J. G. PETERSON.

LOCKING MECHANISM FOR ROTARY SNAP ELECTRIC SWITCHES.

APPLICATION FILED SEPT. 23, 1910.

980,557. Patented Jan. 3, 1911.

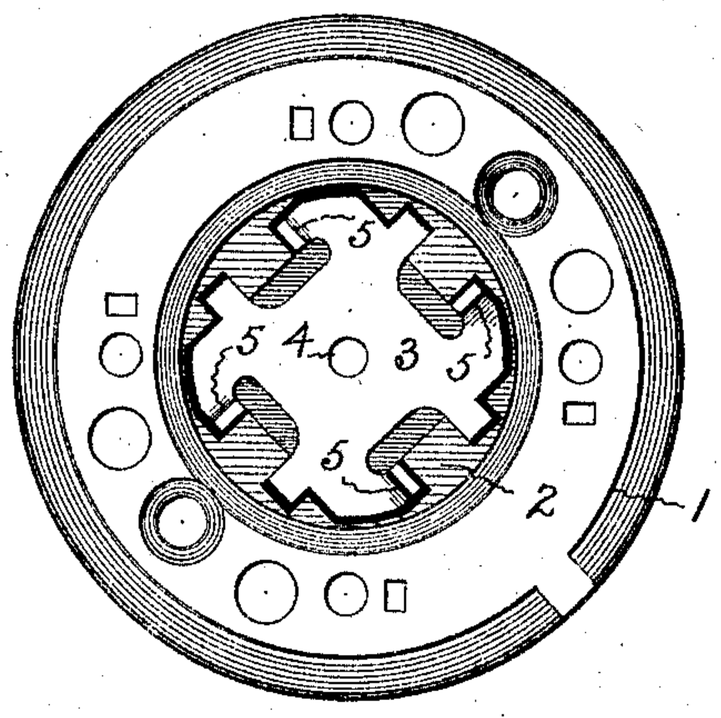

Fig. 1

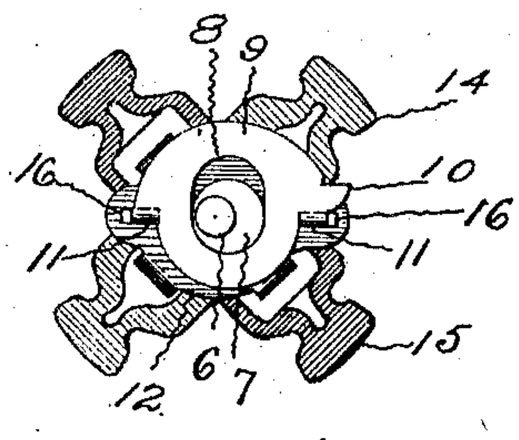

Fig. 2

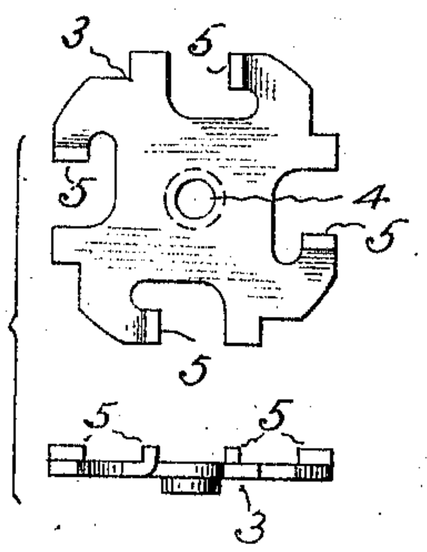

Fig. 3

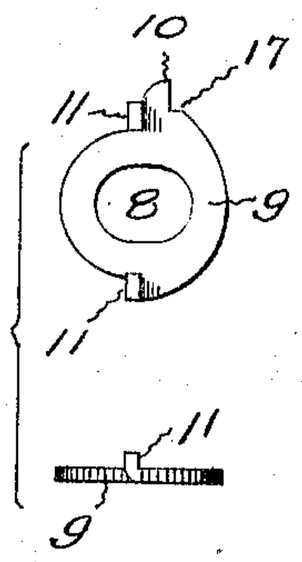

Fig. 4

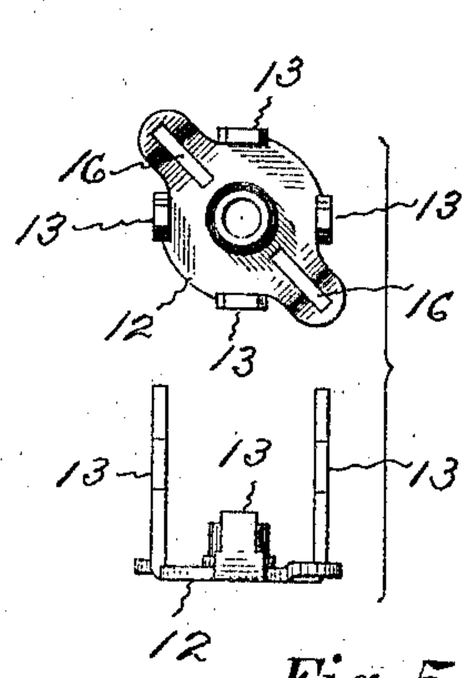

Fig. 5

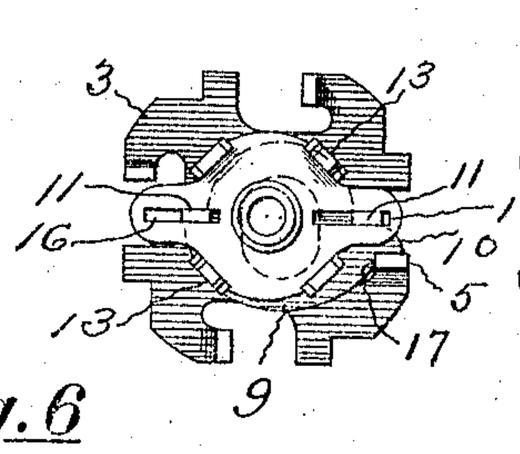

Fig. 6

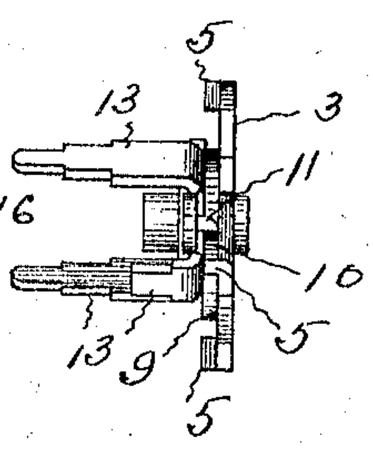

Fig. 7

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UNITED STATES PATENT OFFICE.

JOHANN G. PETERSON, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE ARROW ELECTRIC COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF CONNECTICUT.

LOCKING MECHANISM FOR ROTARY SNAP ELECTRIC SWITCHES.

980,557. Specification of Letters Patent. Patented Jan. 3, 1911.

Application filed September 23, 1910. Serial No. 583,390.

To all whom it may concern:

Be it known that I, JOHANN G. PETERSON, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Locking Mechanism for Rotary Snap Electric Switches, of which the following is a specification.

This invention relates to the mechanism employed in rotary snap electric switches for holding the commutator or pole carrying parts from movement while the spring is being made tense by turning the handle, and which releases the commutator or pole carrying parts after the spring has been given sufficient tension to quickly throw the parts.

The object of the invention is to provide a very simple, durable and easily operated mechanism which is cheaply constructed and readily assembled, and which is particularly adapted for rotary snap switches of relatively large carrying capacity.

In the embodiment of the invention illustrated, the carrier-plate, which has projecting lugs for supporting the movable switch poles, is provided with slots into which extend lugs that project from the ratchet-plate. These slots and lugs guide the ratchet in a straight line, transversely of the operating spindle, when it is moved by the operating cam that is fixed to the spindle, and which lies in a slot in the ratchet-plate. When the spindle is turned, the cam draws the ratchet tooth, that projects from the plate, radially inward from engagement with lugs that are turned up from the lock-plate which is fixed with relation to the base of the switch.

