



(12) **United States Patent**  
**Chou**

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(54) **METHOD AND APPARATUS FOR THERMALLY EFFECTIVE TRIM FOR LIGHT FIXTURE**

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1 day.

5,463,280 A	10/1995	Johnson
5,575,459 A	11/1996	Anderson
5,655,830 A	8/1997	Ruskouski
5,688,042 A	11/1997	Madadi et al.
5,698,866 A	12/1997	Doiron et al.
5,717,320 A	2/1998	Heeringa et al.
5,726,535 A	3/1998	Yan
6,149,283 A	11/2000	Conway et al.
6,220,722 B1	4/2001	Begemann

(Continued)

**FOREIGN PATENT DOCUMENTS**

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KR 2003-53853 7/2003

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**OTHER PUBLICATIONS**

(65) **Prior Publication Data**

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The New York Times, "L.E.D.'s Make for Warm Light But the Bulb Keeps Its Cool," Apr. 2004.

**Related U.S. Application Data**

Primary Examiner—Laura Tso  
(74) Attorney, Agent, or Firm—Robert D. Atkins

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(57) **ABSTRACT**

(51) **Int. Cl.**  
**F21V 29/00** (2006.01)

A lighting assembly comprises a light fixture. The light fixture includes a trim formed by a stamping or die casting process. The trim has thermally conductive properties and includes a flange around a perimeter of the trim. The light fixture includes a light source mounted to a central portion of a front surface of the trim, and a heatsink formed by an extrusion or die casting process. The heatsink has thermally conductive properties and is mounted to a back surface of the trim. The light fixture includes an attachment mechanism connected to the light fixture. A recessed can housing mounted to a surface may be provided. The light fixture may be mounted to the recessed can housing by inserting the heatsink into the recessed can housing and engaging the attachment mechanism to an interior portion of the recessed can housing to brace the flange against the surface.

(52) **U.S. Cl.** ..... **362/148**; 362/147; 362/404; 362/294

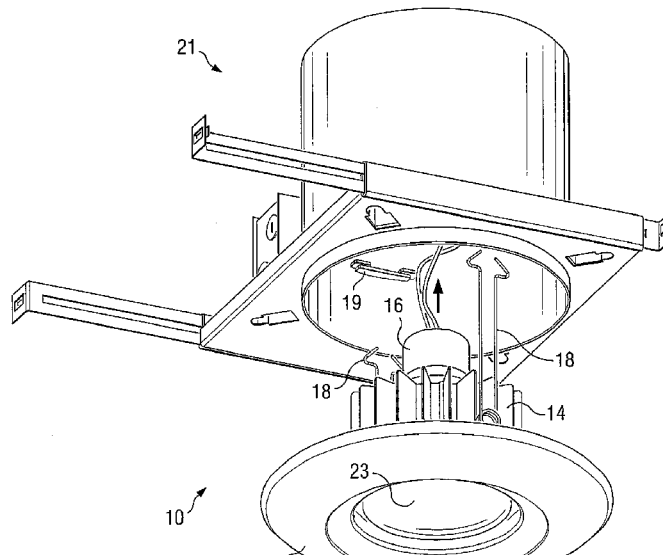
(58) **Field of Classification Search** ..... 362/147, 362/148, 149, 150, 404, 294, 373, 547  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

4,211,955 A	7/1980	Ray
4,499,145 A	2/1985	Yanagida et al.
4,630,183 A	12/1986	Fujita
4,727,289 A	2/1988	Uchida
5,210,440 A	5/1993	Long
5,463,229 A	10/1995	Takase et al.

**19 Claims, 11 Drawing Sheets**



# US 7,670,021 B2

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U.S. PATENT DOCUMENTS								
6,234,649	B1	5/2001	Katougi	2002/0070643	A1	6/2002	Yeh	
6,431,728	B1	8/2002	Fredericks et al.	2003/0048632	A1	3/2003	Archer	
6,441,558	B1	8/2002	Muthu et al.	2003/0071366	A1	4/2003	Rubinsztajn et al.	
6,481,130	B1	11/2002	Wu	2003/0189829	A1	10/2003	Shimizu et al.	
6,499,860	B2	12/2002	Begemann	2004/0066652	A1	4/2004	Hong	
6,511,209	B1*	1/2003	Chiang ..... 362/294	2004/0105264	A1	6/2004	Spero	
6,632,892	B2	10/2003	Rubinsztajn et al.	2006/0239002	A1	10/2006	Chou et al.	
6,719,446	B2	4/2004	Cao	2008/0037255	A1*	2/2008	Wang ..... 362/294	
6,942,360	B2	9/2005	Chou et al.	2008/0089071	A1*	4/2008	Wang ..... 362/294	

