

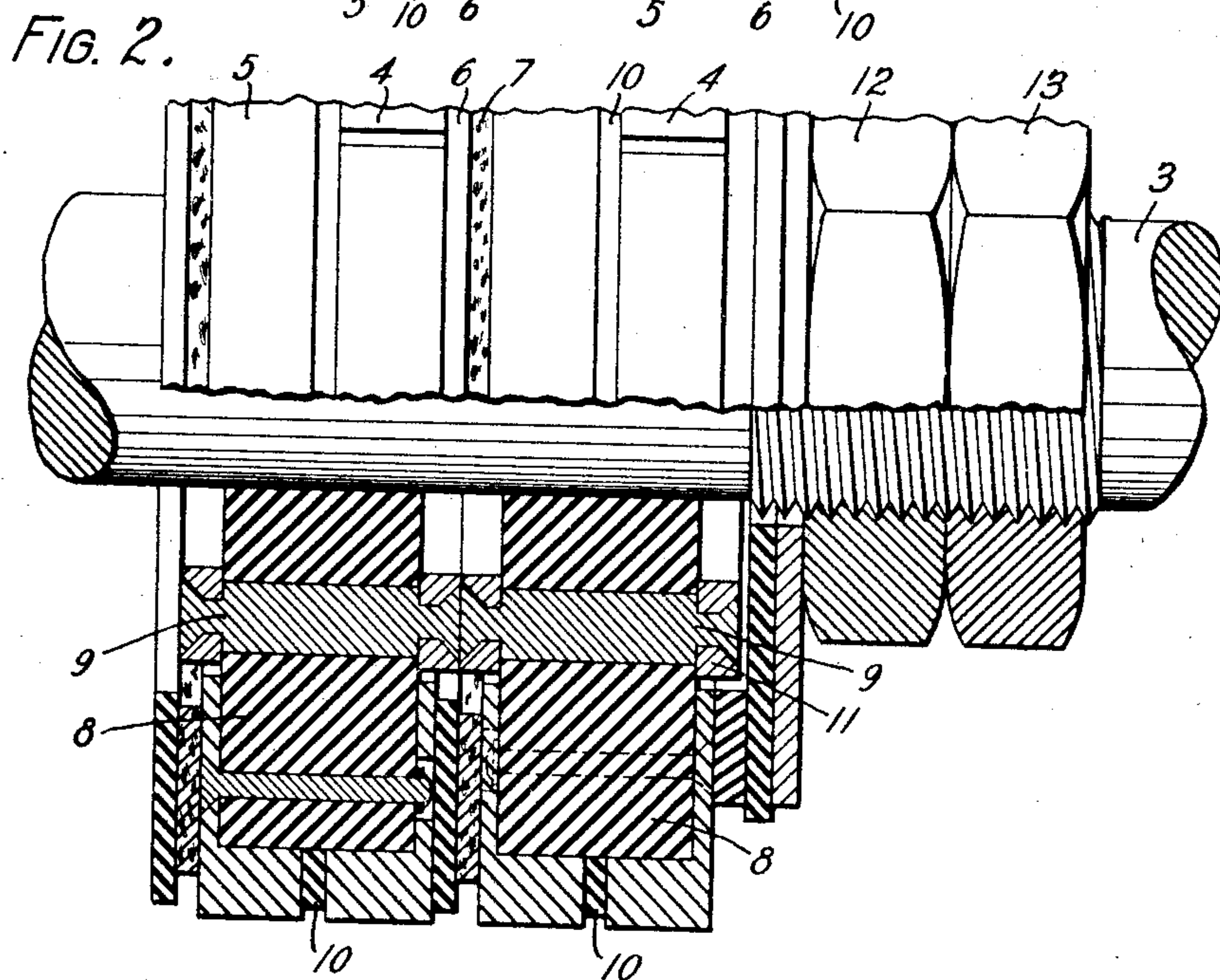
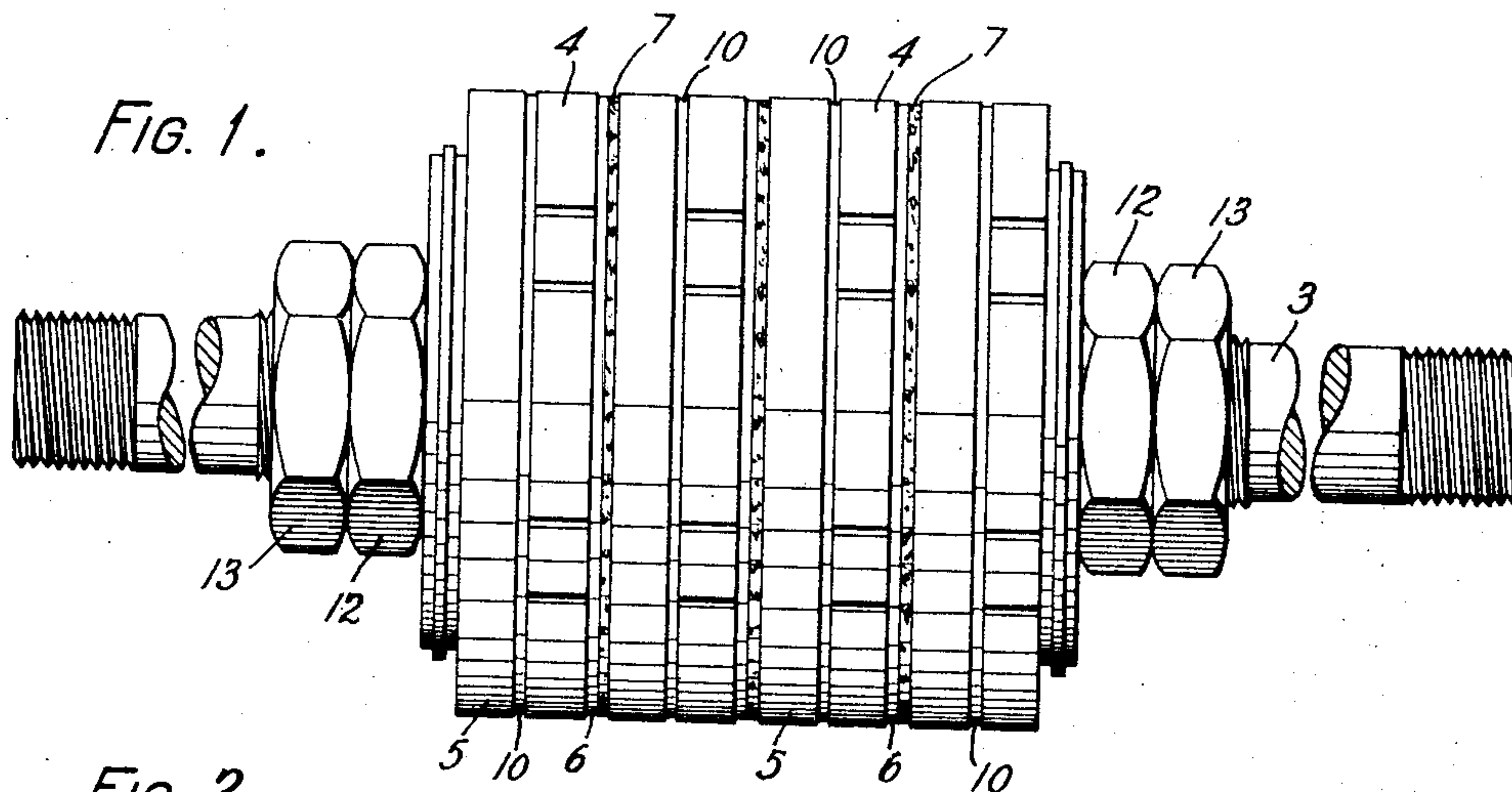
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CONTACTOR DRUM FOR TELEPHONE CENTRAL OFFICE EQUIPMENT

