This invention relates to a snap action control mechanism.

The chief object of the present invention is to provide a control mechanism that is of snap action type and one wherein the actuating force may be of progressive character but wherein the control is shifted substantially instantaneously accompanied by pressure maintenance up to the instant of shifting and is reversely established immediately after shifting.

Herein the force applying member is of the to and fro movable type, one form being reciprocable and another oscillatable and one form being manually operable and another power operable and the same is given by way of example only.

The chief feature of the present invention resides in providing two pairs of spaced abutments and disposing therebetween in bridging relation an intermediately articulated structure, the control power being applicable thereto between the ends of said structure.

For purposes of illustration the control mechanism is disclosed as of switch type and the power operable forms thereof are disclosed as of centrifugal governor actuable character.

Other objects and features of the invention will be set forth more fully hereinafter.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims.

In the drawings, Fig. 1 is an elevational view of a centrifugal governor and switch structure controlled thereby, same embodying the invention, the cover for switch structure being omitted, the switch parts being illustrated in what might be termed the normal position.

Fig. 2 is a similar view of the same with parts illustrated in what might be termed the tripped position.

Fig. 3 is a similar view of a modified form of switch structure with parts in the so-called normal position.

Fig. 4 is a similar view of said modified form of the invention with parts in the so-called tripped position.

Fig. 5 is an elevational view of a manually operable switch embodiment of the invention, the cover being removed for clearness.

Fig. 6 is a transverse sectional view taken on line 6—6 of Fig. 5 and in the direction of the arrows.

Fig. 7 is a longitudinal sectional view taken on line 7—7 of Fig. 5 and in the direction of the arrows.
spaced abutments. Disposed therebetween and bearable upon one or the other of said abutments is strap 37 to which at 38 is secured or hooked the other end of wire 32. One end of said strap 37 is slotted and the legs seat in the seats 27 aforesaid.

The other end of strap 33 terminates in transverse end 39 apertured at 40 to accommodate terminal 34. The remote face of end 39 is notched at 41 to form seats for the slotted adjacent end of strap 42 to which, remote from its seated end, as at 43, is anchored the other end of said wire 32.

Carried by base 41 are two aligned members 42 and parallel ears 43 constituting a second pair of spaced abutments and between which the other end of strap member 42 is disposed, the latter bearing upon one or the other of said ears 45.

When the aforesaid is incorporated in a switch structure is anticipated, the aforesaid snap action mechanism, including arm 39, may be insulated. Herein terminal 46 is provided to the aforesaid articulated structure and terminal 47 is provided to one of the ears 45. Member 42 at the end between the ears 45 mounts contact 48.

In normal position (see Fig. 1) speed is insufficient to overcome spring 15; hence, the circuit is open between terminals 46 and 47 at contact 48. When the speed is sufficient to rock shaft 13 counterclockwise in opposition to spring 15, the switch assumes the tripped position, see Fig. 2, wherein the terminals 46—47 are now short circuited to complete the control circuit.

When selective dual circuit control is desired another terminal may be provided to the other of members 44. Then arm 42 at 48 selectively short circuits terminal 46 to the terminals on members 44. Fig. 5, incidentally, illustrates such a dual selective or tertiary control circuit arrangement.

It will be noted in Fig. 1 the elongated intermediate articulated and tensioned bridging structure bears at opposite ends upon the lower abutment of each pair of abutments while in Fig. 2, the bearing is upon the upper abutment of each pair of abutments.

The free ends of such bridging structure slide, as it were, upon the abutments until the articulating or breaking force is sufficient to effect the transfer. Pressure upon the abutments is maintained until the instant the break occurs and is immediately reestablished after the break occurs.

A modified form of the aforesaid is illustrated in Figs. 3 and 4. In this form the bridging structure is aligned and the load spring as well as the lever arm between same and the rocker shaft is adjustable. None of the abutments in this form is adjustable.

Herein abutments 136 comprise pins with insulation sleeves and same are carried by base 111. Rocker shaft 113 mounts arm 114 which carries threaded extension 116. Thereon is adjustable mounted sleeve 116a and retained by opposed nuts 116b. Load spring 115 connects at one end to the sleeve as shown and at the other end to eye 121 on threaded member 120 locked by nuts 122 to the housing wall 111a on the base 111.

Herein spring 130 has elongated ends 132 and 133 connected at 138 and 143 respectively to strap members 131 and 142 respectively. The angular arm 124 has end 125 notched for seats.
lated spring structures having substantially free ends disposed between the respective pairs of abutments and comprising a pair of longitudinally disposed abutment contacting elements, a force applying member associated with the said spring structure between the ends thereof for shifting the ends thereof for control purposes, a pair of fulcrums for the adjacent ends of said elements and having a tension connection between said elements, one of said fulcrums being stationary and the other being movable by the force applying member and in a direction generally transversely of the direction of elongation of said spring structure.

2. Mechanism as defined by claim 1 wherein the said adjacent ends are spaced apart.

3. Mechanism as defined by claim 2 wherein the force applying member is mounted for to and fro movement and to one side of said adjacent ends.

4. Mechanism as defined by claim 2 wherein the force applying member is mounted for to and fro movement and between said adjacent ends.

5. Mechanism as defined by claim 2 wherein the force applying member is mounted for to and fro movement and coincident with one of said adjacent ends.

6. Mechanism as defined by claim 1 wherein the force applying member includes a fulcrum providing portion for one of said elements.

7. Mechanism as defined by claim 6 wherein the force applying member is movable by centrifugal force in one direction through a lever arm responsive to such force and a spring constrains that lever arm toward the other direction.

8. Mechanism as defined by claim 7 wherein an adjustable support is provided for one end of the spring for adjusting the force thereof.

9. Mechanism as defined by claim 7 wherein an adjustable connection is interposed between the lever arm and spring for adjusting the leverage of said arm.

10. Mechanism as defined by claim 7 wherein an adjustable connection is interposed between the lever arm and one end of the spring for leverage adjustment and an adjustable anchorage is provided for the other end of the spring for spring force adjustment.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Re. 17,646</td>
<td>Johnson</td>
<td>Apr. 22, 1930</td>
</tr>
<tr>
<td>1,372,331</td>
<td>Bolzer</td>
<td>Mar. 22, 1921</td>
</tr>
<tr>
<td>2,194,533</td>
<td>Van Dyke</td>
<td>Mar. 26, 1940</td>
</tr>
<tr>
<td>2,560,128</td>
<td>Hauser</td>
<td>Oct. 10, 1944</td>
</tr>
</tbody>
</table>