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April 18, 1938

Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents.

Applicant: William F. Friedman et al
Ser. No. 36,868
Filed Aug. 19, 1935
For Electrical Switching Mechanism

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APR 18 1938

In response to amendment of December 1, 1937.

References added:

Seeley	1,699,122	Jan. 15, 1929	171-118xr(83.1)
James	1,863,658	June 21, 1932	200-24
Kohn (Ger.)	348,538	Feb. 10, 1922	171-118(83.1)

(1 sheet of drawing; 2 pages of spec.)

This application now contains claims 6 through 23.

Page 3, line 2 from end "constantly varying speeds" is questioned. Applicants' arguments and the disclosure otherwise indicate that, while the speed is variable, the variation is not constent.

Page 4, line 2, "connected in a random manner to the commutator rings" is not understood. Further element 18 does not appear to be a "commutator".

Page 5, line 5, the "conventional means or instrumentalities" should be identified.

Applicant points out that the device is truly aperiodic because of the slippage in the friction drive. No description of such operation is found in the specification. Page 3, last five lines, referred to by applicant, makes no reference to any slipping in the operation of the device. Further, the arrangement and character of elements 12, 13, 14, spring 15 and shaft 3 should be definitely described. What is meant by "a slot and bar arrangement", page 3, line 8 from end.

The claims are all drawn to an aperiodic device based on slipping between the drive elements, for which there is no description in the specification. The claims are accordingly rejected as based on indefinite and incomplete disclosure.

The claims are each further rejected as indefinite and incomplete, rendered so by failure to set forth supporting structure to structurally relate the elements claimed, and by the use of inaccurate expressions for the elements set forth. While the large number of claims makes a detailed criticism difficult, the claims have been individually considered. Claim 6, line 2, "associated" defines no structure and is indefinite. Same line "operative movement relative to one another" covers all types of motion and is obviously broader than anything disclosed. Line 3, "arranged to actuate" is indefinite. Same line, "in a discrete time relation" is purely functional and does not follow from the "friction drive". Lines 4 and 5, "operatively coordinated" gives no hint to the structural arrangement. Line 6, the "aperiodic movement" is not effected by the "system of differential gearing and cams." As argued by applicant any aperiodic operation is a result of slippage in the friction drive. Claims 7, 10 and 11 set forth element 18 as a "commutator". This is considered inaccurate since there is no commutating function performed by the element. Claim 7 sets forth "a rotatable commutator provided with contact elements and a rotatable switching device." If the "rotatable switching device" refers to arm 31, it is an independent element and not part of the "commutator", which apparently refers to element 18. Further arm 30 is not considered a "switching device" but merely part of a switch, as described in the specification, a "switch arm". Claims 8 and 9 set forth the "cams" as part of the "means for differentially controlling the operation of the units" (claim 7, last line). As contended by applicant in argument of Feb. 1, 1937 (last page) "Gearing system 2, 2' and 1 effects a differential operation". It appears that there would still be differential operation without the cams. Claim 10, last line, the aperiodic operation is not a result of the "means including differential gearing and cams" (lines 5, 6) but as

argued by applicant is a result of the "friction drives" of line 4. Claim 11 is indefinite as to the description of the switch but appears to set forth "a plurality of contact elements" and "a rotatable conductor" both as parts of a "commutetor" (lines 2 and 3). As before noted, the use of "commutator" appears inaccurate but in addition the "conductor", apparently arm 30, is not a part of the same element that carries the "plurality of contact elements (contacts 20). Further the arm 30 cooperates with contacts 20 but is not "operable with said elements" since the contacts and arm operate in different directions and at different speeds. Claims 12 (line 2), 13 (lines 1-2), 18 (line 2) and 23 (line 2) "switching" devices" is considered inaccurate, since it implies a plurality of switches rather than one multiple circuit switch, the only structure disclosed. Claim 12, line 5, "random permutation" is misdescriptive since the circuits are always closed in the same order or sequence. Claims 13 through 23, line 2 of each claim, call for a plurality of contacts on both the disc 19 and arm 30. This construction is not supported by the disclosure and is misdescriptive. Claims 14, 15, 16, 17, 19, 20, 21 and 22 "components" fails to define any definite switch elements. Claim 15, line 4, "in irregular order" is not clear. Claim 15, line 4, "differential gearing" appears to have no bearing on the aperiodic operation set forth in line 6. Claim 17, last two lines, the "means for changing the rate of movement of said mechanisms" does not appear to randomize the operation of the contacts. The randomizing operation is introduced by the"friction drive mechanism" (line 4), according to applicants' argument of February 1, 1937, page 2. Claim 23, line 3, no disclosure is found for the limitation that the contacts are "spaced at irregular intervals".

Claims 7 and 13 to 23 are further rejected as not defining invention over either Beeley or the German patent

to Kohn. Both of the references show relatively movable contact carrying discs, with independent driving means for each disc. Clearly the contacts would be closed aperiodically. Broadly a friction drive could be used in either of the patents without invention.

The rejection of claims 13 and 18 on Boardman is repeated. All the structure positively claimed is shown by Boardman.

Claims 19 to 23 are further rejected as not distinguishing patentably from Boardman. Fig. 4 of Boardman shows relatively rotatable drums 8 and 247, each driven by a friction disc and means (the adjusting screws on the ends of shafts 7 and 246) for varying the relative positions of the drive discs. The relatively movable drums are operatively "associated".

Claim 15 is further rejected as drawn to the old combination of switch and connector shown by James, supra. The invention is in the switch.

The claims are further rejected on the ground of multiplicity. Eighteen claims is considered more than sufficient to completely cover the device. Five or six claims would appear to be sufficient.

Examiner