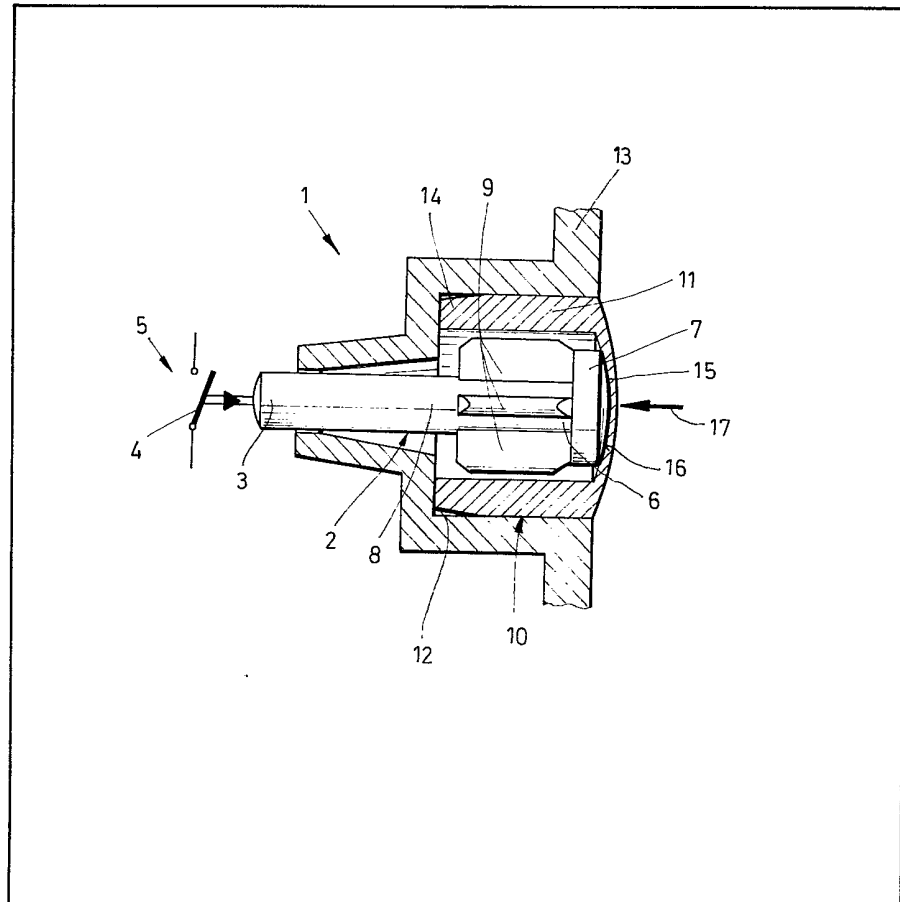
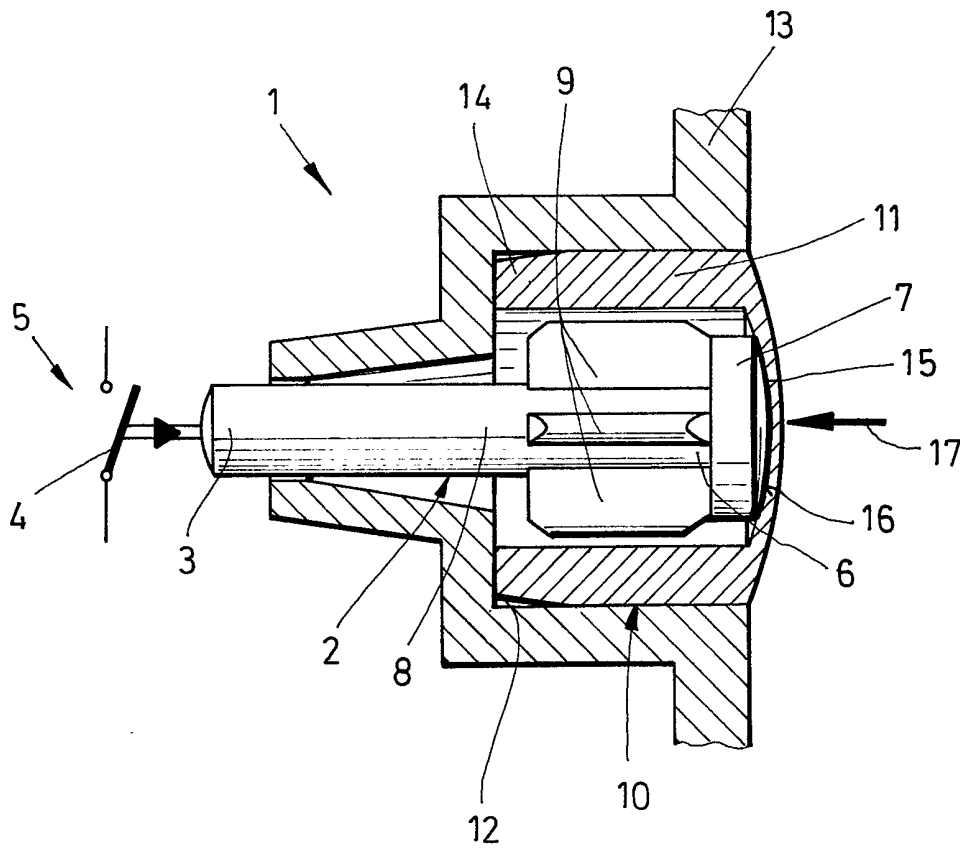


