CLAIMS:

1. An arc ignition device for cathodic arc deposition of a target material onto a substrate, the arc ignition device comprising:

a trigger finger arranged moveable between a contacting position and a resting position, wherein in the contacting position a side surface of an adjacent target can be physically contacted by the trigger finger, and in the resting position the adjacent target cannot be contacted by the trigger finger, wherein during cathodic arc deposition of a target material, the trigger finger is arranged movable between the contacting position and the resting position in such a way that the contamination of the trigger finger with deposited target material during the cathodic arc deposition of the target material can be minimized,

wherein the arc ignition device comprises

an actuator for moving the trigger finger between the contacting position and the resting position, wherein the trigger finger can be moved between the contacting position and the resting position by the actuator in less than 50 ms.

2. The arc ignition device according to claim 1, wherein the arc ignition device comprises

a housing in which the trigger finger is at least partially located, wherein the housing can be disposed outside of an adjacently arrangeable vacuum chamber.

3. The arc ignition device according to claim 1 or 2, wherein the trigger finger can be moved between the contacting position and the resting position in between 50 ms and 20 ms, preferably in between 20 ms and 10 ms.

4. The arc ignition device according to one of the preceding claims, wherein the actuator is designed such that the trigger finger can leave the contacting position after at most 200 µs, preferably after at most 150 µs, in particular after at most between 150 µs and 100 µs.

5. The arc ignition device according to one of the preceding claims, wherein the arc ignition device comprises a current limiting component to limit the current during a contacting step to a value of less than 5A, preferably to a value between 2A and 5A.

6. The arc ignition device according to one of the preceding claims, wherein the trigger finger comprises a rod having a first end and an opposing second end, wherein preferably the first end being positioned within the adjacently arrangable chamber and the second end being positioned within the housing.

7. The arc ignition device according to one of the preceding claims, wherein the actuator is provided for linearly moving the trigger finger in an axial direction of said trigger finger.

8. The arc ignition device according to one of the preceding claims, wherein the arc ignition device further comprises a spring that moves the trigger finger into the resting position.

9. The arc ignition device according to one of the preceding claims, wherein the actuator being an electromagnetic actuator.

10. The arc ignition device according to one of the preceding claims, wherein the trigger finger being at least partially comprised of tungsten.

11. An assembly for cathodic arc deposition of a material onto a substrate, the assembly comprising:
an arc ignition device according to one of the preceding claims,

a chamber for receiving a substrate to be coated, the chamber being evacuated to a predetermined pressure below atmospheric pressure;

a cathode back support disposed within the chamber;

a target located adjacent the cathode back support plate, the target having a first surface facing away from the cathode back support, a second surface spaced from the first surface and facing the cathode back support, and a side surface connecting the first and second surfaces, wherein a plasma material is to be ejected from the first surface;

an anode disposed within the chamber and spaced from the target,

wherein in the contacting position the trigger finger of the arc ignition device physically contacts the side surface of the target, and wherein in the resting position the trigger finger does not contact the target.

12. The assembly of claim 11, wherein the anode being spaced outward and away from the first surface of the target.

13. An assembly for cathodic arc deposition of a material onto a substrate according to claim 11 or 12, wherein the assembly further comprises a confinement member for protection of the trigger finger from being contaminated with deposited material.

14. An assembly for cathodic arc deposition of a material onto a substrate according to claim 13, wherein the confinement member is positioned within the chamber and has a groove formed therein.

15. An assembly for cathodic arc deposition of a material onto a substrate according to claim 13 or 14, wherein in the contacting position a first end of the trigger finger physically contacts the target, and wherein in the resting position the first end of the trigger finger does not contact the target and is located within the groove of the confinement member to inhibit exposure of the first end to the deposited material.

16. The assembly according to one of the claims 13 to 15, wherein the confinement member is located adjacent the side surface of the target and preferably positioned between the cathode back support and the anode.

17. The assembly according to one of the claims 13 to 16, wherein the confinement member being ring shaped with a central opening defined by an inner side wall, wherein the groove extends from an outer side wall of the confinement member to the inner side wall, in a radial direction of the confinement member.

18. The assembly according to claim 17, wherein the central opening has a diameter that is greater than a width of the target such that the confinement member is disposed about the target.

19. The assembly according to one of the claims 11 to 18, wherein the arc ignition device comprises a housing disposed outside of the chamber.

20. A method of sparking an arc for cathodic arc deposition of a material, by using an assembly according to one of the claims 11 to 19, the method comprising the steps of:

providing an anode and a target within an evacuated chamber;

providing a trigger finger having a first end positioned within the chamber and a second end positioned outside the chamber;

producing the movement of the trigger finger into a resting position wherein the first end of the trigger finger is housed within a confinement member such that the first end is hidden from a plasma material;

translating the trigger finger from the resting position to a contacting position wherein the first end of the trigger finger is not positioned within the confinement member, and wherein the first end physically contacts a side surface of the target; and

translating the trigger finger from the contacting position back to the resting position.

21. The method of claim 20, wherein the step of producing the movement of the trigger finger into the resting position is accomplished via a spring, and wherein translating the trigger finger from the contacting position back to the resting position is accomplished via a force of the spring for returning to its free length.

22. The method of claim 21, wherein the step of translating the trigger finger from the resting position to the contacting position is accomplished via an actuator positioned outside the chamber.

23. The method according to one of the claims 20 to 22, wherein the amount of time the trigger finger stays in the contacting position is less than 250 µs, preferably less than 200 µs, more preferably between 150 µs and 100 µs.

24. The method according to one of the claims 20 to 22, wherein the amount of time it takes the trigger finger to move from the resting position to the contacting position does not exceed 50ms, preferably it takes a time between 20 ms and 50 ms, more preferably a time between 20 ms and 10 ms.

25. Use of an arc ignition device according to one of the claims 1 to 10 in a pulsed cathodic arc deposition process.

26. Use of an assembly according to one of the claims 11 to 19, in pulsed cathodic arc deposition process.