Sept. 2, 1952 J. A. HASSAN 2,609,463

ELECTRIC ACTUATING DEVICE

Filed Oct. 26, 1948

Fig. 1.

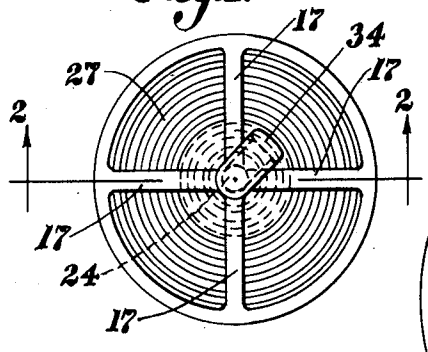


Fig. 4.

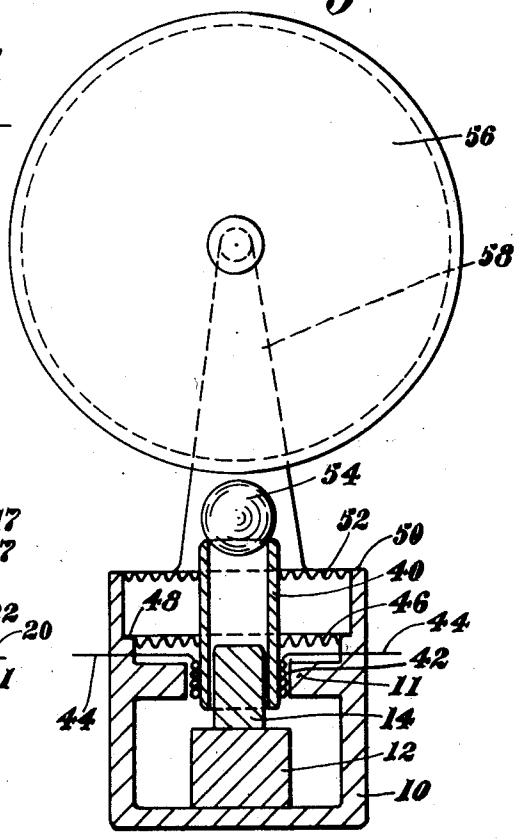


Fig. 2.

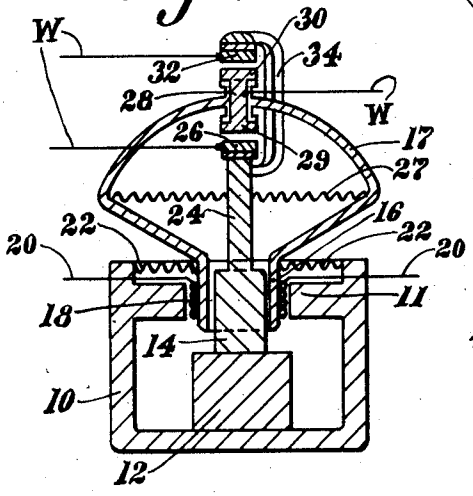
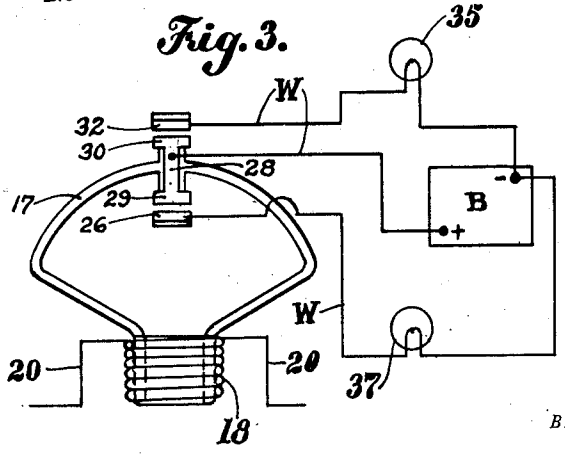


Fig. 3.



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ELECTRIC ACTUATING DEVICE

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6 Claims. (Cl. 200—110)

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This invention relates to electrical actuating devices.

The principal object of my invention is to provide a device operated by electricity including an electric coil, to perform some mechanical or other action, or to use in telegraphic work or the like. This actuation may be effected by a simple electrical arrangement that is easy and inexpensive to manufacture and operate.

The foregoing and other objects which will appear as the nature of the invention is better understood, may be accomplished by a construction, combination and operative arrangement of parts such as is disclosed by the drawings and specification. The nature of the invention is such as to render it susceptible to various changes and modifications, and, therefore, I am not to be limited to said disclosures; but am entitled to all such changes therefrom as fall within the scope of my claims.

