March 10, 1953 J. MADER 2,630,779

FLAG RAISING AND LOWERING DEVICE

Filed Sept. 14, 1951

Fig. 1.

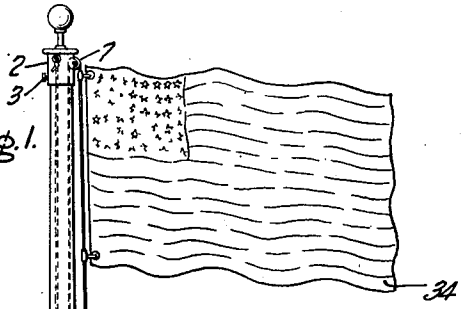


Fig. 2.

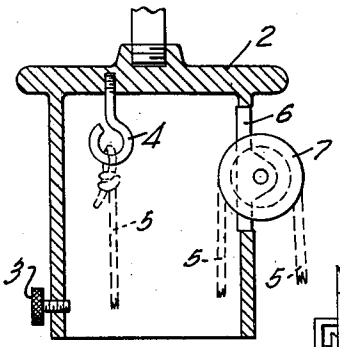


Fig. 3.

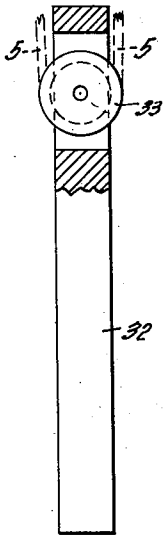


Fig. 4.

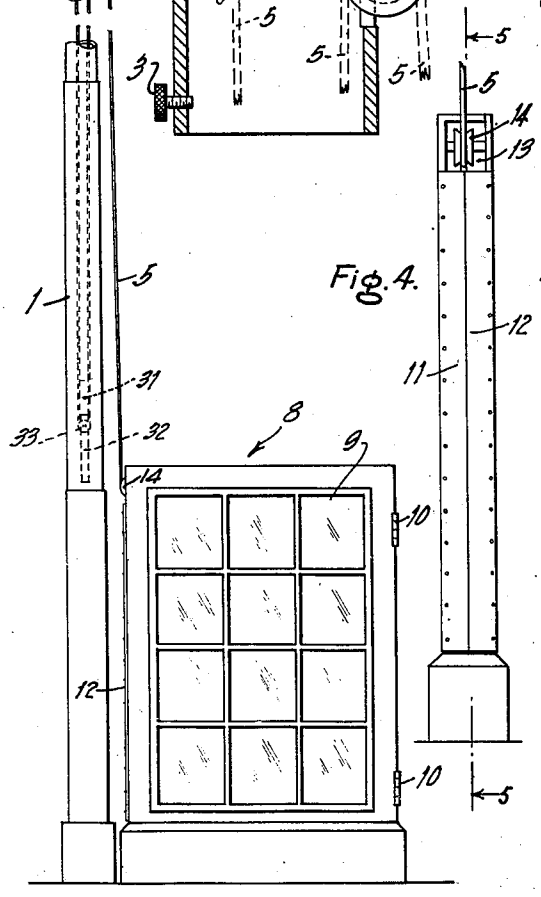


Fig. 6.

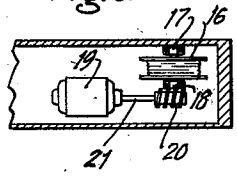


Fig. 7.

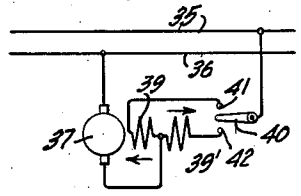


Fig. 8.

