CLAIMS

1. Mechanism for setting a fuse, applied to the structure of a firearm (5), comprising a fuse setter (2), for programming said fuse,
said fuse setter (2) being fixed to a supporting structure (13) and comprising a reference portion (21) and a fuse-setting portion (22), which turn about the longitudinal axis of the fuse and adapted to set the fuse of the cartridge,
said fuse-setting mechanism comprising a supporting structure
characterized in that said supporting structure supports a device for controlling the position of the fuse setter (2), formed by a moving equipment (31), by an actuator of vertical movement (34), and by an actuator of horizontal movement (35),
said actuators being adapted for movement along a horizontal axis (X) of the supporting structure, along a vertical axis (Z) the moving equipment (31) itself for positioning the fuse setter (2) with respect to the cartridge, which is kept in a pre-set position.

2. Mechanism according to claim 1, wherein said fuse-setting mechanism comprises an error-recovery mechanism for correct positioning of the fuse setter (2), in the case of misalignment of the cartridge from the ideal axis, in the plane (XY) defined by the longitudinal axis (X) and the transverse axis (Y).

3. Mechanism according to claim 1, wherein the supporting structure of the fuse-setting mechanism comprises a motor plate (11), fixed to which are at least two motors (33), for rotating the fuse setter

(2), and an end-of-travel plate (12), facing and set on top of the motor plate (11), between which the moving equipment (31) moves vertically, the motor plate (11) and the end-of-travel plate (12) being located at a distance and kept in said position by a plurality of columns (14) by being fixed with respect to one another.

4. Mechanism according to claim 3, wherein the columns (14) pass through the moving equipment (31), performing the function of guide in the movement of the moving equipment (31) itself along the vertical axis.

5. Mechanism according to claim 1, wherein the actuator of horizontal movement (35) is for moving the fuse-setting mechanism along the axis (X), causing it to slide along at least one longitudinal guide (42) fixed to the structure of the firearm (5) so that the fuse-setting mechanism will be retracted, thus preventing the movements of further mechanisms comprised in the firearm from being hampered.

6. Mechanism according to claim 2, wherein the error-recovery mechanism comprises at least one recovery spring (41), adapted to limit any play along the longitudinal axis (X), a plurality of slides (44), which slide on a plurality of guides and are adapted to enable movement of the fuse-setting mechanism in the plane (XY).

7. Mechanism according to claim 6, wherein the guides are at least one longitudinal guide (42), adapted to enable movements of the fuse-setting mechanism along the longitudinal axis (X), and at least one transverse guide (43), adapted to enable transverse movements along the transverse axis (Y).

8. Mechanism according to claim 1, wherein the fuse setter (2) is positioned within a slot (131) of the supporting structure (13).

9. Mechanism according to claim 1, wherein the fuse setter (2) further comprises a safety cone (26), positioned in the vicinity of the reference portion (21), fixed to the supporting structure (13), adapted to enable correct entry and facilitate exit of the fuse into/from the fuse setter (2), said cone (26) determining adjustment of the position of the fuse setter (2) enabled by the error-recovery mechanism.

10. Mechanism according to claim 1, wherein the moving equipment (31) comprises a supporting plate (310), fixed to which is the supporting structure (13), at least two pulleys (332), connected to the motors (33), adapted for rotation of the fuse setter (2) via as many belts (331), and at least two belt-tensioners (334), adapted to tension the belts (331).

11. Mechanism according to claim 10, wherein the pulleys (332) are connected to the motors (33) via transmission shafts (333), grooved for ensuring transmission, on which said pulleys (332) can translate.

12. Mechanism according to claim 1, wherein the actuator of vertical movement (34) comprises an oleodynamic device (341) comprising two pistons, which are opposed to one another and incorporated in a single structure, and a braking device adapted to slow down extension of said pistons;
said actuator (34) raises the fuse setter (2) along the axis (Z), preventing the movements of the ammunition from being hampered in the passage to the other functioning operations of the firearm.

13. Mechanism according to claim 12, wherein the braking device consists in a purposely provided slot, which is made within the structure of the cylinder of the structure that encloses the two pistons, the end of one of the pistons, before the supporting structure (13) encounters the mechanical rest enters said slot, forcing exit of the oil through the gap created between the two elements that get engaged with one another.

14. Mechanism according to claim 5, wherein the actuator of horizontal movement (35) retracts the fuse-setting mechanism during the possible abortion of the firing of the cartridge and the possible step of re-depositing of an ammunition in a military store so as not to hamper said operations.

15. Mechanism according to claim 1, wherein the cartridges are kept in a pre-set position by a cartridge-retention mechanism (6).

16. Mechanism according to claim 15, wherein in the case of malfunctioning of the retention mechanism (6), said fuse-setting mechanism performs a mechanical safety function by acting as device for damping the motion of the ammunition.