In the drawings:

Figure 1 is a top plan view of my electrical actuating device.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a diagrammatic view of my device and showing an electrical circuit whereby two lights may be alternately illuminated.

Figure 4 is a sectional view similar to Figure 2; but showing a modified form of my device.

As illustrated, my device has a main support or frame 10, preferably made of metal, having an upper, inwardly extending portion 11.

The actuating means includes a magnet 12 that is supported on the bottom of said frame 10, and extending from said magnet 12 is a supporting member in the form of a pole 14, preferably of metal, around which is movably mounted an actuator 16 having the form of a tube as shown, which has an upper portion 17 shown in the form of struts. An electric coil 18 in the form of the usual wire winding, surrounds a portion of said actuator tube 16 and electrical wires 20 extend from said coil winding 18 to provide an electrical circuit when connected to a source of electricity.

A stabilizing disk or spider 22, preferably having undulations and being well known, is cemented to the top outside rim of said frame portion 11. It has a centrally located hole therein through which said actuator or tube 16 extends, said spider being attached to said tube, hence movable with it. Said spider 22 maintains the lower or tube portion of said actuator 16 in a stable position except for permitting movement

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thereof upwardly or in the direction of the longitudinal axis of said actuator tube 16. The flexibility of said spider permits its inner portion to move with said tube.

A supporting post 24 is attached to and extends upwardly from said supporting member or pole 14, being a continuation thereof, on top of which an electrical contact 26 is mounted which remains stationary in the position shown. Another flat disk or spider 27, similar to spider 22, extends between and is attached to the widest portion of said actuator upper portion 17 at the point where the said struts are farthest apart. Said post 24 extends through a hole in the center of said spider 27, the two being attached. The top part of said actuator upper portion 17 is attached to a movable switch member 28 carrying a lower contact 29, normally spaced from said stationary contact 26, but upon movement downwardly said contact 29 can touch contact 26. Said movable switch member 28 also carries an upper contact 30 normally spaced from a stationary contact 32 that is held in stationary position by an arm 34 attached to said supporting post 24. Said movable upper contact 30 can, upon movement of said switch 28, touch said stationary contact 32.

Electrical wires W extend from said contacts 26 and 32 and from said switch 28.

As illustrated in the diagram in said Figure 3 the source of electrical power from said switch 28 is a battery B. When the circuit is closed by movement of said contact 30 to said contact 32 a light 35 is illuminated as a result of the circuit that is established from the battery B to said switch 28, contacts 30 and 32, light 35 and said battery. When the circuit is closed by movement of said contact 30 to contact 26 another light 37 is illuminated through the circuit established from said battery to said switch 28, contacts 29 and 26, light 37 and said battery.

Of course said switch 26 is moved by the actuator 16 which in turn is actuated when selective, electrical current passes through said coil winding 18 causing said actuator 16 to move upwardly or downwardly depending upon which light is desired to be illuminated. Said current would be either straight polarity or reverse polarity, the selection depending upon which light it is desired to illuminate.

In said Figure 4 a modified form of device is shown which has the said frame 10 having an upper inwardly extending portion 11. The actuating means includes a magnet 12 that is supported on the bottom of said frame 10 extending

from which magnet is a supporting member in the form of a pole 14 on which is movably mounted an actuator 40 having the form of a tube and which extends higher or beyond the adjacent parts of my device. Around the lower part of said actuator 40 is a coil winding 42 from which electrical wires 44 extend to a source of electricity.

A flat disk or spider 46, preferably having undulations therein as shown, is cemented to an inner ledge 48 of said frame 10 and said actuator tube 40 extends therethrough and is attached to said spider 46. At the top outside rim 50 of said frame 10 another spider 52 is cemented thereto and said actuator 40 extends therethrough and above it and is attached to said spider 52. A clapper 54 is supported by said actuator 40 as shown and moves therewith, being located adjacent a gong 56 which has a support 58 attached thereto which is also attached to said frame 10. Movement of said actuator 40 moves said clapper upwardly until it strikes said gong 56, which movement is affected merely when electricity passes through said coil winding 42 since no circuits are required such as shown in said Figure 3.

Various mechanical movements can be performed, other than those described, by the movement of an actuator such as is disclosed herein. Electrical circuits can be opened or closed to ring alternately different bells. In some instances the actuating member could perform the movement without the aid of a switch, clapper or the like.

Alternating current should be used to actuate said clapper 54 to ring said gong 56.

