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DEVICE FOR SECURING A REMOVABLE COMPONENT PART
TO THE FRAME OF A TWO-WHEELED MOTOR VEHICLE .-

This invention relates to a device which is generally adapted to secure a removable component part to the frame of a two-wheeled motor vehicle and, more particularly but not exclusively, adapted to secure a lateral box to the body of a two-wheeled motor vehicle.

In a few types of motor-scooters in use nowadays, each of the two removable lateral boxes, which complete the rear portion of the scooter's body, can be secured to such body by a spring-biassed hook which can be actuated from the outside.

This external hook is pivotally connected to the scooter's body in a low position, close to the bottom edge of the box, and is capable of being manually swung from a hooking-in position to a unhooking position, and vice versa, so as to enable the box to be removed from the body or to be secured thereto, respectively.

In spite of its simplicity of construction, this latching arrangement for the side boxes is, however, conducive to inconveniences.

As a matter of fact, the possibility afforded to anybody of unlatching the side boxes by merely manipulating the external hooks is not such, apparently, as to provide any measure of safety against attempts by unauthorized people to remove the boxes and their contents, such as spare parts of the scooter, spare wheel, accessories, personal objects and the like.

Furthermore, the low position of the outer hooks is such as to compel the driver to take inconvenient postures, or to kneel, that which ought to be avoided as far as practicable.

5 In accordance with the present invention there is provided a device for latching a removable component part to a fixed structure of a two-wheeled motor vehicle, characterized in that it comprises a hook adapted to swing within a seating of the fixed structure of the vehicle between a position in which the hook
10 seizes the removable component part and a cleared position, the movement between these positions being guided by abutment of the hook against a surface of the seating, the hook being pivotally linked to a crank of a crank shaft supported within an inaccessible space of the fixed vehicle structure and said crank shaft being swingable by operating means located within a housing of
15 the vehicle which can be closed by key-actuated locking means.

In the case in which this invention is to be applied to the body of a motor-scooter having a swingable saddle which is swung out for giving access to the stopper of the fuel tank, the saddle being susceptible of being latched in its position
20 of use by a key-actuated lock, and if it is desired to apply this invention to secure to the scooter's body a side box, the basic principle of the invention is embodied by a particular constructional arrangement in which the crank, the linkage and the manipulating handle are combined into a single rod.
25 Said rod is mounted for being swung in a nearly vertical position in the interior of the scooter's body and has its bottom end shaped in a crank-like manner for being eccentrically coupled with the hook. The hook, in its turn, can be

swung, as guided by a slot formed through the scooter's body, in
correspondence with the lateral box, to seize the latter from the
inside in a certain angular position of the rod, and to release the
box in other angular positions, the top end of the rod being shaped
as a handle emerging from the scooter's body in the space underneath
the saddle, said space being accessible only when using the special-
ly provided key for actuating the lock.

In order that the features and the advantages of the pre-
sent invention may better be appreciated, an exemplary embodiment
will be described hereinafter, to be illustrated in the accompany-
ing drawings, wherein:

FIGURE 1 is a cross-sectional view, taken along the line I-I
of FIG.2, of two latching arrangements according to the invention,
as applied to a motor-scooter.

FIGURE 2 is a horizontal cross-sectional view of the motor-
scooter shown in FIG.1, taken along the line II-II of FIG.1.

FIGURE 3 is a fragmentary cross-sectional view of the motor-
scooter shown in FIG.1, taken along the line III-III of FIG.2, and

FIGURE 4 is a detailed view, in cross-sectional view like that
of FIG.2, of the linkage for one of the two latching devices of
FIG.1.

In the Figures of the accompanying drawings, two latching de-
vices, 10, are shown, installed, according to the invention, on a
motor-scooter, 11, of conventional make having a saddle 18 which
can be swung about a pin 38 and can be latched in its horizontal
position of use by a lock 35 actuatable by a key. The motor scooter
11 is shown only in its rear portion.

Each latching device such as 10 is adapted to secure either
side box 12 of the scooter 11 to the body 13 thereof.

