

June 5, 1928.

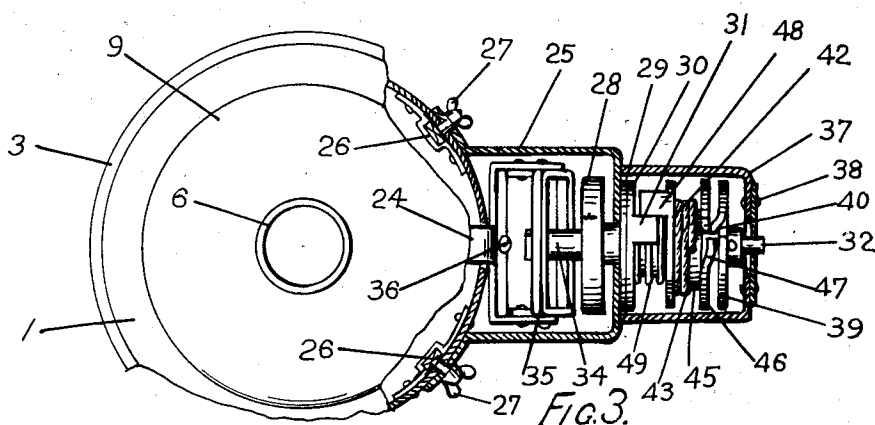
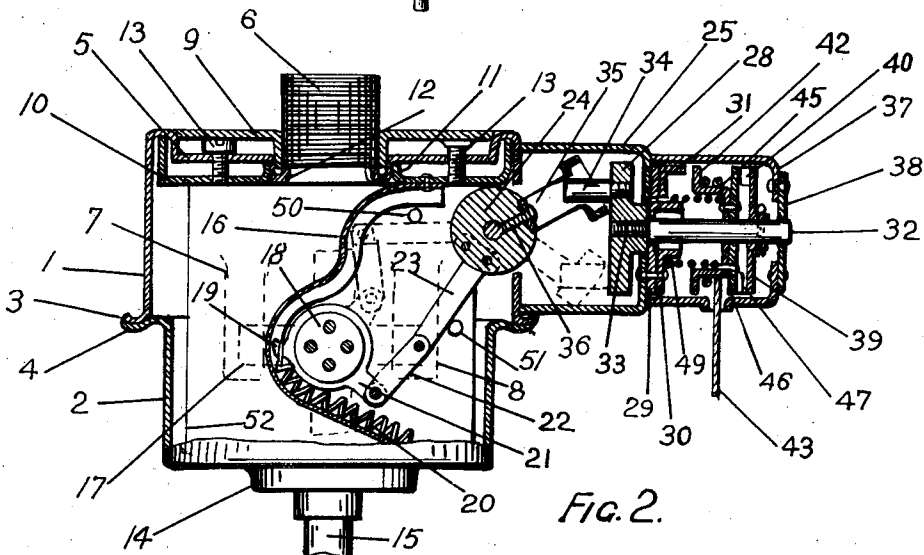
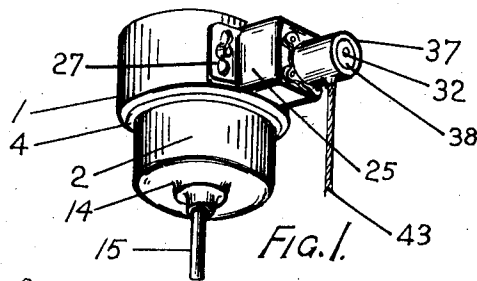
1,671,965

G. R. BROWN

ELECTRIC SWITCH

Filed Aug. 31, 1923

2 Sheets-Sheet 1



George Rudstan Brown
INVENTOR;
By *Edmund L.* Attorney.

June 5, 1928.

