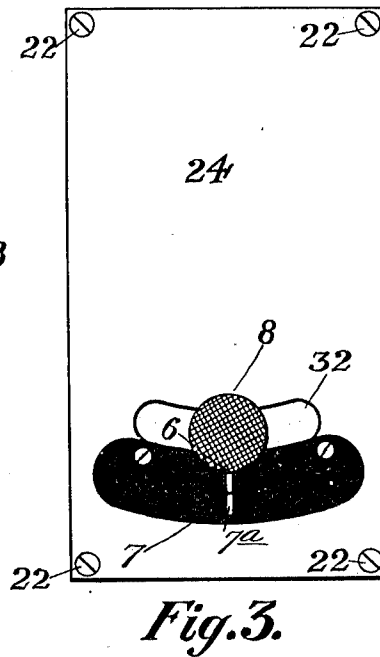
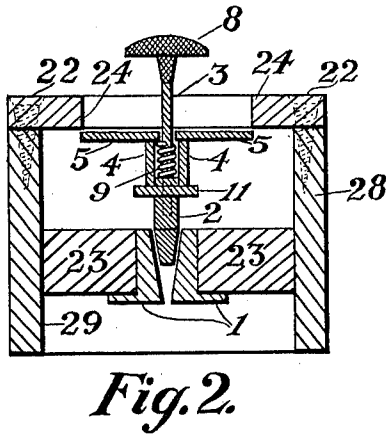
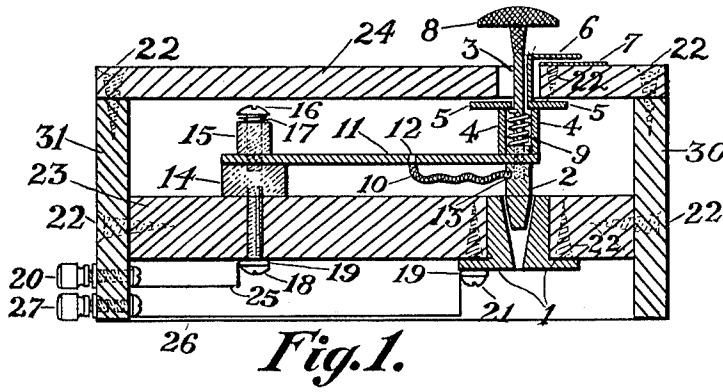


M. H. CULLEN.
ELECTRIC SWITCH.
APPLICATION FILED OCT. 15, 1909.

1,012,525.

Patented Dec. 19, 1911.

2 SHEETS-SHEET 1.



WITNESSES:

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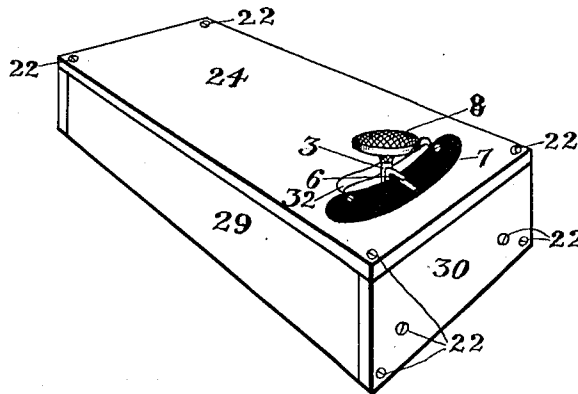


Fig. 4.

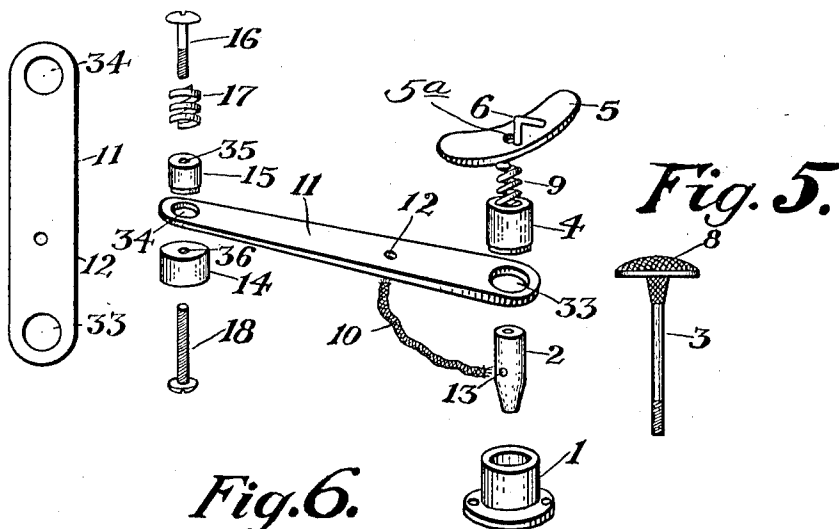
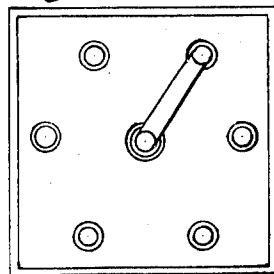