Each latching device 10 is composed of a rod 14, which is

mounted in a nearly vertical position in the interior of the scooter's body 13 for being swung on bearings 15,16,17 integrally fastened to same body 13. Either end of the rod 14 emerges out of the body 13 beneath the saddle 18 of the motor scooter 11, the projecting portion of the rod 14 being bent to provide a handle 19 for said rod. At the opposite end, the rod 14 is doubly bent to form a crank, 20, which is eccentrically connected for rotation about the longitudinal center line of the rod 14 to an end journal 21 of a hook 22, the latter being arranged on a plane perpendicular to the axis of the rod 14. At the opposite end, the hook 22 is bent just in the shape of a hook along a portion 23 thereof which adapted to seize a bracket 24 fastened to the front portion of the box 12 and projecting inwardly relative to said box. In order to be able to seize the bracket 24 by its hooked portion 23, the hook 22 must be passed through the body 13 : this is allowed by a slot 25, formed through the body 13 and through which the shank 26 of the hook 22 can be passed, so that a restricted swinging arc is provided for the hook.

In Figures 1 and 2, the device 10 on the left is shown in the position in which the respective side box 12 is latched, whereas the device 10 on the right is shown in the position in which the side box 12 on the right is clear of the hook.

In operation, for latching a side box 12 to the body 13 by a device such as 10, according to the invention, the procedure, having reference to FIG.4, is as follows.

Assuming that the device 10 is in its cleared position, that is, with its handle 19 and thus also the hook 22 in the position shown in dash-and-dot lines, the side box 12 is approached to the body 13 and the several matching reference members (for example such as 29 and 30 in FIG.1) are positioned in the conventional manner for defining the position of the side box 12 relative to the

body 13, as will be explained in more detail hereinafter.

Subsequently, the handle 19 is swung counterclockwise until attaining the position shown in thin solid lines. As the handle 19 is being rotated, also the crank 20 is concurrently rotated counterclockwise : at the end of its stroke, it will have overtaken the inner dead center position, which lies on the plane X-X perpendicular to the sheet of FIG.1.

During such a swinging motion, the hooked portion 23 of the hook assembly 22 can grasp the bracket 24, because it is guided by the pin 26 sliding along the edge 28 of the slot 25, the pin 26 being held adhering to the slot edge by the bias of the spring 27, the result being that the bracket 24 is pulled towards the body 13 and the side box 12 is consequently latched against the body 13.

The hooked portion 23 is kept under tension by the reaction of the bracket 24 due to the springiness of the specially provided gasket 38 which is urged by the side box 12 against the body 13 and, also due to the fact that the assembly composed of the crank 20 and the hook 22 has overtaken its dead center.

To unlatch the side box 12 it is sufficient to rotate the handle 19 clockwise so as to bring it from the position shown in thin solid lines to the position shown in dash-and-dot lines in FIG.4. The movement by which the hook assembly 22 clears the bracket 24 is likewise originated by the abutment of the shank 26 of the hook assembly 22 against the edge 28 of the slot 25.

The various conventional matching reference members of the body and the side boxes, referred to above, and which are provided on a few motor-scooter models in use nowadays, comprise a front pin 29 fastened to the bottom section of the box 12 and adapted to enter a corresponding opening 30 formed through the body 13, a rear elbow shaped pin 31 fastened to the bottom section of the box 12 and adapted to enter a corresponding opening 32 formed through the

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body 13, and, lastly, a centrally located spring 33 which is secured at its top to the box 12 and biases a corresponding tab 34 of the body 13.

5 As the side box 12 is being secured to the body 13, such matching reference members are matched together and, thereafter, the box 12 is clamped against the body 13 by the hook assembly 22 as outlined above.