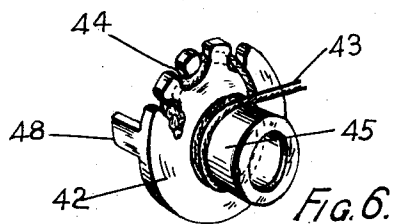
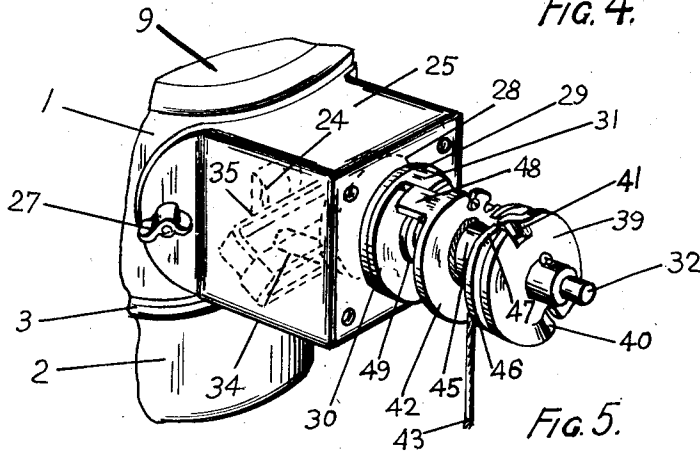
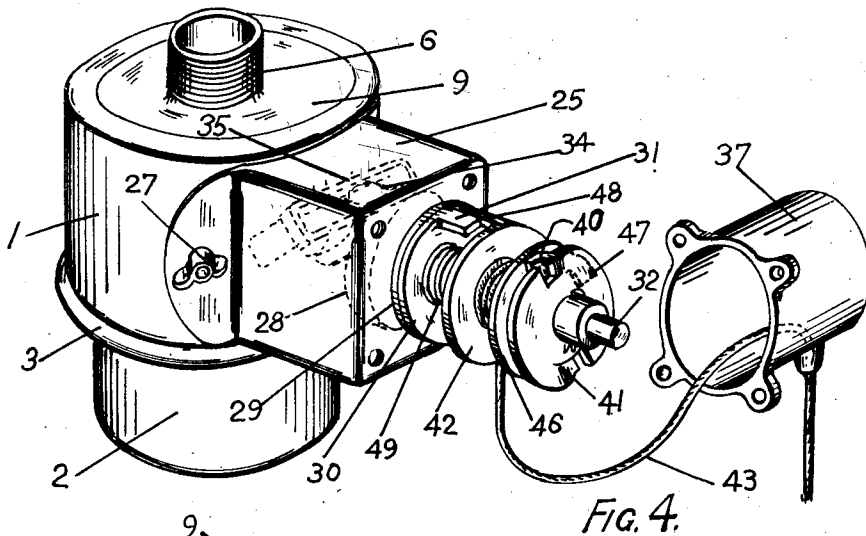
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G. R. BROWN

ELECTRIC SWITCH

Filed Aug. 31, 1926

2 Sheets-Sheet 2



George Rudston Brown
INVENTOR;

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Patented June 5, 1928.

1,671,965

UNITED STATES PATENT OFFICE.

GEORGE RUDSTON BROWN, OF CROYDON, NEAR SYDNEY, NEW SOUTH WALES,
AUSTRALIA.

ELECTRIC SWITCH.

Application filed August 31, 1926, Serial No. 132,715, and in Australia October 2, 1925.

This invention relates to electric switches and refers to switches of the type in which a cord or the like is utilized for operating the switch either to the "on" or "off" position thereof.

With reference to the accompanying drawings in which the invention is illustrated, Fig. 1 is a perspective view of the switch; Fig. 2 a sectional elevation; Fig. 3 a broken plan view; Fig. 4 a perspective view with cover for operative spindle and mechanism associated therewith removed and showing one position of such mechanism; Fig. 5 a view similar to Fig. 4, but with the said mechanism in another position; and Fig. 6 a perspective view of cord carrying pulley.

The casing for the switch may be of any suitable pattern and constructed of any suitable material. It is preferred to construct it of metal having the two parts 1 and 2 with flanges 3 and 4 respectively which may be secured together in any desired manner. The part 1 has a portion 5 bent to form a curved flange 12 for a tube 6 or a pipe or the like through which electric lead wires may be carried for connection to the electric conductive plates 7 and 8. A support plate 9 with screw-threaded opening for the tube 6 is fitted by screws 13 to the portion 5 and flanged plate 10, one of the flanges 11 of which abuts the flange 12 of the portion 5 of the part 1 of the said casing. The part 2 of the latter may be provided with a boss 14 to which a tube 15 may be attached for lead wires to be carried to the point at which electric current is to be supplied. A shield 16 extends from the plate 10 towards the bottom of the element 52 and its opposite ends may be secured to the plate 10 and said element 52 by any preferred means; such shield serves the purpose of preventing contact of the lead wires within the switch casing with operative mechanism of the switch also within said casing.

Associated with the electric conductive plates 7 and 8 is the movable electric conductive contact plate 17 which is suitably attached to the arcuately movable element 18 having extension 19 to which one end of the coil spring 20 is attached, the other end of said spring being attached to the element 52. The element 18 also has an extension 21 to which one end of the link rod 22 is pivotally connected; the other end of such rod 22 is pivotally connected to one end of an-

other link rod 23 whose other end is attached by suitable means to the arcuately movable member 24. The element 18 and the member 24 are turnable on spindles carried by the switch casing. The part 1 of the latter has an opening in one side thereof to permit the member 24 to partly project there-through.

Exteriorly of the switch casing and adapted to be detachably attached to one side of the part 1 of such casing is the casing 25 open at one end. The latter casing may be attached to the said part 1 by means of the bolts 26 and butterfly nuts 27. The other end of the casing 25 has an opening therein and fitting such opening is the boss of a crank disc 28. About the said opening in the casing 25 and secured to the end of the said casing in which is said opening is the plate 29, also the bossed disc 30. The latter has projecting from one face thereof a stop 31. In the plate 29 is a bearing opening for one end of the rotatable spindle 32, such spindle also having the screw-threaded portion 33 whereby the crank disc 28 is attachable thereto. The crank disc 28 carries the eccentrically disposed crank pin 34 which is associated with the arcuately movable frame 35 attached by the screw 36 or otherwise to the member 24.

