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DESCRIPTION

Technical field

[0001] The present invention relates to a device for automatically raising a flag, more specifically to a device for automatically raising and lowering one or more flags and pennants.

Background of the Invention

[0002] To raise or lower a flag or a pennant is a daily occurrence in both private, public or commercial use. Using the national flag is linked a set of rules for when to raise or lower a flag. It is therefore required, at least in public respect, that a person is responsible for raising and lowering the flag at the right time. This requires physically, a person present.

[0003] There are currently few options for automatically raising and lowering a flag, but these are not commercialized and have limitations regarding the number of flags that can be raised on the same flagpole.

[0004] US2008121167 discloses a method that automatically raises and lowers a flag. The flag is stored in a box when not in use.

[0005] US9093001 describes a solution in which the flag is rolled into the pole when it is not in use.

[0006] WO9709500 describes a solution that is a combination of US2008121167 and US9093001. In this solution, the flag is stored in a hollow cylinder at the foot of the mast.

[0007] FR2937779 discloses a somewhat different solution where the motor that raises and lowers the flag at the top of the flagpole. In this solution, there is no container for storing the flag when it is not in use, nor is this solution automatic since a user has to use a kind of remote control for raising and lowering the flag. This solution has the advantage that the motor is supplied with energy from a solar collector. However, there is no benefit in having the engine at the top of the flagpole as this is dangerous if it were to fall down, further maintenance is a lot more difficult, and a heavy object in the top of the flagpole increases the risk of breaking the flagpole considerably.

[0008] All these solutions have major limitations, namely they only have the ability to raise and lower one flag, they can be downright dangerous or they require manual handling.

[0009] From US 1508980 A it is known a system for raising and lowering a flag comprising a flag tied to a line, a flagpole and a container. In the container there is a drum divided into two

different compartments, separated by a flange, and where each end of the line is fastened to each of the compartments. A handle is used to rotate the drum in order to raise and lower the flag.

[0010] CN2361756Y, JP2011028193 and CN 2537783 describe solutions comprising automatic flag raising units.

Summary of the Invention

[0011] It is therefore an object of the present invention as described in the set of claims, to solve the problems mentioned above.

[0012] The solution is the system disclosed in claim 1. The system has two sets of drums controlled by at least one motor. At the top of the flagpole it is fastened a pulley which the line runs through.

[0013] When the line is rolled onto one drum it is rolled out of the other and vice versa. This means that you can have at least two different flags or pennants attached to the system. The system works in the way that when a flag is lowered, another flag is raised. The system may further be expected to be self-powered via eg. solar cells that charge a set of batteries.

[0014] Furthermore, one of the benefits of the device is that it does not require hands-on control and can be programmed to raise and lower the flag / streamers as desired. The device is made of sturdy materials and can be used in all types of climates. The device is driven by electric motors receiving power via an external power source or by for example charging a battery using solar cells.

Brief Description of the drawings

[0015] Figure 1 shows a perspective view of an embodiment of the present invention.

Detailed description

[0016] Figure 1 comprises a box A. The box, A, contains at least two drums, B and C. Around these drum, B and C, it is rolled one line, D, in and out. The line, D, extending from a first drum, B, via the top of the flagpole to the second drum, C. At the top of the flagpole there can be attached a pulley, ball bearings, etc. which the line passes over. The drum are guided by at least one motor, I. This motor, I, drives the drums around in the same direction so that when the line, D, is unwound from the first drum, it is wound onto the second drum and vice versa. During starting up, an engine, N, opens the lid, H. The motor, I, drives the drum (B) and (C)

around which the flag line, D is rolled into one drum while it unwinds from the second drum.

[0017] When starting the motor it will initiate an operation in which the drum C rolls line D and the flag Q towards drum C, while drum B will roll out line D and another pennant / flag R. The flag Q will follow the flagpole E and through a clamp K and pipe L down past the lid H and pulley F before being rolled up on the drum C. Drum C will go around enough turns until the flag Q is rolled around the drum C. The partition J ensures that the flag Q and flag / pennant R and line D is not twisted together.

[0018] While the flag is pulled down into the box A, the drum B release line passing pulley F and further into the guide tube G, past pulley F and further up through the lid H, pipes L and hoop or ring K and further up to the top of the flagpole. Attached to the line D is another flag / pennant R coming to the top of the flagpole E while the flag Q of the drum C is completely rolled around drum C. Since the drum B in this case rolls out the line D, a brake is attached to the motor in order to ensure that the line D is kept taught.

[0019] The operation can be reversed so that the drum B and C respectively raises and lowers the flag and pennant as desired.

[0020] The engine I can be instructed to start and stop by a control unit M which is programmed via the wireless device like a mobile or similar. The control unit M holds information on when the flag Q or pennant R should go up or down. There are sensors on the line D to ensure that the device engine stops when the flag Q and / or pennant R is respectively rolled around the drum B / C or has reached the top.

