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G. R. RUNKE ET AL
MANUAL OPERATING HANDLE MECHANISM

2,696,128

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FIG. 1.

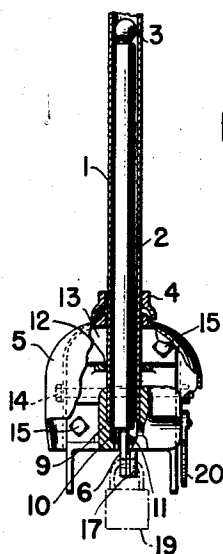


FIG. 2.

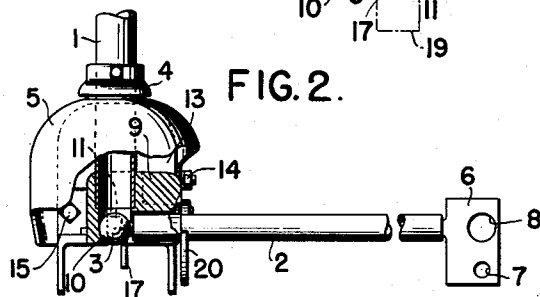


FIG. 3.

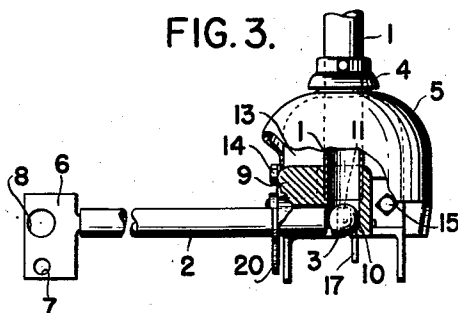
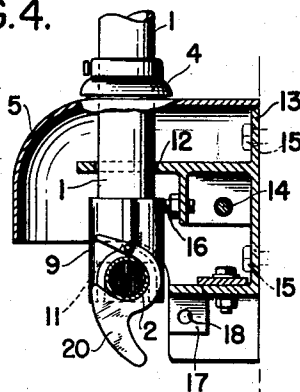


FIG. 4.



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MANUAL OPERATING HANDLE MECHANISM

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2 Claims. (Cl. 74-543)

This invention relates to a new and improved manual operating handle mechanism, and especially pertains to means for concealing and locking such handles in open or closed position.

In the past there have been a considerable number of cases of vandalism relating to the unauthorized opening or closing of electrical switchgear, hydraulic valves and the like. There have even been cases where entire villages have been without electrical power or water by unauthorized opening or closing of main power supply switches or water supply valves. Attempts have been made to barricade such devices with elaborate fencing structures, special housing, etc. These structures have proved costly and have not always prevented vandalism. The protective fences or buildings have often proved to be an attraction to vandals, publicizing the dangerous equipment contained within.

It is therefore a primary object of this invention to provide a compact, self-contained operating handle mechanism, the handle portion of which may be telescopically concealed within an actuating member, and which handle portion may be locked in concealed position after movement to either of two alternative positions.

Another object of this invention is to provide an operating handle mechanism for switchgear, hydraulic valves and the like, which may be advantageously mounted for convenient operation without necessitating additional protective structures for preventing vandalism.

Referring now to the drawing:

Fig. 1 is a fragmentary elevational view, partly in section, disclosing a unique arrangement for concealing the operating handle or arm.

Fig. 2 is a fragmentary view in front elevation, partly in section, of the novel handle assembly showing the handle in operating position.

Fig. 3 is a front elevational view also showing the handle in operating position 180 degrees from the position shown in Fig. 2.

Fig. 4 is a fragmentary view in side elevation, relative to Fig. 1 and partly in section, showing the handle in switch operating position and the convenient latching arrangement for retaining the handle in operating position.

Referring more particularly to the drawing, the assembly includes an elongated tubular actuating member 1, the upper end of which (not shown) may be arranged to either directly actuate a control device, or indirectly through a gear train, pulley assembly, or the like (not shown). The tubular member preferably has a sufficient bore diameter to accommodate the operating handle arm 2. The projecting end portion of the arm 2 is normally positioned within the bore of the tubular member and is preferably formed as a sphere, or ball 3. This may be conveniently arranged with a separate sphere-like insert as shown, or as an integrally formed portion of a solid handle arm (not shown).

A rainhead 4 is positioned circumferentially of the tubular member 1 as added protection for parts enclosed by a protective hood 5. The free end of the handle 2 is provided with a laterally or radially projecting detent 6, which is preferably provided with a lock receiving opening 7 and a finger hole 8.

