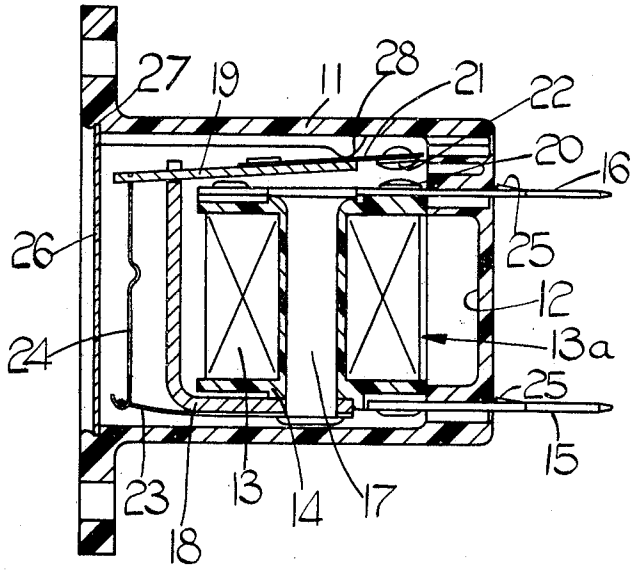
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ELECTROMAGNETIC RELAYS

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ELECTROMAGNETIC RELAYS

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ABSTRACT OF THE DISCLOSURE

An electromagnetic relay includes a casing, an electromagnet housed within the casing, and an armature which is urged away from the electromagnet by a leaf spring, and which is movable towards the electro magnet in response to energisation of the magnet. The armature carries a movable contact which is engageable with a fixed contact in response to energisation of the electromagnet. The leaf spring and the armature are interconnected by a deformable link, the length of which is adjustable to determine the operating voltage of the relay.

This invention relates to electromagnetic relays of the kind including a casing, an electromagnet housed within the casing, an armature urged away from the electromagnet and movable towards the electromagnet in response to energisation of the electromagnet, a movable contact carried by the armature, and a fixed contact engageable by the movable contact.

According to the invention in a relay of the kind specified, the armature is urged away from the electromagnet by a leaf spring, the leaf spring and the armature being interconnected by a deformable link which is adjusted to determine the operating voltage of the relay.

One example of the invention is illustrated in the accompanying drawing, which is a sectional view of an electromagnetic relay.

Refering to the drawing, the relay includes a moulded synthetic resin casing **11** of open box like construction, having a base **12**. The electromagnet **13***a* of the relay is housed in the casing **11** and the coil **13** thereof is wound on a moulded former **14**. Secured to the former **14** are two pairs of conductive blade terminals **15**, **16** (one of each of which is seen in the drawing), the terminals **16** each including a contact **20** adjacent the coil **13** while the terminals **15** are connected to the ends of the coil **13** respectively.

The core **17** of the electromagnet **13***a* extends axially through the coil **13** and is parallel to the base **12**. Secured to one end of the core **17** is one limb of an L-shaped member **18**, the other limb of which extends parallel with the core **17** and carries at its free end the armature **19** of the relay. The armature **19** extends at right angles to the core **17** and carries at its end remote from the member **18** a bifurcated conductive member **21** having integral therewith a pair of contacts **22** (only one of which is visible in the drawing). Also secured to the core **17** and extending for part of its length in contact with said one limb of the member **18** is a leaf spring **23** and extending between the free end of the spring **23** and the end of the armature remote from the member **21** is a ductile wire link **24**. The link **24** is formed at its ends

with hook portions which extend through holes in the spring **23** and armature **19** respectively.

During assembly of the relay the terminals **15**, **16** are engaged with slots in the base **12**, the terminals **15**, **16** projecting from the base for connection to respective leads.

Each of the terminals, **15**, **16** includes a resilient tab **25** which as the terminal is engaged with its respective slot, is flexed to allow the terminal to pass through the slot. The tags **25** are so arranged that when the former **14** engages the inner surface of the base **12**, the tags **25** can flex outwardly to engage the outer surface of the base **12** and thereby prevent withdrawal of the assembly from the casing.

The operation of the relay is as follows:

When the coil **13** is energised, the armature **19** is drawn against the action of the spring **23** towards the core **17** and in so doing brings the contacts **22** into engagement with the contacts **20** so electrically interconnecting the terminals **16** through the member **21** and completing an electrical circuit through the terminals **16**. When the coil is de-energised, the armature **19** is returned by the spring **23** so breaking the circuit through the terminals **16**.

When the coil **13** is de-energised, the member **21** engages a rib **28** formed on the wall of the casing **11**. However, in a modification, a second pair of contacts are provided adjacent the wall of the casing and in the de-energised condition of the relay, the member **21** completes a second electrical circuit through the second pair of contacts.

In order to set the pull-in and drop-out voltages of the relay, it is merely necessary to kink the link **24**, whilst the member **21** is engaged with the rib **28** or with the second pair of contacts thereby shortening the link and adjusting the tension exerted by the spring **23**.

After assembly of the relay the open end of the casing **11** is closed by a resilient plate **26**, which is snapped into an internal circumferential groove **27** in the casing **11**.

It will be appreciated that an alternative method of setting the pull-in and drop-out voltages of the relay would be to form the link **24** with a kink prior to assembly of the relay, the link then being lengthened or shortened by deforming the kinked portion of the link as required.

Having thus described my invention what I claim as new and desire to secure by letters Patent is:

1. An electromagnetic relay comprising in combination a casing, an electromagnet housed within the casing, an armature urged away from the electromagnet and movable towards the electromagnet response to energisation of the electromagnet, a movable contact carried by the armature, a fixed contact engageable by the movable contact, wherein the armature is urged away from the electromagnet by a leaf spring, the leaf spring and the armature being interconnected by a deformable link, said deformable link forming the sole means for adjusting the gap between the fixed and movable contacts to determine the operating voltage of the relay.

2. A relay as claimed in claim **1** wherein the armature and the fixed contact are carried by a former on which the coil of the electromagnet is wound, the former having secured thereto a plurality of terminal members which in use extend through slots in the casing, and the

terminal members having resilient parts which are flexed to allow the terminals to pass through said slots, the parts then flexing to a position wherein they engage the casing to prevent withdrawal of said former from the casing.

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