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(54) Device for the quick release of gate wings

(57) A device for the manual release of gate wings, comprises:

two jaws (2) which are articulated at a pivot, said jaws being rigidly coupled to the movable wing (6) (to a bracket (12) which is articulated to the hinges of the gate);
a bolt (8) which is accommodated in the bracket (12) (in the movable wing (6)) and can engage elastically between the jaws;
elements (24,30) for actuating the two jaws between a position in which the jaws are locked, so as to keep the bolt head clamped, and a position in which the jaws can rotate freely, allowing the disengagement of the head of the bolt.

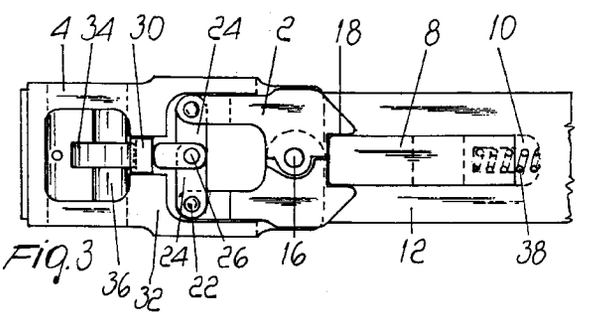

Fig. 3

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Description

[0001] The present invention relates to a device for the quick release of gate wings.

[0002] Conventional gates are provided with a device for automatically actuating the opening/closure of the wings.

[0003] In particular, the wings of the gate are articulated at upper and lower brackets on hinges which are mounted on posts and are rigidly coupled to a pneumatic or electric actuator which turns them with respect to said hinges in order to move from the closed configuration to the open configuration and viceversa.

[0004] However, such conventional actuation elements suffer the drawback that they require, in case of breakage or malfunction of the actuator, a highly troublesome maneuver in order to be able to operate the gate wing manually.

[0005] In particular, in the case of electric actuation devices it is necessary to disengage the rotor from the transmission linkage which is connected to the wing, while in the case of pneumatic devices it is necessary to act on the valves in order to make the oil flow from one chamber of the cylinder to the other and thus be able to move the gate.

[0006] The aim of the present invention is to eliminate these drawbacks by providing a release device to be applied to gates which allows to rapidly disengage the wing from the actuator.

[0007] This aim, as well as other objects which will become apparent from the following description are achieved, according to the invention, with a device for the manual release of gate wings, characterized in that it comprises:

two jaws which are articulated at a pivot, said jaws being rigidly coupled to the movable wing (to a bracket which is articulated to the hinges of the gate)

a bolt which is accommodated in the bracket (in the movable wing) and can engage elastically between the jaws;

elements for actuating the two jaws between a position in which the jaws are locked, so as to keep the bolt head clamped, and a position in which the jaws can rotate freely, allowing the disengagement of the head of the bolt.

[0008] The present invention is described in greater detail hereinafter in a preferred embodiment thereof, which is provided merely by way of non-limitative example with reference to the accompanying drawings, wherein:

Figure 1 is a perspective view of the device mounted on the wing of the gate;

Figure 2 is a schematic view of the device during use;

Figure 3 is a longitudinal sectional view of the device mounted on the gate in the wing locking configuration; and

Figure 4 is a view of the device in the configuration in which the wing is released.

[0009] As shown in the Figures, the release device according to the invention substantially comprises two jaws 2, preferably made of brass, having a curved outer surface and accommodated inside a box-like body 4 made of aluminum which is rigidly coupled to the movable wing 6 of the gate, and a movable bolt 8 also made of brass and accommodated in a seat 10 formed in a bracket 12 which is rigidly coupled to a post 14 for the articulation of the gate. The linkage (not shown in the drawings) of the gate actuator element is rigidly coupled to the bracket 12.

[0010] In particular, the jaws 2 are articulated at a pivot 16 and define, with their grip surface, a seat 18 which is shaped substantially like a parallelepiped, for the engagement of a corresponding head 20 of the bolt 8. The pair of jaws is provided, at its actuation end, with pivots 22 to which two L-shaped linkages 24 are articulated; said linkages are in turn articulated at a pivot 26.

[0011] The free ends of said linkages 24 are in contact with an intermediate element 30 which can move along two shoulders 32 formed in the box-like body; said intermediate element is in turn in contact with a pawl or cam 34 which is rigidly coupled to the outer surface of the cylinder 36 of a lock 37 operated by a key 39.