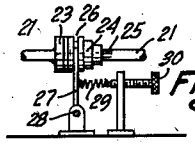
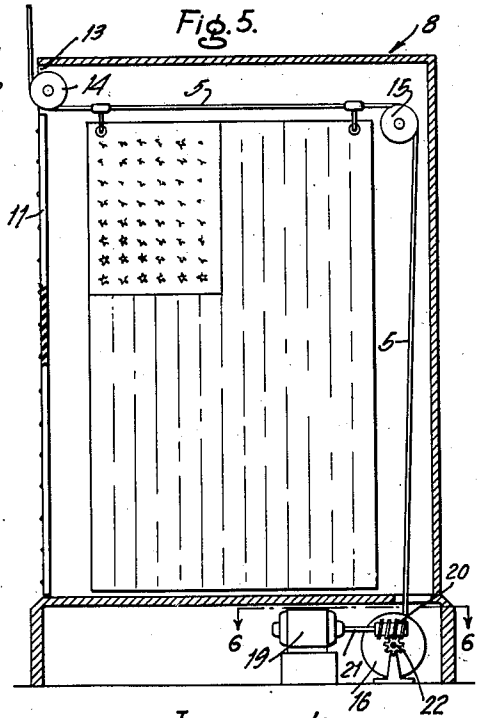


Fig. 5.



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FLAG RAISING AND LOWERING DEVICE

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5 Claims. (Cl. 116—173)

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My invention relates to flags and flagpoles, and particularly to means for raising and lowering a flag on a flagpole.

The principal object of my invention is to provide a means for raising a flag on a flagpole and lowering the same from a point remote from said pole. Another object is to provide in connection with a device of this character a compartment into which the flag will be automatically moved and hung in flat, unwrinkled condition when lowered, and which will serve to protect the flag from the elements when not in use. Another object is to provide a device of this character in which the flag is raised by gravitational action but is lowered by motor driven mechanism. Another object is to provide a device in which the lowering device will automatically cease to function in the event the halyard or the pulleys with which it cooperates cease to function in their normal manner, due to entanglement or otherwise. A further object is to provide a flagpole of the novel type having the flag raising mechanism contained therein.

I accomplish these objects by means of the novel elements and the combinations and arrangements thereof described below and illustrated in the accompanying drawing in which—

Fig. 1 is an elevation view of my device;

Fig. 2 is an enlarged vertical cross section through the cap which is secured to the top of the flagpole.

Fig. 3 is an enlarged elevation view partially in section showing the weight which serves to raise the flag;

Fig. 4 is an end view of the compartment in which the flag is suspended when lowered;

Fig. 5 is a section of Fig. 4 in the plane 5—5 with portions broken away;

Fig. 6 is a horizontal section through the base of the flag compartment in the plane 6—6 of Fig. 5;

Fig. 7 is a wiring diagram of the motor which serves to lower the flag; and

Fig. 8 is a small scale elevation view of a clutch device which is adapted to slip in the event the halyard becomes tangled or otherwise fails to run freely through the pulleys with which it is associated.

Referring to the drawings—

1 is a hollow flagpole which is closed at the top by means of a cap 2 detachably secured to the pole by means of the set screw 3. Threaded into or otherwise secured to the interior top of the cap 2 is a hook or eye 4 to which one end of the halyard 5 is secured. The cap 2 has an opening 6

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in one side thereof, and a pulley 7 is mounted in said opening. 8 represents generally a compartment adjacent the base of the flagpole in which the flag is suspended when lowered. The compartment 8 may have a door 9 in the front thereof which is hinged at 10 so that it may be swung open to provide access to the interior of the compartment. The end of the compartment immediately adjacent the flagpole is provided with closure elements 11 and 12 which are preferably of flexible rubber or similar material. At the top, above the closure elements 11 and 12, the compartment is open for a short distance, as shown at 13, and mounted within the compartment but extending partly through the opening 13 is a pulley 14. A second pulley 15 is mounted in the compartment near the top thereof and has its top substantially in horizontal alignment with the bottom of the pulley 14. In the bottom of the compartment 8 is a halyard winding drum 16 rotatably mounted in bearings 17 and 18 and which may be driven in either direction by means of an electric motor 19 having a worm 20 on the shaft 21 thereof cooperating with the worm wheel 22 on the shaft of the winding drum.

