

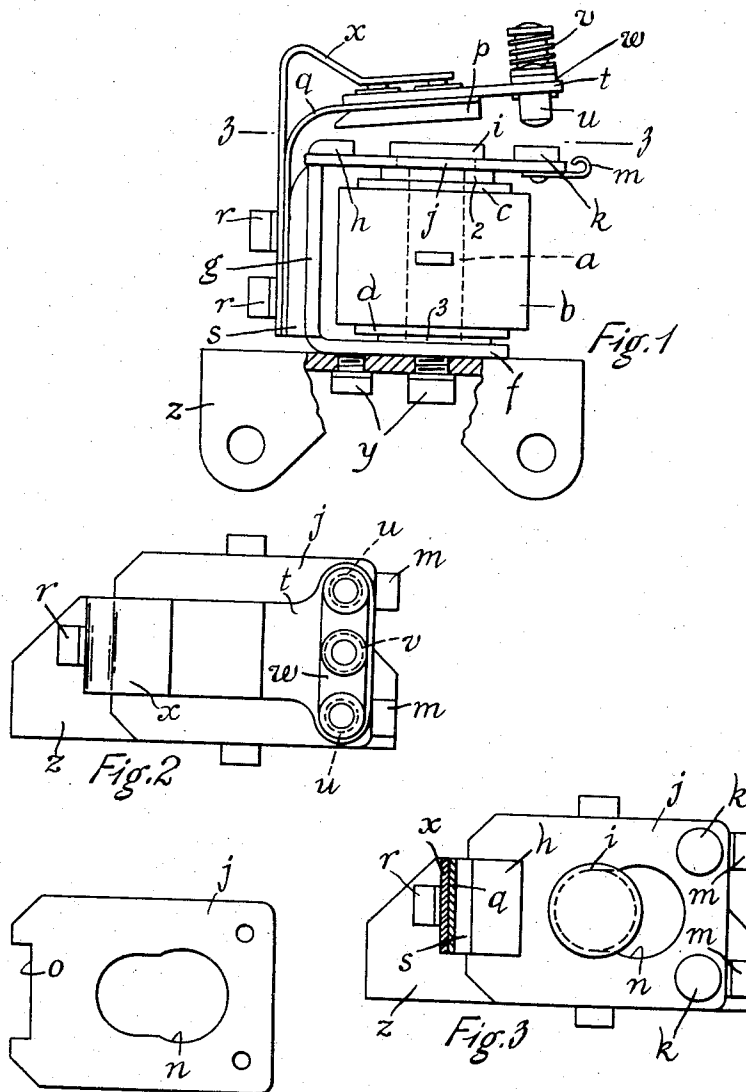
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ELECTROMAGNETIC ELECTRIC SWITCHES

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ELECTROMAGNETIC ELECTRIC SWITCHES

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1 Claim. (Cl. 200—87)

This invention relates to electromagnetic electric switches, and has for its object to enable such switches of small size to be constructed from components capable of being expeditiously produced and assembled.

A switch in accordance with the invention comprises the combination of an iron core, a winding mounted on the core, an L-shaped iron yoke secured to one end of the core and extending along the one side of the winding, a contact carrier made from insulating material and having therein a key-hole slot whereby it is removably secured to a head at the other end of the core, with one end in engagement with the adjacent end of the yoke, a movable iron armature extending over the last mentioned end of the core and the said end of the yoke and connected to the yoke, and a second contact carrier made from insulating material attached to the armature.

In the accompanying drawings FIGURE 1 is a side elevation and FIGURE 2 a plan of an electromagnetic electric switch embodying the invention. FIGURE 3 is a sectional plan on the line 3.3 of FIGURE 1, and FIGURE 4 is a plan of the contact carrier associated with the core and yoke of the electromagnet of the switch.

Referring to the drawings, a cylindrical iron core *a* has mounted on it a winding *b* in the form of a cylindrical coil which is held in position on the core by a pair of flanges *c*, *d* situated at opposite ends of the coil, the flanges being brazed or otherwise secured to the core prior to the winding being wound on the latter. To one end of the core is secured one member *f* of an L-shaped iron yoke, the other member *g* of this yoke being arranged closely adjacent to and extending along one side of the winding. Also at the end remote from member *f* the member *g* has formed thereon a laterally extending lip *h*.

The other end of the core has formed on it a head *i* towards which the lip *h* extends, and to this end is removably secured a flat piece *j* of insulating material serving as a carrier for a pair of contact pieces *k* and associated terminals *m*. A key-hole slot *n* (FIGURE 4) is formed in the piece *j* for enabling it to be engaged with the said head on the core and in one end of the said piece is formed a gap *o* for enabling this end to be engaged with the member *g* of the yoke and the underside of the lip *h*.

The armature *p* consists of an iron piece which extends over the head of the core and the lip of the yoke, and which is attached to one side of the yoke by a suitably bent resilient metal strip *q*. To enable the position of the armature relatively to the core and yoke to be readily adjustable, the attachment of the resilient strip to the yoke is effected by screws *r* engaged with the yoke and inserted through an elongated slot or slots in the strip. Preferably a distance piece *s* is placed between this strip and the yoke.

To the outer side of the armature is also secured a second flat piece *t* of insulating material which carries a pair of contact pieces *u* interconnected by a metal strip *w* and loaded by a spring *v*, these contact pieces serving to co-operate with the contact pieces *k*.

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Preferably a second bent strip *x* is also attached to the side member of the yoke by the above mentioned screws *r*, the other end of this strip being adapted to extend over the outer side of the part *t* to serve as a stop for determining the extent to which the armature can be moved away from the core and yoke by the resilient strip attached to the armature.

In the example illustrated the yoke is secured by a pair of screws *y* to a supporting base *z*, one of these screws, namely, that on the right in FIGURE 1, is larger than the other, and extends through holes in the base and the yoke member *f* into engagement with a complementary screw-threaded wall of an axial hole in the adjacent end of the core *a* for securing this end of the core to the yoke member *f*. Moreover, an annular shim or shims 2 may be provided on the core *a* between the flange *c* and the contact carrier *j*, and an additional annular shim 3 may be provided on the core between the flange *d* and the yoke member *f*. By removing the larger screw *y* the core *a* is disconnected from the yoke member *f*, and together with the parts mounted on it the core can be moved laterally, to the right in FIGURE 1, for disengaging the contact carrier *j* from the yoke member *g*, whereupon the contact carrier can be moved relatively to the core to a position in which the larger end of the key-hole slot *n* is situated beneath the head *i* on the core for enabling the contact carrier to be detached from the core. The components of the switch above described are all of a simple kind which can be readily manufactured by simple operations and with economy of material. They can also be expeditiously assembled. Further the mode of attaching the resilient strip and the stop strip to the yoke is such as enables the required adjustments of the position of the armature and stop to be easily effected.

Having thus described our invention what we claim as new and desire to secure by Letters Patent is:

An electromagnetic electric switch comprising in combination an iron core having a head on one end thereof, a winding mounted on the core, an L-shaped iron yoke consisting of a first member to which the other end of the core is detachably secured, and a second member extending along one side of the winding and having on its outer end a lip extending towards the head on the core, an electrically insulating contact carrier removably secured to the core by the engagement of a key-hole slot in the contact carrier with the head on the core, and provided with a gapped end engaging the second member of the yoke and the underside of the lip thereon, so that removal of the contact carrier from the core is prevented until the core is detached from the first member of the yoke, a movable iron armature extending over the head on the core and the lip on the second member of the yoke, a resilient metal strip connecting the armature to the second member of the yoke, and a second electrically insulating contact carrier attached to the armature.

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