\* cited by examiner

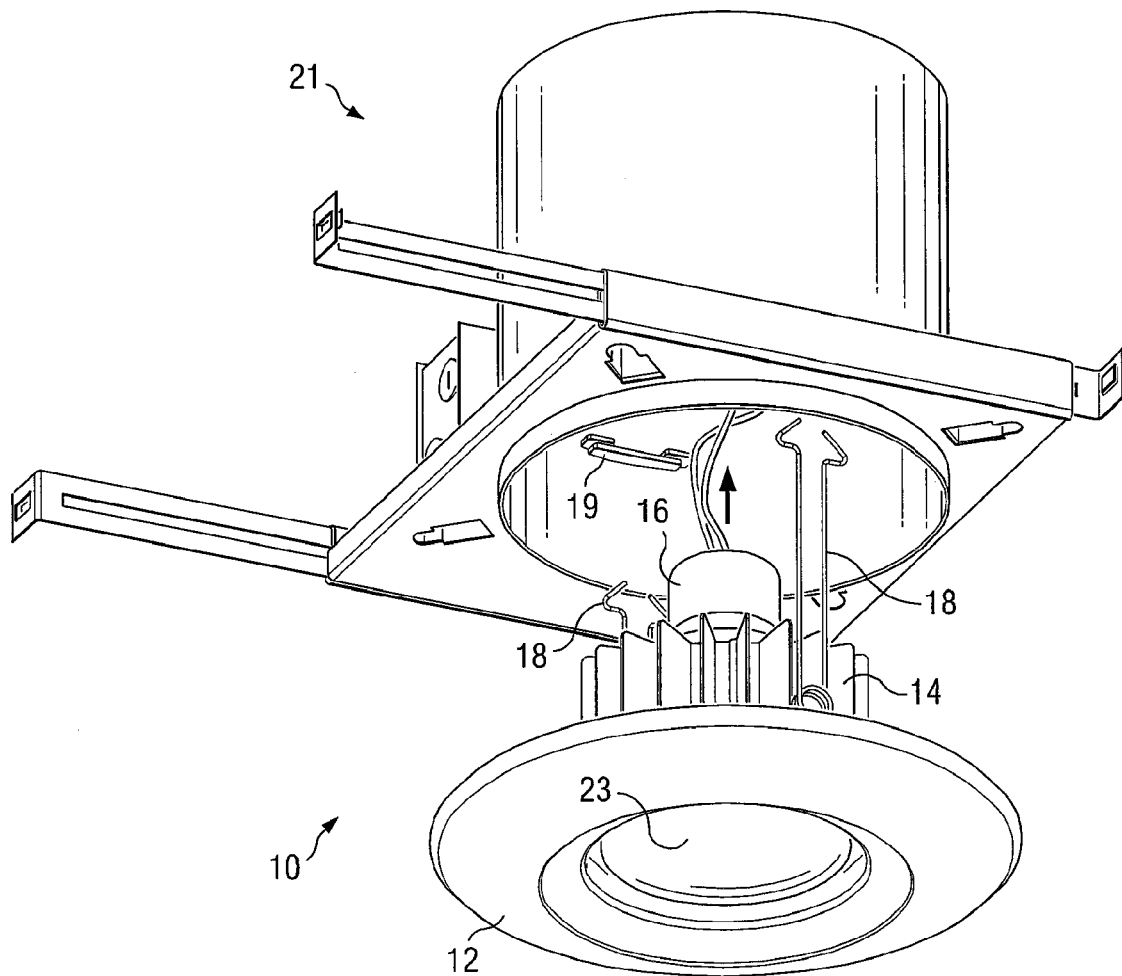
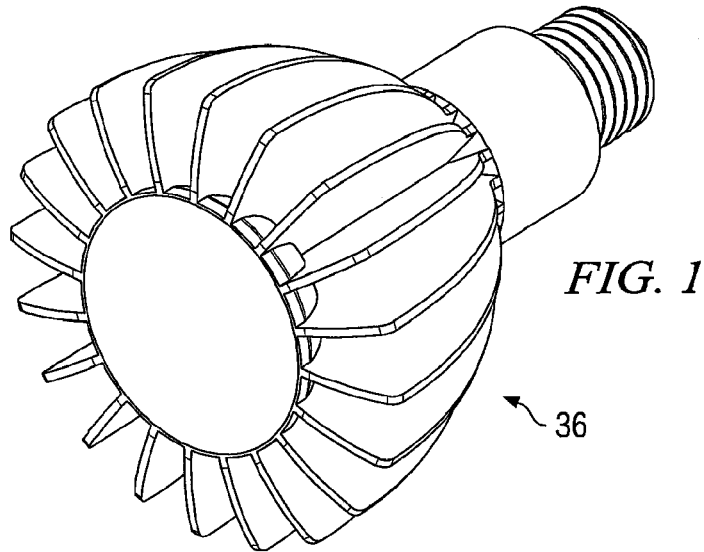