[0012] The operation of the release device according to the invention is as follows: when the wing 6 is locked to the bracket 12, a helical spring 38 keeps the head 20 of the bolt elastically engaged in the seat 18 delimited by the jaws. In this configuration:

the axis that passes through the pivot 26 lies substantially on the plane that passes through the axes of the pivots 22;

the cylinder 36 of the lock is turned so that the eccentric pawl 34 is in contact at the thinner region with the intermediate element 30.

[0013] In this manner, the grip surfaces of the jaws 2 are forced to remain in contact with the head of the bolt and the rotation of the bracket 12 entails the rotation of the wing 6, so that the activation of the opening/closure device that acts on the bracket 12 causes the rotation of said wing.

[0014] If the device for activating the opening/closure of the gate is inoperative, so that it is impossible to swing the wings, the key 39 is inserted in the cylinder 36, which is turned so that the thicker portion of the pawl 34 forces the intermediate element 30 to interfere with the ends of the linkages 24, turning them slightly with respect to the pivots 22. As a consequence of this rotation, the axis that passes through the pivot 26 no longer lies on the plane that passes through the axes of the

pivots 22 and accordingly the rotation of the linkages and therefore of the jaws is allowed with respect to the pivot 16. In this manner, a manual rotation applied to the wing 6 pushes the head of the bolt 20 against a grip surface of the jaws which can rotate with respect to the pivot 16 so as to allow the disengagement of the head 20 from the seat 18.

[0015] Moreover, when the gate actuation device resumes functioning, it is sufficient to turn the wing 6 so as to realign it with the bracket 12. When the head 20 of the bolt 8 strikes the curved outer surface of one of the two jaws 2, this interference initially entails the axial retraction of the bolt in the seat 10 in contrast with the elastic action of the helical spring 38 and then, as a consequence of the elastic reaction of the spring 38, the forced insertion of the head 20 of the bolt in the seat 18.

[0016] The present invention has been illustrated and described in a preferred embodiment thereof, but it is understood that constructive variations may be applied thereto in practice without however abandoning the scope of the protection of the present invention.

[0017] The disclosures in Italian Patent Application No. VE98A000028 from which this application claims priority are incorporated herein by reference.

[0018] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

Claims

1. A device for the manual release of gate wings, characterized in that it comprises:

   two jaws (2) which are articulated at a pivot (16), said jaws being rigidly coupled to the movable wing (6) (to a bracket (12) which is articulated to the hinges of the gate);
   a bolt (20) which is accommodated in the bracket (12) (in the movable wing (6)) and can engage elastically between the jaws;
   elements (24, 30) for actuating the two jaws between a position in which the jaws are locked, so as to keep the bolt head clamped, and a position in which the jaws can rotate freely, allowing the disengagement of the head of the bolt.

2. The manual release device according to claim 1, characterized in that the actuation elements are constituted by a system of toggle linkages (24).

3. The device according to claim 2, characterized in that the toggle linkage system can be actuated by a pawl (34) which is rigidly coupled to the cylinder of a lock (36).