A removable cover 37 is provided for detachable attachment to the casing 25 by means of screws or otherwise. One end of such cover 37 is open and the other end thereof has an opening therein which is covered by the plate 38 attached to such cover. In the plate 38 is a bearing opening for the opposite end of the rotatable spindle 32. Fixed to the latter by a split pin or otherwise is the disc 39 having projecting fingers 40 and 41 arranged at 180° apart and loosely mounted on the spindle 32 is the pulley 42 to which one end of an operating cord 43 or the like is attachable; for this purpose the pulley 42 may be notched as at 44 and the cord secured in such notches and thereafter carried around the boss 45 of the pulley. Affixed to the pulley 42 is the plate 36 having a projecting tooth 47; the pulley 42 also carries a projecting lug 48. The loose end of the cord 43 may be allowed to extend any suitable distance from the pulley 42. Between the bossed disc 30 and the pulley 42 is the coil spring 49 one end of which is attached to the plate 29, casing 25, and the disc

30, and the other end thereof to the pulley 42 and plate 46; such spring 49 is adapted to keep the pulley 42 in proper relation with the disc 39 whereby the tooth 47 of the plate 46 may engage with the fingers 40 and 41 of such disc 39 and also to permit automatic reverse rotation of the pulley 42. Stops 50 and 51 in the switch casing are provided for the link 23.

10 In operation, when the cord 43 is drawn on the pulley 42 is forwardly rotated and in such rotation the projection 47 on the plate 46 is brought into engagement with either the finger 40 or the finger 41 of the disc 39 whereby the latter is also caused to partly rotate. Such rotation of the pulley 42 and part rotation of the disc 39 may be continued until one side of the stop member 48 on the pulley 42 engages one side of the stop member 31 on the plate 30; during such partial rotation of the disc 39 the spindle 32 is rotated together with the crank disc 28 and its pin 34 whereby the framing 35 is arcuately moved to simultaneously arcuately move the member 24 and thus the links 23 and 22 together with the element 18 whereby the electric conductive contact plate 17 is moved to either "on" or "off" position thereof in relation to the electric conductive stationary plates 7 and 8, the spring 20 operating to snap home the plate 17 in relation to the "on" or "off" position thereof.

Upon tension being released from the cord 43 the spring 49 automatically returns the pulley 42 to normal position by reversely rotating it until its motion is stopped by the other side of the stop 48 meeting the other side of the stop 31 of the bossed disc 30 and the tooth 47 sliding past either the finger 40 or the finger 41 of the disc 39 to return to normal position, whereby it will be ready for re-engagement with the finger 40 or the finger 41 depending upon the position of such fingers. The disc 39 in every movement thereof by the pulley 42 receives a part rotation of 180°; said movement of the disc 39 being effected in one case by the tooth 47 engaging with the finger 40 and in the other case by such tooth engaging with the finger 41.

The position of the links 22 and 23 when the plate 17 is in "on" position is shown in full lines in Fig. 2 and when the plate 17 is

in "off" position the disposition of the links 22 and 23 is as shown in dotted lines in the same figure.

It will be understood that the construction of the switch casing may be modified to that shown in the drawings and described herein and that the arcuately movable parts of the switch contained in the casing thereof may also be modified as desired.

By providing the detachable casing 25 and the detachable cover 37 means are furnished for allowing ready inspection, repair, or replacement of any of the operative mechanism associated with said casing and cover.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In and for an electric switch, a pulley for an operative cord therefor, said pulley having notches in the periphery thereof whereby the said cord is readily attachable to and detachable from the pulley.

2. An electric switch in which the operating mechanism comprises a spindle supported in a secondary casing detachably secured to the main switch casing said spindle having at one end a crank pin which engages a slotted handle of the switch, a cord operated pulley loosely mounted upon the said spindle and provided with a projection or finger which engages when the pulley is rotated in one direction, with one or other of two similar projections or fingers on a disc fixed to the spindle whereby the latter is also rotated and with it the crank pin, a projection or stop formed on the pulley which is adapted to come in contact with a similar projection or stop on the inside of the secondary casing and thereby prevent any further rotative movement by the crank pin.

3. An electric switch in which the switch mechanism comprises two rotatable members mounted within the switch casing, to one of which is secured a frame engaging with the crank pin of the switch operating mechanism, while the other actuates the contact member, arms on the said rotatable members being connected by a link whereby the switch arm is operated, a spring coacting with the said switch to give a quick action thereto.

In testimony whereof I affix my signature.

GEORGE RUDSTON BROWN.