Fig. 5.

Fig. 6.



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UNITED STATES PATENT OFFICE.

MILTON H. CULLEN, OF CHATTANOOGA, TENNESSEE, ASSIGNOR OF ONE-HALF TO
LENILEOTI CULLEN, OF CHATTANOOGA, TENNESSEE.

ELECTRIC SWITCH.

1,012,525.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed October 15, 1909. Serial No. 522,869.

To all whom it may concern:

Be it known that I, MILTON H. CULLEN, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented new and useful Improvements in Electric Switches, of which the following is a specification.

This invention relates to an electrical switch adapted for general application but particularly advantageous for use on automobiles in connection with battery and magneto systems or other igniting systems such as are employed on motor boats and in gasoline engines.

The improved switch is also adapted to be used on delicate electrical measuring and testing instruments, such as resistance bridges.

The primary object of the invention is to produce a simple and effective locking switch having a positive operation and reliable contact adjustment and wherein an operating stem is separable from a contact plug arranged to operate with one or more receptive sockets of corresponding contour.

In the drawings: Figure 1 is a sectional elevation of a switch embodying the features of the invention, the section being in a longitudinal direction. Fig. 2 is a transverse vertical section taken through the plane of the plug and stem as shown by Fig. 1. Fig. 3 is a top plan view of the switch. Fig. 4 is a perspective view of the same. Fig. 5 illustrates detail views in perspective, side elevation and plan of separated parts of the switch and particularly embodying the features of the invention. Fig. 6 is a plan view of a slight modification of the switch wherein a plurality of sockets similar to those previously illustrated are used.

The switch inclosure or box comprises a top 24, ends 30 and 31, sides 28, 29 and an inner horizontal support 23, all of said parts being associated and secured in fixed relation through the medium of suitable fastening devices 22.

It will be understood that the parts of the box or casing, or the inclosure for the switch elements as will be more fully hereinafter explained, will be constructed of some suitable non-conducting material and may be of any dimensions and proportions corresponding to the dimensions of the operating switch elements.

In the top 24 of the box or inclosure is a segmental slot 32 located near one end and extending in transverse relation to the said top, and in advance of this slot and secured on the top is an indicating member 7 having a mark or line 7^a to guide the operator in determining the position of the switch plug in accordance with a socket, and as any number of sockets may be used with a single plug, the indicating member 7 may have thereon any suitable scale or series of guiding marks or characters to direct the operator in determining when the plug is in registering position with relation to any one of a plurality of sockets. It is preferred that the indicating member 7 be of a dark color as shown, and have thereon marks or characters in a contrasting shade to facilitate the operation of the plug relatively to the one or more sockets that may be used.

On the support 23 a blade 11 is secured at one extremity, said blade being formed of sheet brass, German silver or other suitable material and having holes 12, 33 and 34 punched therein. The holes 33 and 34 are close to opposite ends of the blade and the hole 12 is at an intermediate point. This blade 11 has its rear terminal disposed on a block 14 held fixed to the support 23 by a screw or analogous fastening 18 and fitted in the hole 34 is a sleeve 15, the lower end of the latter being reduced for this purpose as shown by Fig. 5 and having a spring 17 imposed on the upper end thereof and a screw 16 extending therethrough and compressing the spring to maintain a reliable contact of the blade with its supporting parts just mentioned. The blade 11 may be swung or shifted laterally in opposite directions on the block or pillow 14. On the front end of the blade 11 a sleeve 4 is held in surrounding relation to the opening 33 or the lower extremity of said sleeve 4, as shown by Fig. 5, is reduced to fit in the opening 33, and secured on the upper end of said sleeve 4 are closing plates as at 5, or a single plate with an opening 5^a therethrough, as shown by Fig. 5, to cover the segmental slot 32, and rising from the plate 5 is an angular indicator 6 which extends over the indicating member 7.

