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ELECTRIC SWITCH

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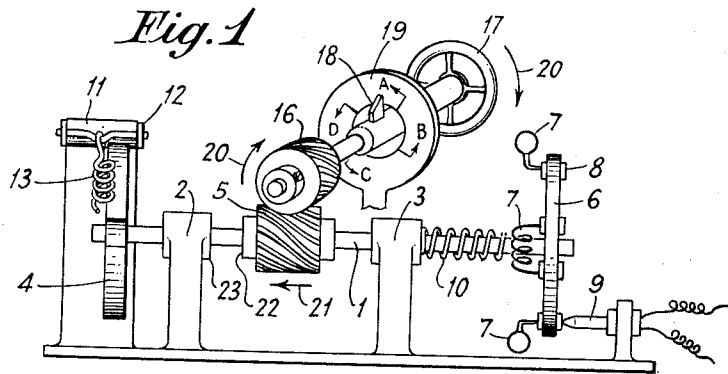
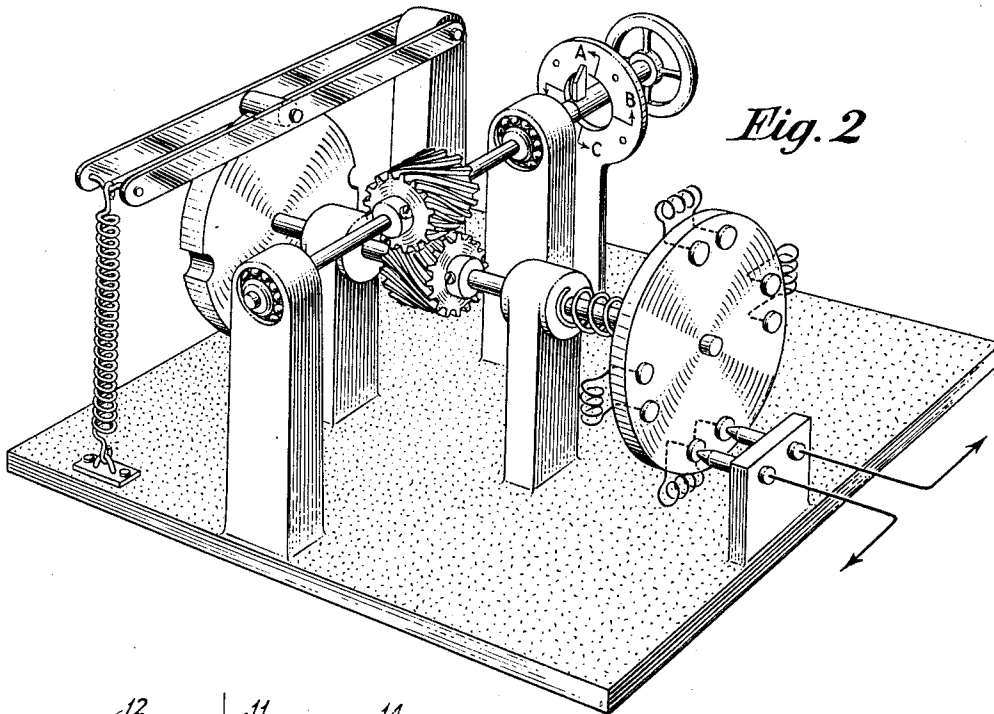
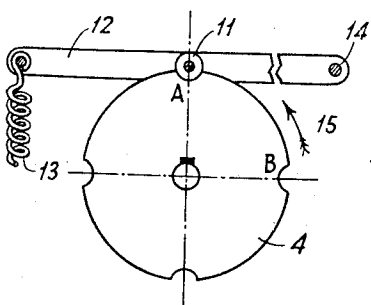


Fig. 3

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ELECTRIC SWITCH

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2 Claims. (Cl. 200—4)

This invention relates to a new and novel electric switch with double acting drive.

In certain electrical applications it is useful to be able to alternately establish different connections, such as connecting and disconnecting certain interchangeable elements, without the use of sliding contacts.

It is known that especially in circuits for wireless telegraphy, the imperfections of sliding contacts frequently give rise to a phenomenon of "crackling". The use of sliding contacts likewise interferes in case of circuits for very short waves, and which may entail the derangement of circuits which sometimes had been adjusted with the greatest precision.