CLAIMS

1. Mechanism for setting a fuse, applied to the structure of a firearm (5), comprising a fuse setter (2), for programming said fuse,
said fuse setter (2) being fixed to a supporting structure (13) and comprising a reference portion (21) and a fuse-setting portion (22), which turn about the longitudinal axis of the fuse and adapted to set the fuse of the cartridge,
said supporting structure (13) of the fuse-setting mechanism comprises a motor plate (11), to which are fixed at least two motors (33), for rotating the fuse setter (2)
said supporting structure supports a device for controlling the position of the fuse setter (2), formed by a moving equipment (31), by an actuator of vertical movement (34), and by an actuator of horizontal movement (35),
said actuators being adapted for movement along a horizontal axis (X) of the supporting structure, along a vertical axis (Z) the moving equipment (31) itself for positioning the fuse setter (2) with respect to the cartridge, which is kept in a pre-set position,
said mechanism for setting fuse is characterized in that it comprises a control device (71) for controlling the rotation of the fuse setter (2), adapted to determinate the angular variation transferred from the motors to setting device (2).

2. Mechanism according to claim 1, wherein said control device (71) is an encoder.

3. Mechanism according to claim 1, wherein said fuse-setting mechanism comprises an error-recovery mechanism for correct positioning of the fuse setter (2), in the case of misalignment of the cartridge from the ideal axis, in the plane (XY) defined by the longitudinal axis (X) and the transverse axis (Y).

4. Mechanism according to claim 1, wherein the supporting structure of the fuse-setting mechanism comprises an end-of-travel plate (12), facing and set on top of the motor plate (11), between which the moving equipment (31) moves vertically, the motor plate (11) and the end-of-travel plate (12) being located at a distance and kept in said position by a plurality of columns (14) by being fixed with respect to one another.

5. Mechanism according to claim 4, wherein the columns (14) pass through the moving equipment (31), performing the function of guide in the movement of the moving equipment (31) itself along the vertical axis.

6. Mechanism according to claim 1, wherein the actuator of horizontal movement (35) is for moving the fuse-setting mechanism along the axis (X), causing it to slide along at least one longitudinal guide (42) fixed to the structure of the firearm (5) so that the fuse-setting mechanism will be retracted, thus preventing the movements of further mechanisms comprised in the firearm from being hampered.

7. Mechanism according to claim 3, wherein the error-recovery mechanism comprises at least one recovery

spring (41), adapted to limit any play along the longitudinal axis (X), a plurality of slides (44), which slide on a plurality of guides and are adapted to enable movement of the fuse-setting mechanism in the plane (XY).

8. Mechanism according to claim 7, wherein the guides are at least one longitudinal guide (42), adapted to enable movements of the fuse-setting mechanism along the longitudinal axis (X), and at least one transverse guide (43), adapted to enable transverse movements along the transverse axis (Y).

9. Mechanism according to claim 1, wherein the fuse setter (2) is positioned within a slot (131) of the supporting structure (13).

10. Mechanism according to claim 1, wherein the fuse setter (2) further comprises a safety cone (26), positioned in the vicinity of the reference portion (21), fixed to the supporting structure (13), adapted to enable correct entry and facilitate exit of the fuse into/from the fuse setter (2), said cone (26) determining adjustment of the position of the fuse setter (2) enabled by the error-recovery mechanism.

11. Mechanism according to claim 1, wherein the moving equipment (31) comprises a supporting plate (310), fixed to which is the supporting structure (13), at least two pulleys (332), connected to the motors (33), adapted for rotation of the fuse setter (2) via as many belts (331), and at least two belt-tensioners (334), adapted to tension the belts (331).

12. Mechanism according to claim 11, wherein the pulleys (332) are connected to the motors (33) via transmission shafts (333), grooved for ensuring transmission, on which said pulleys (332) can translate.

13. Mechanism according to claim 1, wherein the actuator of vertical movement (34) comprises an oleodynamic device (341) comprising two pistons, which are opposed to one another and incorporated in a single structure, and a braking device adapted to slow down extension of said pistons;
said actuator (34) raises the fuse setter (2) along the axis (Z), preventing the movements of the ammunition from being hampered in the passage to the other functioning operations of the firearm.

14. Mechanism according to claim 13, wherein the braking device consists in a purposely provided slot, which is made within the structure of the cylinder of the structure that encloses the two pistons, the end of one of the pistons, before the supporting structure (13) encounters the mechanical rest enters said slot, forcing exit of the oil through the gap created between the two elements that get engaged with one another.

15. Mechanism according to claim 6, wherein the actuator of horizontal movement (35) retracts the fuse-setting mechanism during the possible abortion of the firing of the cartridge and the possible step of re-depositing of an ammunition in a military store so as not to hamper said operations.

16. Mechanism according to claim 1, wherein the cartridges are kept in a pre-set position by a cartridge-retention mechanism (6).

17. Mechanism according to claim 16, wherein in the case of malfunctioning of the retention mechanism (6), said fuse-setting mechanism performs a mechanical safety function by acting as device for damping the motion of the ammunition.