A plug 2 has its upper extremity projecting through the opening 33 in the blade 11 and provided with a separable stem 3 which extends upwardly through the opening 5^a in

the cover plate 5 and the segmental slot 32, the said stem 3 being disposed in central relation to the sleeve 4. The plug 2 is fixed in the blade 11 in such manner as to be readily engaged by the stem 3 but is movable in the blade and is engaged by a spring 9 disposed in the sleeve 4 as shown and operating to force the plug into perfect contact with the socket or cup 1 secured to the support 23 by suitable fastenings as at 21. The lower end of the stem 3 is screw-threaded and may be readily attached to and detached from the plug 2. It will be understood that the plug 2 when held elevated will be maintained in such position against the resistance of the spring 9, but when the plug 2 is depressed it will make an effective contact with the socket or cup 1 over which it may be disposed, only one of the sockets or cups being shown in the present instance to illustrate one practical form of the invention. The lower end of the plug 2 is tapered and the socket or cup 1 has a conical opening therethrough corresponding to the taper at the lower end of the plug so as to insure an effective contact between the plug and socket. The plug 2 and blade 11 are electrically connected by a resilient connection 10 terminally attached to both of the devices and respectively engaging the hole 12 of the blade and a socket 13 of the plug. It will be understood that the head or cap 8 of the stem will be of suitable non-conducting material for obvious reasons. Binding posts 20 and 27 are shown applied to the rear end 31 of the box or inclosure below the support 23 and wires 25 and 26 run from the respective binding posts to the fastening or screw 18 of the block or pillow 14 and the screw or one fastening 21 of the socket or cup 1, the terminals of the wires 25 and 26 being secured to the said fastenings as at 19.

The cover plate 5 materially excludes the entrance of dust or dirt into the box or inclosure through the slot 32 with advantages in the operation of the switch, and if the blade 11 be shifted laterally to cause the plug 2 to register with any one of a number of sockets 1 the said cover plate will be moved therewith and will be normally of such dimensions as to maintain the segmental slot 32 closed at all times. It will also be understood that where a plurality of sockets is used the electrical connections or wires and binding posts will be correspondingly increased.

From the description of the electrical connections with relation to the blade 11, plug 2 and socket 1, the course of the current or the closing and opening of the circuit in

which the switch is included will be readily understood.

When the plug is released from the stem and is depressed into the socket 1 the spring 9 prevents loose or imperfect contact or variation of contact between the plug and socket that might arise from vibration, and arcing is also prevented. When the plug is depressed into the socket 1 the stem 3 may be readily separated therefrom and withdrawn, thus providing a locking switch which will be difficult to operate except by authorized persons or until the stem 3 is again connected to the plug. The stem may be readily withdrawn and inserted through the sleeve 4 and registration of the lower end thereof with the plug will ensue without difficulty.

The opening in the socket 4 extends entirely through the latter as shown, and dirt is prevented from accumulating therein, the plug acting to force any accumulated dirt through the socket.

What is claimed is:

1. A switch comprising a fixed socket, a laterally shiftable blade having one extremity free, a plug movably carried by said free extremity of the blade and depressible into said socket, the plug having a removable stem for operating the same and also serving as a means for shifting the blade, and electrical connections for the socket and plug.

2. A switch of the class specified consisting of a laterally shiftable supporting blade having a free extremity, a plug carried by the free extremity of said blade and provided with a detachable stem, the plug being formed with a tapering extremity, a conical socket into which the tapering extremity of the plug is depressible, and electrical connections for the said parts.

3. A switch of the class specified consisting of a laterally shiftable supporting blade, a plug carried by said blade and provided with a detachable stem, the plug serving as a part of a contact means, a socket into which the plug is depressible and serving as the remaining part of the contact means, guard means carried by the plug and blade and shiftable with the latter, and electrical connections for the blade and plug and the socket.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

MILTON H. CULLEN.

Witnesses:

GEO. R. ROWAN,
R. S. HENDERSON.