The present invention concerns a switch without sliding contacts, whose operating device comprises an intermediate organ meshing along a spiral and susceptible of sliding or of turning in its axis.

The switching thus takes place in three periods of time: firstly, displacing the movable members perpendicularly to the surface of fixed contacts; secondly, rotating the intermediate organ thereby bringing new movable members to the fixed contacts; thirdly, bringing new movable members perpendicularly towards the surface of the fixed contacts.

The invention will be better understood with reference to the accompanying figures presenting by way of example a special mode of execution to which the invention is, however, not limited.

The apparatus shown and to which the invention is applied, represents a switch with self inductances intended for use in wireless transmitters operating with ultra-short waves.

Figure 1 is an elevation in schematical representation provided with reference characters permitting a ready understanding of the following description.

Figure 2 is a drawing showing a detail of the apparatus in side view.

Figure 3 is a perspective view of the entire apparatus.

A shaft 1 adapted to rotate and slide in bearings 2 and 3 has keyed thereon a stop cam 4, a spiral pinion 5, a plate 6 carrying self inductances 7 for instance, which end into members 8, the latter coming to rest on corresponding insulated contacts 9 against which they are placed by means of spring 10.

With the cam 4, provided for instance with four arresting cut outs, there engages a roller 11, supported from levers 12 and controlled by the

spring 13. The axis 14 of the levers is disposed in such manner as to make possible the rotation of cam 4 in a single direction only, as shown for instance by the arrow 15.

With pinion 5 there meshes a pinion 16 driven with a flywheel 17. A pointer 18 can locate the positions of the cam on a dial 19.

The functioning of this apparatus is as follows:

Starting from the position shown in Fig. 1, the long roller 11 is engaged in a cut out of the narrow cam 4 for which the pointer 18 marks the position A on the dial 19. The spring 10 places the members 8 against the contacts 9, and the flywheel 17 is now turned in the direction of arrow 20.

The pinion 16 moves the pinion 5 in the lateral direction along arrow 21, without causing it to rotate, since the shaft is adapted to slide and since the long roller 11 engaged in the cut out of the narrow cam 4, prevents the shaft from turning, yet permitting the narrow cam to slide along its axis.

The pinion 5 thus functions as a driven rack until its face 22 abuts against the face 23 of the bearing 2.

This lateral movement has produced removal of the members 8 from contacts 9 without friction.

If at this moment the flywheel 17 is acted upon with increased force and in the same direction, the pinion no longer capable of lateral displacement will be forced to rotate and on the one hand drives the cam 4 in the direction of arrow 15 (Figure 2); the long roller will be raised, and is placed in readiness to engage the following cut out. On the other hand, the plate 6 carries another self inductance in front of the contacts 9.

As soon as the cut out that followed, reaches the roller 11 the flywheel 17 will be abandoned whereby the spring 10 begins to act thereby pushing back the entire system in the direction opposite to that of the arrow 21.

The pinion 5 keyed on, so to say, by the roller 11 now functions as driving rack, thereby moving pinion 16. The index finger 18 moves backwards in order to stop at this time in the position B through which it had to pass in order to carry out the initial lateral movement.

This return movement is terminated by the members 8 resting against the contacts 9 whereby the quality of the obtained electrical contacts will be improved.

It must be understood that the mode of execution of the invention just described, has been

given by way of example only and that numerous variations thereof could be conceived without departing from the scope of the invention.

What we claim is:

- 5 1. In combination with a contact system which is broken by removing at least one of its elements from the contacting plane, means for controlling the breaking comprising a shaft supporting a mobile element of the contacting system and
10 mounted for sliding axially, a second shaft orthogonal to the said first shaft and provided with controlling means, coupling means comprising spiral pinions between both shafts, means for preventing the first shaft from rotating whilst
15 allowing the sliding when a force is applied to

the second shaft, means for removing the said preventing means when the force applied increases above a predetermined value, and yielding means opposed to the sliding in the sense determined by the said force.

- 5 2. System as claimed in claim 1 wherein means for preventing the rotation of the first shaft comprise a cam provided with cut-outs and fixed on the said shaft, locking means engaging in the cut outs in predetermined positions of the cam, 10 and yielding means opposed to removing of the locking under the action of a force tending to turning the shaft.

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