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CONTACTOR DRUM FOR TELEPHONE-CENTRAL-OFFICE EQUIPMENT.

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This invention relates to telephone central office equipment, and more particularly to an insulating means employed in connection with such equipment.

5 It has been found that certain apparatus employed in telephone central offices is affected by changes in atmospheric conditions to such an extent that at times, inefficient operation results. A particular piece of
10 equipment that is susceptible to these changes is an interrupter or commutating device, which comprises primarily a shaft on which are mounted a series of drums insulated from each other and each consisting
15 of a segmented conducting ring and a solid conducting ring. During varying conditions of temperature it has been found that the conducting rings expand and contract and the shafts upon which they are assembled
20 elongate to such an extent that unless means is provided to compensate for these displacements of the rings on the shaft, minute circumferential crevices appear between adjacent insulating and conducting
25 rings. These crevices are prohibitive since they become filled with brush dust during operation, thereby offering low resistance paths between adjacent segments. Crevices may also occur due to commercial variations
30 in the several elements which constitute an interrupter assembly.

It is therefore an object of this invention to insure reliable electrical separation of adjacent conducting elements that are subjected to displacements caused by varying
35 atmospheric conditions or other unstandard conditions.

This object is attained in accordance with a feature of the invention by a provision
40 of a resilient washer which compensates for any adjustment of the metallic members of an interrupter device to maintain an insulating element in tight engagement with an associated conducting element.