[0021] The device consists of a closed box containing drum B etc. and / or wheels and pathways that the flag / streamer should lie around one or more drum / wheels when reeled in during checkout. The drum / wheels sit on the hub and is driven by motors and can be mounted side by side or superposed. The box is mounted adjacent the flagpole ground floor.

[0022] The box can be equipped with a fan and a heater which dries the flag / pennant if it is wet. The box contains two chambers that ensures that the flags at each end of the line do not twist together. The drum can be mounted side by side and / or superposed. Provided that they are operated independently.

[0023] The device is designed so that when the flag is on its way into the box, it will simultaneously be another flag / pennant on the way out of the box as they change places on the flagpole.

[0024] The line passes through the top of the flagpole in the traditional manner, and the ends of the line in both ends being attached to each drum. The line is attached to one or more flags and / or pennants.

[0025] The device are driven by motors which open / close the lid on top of the housing and

which drives the drum to raise and / lower a flag and flags. The line is held taut by springs and / or by braking the motor / drum so that the flag and the line not to wind up and the device breaks.

[0026] On the side of the box where the flag comes in / out of the box, there is a lid that opens and closes so that moisture does not enter. This cover also acts as a lock for the line when the flag is raised.

[0027] On the upper side of the box it is mounted clamps and / or pipes to the flagpole leading the flag up / down in a smooth motion, so that the flag and the line coming down in sequence down into the box and around the drum. The clamps / pipes also ensure that the flag does not touch the ground.

Operation 1:

[0028] By starting the motor of the drum C drag the line D and the flag Q towards drum C while drum B will release line D and another pennant / flag R. The flag Q will follow the flagpole E and the yokes K and pipe L down past lid H and pulley F before being rolled up on the drum C. drum C will revolve enough turns to ensure that the flag Q is completely rolled around drum C. The partition J ensures that the flag Q and flag / pennant R and line D is not twisted together.

Operation 2:

[0029] While operation 1 above is occurring, the drum B release line passing pulley F and further into the guide tube G, past pulley F and further up through the lid H, pipes L and hoop/ring K and further up to the top of the flagpole. Attached to line D is another flag / pennant R coming to the top of the flagpole E while the flag Q of the drum C is completely rolled around drum C. Since the drum B in this case rolls out the line D, a brake is attached to the motor in order to ensure that the line D is kept taught.

[0030] Operation 1 and Operation 2 could be reversed so that the drum B and C respectively raises and lowers the flag and pennant as desired. The operations may be repeated and performed any number of times.

[0031] The motors I can be instructed to start and stop via a control unit M which is programmed via a wireless device such as mobile or similar. The control unit M holds information on when the flag Q or pennant R should be up or down There are sensors on the line D such that the device engine stops when the flag Q and / or pennant R is respectively rolled around the drum B / C or to the top.

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US2008121167A [0004] [0006]
- US9093001B [0005] [0006]
- WO9709500A [0006]
- FR2937779 [0007]
- US1508980A [0009]
- CN2361756Y [0010]
- JP2011028193B [0010]
- CN2537783 [0010]

Patentkrav

1. System til at hejse mindst et flag eller en vimpel (Q, R), samtidig med at sænke mindst et andet flag eller en anden vimpel (Q, R), hvilket system omfatter to eller flere flag og/eller vimpler (Q, R) fastgjort til en line (D), hvor nævnte line
5 er fastgjort ved en ende til en første tromle (B) og strækker sig fra den første tromle (B) via en styretrisse eller kuglelejer ved toppen af en flagstang (E), over på en anden tromle (C), hvor nævnte første og anden tromle (B,C) er placeret i en beholder (A), **kendetegnet ved, at** nævnte beholder (A) har mindst to kamre, med en tromle (B, C) i hvert kammer, hvor nævnte tromler (B, C) er styret af
10 mindst en motor (I), hvor nævnte motor (I) er drevet af en energikilde, og når et flag eller vimpel (Q, R) rulles ud fra en første tromle (B), rulles et andet flag eller en anden vimpel (Q, R) over på en anden tromle (C) og der er sensorer på linen (D) således at motoren (I) stopper, når flaget (Q) og / eller vimplen (R) henholdsvis rulles omkring tromlen (B, C) eller til toppen af flagstangen (E).
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2. System ifølge krav 1, hvor nævnte beholder (A) inkluderer en vandtæt hætte (H) styret af en motor (N).
3. System ifølge krav 1, hvor nævnte beholder (A) kan opvarmes.
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4. System ifølge krav 3, hvor nævnte energikilde kan være enten ledningsspænding eller et batteri opladet af en solcelle.
5. System ifølge krav 1, hvor nævnte beholder (A) har en luftventil (P).
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6. System ifølge krav 1, hvor nævnte beholder (A) omfatter en styreenhed (M) til at styre komponenterne af beholderen.
7. Fremgangsmåde til at hejse mindst et flag eller en vimpel (Q, R), samtidig med
30 at sænke mindst et andet flag eller en anden vimpel (Q,R) under anvendelse af systemet ifølge krav 1.

DRAWINGS