Figure 1 of the accompanying drawings shows a plan of the base of a switch with a lock-plate located in a recess in its upper face. Fig. 2 shows a bottom view of the switch mechanism removed from the base. Fig. 3 shows a plan and a side view of the lock-plate. Fig. 4 shows a plan and a side view of the ratchet-plate. Fig. 5 shows a plan and a side view of the carrier-plate. Fig. 6 shows a top view of the carrier-plate, ratchet-plate and lock-plate. Fig. 7 shows a side view of the parts illustrated in Fig. 6.

The base 1 of the switch illustrated is usually formed of a circular block of porcelain with a recess 2 in its upper face. In the bottom of this recess, in a depression of corresponding shape, is placed the lock-plate 3. This lock-plate has a central perforation 4 for the passage of the operating spindle and upwardly projecting lugs 5 for the engagement of the ratchet-tooth. The plate illustrated is stamped from metal and has four integral lugs bent upwardly from one side.

As is quite common in rotary snap switches, the operating spindle 6 (Fig. 2) has an eccentric cam 7. This cam, while fixed to and turning with the spindle, lies in an opening 8 in the ratchet-plate 9. The ratchet-plate has a tooth 10 which projects from one edge and is adapted to engage the flat back surfaces of the lugs that are bent up from the lock-plate. The ratchet-plate also has two upwardly projecting lugs 11. These lugs are desirably bent upwardly from the plate so as to extend radially on diametrically opposite sides of the axis of the spindle. The carrier-plate 12, which is illustrated, has upwardly projecting lugs 13, the shorter of which are designed to carry the lower movable poles 14, while the longer are designed to carry the upper movable poles 15. These poles are of ordinary form and common material, and are mounted in the usual manner, and forming no part of the present invention, are not specifically illustrated and described herein.

The carrier-plate has two slots 16. These slots extend radially, and extending into them are the guiding-lugs 11 which project from the ratchet-plate. As a result of this construction, when the cam is rotated by turning the operating spindle, the ratchet-plate is caused to move transversely of the spindle in a straight line, and the ratchet-tooth to be drawn radially inward until it is disengaged from the lug of the lock-plate against which it is bearing. As is usual in switches of this character, by the time the ratchet-tooth is disengaged from the lock-plate, the operating spring is under sufficient tension to throw the poles rapidly. The ratchet-plate has its edge so shaped adjacent to the base of the tooth that when the ratchet-tooth lies against a lug of the lock-plate, as shown in Fig. 4, the lug occupies a slight depression 17 in the edge of the ratchet-plate at the base of the tooth, in such manner as to prevent the ratchet-plate from being moved backward. In this organization, the ratchet-tooth which en-

gages with a locking-lug is drawn radially inward in a straight line when the cam is turned, and can be shaped on its engaging face so that there is but very little friction between the parts when the tooth is moved for unlocking the mechanism. The ratchet-tooth is strong, as are also the locking-lugs. A long surface on the edge of the ratchet-tooth engages a wide surface on the locking lugs so that there is but little wear, consequently the mechanism is very durable. The carrier-plate is strong and easily formed, and it guides the ratchet-plate in an easy manner. As the ratchet-tooth moves outward as soon as it is released from a locking-lug, it projects far enough from the axis to afford a desirable leverage when stopping the parts, after they have been thrown, and as the ratchet-tooth moves inward from the locking-lug, rather than outward, the mechanism may be built compactly.

The invention claimed is:

1. In a rotary snap electric switch, the combination with a base, of a lock-plate provided with locking-lugs, carried thereby, a ratchet-plate having a ratchet-tooth and upwardly extending guiding-lugs, a carrier-plate having means for supporting the switch poles and provided with radial slots into which extend the guiding-lugs of the ratchet-plate, and rotary means engaging the ratchet-plate, whereby the ratchet-tooth is moved radially inward from engagement with a locking-lug on the lock-plate when the said rotatory means are turned.

2. A locking mechanism for a rotary snap electric switch having a lock-plate provided with locking-lugs, a ratchet-plate provided with a ratchet-tooth adapted to engage the locking-lugs, and also provided with guiding-lugs, a carrier-plate provided with means for supporting the movable switch poles and having slots designed to receive the lugs projecting from the ratchet-plate, and a cam turning in an opening in the ratchet-plate and when so turned causing the ratchet-tooth to be moved radially inward from engagement with a locking-lug.

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