(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 049 550**
A1

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **81201095.7**

(22) Date of filing: **02.10.81**

(51) Int. Cl.³: **H 01 H 1/20**

(30) Priority: **02.10.80 NL 8005459**

(43) Date of publication of application:
14.04.82 Bulletin 82/15

(84) Designated Contracting States:
AT BE CH DE FR LI NL

(71) Applicant: **B.V. Hollandse Apparatenfabriek "H.A.F."**
Frankeneng 15
Ede(NL)

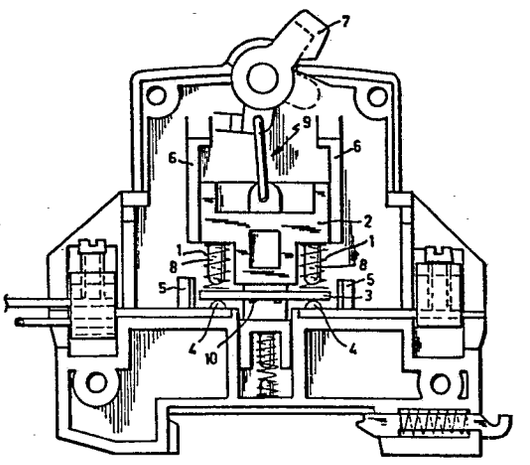
(72) Inventor: **Loppersum, Kornelis**
Nassaulaan 27
Ede(NL)

(74) Representative: **Kooy, Leendert Willem et al,**
Octrooibureau Vriesendorp & Gaade Dr. Kuyperstraat 6
NL-2514 BB The Hague(NL)

(54) Automatic switching device.

(57) The invention is concerned with an automatically operated double-break switch. The spring member (1) building up the contact pressure is positioned between a pressure piece (2) and a bridge contact (3). The bridge contact (3) moves linearly, one spring being applied which engages with the centre of the bridge contact.

Only small contact pressures are built up and as a result of displacements of the moving contacts different contact pressures develop as a result of which irregular and more rapid contact wear can occur or the contact can be seized by combustion. According to the invention the spring member consists of two springs (1) positioned at the same distance in relation to the centre of the bridge contact and the centre of the pressure piece. The axial distance of the two springs is equal to or smaller than the axial distance of the contact points and the bridge contact or the pressure piece are provided with cams (10) so that when switching on and off, respectively, the bridge contact overturns about its longitudinal axis.



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AUTOMATICALLY OPERATED SWITCHING DEVICE.

The invention is concerned with an automatically operated double-break switch, the contact pressure being built up by means of a spring member and the spring member being positioned between a pressure piece, which is operated by a lever mechanism, and a bridge contact bridging the contact points of a contact when the switch is closed.

In such switching devices a linear displacement of the bridge contact occurs by means of a cam disc or another intermediate member.

One spring is applied which engages with the centre of the bridge contact.

One disadvantage of this is that only small contact pressures are built up and that when the moving and fixed contacts are not parallel or as a result of the shifting of the moving contacts different contact pressures develop on the points of contact.

The mechanical strength to resist short-circuit stresses of a similar switch is greatly limited as a result of this and this can lead to irregular and more rapid contact wear.

When, as usual, the contacts completely touch each other with their entire contact surfaces without a toppling motion or other measure, the contacts can melt together by combustion.

The invention now envisages a switch, whereby the above-indicated disadvantages are largely removed.

The invention is characterized in that the spring member consists of two springs positioned at the same distance with respect to the centre of the bridge contact and the centre of the pressure piece and the axial distance of the springs is equal to or smaller than the axial distance of the contact points, the bridge contact or the pressure piece being provided with cams such that when switching on and off, respectively, the bridge contact overturns about its longitudinal axis.

A further improvement of the invention consists in counteracting transverse displacements of the pressure piece and the bridge contact. As a result of this, the sideways component of the driving force cannot but work negatively and the forces on the contact are not influenced (no difference in contact pressure), while the friction in the moving parts is slight.

