

US00D568914S

(12) **United States Design Patent**
Or et al.

(10) **Patent No.:** **US D568,914 S**

(45) **Date of Patent:** **** May 13, 2008**

(54) **SUBSTRATE SUPPORT LIFT PIN**
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(**) Term: **14 Years**

(21) Appl. No.: **29/256,744**

(22) Filed: **Mar. 24, 2006**

Related U.S. Application Data

(63) Continuation of application No. 11/120,456, filed on May 3, 2005, which is a continuation of application No. 10/241,005, filed on Sep. 10, 2002, now Pat. No. 6,887,317.

(51) **LOC (8) Cl.** **15-09**

(52) **U.S. Cl.** **D15/138**

(58) **Field of Classification Search** D8/387;
D15/122, 138, 140, 199; 118/500, 728, 729;
156/345.51-345.55

See application file for complete search history.

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(57) **CLAIM**

The ornamental design for a substrate support lift pin, as shown and described.

DESCRIPTION

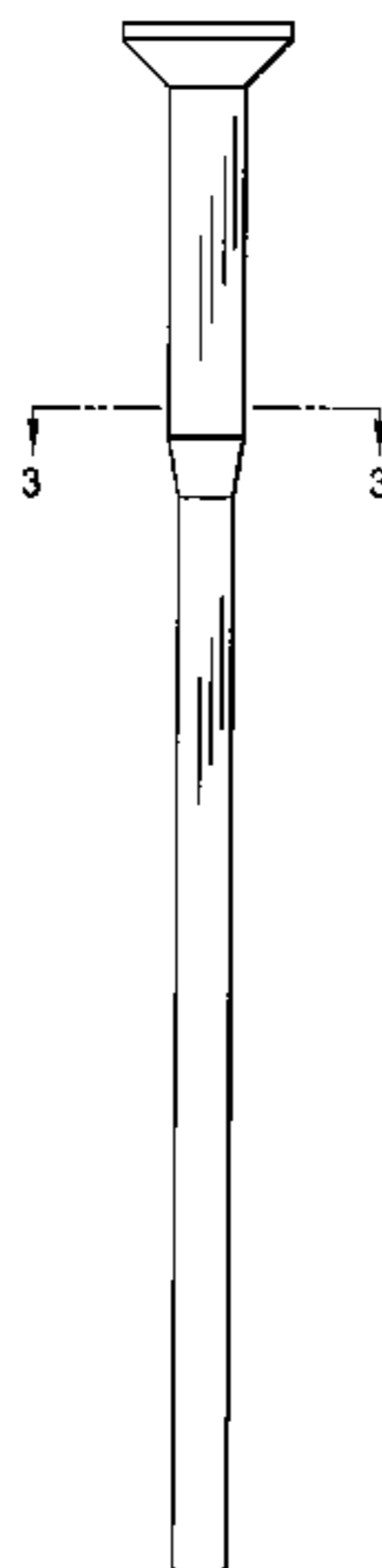
A lift pin for selectively spacing a substrate from a substrate support is provided. Embodiments of the lift pin include a lift pin shaft and at least one larger diameter shoulder section symmetrical the lift pin shaft that forms a relief region between the lift pin and a guide hole disposed through a substrate support. The shoulder section reduces pin scratching, particle generation, and component wear, thus increasing the life of the lift pin. The shoulder section also minimizes sticking of the lift pin, thus enhancing movement of the lift pin through the guide hole. The shoulder section may be made of a different material than the lift pin shaft and/or an outer surface of the shoulder section may be machined to a micro-smooth surface. An upper portion of the lift pin also includes a tapered portion configured to provide a stop for the lift pin to prevent the lift pin from falling through the guide hole in the substrate support.

FIG. 1 is a schematic side view of one embodiment of a lift pin.

FIG. 2 is a top view of FIG. 1; and,

FIG. 3 is a cross-sectional view taken along line 3—3 of FIG. 1.