The lower end of the tubular member 1 is positioned within the hood 5, and is fitted with a tubular saddle-shaped socket member 9. The socket member is formed with a seat 10 for releasably engaging with the ball 3 to form a "ball and socket" joint when the handle arm

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2 is moved to operating position, as will be hereinafter described. The socket member 9 is provided with slotted portions 11 arranged to receive the detent 6 when the handle arm 2 is in normally concealed position as shown in Fig. 1. With the detent positioned in the slot 11 as shown in Fig. 1, the tubular actuating member is also locked from rotational movement. The lower end of the tubular member is rotatably supported within an opening 12 of a support member 13. The support member also acts as a support for the hood 5 utilizing a transversely positioned bolt and nut assembly 14. The support member may be mounted on a pole or wall by means of bolts 15. An adjustable guide stud 16 is preferably provided to "line up" the relatively long tubular member 1 as it is rotated to open or close position actuating a switch or valve mechanism at the opposite end (not shown).

A locking lug 17 may be made integral with the support member 13 and is provided with a lock receiving opening 18. A padlock 19 may be used to lock the handle in concealed position as shown in Fig. 1 after movement to either of the two alternative positions or intermediate position. It is obvious that a snap ring or similar locking device may also be used. A latch 20 is pivotally mounted on the socket member 9 as a temporary means for supporting the handle arm 2 in saddle position substantially at right angles relative to the axis of rotation of the tubular actuating member 1 for rotationally operating.

To operate the novel device, the padlock 19 is removed and the operating handle 2 is withdrawn downwardly from its normally concealed position within the tube 1 shown in Fig. 1 until the ball 3 is seated in the socket 10. The handle arm is then swivelled on the ball and socket to either alternative position as disclosed in Figs. 2, 3, or 4, with the handle arm engaged by the latch 20. Assuming that the handle arm is brought from concealment to the position shown in Fig. 2, it may then be rotated 180° in an arc concentric with the axis of revolution of the tubular member 1 to the position indicated in Fig. 3. The two positions shown in Figs. 2 and 3 represent a full extent of the movement of devices (not shown) actuated by rotation of the tubular member 1. Obviously, the novel arrangement herein disclosed may be easily adapted for rotating the tubular actuating member continually about its axis in cases where it is used to actuate devices such as valves, rheostats, or other similar devices requiring gradation between two extreme positions.

In addition, the handle or arm 2 may be arranged to be locked in concealed position after movement of the tubular actuating member to any predetermined rotational position (not shown). This is simply done by slotting the socket member 9 with any number of slotted portions 11 along its lower periphery—shown here with diametrically opposed slots 11. After the tubular member is rotated to the desired position, the latch 20 is released, the handle 2 is swung downwardly and then telescoped into the tube 1, and the latching detent 6 is placed in the slot positioned substantially parallel to the locking lug 17. The padlock 19 or similar locking device is inserted through the opening 18 in the locking lug and the opening 7 of the detent 6.

It will be apparent from the above description and drawing that a compact handle assembly has been provided for rotationally actuating electrical switches, hydraulic valves and the like, providing a novel manner of concealment for the operating lever arm, and which may be further locked in any desired operating position.

We claim:

1. A rotationally operated handle assembly including a tubular actuating member, a socket member positioned at one end of said tubular member, an operating handle normally concealed within the bore of said tubular member, said handle having a sphere-like portion at the concealed end thereof and releasably engageable with said socket member, said socket member having a saddle portion and latch means thereon for releasably holding said handle in said saddle portion when extended to operating position substantially normal to said tubular actuating member, and a support member rotatably sup-

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porting said tubular member and including a lug having a lock-receiving opening, said socket member being slotted to receive the free end of said operating handle, the free end of said operating handle having a lock-receiving opening positioned to be in line with the lock-receiving opening of said locking lug when said tubular member has been rotated to a predetermined actuating position thereby to receive a releasable locking means for simultaneously releasably locking the tubular member in said predetermined actuating position and the operating handle in concealed position.

2. A rotationally operated handle assembly including a tubular actuating member, a socket member positioned at one end of said tubular member, an operating handle normally concealed within the bore of said tubular member, said handle having a sphere-like portion at the concealed end thereof and releasably engageable with said socket member, said socket member having a saddle portion and latch means thereon for releasably holding said handle in said saddle portion when extended to operating position substantially normal to said tubular actuating member, a support member rotatably support-

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ing said tubular member, and a locking means arranged to simultaneously releasably lock both the tubular member in a predetermined actuating position and the operating handle in concealed position.

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