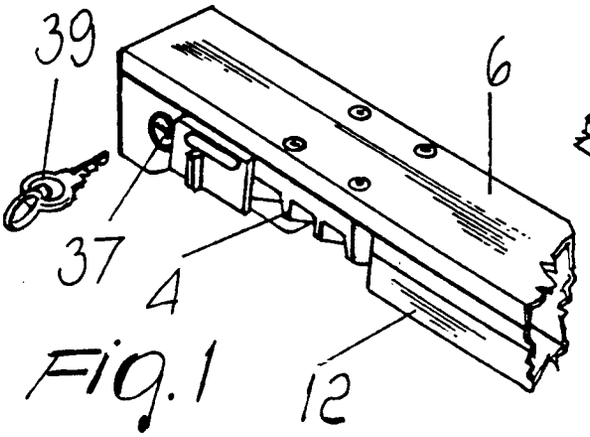

FIG. 1

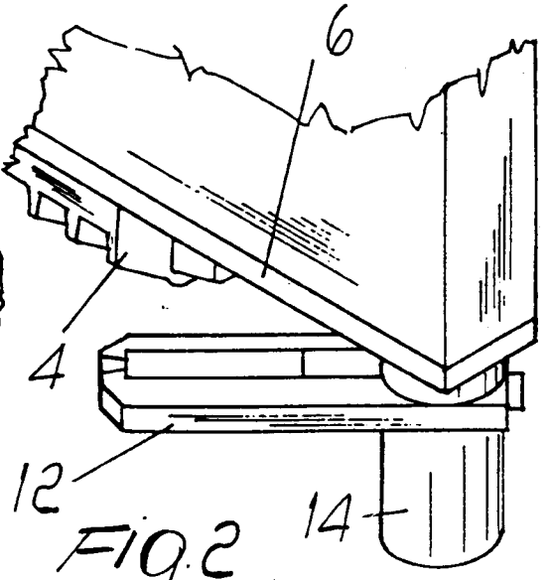

FIG. 2

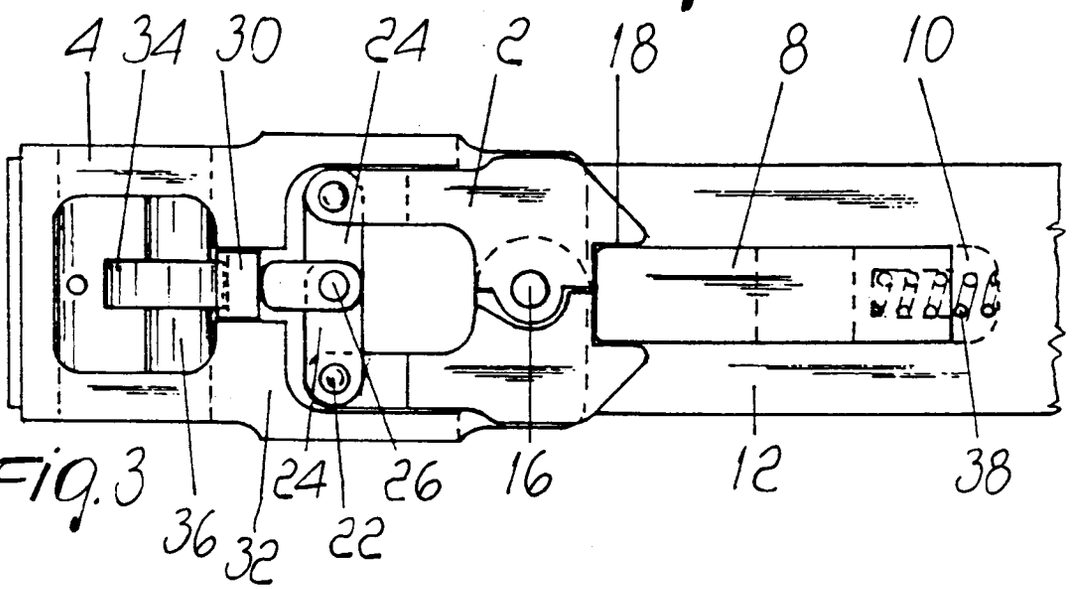

FIG. 3

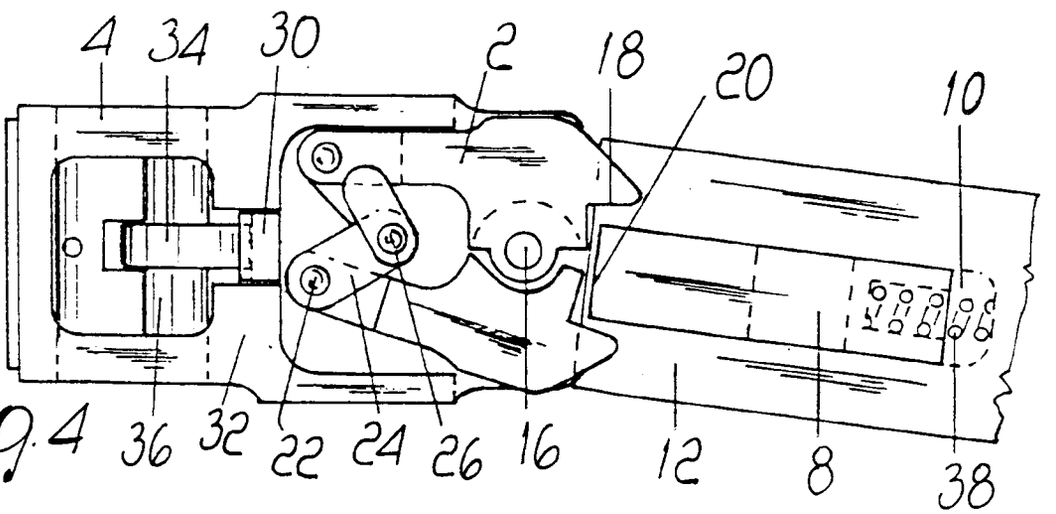

FIG. 4