The invention will be illustrated with the aid of the drawing.

In the drawing 1 indicates the springs pressing, on the one hand, against the bottom side of the pressure piece 2 and, resting, on the other hand, on the upper side of the bridge contact 3.

The springs 1 are wrapped about pins 8 to prevent a sideways deflection.

The axial distance between the springs is, at most, just as great

as the axial distance of the points of contact 4.

When the switch is operated by means of a tumbler switch 7 a linear movement is imparted to the pressure piece 2 and to the bridge contact 3 by a lever mechanism 9.

To prevent the contacts of the switch unexpectedly adhering to each other when switching on, a few cams 10 are positioned on the bridge contacts on the contacting surface of the bridge contact, which only extends over part of the width of the contact surface and to obtain a breaking tensile strength when switching off.

These cams may alternatively be provided on the pressure piece 2.

In the open position the bridge contact lies somewhat overturned with the cams on the pressure piece and only comes into contact with this at the start of the switching on along a small portion of the contact surface of the fixed contact points. In the case of pressing the bridge contact further it overturns so that it occupies a horizontal position and comes into contact with the entire surface of the contact points. As a result of this, a somewhat cleansing effect is obtained.

When switching off overturning occurs inversely to that overturning which occurs when switching on and the pressure piece touches the cams of the bridge contact first and a moment of torsion arises by which the bridge contact can be detached from the fixed contact points with less switching off force.

In order to prevent the pressure piece 2 and the bridge contact 3 undergoing a transverse displacement they pass respectively into guides 6 and 5.

Consequently, a greater and equally distributed contact pressure on the contacts points is obtained with the construction of the invention.

CLAIMS:

1. An automatically operated double-break switching device, the contact pressure being built up by means of a spring member and the spring member being positioned between a pressure piece, which is operated by a lever mechanism, and a bridge contact bridging the contact points of a contact when the switch is closed, characterized in that the spring member consists of two springs positioned at the same distance with respect to the centre of the bridge contact and the centre of the pressure piece and the axial distance of the springs is equal to or smaller than the axial distance of the contact points, the bridge contact or the pressure piece being provided with cams (10) such that when switching on and off, respectively, the bridge contact overturns about its longitudinal axis.

2. A switching device according to claim 1, characterized in that the bridge contact is supported in a guide.

3. A switching device according to claim 1, characterized in that the pressure is supported by long guide paths during its entire stroke.