10 It is obvious that the latching and unlatching steps aforementioned are carried out while the saddle is swung open in order to have access to the handle 19. Once the side boxes 12 have been latched in position, the saddle is swung down to take its normal horizontal position of use and is firmly secured to the scooter's body 13 by the lock 35 to prevent unauthorized people from accessing the underlying fuel tank 36. By so doing, inasmuch as the handles 19 are
15 positioned underneath the saddle 18, unauthorized people are also prevented from having access to the boxes 12 and from withdrawing them abusively. To prevent, then, possible attempts to have access to the handles 19 even if the saddle 18 has duly been locked, for example by inserting lock-picking tools through the spaces existing
20 between the body 13 and the saddle 18, and "L" shaped channel iron 37 is transversally secured to the saddle 18. The bar 37 acts as a stop abutment for each of the two handles 19 (FIG.3) so that their rotation with a view to unlatching the boxes 12 abusively is prevented when the saddle 18 is in its horizontal posture of use (solid
25 lines in FIG.1), whereas such a rotation is permitted when the saddle 18 is swung upwards (dash-and-dot lines of FIG.1).

The advantages afforded by the exemplary embodiment shown herein are manifold : in the first place, the box-securing means do not require any safety locks of their own, that which would
30 entail an additional cost. Secondly, the device of this invention can conveniently be actuated by a person standing up and without

stress whereas, conversely, the hook assemblies as used nowadays can be manipulated only by a kneeling user or, at any rate, by a user placed in an uncomfortable position, the stress being proportional to the pressure existing between the side box gasket and the scooter's body walls. Further, the device has a reliable operability without any wear of component parts and, lastly, the device is composed of a simple linkage consisting of component parts which are extruded or rolled sections easily found on the trade and which must merely be bent, so that the first cost is considerably reduced.

It is understood that the subject invention can find other uses, also beyond the limited field of motor scooter construction, and take other shapes and embodiments within the scope of the invention which is essentially defined in terms of the latching mechanism which has a transition through a dead center for latchingly securing the removable component part to the fixed structure of the vehicle concerned, the hook for latching or unlatching the removable component part being movable towards and away of a corresponding hook-receiving member, the motion of the mechanism being remotely controllable from a space of the vehicle which can be made inaccessible by a key-actuated locking device.

For example, the hook could be made of sheet metal, the crank could be actuated by a flexible cable or axially tensioned pitmans and the closable space could house a number of similar latching devices for removable component parts to be temporarily secured to the structures of the vehicle concerned.



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CLAIMS:

1. A device for latching a removable component part to a fixed structure of a two-wheeled motor vehicle, characterized in that it comprises a hook adapted to swing within a seating of the fixed structure of the vehicle between a position in which the hook
5 seizes the removable component part and a cleared position, the movement between these positions being guided by abutment of the hook against a surface of the seating, the hook being pivotally linked to a crank of a crank shaft supported within an inaccessible space of the fixed vehicle structure and said crank shaft
10 being swingable by operating means located within a housing of the vehicle which can be closed by key-actuated locking means.
2. A latching device as claimed in claim 1 in which the crank shaft is in the form of a rod having a crank-shaped portion on which the hook is journaled and having an end portion which emerges
15 from the said inaccessible space into the lockable housing and is formed as a handle providing the operating means for swinging the shaft.
3. A latching device according to claim 2, characterized in that said hook coupled to said rod projects, by a hook-shaped
20 extension, externally to said fixed structure through a slot formed through said fixed structure and providing a seat for oscillation for said hook, said hooked extension being adapted to seize an internal projection of said removable component part to clamp the latter against said fixed structure.
- 25 4. A latching device according to claim 3, characterized in that said rod is bent to form a crank at the end opposite to the handle-shaped end.
5. A latching device according to claim 4, characterized in that, in its latching position, said hook is kept under tension by
30 resilient means active between said removable component part and said



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fixed structure after the linkage of said device has overtaken its dead center position.

6. A latching device according to claim 2, applied to a motor scooter having a saddle which can be swung upwards and downwards and can be latched in its horizontal position of use by a key-actuable lock, for securing a side box to the motor-scooter's body, characterized in that said handle-shaped end of said rod projects from the scooter's body beneath said saddle.

7. A device according to claim 6, characterized in that, in the latching position, said handle-shaped rod end abuts a cross-bar fastened to said saddle integrally, said cross-bar preventing unauthorized unlatching manipulation of said handle-shaped rod end.