- (21) Application No 7942101
- (22) Date of filing 6 Dec 1979
- (30) Priority data
- (31) 7903019U
- (32) 5 Feb 1979
- (33) Fed Rep of Germany (DE)
- (43) Application published 17 Sep 1980
- (51) INT CL³
H01H 9/04
- (52) Domestic classification
H1N 616 618
- (56) Documents cited
GB 2023937A
GB 1218480
GB 1048715
GB 934791
GB 866535
GB 861801
GB 801861
- (58) Field of search
H1N
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(54) An apparatus comprising switch actuating means

(57) Household appliance, especially dishwashing machine, laundering machine and the like comprises at least one switch member (4) actuated by a sealed push rod (2) of a switching device (5) which is arranged in the appliance behind a housing wall. The push rod (2) at one end thereof is covered by a cap (10) which comprises a thin-walled, resilient portion (15) associated with the push rod end face (16) and a sleeve (11) which sits gaplessly in a recess (12) of a wall (13) of the appliance.





SPECIFICATION

An apparatus comprising switch actuating means

5 The present invention relates to an apparatus such as a dishwashing machine or a laundry machine comprising switch actuating means.

10 It is known in household appliances to equip switching devices with push buttons, on the actuation of which an associated push rod acting on a switch member executes a stroke of a few millimetres. The push buttons guided in appropriate recesses of a housing wall, provided with a shutter, are largely unsusceptible to faults, since the actuating force and correspondingly its restoring force is relatively large so dirt particles, which have penetrated into the recess, cannot block the button of the push rod.

20 Household appliances are also known in which the switching device is associated with strokeless contact keys provided in the keyfields, the pollution of which leads to a functional disturbance of the switching device.

25 According to the present invention there is provided an apparatus comprising a housing provided with a recess, a switch disposed within the housing, a rod member displaceable within the recess to actuate the switch, and a cap comprising a resilient portion deformable to transmit displacement to the rod member and a sleeve portion connected to the resilient portion, the sleeve portion being disposed within and gaplessly engaging the internal wall of the recess.

30 The apparatus may comprise one of a dishwashing machine and a laundering machine.

The resilient portion may protrude outwardly of the housing.

40 The sleeve portion may have a circular cross-section and a free end portion which is axially remote from the resilient portion and which is chamfered to a diameter smaller than that of the recess.

45 An embodiment of the present invention will now be more particularly described by way of example and with reference to the accompanying drawing, the single figure of which shows a section of a household appliance.

50 The section, designated by 1, of the household appliance comprises a push rod 2, which by an end 3 engages a moveable switch member 4 of a switch 5 of a switching device. The push rod 2 is cylindrical and is provided with a convex head 7 at its end 6 facing away from the switch. Several longitudinal ribs 9, which serve to guide the push rod, extend between the head 7 and the middle portion 8 of the push rod 2.

55 The head 7, the end 6 and the longitudinal ribs 9 of the push rod 2 are covered over by a cap 10, which comprises resilient plastics material and which by a sleeve portion 11 sits in a recess 12 of a wall 13 of the appliance containing the switching device. The wall 13 may be component of the housing of the switching device itself. The sleeve portion 11, of circular cross-section, has an encircling conically chamfered 14, the smallest diameter of which is smaller than the diameter of the recess 12 in the

appliance wall 13. This facilitates the assembly of the cap 10, which is easily pressed in after the introduction of the chamfer 14 into the recess 12. A thin-walled resiliently deffectable end wall 15 at the head of the push rod adjoins the sleeve portion 11 which is disposed gaplessly in the recess 12. This end wall 15 is raised and protrudes beyond the appliance wall 13. The diaphragm-like end wall 15, associated with the convex end face 16 of the push rod head 7 of the cap 10 in conjunction with the sleeve portion 11 disposed in the recess 12 prevents the ingress of moisture and dirt to the push rod 2 and to the switch 5.

70 For actuation of the switch 5, pressure is exerted in the direction of the arrow 17 on the end wall 15 of the cap 10 so that the push rod 2 with deformation of the end wall executes a longitudinal movement, during which the movable switch member 4 of the switch moves into its closing position. With the end wall 15 relieved, the returning switch member 4 of the switch 5 displaces the push rod 2 into its illustrated rest position.

80 An advantage of the above described embodiment is that, on the one hand, the cap protects the push rod effectively against blockage by ingressed dirt or against disturbances by reason of moisture and, on the other hand, due to its yieldable end wall certain actuation of the switch member without great force expenditure is possible.

95 The chamber enables the cap to be easily assembled, since it can be plugged self-centeringly into the recess by the chamfer and subsequently be pressed in a simple manner.

CLAIMS

100 1. An apparatus comprising a housing provided with a recess, a switch disposed within the housing, a rod member displaceable within the recess to actuate the switch, and a cap comprising a resilient portion deformable to transmit displacement to the rod member and a sleeve portion connected to the resilient portion, the sleeve portion being disposed within and gaplessly engaging the internal wall of the recess.

110 2. An apparatus as claimed in claim 1, wherein the apparatus comprises one of a dishwashing machine and a laundering machine.

3. An apparatus as claimed in either claim 1 or claim 2, wherein the resilient portion protrudes outwardly of the housing.

115 4. An apparatus as claimed in any one of the preceding claims, wherein the sleeve portion has a circular cross-section and a free end portion which is axially remote from the resilient portion and which is chamfered to a diameter smaller than that of the recess.

120 5. An apparatus substantially as hereinbefore described with reference to the accompanying drawing.