45 The invention will be understood from the following description made with reference to the accompanying drawing in which Fig. 1 is a general assembly of an interrupter device employing insulating means embodied in this invention; Fig. 2 is an enlarged fragmentary section of the interrupter showing the various elements of its con-

struction, their relative positions on the driving shaft and the manner of securing them thereto. This figure shows the interrupter elements before the end nuts have
55 been made up and consequently the cork washer is seen to be of smaller diameter than the insulating washer; this is to permit the cork to bulge when the assembly is completed and the washers compressed. 60

Referring to the figures disclosed, 3 is a main drive shaft of an interrupter device comprising four drums, each of which consists of a segmented ring 4 and a solid ring
65 5. Interposed between adjacent drums are an insulating washer 6 and a resilient washer 7, the preferred materials of which these washers are made being micanite and composition cork respectively. In practice
70 twenty-four of such drums are employed in an interrupter assembly.

As seen in Fig. 2 the segmented ring 4 and the solid ring 5 of each drum are mounted on a molded or machined core 8
75 of insulating material and are fastened thereto and together by means of the rivets 9 or in any other suitable manner, and insulated from each other by the insulating washers 10. The drums are each provided
80 with hubs indicated at 11.

In assembly, the washers 6 and 7 telescope the hubs 11 of the individual drums. After the drums and washers are loosely assembled on the shaft 3, clamping nuts 12 and 13 on
85 each end of the shaft 3 are screwed up until continuity is obtained through contact of the drum hubs. In this operation the cork or resilient washers are compressed, and together with the micanite or insulating washers fill the space which would otherwise exist
90 between adjacent conducting rings. The cork washer is assembled against the solid ring and the micanite washer against the segmented ring. 95

During atmospheric changes to which the interrupter assembly may be subjected, the conducting rings will expand or contract as the case may be and the resilient washers 7 will follow these displacements of the
100 metallic rings on the shaft and hold the insulating washers tightly against the conducting rings. It has been found that granulated cork is very satisfactory for the

composition of the resilient element, as cork has a tendency to retain its original form after having been subjected to pressure. It is therefore evident that upon assembly of the interrupter the resilient washer should be under compression, so that any movement of the conducting elements after assembly would be followed by a corresponding expansion or compressing of the resilient washer, thereby preventing crevices to appear between the conducting elements and their associated insulating rings.

In the above description the invention has been specifically directed to an interrupter device, but it is evident that its use is not so limited and may be applied to any number of mechanisms wherein conducting elements insulated from one another, are subjected to varying atmospheric conditions.

What is claimed is:

1. In a mechanical assembly, a shaft, a plurality of conducting elements mounted thereon and subject to displacements on said shaft, means for insulating said conducting elements from each other, and resilient means for maintaining said insulating means in tight engagement with said conducting elements during the displacements thereof.

2. In a mechanical assembly, a shaft, a plurality of conducting rings mounted thereon and subject to displacements on said shaft, an insulating ring for insulating said conducting rings from each other, and a resilient ring for maintaining said insulating ring in tight engagement with one of said conducting rings during the displacements thereof.

3. In a mechanical assembly, a shaft, a plurality of drums mounted thereon, each of said drums comprising a solid and a segmented conducting element and provided with a hub, an insulating element telescoping the hub of one of said drums, a resilient element telescoping the hub of another of said drums, and means for attaining continuity of said elements on said shaft, the actuation of which causes said resilient element to be compressed to hold said insulating element in tight engagement with one of said conducting elements.

4. In a mechanical assembly, a shaft, a plurality of drums mounted thereon, each of said drums comprising a solid and a segmented conducting element and provided with a hub, a micanite washer telescoping the

hub of one of said drums, a cork washer telescoping the hub of another of said drums, and means for attaining continuity of said elements on said shaft, the actuation of which causes said cork washer to be compressed to hold said micanite washer in tight engagement with one of said conducting elements.

5. In a mechanical assembly, a shaft, a plurality of drums mounted thereon, each of said drums comprising a solid and a segmented conducting element and provided with a hub, an insulating element telescoping the hub of one of said drums and positioned against the segmented conducting element of said drum, a resilient element telescoping the hub of another of said drums and positioned against the solid conducting element of said drum, and means for attaining continuity of said elements on said shaft, the actuation of which causes said resilient element to be compressed to hold said insulating element in tight engagement with one of said conducting elements.

6. In an interrupter, a shaft, a plurality of drums mounted thereon, each of said drums comprising a solid and a segmented conducting ring, said rings being insulated from each other, an insulating means comprising an insulating ring and a resilient ring interposed between said drums, and means for attaining continuity of said drums and said insulating means on said shaft, the actuation of which causes the resilient ring to be compressed to hold said insulating ring in engagement with the segmented ring of one of said drums.

7. In an interrupter, a shaft, a plurality of conducting rings mounted thereon and subject to lateral displacement on said shaft, an insulating means comprising an insulating element and a resilient element interposed between said drums, and means for attaining continuity of said rings and said elements on said shaft, the actuation of which causes said resilient element to compensate for the lateral displacements of said rings on said shaft so that said insulating element is maintained flush with one of said conducting rings during such displacements.

In witness whereof, I hereunto subscribe my name this 19th day of August, A. D. 1927.

CHARLES C. BARBER.