1 Claim, 1 Drawing Sheet



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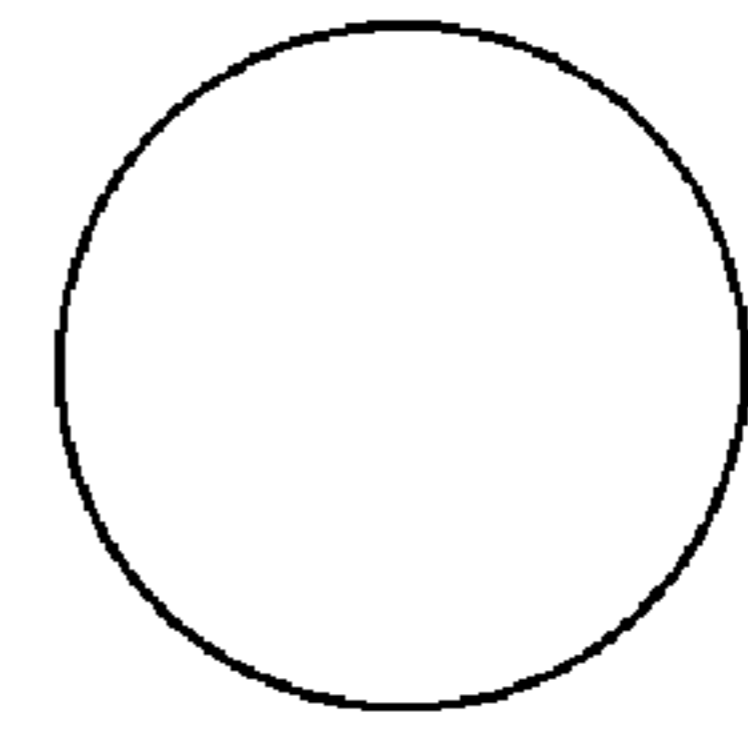
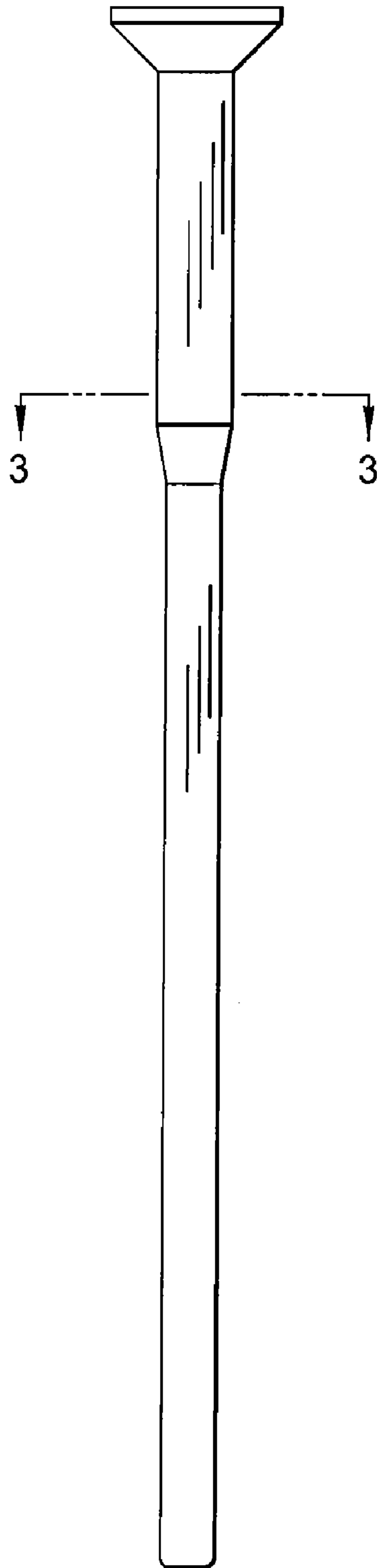


FIG. 2



FIG. 3

FIG. 1