What I claim is:

1. An electrical actuating device comprising a supporting frame, a magnet supported thereby, a supporting member supported by said magnet, an actuating member movably supported by said supporting member and flaring outwardly and upwardly to an intermediate portion thereof and then tapering inwardly and upwardly, an electrical coil extending around a portion of said actuating member and between portions of said supporting frame, said actuating member embodying an upper portion extending above said coil, a substantially flat, flexible spider attached at its outer portion to said supporting frame and having a hole therein through which said actuating member extends, said spider being attached at its inner portion to said actuating member and movable therewith, another substantially flat spider spaced from the first-mentioned spider attached at its outer portion to an intermediate portion of said actuating member and movable therewith and at its inner portion to said supporting member.

2. A electrical actuating device comprising a supporting frame, a magnet supported thereby, a supporting member supported by said magnet, an actuating member movably supported by said supporting member and flaring outwardly and upwardly to an intermediate portion thereof and then tapering inwardly and upwardly, an electrical coil extending around a portion of said actuating member and between portions of said supporting frame, said actuating member embodying an upper portion embodying outwardly extending struts extending above said coil, a flexible spider attached at its outer portion to said supporting frame and having a hole therein through which said actuating member extends, said spider being attached at its inner portion to said actuating member below said struts and movable therewith, another spider spaced from the first-mentioned spider attached at its outer portion to said struts at the widest part of said actuating member and movable therewith and at its inner portion to said supporting member.

3. An electrical actuating device comprising a supporting frame, a magnet supported thereby, a supporting member supported by said magnet, an actuating member movably supported by said supporting member and flaring outwardly and upwardly to an intermediate portion thereof and then tapering inwardly and upwardly, an electrical coil extending around a portion of said actuating member and between portions of said supporting frame, said actuating member embodying an upper portion extending outwardly and then inwardly above said coil, a flexible spider attached at its outer portion to said supporting frame and having a hole therein through which said actuating member extends, said spider being attached at its inner portion to said actuating member and movable therewith, another spider spaced from the first-mentioned spider attached at its outer portion to said actuating member at a point substantially half way between the top and bottom thereof and movable therewith and at its inner portion to said supporting member.

4. An electrical actuating device comprising a supporting frame, a magnet supported thereby, a supporting member supported by said magnet, an actuating member movably supported at the interior thereof by said supporting member, an electrical coil adjacent said actuating member and between portions of said frame, said actuating member embodying an upper portion extending above said coil, having struts spaced apart, a switch attached to said struts and movable with said actuating member having an electrical contact, another contact supported by said supporting member and normally spaced from and adjacent said switch contact whereby the latter upon actuation of said switch may move into contact with said contact of said supporting member.

5. An electrical actuating device comprising a supporting frame, a magnet supported thereby, a supporting member supported by said magnet, an actuating member movably supported at the interior thereof by said supporting member, an electrical coil extending around a portion of said actuating member and between portions of said frame, said actuating member embodying an upper portion extending above said coil, a switch attached to and movable with said actuating member having electrical contacts at its upper and lower portions above and below where said attachment is made, another contact supported by said supporting member and another contact higher than the latter-mentioned contact supported by said supporting member, said latter-mentioned upper and lower contacts being adjacent said switch upper and lower contacts respectively whereby said switch contact and one of the other said contacts nearest thereto may be moved into contact when said switch is actuated.

6. An electrical actuating device comprising a supporting frame, a magnet supported thereby, a supporting member supported by said magnet, an actuating member movably supported at the interior thereof by said supporting member, an electrical coil extending around a portion of said actuating member and between portions of said frame, said actuating member embodying an up-

per portion extending above said coil, a switch embodying an intermediate body which body is attached to and movable with said actuating member having electrical contacts at the upper and lower extremities of said body, two other contacts stationarily supported by said supporting member and being beyond said switch contacts and so positioned with relation to said switch that a said switch contact and one of the other said contacts may be moved into contact when said switch is actuated, all of said contacts being in positions one above the other, and above said supporting member.

JOSEPH A. HASSAN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
149,797	Siemens	Apr. 14, 1874
1,548,697	Young	Aug. 4, 1925
1,820,712	Schaelchlin	Aug. 25, 1931
2,038,401	Wunderlich	Apr. 21, 1936
2,090,025	Brennan	Aug. 17, 1937
2,114,036	Smith et al.	Apr. 12, 1938
2,500,190	Lee	Mar. 14, 1950
2,503,243	Cohen	Apr. 11, 1950

FOREIGN PATENTS

Number	Country	Date
322,622	Great Britain	Dec. 12, 1929
533,913	Great Britain	Feb. 24, 1941