FIG. 3

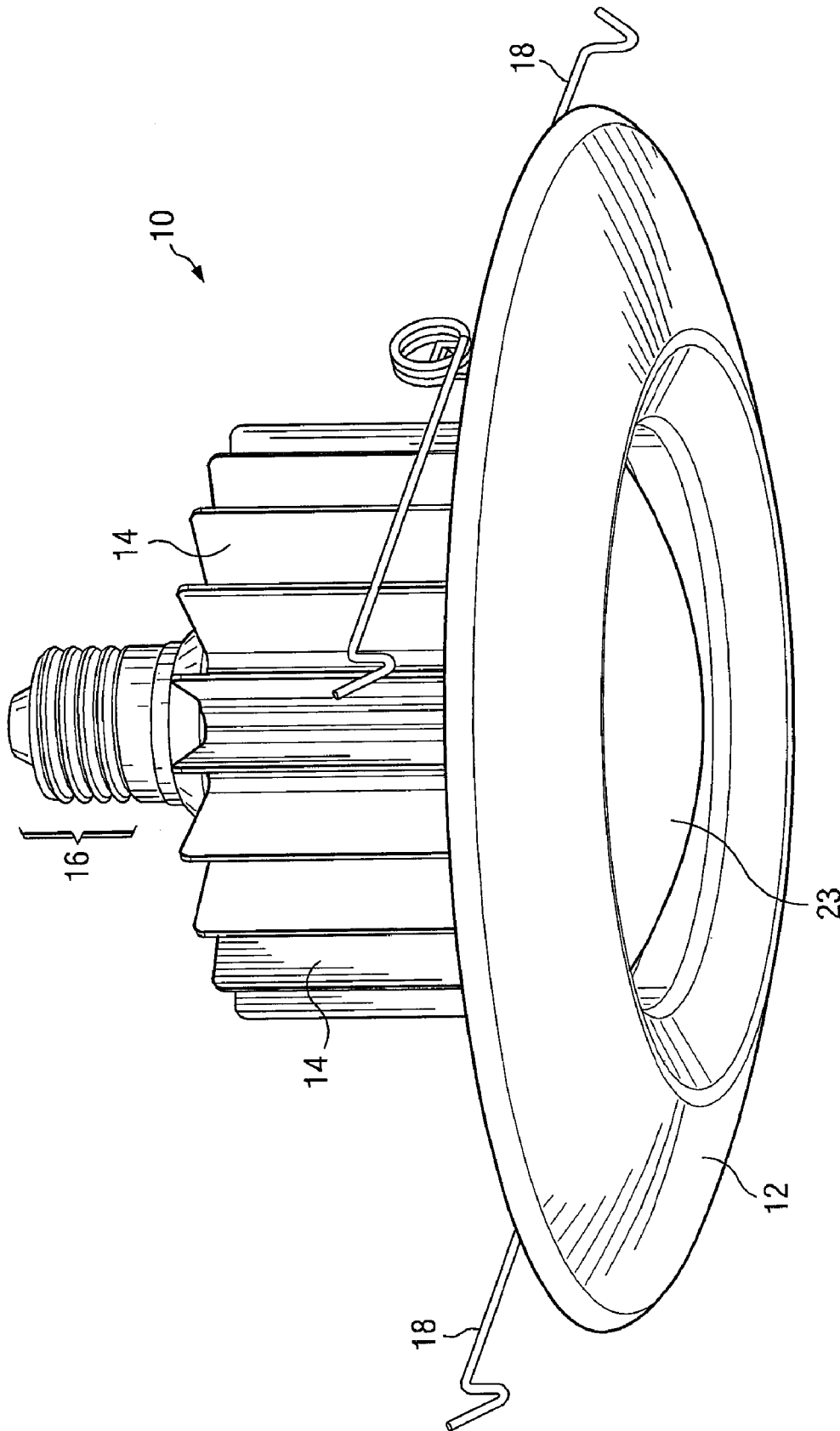
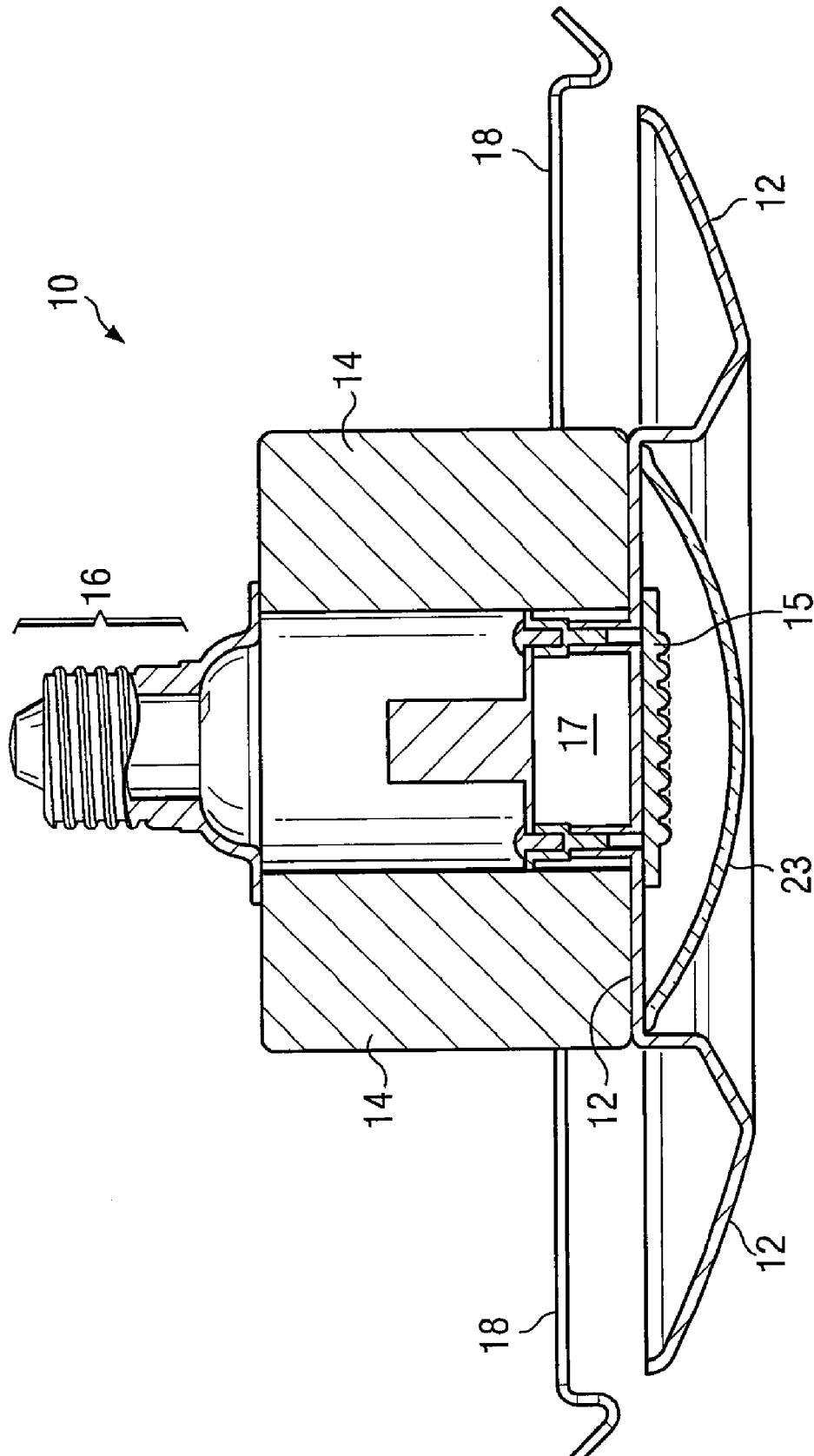


FIG. 2a



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