

Claims

1. A fall arrest device for blocking a rope (12) when a relative speed between the rope (12) and the device (10) reaches a threshold value, the device (10) comprising a blocking mechanism (23) for blocking the rope (12), and a trigger mechanism (30) configured for triggering an activation lever (24) of said blocking mechanism (23) for activating said blocking mechanism (23) for blocking said rope (12) when said speed reaches said threshold value, wherein said trigger mechanism (30) comprises a drive axis (32) rotated by said rope (12) upon relative movement between said rope (12) and said fall arrest device (10), said drive axis (32) carrying a centrifugal weight holder (34), wherein said at least one centrifugal weight (36, 38) is held acting against a restoring force, said at least one centrifugal weight (36, 38) being movable between an inactive position and a trigger position for triggering said activation lever (24) when said speed reaches said threshold value, characterized in that said centrifugal weight holder (34) is arranged rotatably relative to a release gear (48) that comprises a tothing (72, 74) engagable by an actuator member (76, 78) of said at least one centrifugal weight (36, 38), when said at least one centrifugal weight (36, 38) is in said trigger position.
2. The fall arrest device of claim 1, characterized in that said activation lever (24) is arranged pivotably about an axis (25) arranged at a distance outside from said release gear (48).
3. The fall arrest device of claim 2, characterized in that said activation lever (24) comprises a first end (26) cooperating with an outer tothing (72) of said release gear (48), wherein said activation lever (24) preferably engages said outer tothing (72) with said first end (26) when said activation lever (24) is in an open position corresponding to said inactive position of said trigger mechanism (30).
4. The fall arrest device of claim 3, characterized in that said activation lever (24) comprises a second end (27) comprising a catch section (80, 29) engaging a catch roll (82, 82a) when being in said open position, said catch roll (82, 82a) upon triggering of said trigger mechanism (30) being moved by said outer tothing (72)

from said open position into a closed position, thereby activating said blocking mechanism (23) by releasing said catch roll (82).

5. The fall arrest device of claim 4, characterized in that said catch section of said second end (27) of said activation lever (24a) is configured as a claw (29) engaging a recess (31) of said latching roll (82a) when being in said open position, said claw (29) being released from said recess (31) of said latching roll (82a) upon triggering of said trigger mechanism (30), thereby activating said blocking mechanism (23),
6. The fall arrest of any of the preceding claims, characterized in that said at least one centrifugal weight (36, 38) is arranged pivotably about a swivel axis (35, 37) located on said centrifugal weight holder (34) acting against the restoring force of a spring (28), and in that said at least one centrifugal weight (36, 38) upon rotation of said drive axis (32) is movable from said inactive position to said trigger position for triggering said activation lever (24) when the restoring force of said spring (28) is overcome upon reaching said threshold value.
7. The fall arrest device of claim 6, characterized in that each centrifugal weight (36, 38) carries one actuator member (76, 78) cooperating with an inner toothing (74) of said release gear (48), so that said toothing (72, 74) is rotated by said actuator member (76, 78) upon reaching said threshold value.
8. The fall arrest device of any of the preceding claims, characterized in that the toothing (72, 74) comprises a plurality of teeth including at least eight teeth, preferably at least sixteen, more preferably twenty four teeth.
9. The fall arrest device of any of claims 6 to 8 characterized in that two centrifugal weights (36, 38) are held eccentrically on said centrifugal weight holder (34) acting against said restoring force of said spring (28).

10. The fall arrest device of claim 9, characterized in that each of said centrifugal weights (36, 38) is arranged pivotably about a swivel axis (35, 37) arranged eccentrically on said centrifugal weight holder (34).
11. The fall arrest device of claim 9 or 10, characterized in that each centrifugal weight (36, 38) carries a pin (35, 37) engaging a slot (45, 46) provided within a bracket (42) extending across said centrifugal weights (36, 38).
12. The fall arrest device of any of the preceding claims, characterized in that each centrifugal weight (35, 37) comprises an actuator member configured as an actuator pin (76, 78) that is arranged for engaging an inner toothing (74) of said release gear (48) when said at least one centrifugal weight (36, 38) is in said trigger position.
13. The fall arrest device of claim 12, characterized in that said inner toothing (74) of said release gear (48) is configured for engaging said actuator pin (76, 78) only, if said rope (12) ascends with respect to said device (10) or said device (10) descends with respect to said rope (12).
14. The fall arrest device of any of the preceding claims, characterized in that said release gear (48) comprises an outer toothing (72) that engages said activation lever (24) for rotating said activation lever (24) into a position for activating said blocking mechanism (23) when said at least one centrifugal weight (36, 38) is in said trigger position.
15. The fall arrest device of any of claims 11 to 14, characterized in that each of said centrifugal weights (36, 38) has a substantially semi-cylindrical shape being supported at one end pivotably about said swivel axis (35, 37) against said restoring force of said spring (28) which biases said centrifugal weights (36, 38) against each other.

16. The fall arrest device of any of the preceding claims, characterized in that said release gear (48) is combined with a bearing disk (49) which is mounted rotatably on said drive axis (32).