I prefer to provide an adjustable, slipping connection between the motor 19 and the winding drum 16 by interposing in the shaft 21, between the motor and the worm 20, a clutch, such as shown in Fig. 8. This clutch has one member 23 affixed to that portion of the shaft 21 which is adjacent the motor, and a member 24 affixed to that portion of the shaft 21 which is adjacent the worm 20. This last mentioned portion of the shaft 21 is splined, as shown at 25, so that the member 24 can move axially thereon. The member 24 is provided with a groove 26 therein, and the upper end of element 27, which is preferably bifurcated, rides in said groove. The element 27 is pivoted at 28 and serves normally to force the member 24 into frictional engagement with the member 23 by means of the compression spring 29. The compression of this spring and hence the load under which the clutch will slip may be varied by means of the adjusting screw 30.

The halyard 5 having one end thereof secured to the cap at the top of the flagpole extends downwardly within the hollow pole in the form of the loop 31. Suspended in this loop is a weight 32 having a pulley 33 at the top thereof around which the halyard 5 runs. After passing around the pulley 33, the halyard extends upwardly within the pole and over the pulley 7 from which it extends downwardly, under the pulley 14, over the pulley 15, and then is attached to the halyard

winding drum 16. It is understood of course, that the weight 32 is sufficient to raise the flag 34 to the top of the pole by gravitational action provided there is no resistance to the unwinding of the halyard from the drum 16.

Referring to Fig. 7, 35 and 36 are power lines. 37 is the armature of the motor 19 which has two field windings 39 and 39'. The motor is energized by means of the switch 40 which may be placed anywhere remote from the flagpole. When the switch 40 is swung upwardly or in clockwise direction into contact with the terminal 41, the motor will run in one direction, and, when the switch 40 is moved downwardly or counterclockwise into contact with the terminal 42, the motor will run in the opposite direction.

From the foregoing it will be apparent that the flag is raised by gravitational action but is lowered by means of the electric motor. In the event that the halyard becomes entangled in any way so that resistance to the movement thereof results, the clutch shown in Fig. 8 will slip.

When the flag being lowered reaches the compartment 8, the pressure thereof against the flexible closure elements 11 and 12 will cause them to flex inwardly to allow the flag to pass into the compartment 8. Similarly, when the flag is raised, the closure elements 11 and 12 are flexed outwardly and allow the flag to pass out of the compartment 8.

While I have described my invention in its preferred embodiment, it is to be understood that the words which I have used are words of description rather than of limitation and that changes, within the purview of the appended claims, may be made without departing from the true scope and spirit of my invention in its broader aspects.

What I claim is:

1. A flag raising and lowering device comprising a hollow flagpole; a pulley adjacent the top thereof; a housing for said flag adjacent the base of said pole of a size adapted to contain said flag when hung in flat, unwrinkled condition vertically therein, and provided with an entrance for said flag; two spaced pulleys in said housing adjacent the top thereof; a reversible electric motor in said housing; a halyard winding drum driven by said motor; a halyard adapted to be attached to said flag having one end thereof secured to said pole adjacent the top thereof and the other end thereof secured to said drum; said halyard extending downwardly within said pole in the form of a loop depending between said one end and said first mentioned pulley and extending from said first mentioned pulley downwardly outside of said pole, around the pulleys in said housing to said drum; and a weight within said pole having a pulley at the upper end thereof suspending said weight from said loop for raising said flag by gravity.

2. The structure set forth in claim 1 together with a clutch frictionally connecting said motor and said drum and adapted to slip in the event said halyard fails to run freely through said pulleys.

3. The structure set forth in claim 1 together with a clutch frictionally connecting said motor and said drum and adapted to slip in the event said halyard fails to run freely through said pulleys, and means for adjusting said clutch to slip under a predetermined load.

4. The structure set forth in claim 1 in which said housing is provided with a door normally closing the flag entrance thereto but adapted to be automatically opened by the pressure of said flag there against on either side thereof.

5. The structure set forth in claim 1 in which said housing is provided with a door comprising resilient sheet material normally closing the flag entrance to said housing but adapted to flex to open position by the pressure of said flag there against on either side thereof to allow said flag to pass through said entrance.

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