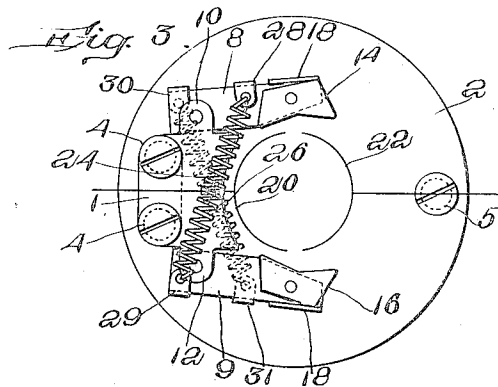
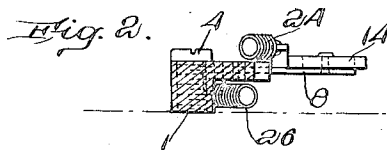
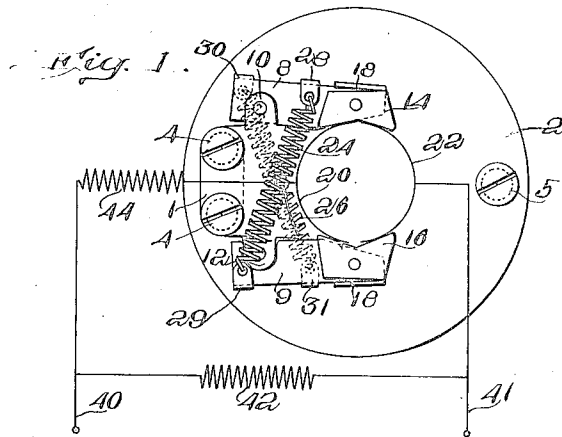


C. L. KENNEDY.
CENTRIFUGAL SWITCH.
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934,920.

Patented Sept. 21, 1909.



Witnesses:
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UNITED STATES PATENT OFFICE.

CARLTON L. KENNEDY, OF SOUTH BRAINTREE, MASSACHUSETTS, ASSIGNOR TO THE HOLTZER-CABOT ELECTRIC COMPANY, OF BROOKLINE, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

CENTRIFUGAL SWITCH.

934,920.

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To all whom it may concern:

Be it known that I, CARLTON L. KENNEDY, a citizen of the United States, residing at South Braintree, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Centrifugal Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to centrifugal switches adapted to open (or close) a circuit when a predetermined speed is attained and particularly adapted to open the starting circuit of a split phase induction motor.

It has heretofore been proposed to construct this type of switch with contact members comprising two opposed levers mounted upon a rotary support and pivoted upon opposite sides of the center of rotation. These levers are connected by parallel springs located on opposite sides of the center of rotation for holding the contact members in engagement with stationary contacts. This form of construction occupies the entire space surrounding the end of the rotary element and the springs act with a substantially constant leverage.

The object of the invention is to produce a centrifugal switch which is an improvement upon the construction above set forth. It comprises two opposed levers mounted upon a rotary support and pivoted upon the same side of the center of rotation. It is desirable in certain cases to have the switch occupy only a portion of the space surrounding the end of the rotary element. This provides an unbalanced construction which lends itself more readily to some conditions. The levers are provided with contact blocks or brushes which are held in engagement with the stationary contacts by means of cross-connected springs attached to the levers. These respective springs are attached to portions of the levers which move in the same direction and are attached at such points relative to the pivots of the levers that their leverage is very materially varied as the levers swing about their pivots.

In the accompanying drawings Figure 1 is a plan view of the switch in closed position also showing diagrammatically a single-phase motor circuit; Fig. 2 is a central ver-

tical section of the switch as shown in Fig. 1; and Fig. 3 is a plan view of the switch in open position.

The switch comprises a block or base 1, secured to a rotary support 2 by means of screws 4. The rotary support 2 is secured to a rotating element of the motor by a screw 5. Contact, or brush-carrying arms 8 and 9 are pivotally mounted upon lugs 10 and 12, respectively, which project from opposite ends of the block 1. These pivotal points are on the same side of the center of rotation of the support 2. Contact blocks or brushes 14 and 16 are pivotally mounted upon the arms 8 and 9 respectively and are limited in their pivotal movement by the laterally projecting stops 18 formed on said arms. The brushes 14 and 16 are adapted to engage segmental contacts 20 and 22 which are insulated from one another and maintained upon a stationary portion of the motor frame.

The brushes 14 and 16 are held in contact with the segmental contacts 20 and 22 by cross-connected springs 24 and 26. The spring 24 is attached at one end to a projection 28 formed on the arm 8, and at its other end to a projection 29 formed on the arm 9. The spring 26 is connected at one end to a projection 30 formed on the arm 8, and at its other end to a projection 31 formed on the arm 9. It will be seen that these springs lie in different planes on opposite sides of the base or block 1, and that their points of attachment bear such relation to the pivotal points of the arms 8 and 9 that the leverage of the springs is very materially varied as the contact arms swing about their pivots. The contact arms provide an unbalanced construction, by being pivoted upon the same side of the center of rotation of the rotary support 2. As the brush carrying end of the arm 8 flies outwardly the tension of the spring 24 is increased, its leverage on said arm is reduced, and its leverage on the arm 9 is increased, thus tending to move the brush 16 away from the segmental contacts. Likewise if the brush 16 should start to move outward the spring 26 would be put under greater tension and its leverage on the arm 8 increased, thus tending to draw the brush 14 away from the segmental contacts. Thus it will be noted that the cross-connected springs act to equalize the pull of the centrifugal force and cause the brushes

14 and 16 to fly out simultaneously when the motor has attained the desired speed.

The motor circuit comprises line wires 40 and 41, across which a working coil 42 is 5 connected, and a starting coil 44 connected at one end to the wire 40 and at the other end to the segmental contact 20, the contact 22 being connected to the wire 41. When the motor is started the switch is in the position shown in Fig. 1, and the working coil 10 42 is short circuited by the starting coil 44. When the motor attains the desired speed the contact carrying arms 8 and 9 swing into the position shown in Fig. 2, the starting 15 coil is cut out, and the working coil remains in circuit.

What is claimed is:—

1. A centrifugal switch, having, in combination, a rotary support, a pair of similar 20 centrifugal contact arms pivoted upon the same side of the center of rotation of the support, and two springs cross-connected at their ends to the arms, substantially as described.

2. A centrifugal switch, having, in combination, a rotary support, a pair of similar 25 centrifugal contact arms pivoted upon said support upon the same side of its center of

rotation, contact brushes pivoted upon the contact arms, and two springs cross-connected at their ends to the arms, substantially as described. 30

3. A centrifugal switch, having, in combination, a plurality of segmental contacts, a rotary support, a pair of similar centrifugal contact arms pivoted upon the support upon the same side of its center of rotation, two springs cross-connected at their ends to the arms to hold the latter in engagement with the segmental contacts, the springs being so connected to said arms that the outward movement of one arm reduces the tension of the spring tending to hold in the other arm and increases its leverage on the first mentioned arm while increasing the 40 tension of the other spring and decreasing its leverage on said first mentioned arm but increasing its leverage on said other arm, substantially as described. 45

In testimony whereof I affix my signature, 50 in presence of two witnesses.

CARLTON L. KENNEDY.

Witnesses:

CLARENCE B. HANIGHT,
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