4. A switching device substantially as described in the specification and/or illustrated in the drawing.

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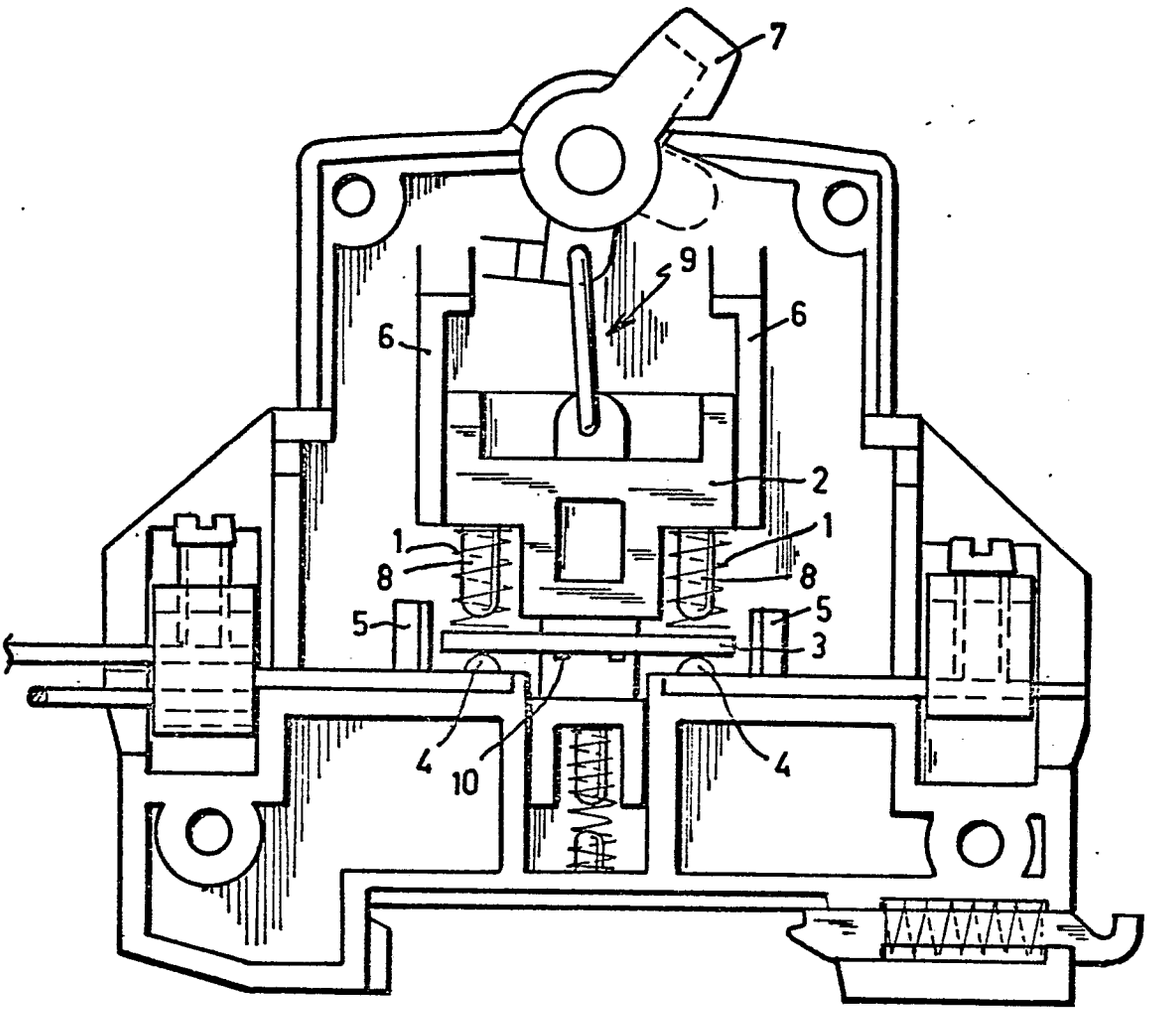
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EUROPEAN SEARCH REPORT

Application number
EP 81 20 1095

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
	DE - A - 1 963 170 (G. SCHANZENBACH) * Page 3 * --	1
	FR - A - 2 237 302 (MERLIN & GERIN) * Page 6, lines 13-40; page 7 * --	1
	DE - A - 28 46 213 (C. GEYER) * Figure 1; page 4 * --	1,2
	DE - C - 644 081 (A.E.G.) * Figures 1,5; page 2, lines 11-101 * --	1
	GB - A - 602 365 (E.E.C.) * Page 2, lines 67-97 * --	1
	US - A - 3 867 598 (WESTINGHOUSE) * Column 3, lines 3-23; figures 1,2 * --	1-3
A	US - A - 3 187 120 (BURROUGHS) * Figures 1,4 * ---------	2

CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)

H 01 H 1 /20

TECHNICAL FIELDS SEARCHED (Int.Cl. 3)

H 01 H 1/18
1/20
23/16

CATEGORY OF CITED DOCUMENTS

X: particularly relevant if taken alone
Y: particularly relevant if combined with another document of the same category
A: technological background
O: non-written disclosure
P: intermediate document
T: theory or principle underlying the invention
E: earlier patent document, but published on, or after the filing date
D: document cited in the application
L: document cited for other reasons

&: member of the same patent family, corresponding document

X The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	08-01-1982	JANSSENS DE VROOM

EPO Form 1503.1 06.78