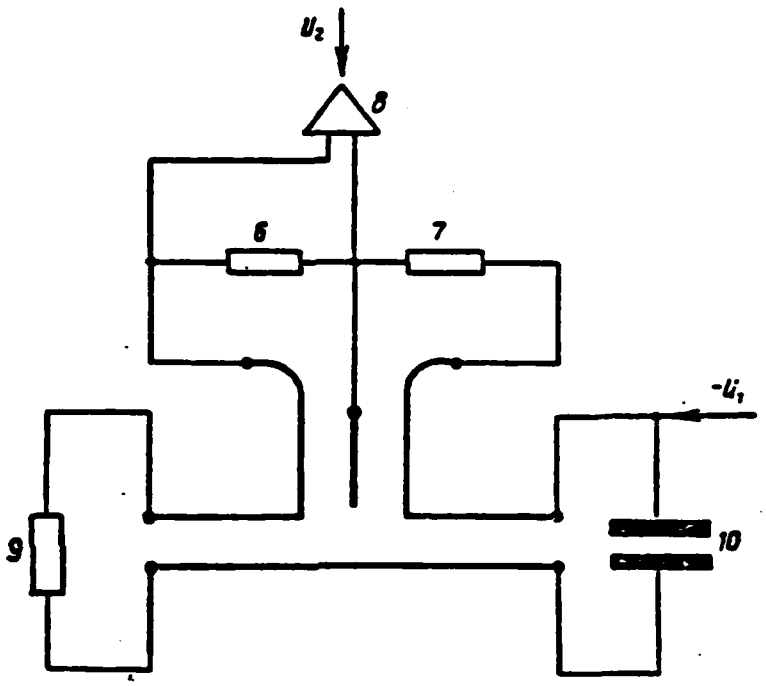

Fig. 3

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