

(12) United States Design Patent US D696,320 S (10) Patent No.: **** Dec. 24, 2013** (45) **Date of Patent:** Sjöberg et al.

BEARING SET FOR CRUSHERS (54)

- Applicant: Sandvik Intellectual Property AB, (71)Sandviken (SE)
- Inventors: Patrik Sjöberg, Malmö (SE); Mauricio (72)**Torres**, Malmö (SE)
- (73)Assignee: Sandvik Intellectual Property AB, Sandviken (SE)
- 4,772,139 A 9/1988 Bretton 5,871,284 A 2/1999 Nadjafi et al. D444,802 S 7/2001 Dyson et al.

(Continued)

Primary Examiner — Patricia Palasik (74) Attorney, Agent, or Firm — Renner, Otto, Boisselle & Sklar, LLP

(57)CLAIM The ornamental design for a bearing set for crushers, as

(**)14 Years Term:

Appl. No.: 29/454,634 (21)

May 13, 2013 (22)Filed:

Related U.S. Application Data

- Division of application No. 29/396,151, filed on Jun. (62)27, 2011, now Pat. No. Des. 689,533.
- (30)**Foreign Application Priority Data**
 - (EM) 001865601 May 18, 2011
- LOC (9) Cl. 15-09 (51)
- U.S. Cl. (52)USPC D15/143; D15/123
- Field of Classification Search (58)USPC D15/123, 143, 199; 29/481; 277/419;

shown and described.

DESCRIPTION

FIG. 1 is a first perspective view of a bearing set for crushers showing our design taken from a right side and above a horizon, the bearing set being sold as a set inclusive of a main shaft component, a piston wearing plate component, and a step washer component;

FIG. 2 is a second perspective view thereof taken from the right side and below a horizon;

FIG. 3 is a left side view thereof;

FIG. 4 is a top view of the main shaft component of the bearing set;

FIG. 5 is a bottom view thereof; FIG. 6 is a left side view thereof; FIG. 7 is a rear view thereof;

FIG. 8 is a right side view thereof;

FIG. 9 is a front view thereof; FIG. 10 is a top view of the piston wearing plate component

of the bearing set;

FIG. 11 is a bottom view thereof;

FIG. 12 is a rear view thereof, left and right side views being the same; FIG. **13** is a front view thereof; FIG. 14 is a top view of the step washer component of the bearing set; FIG. 15 is a bottom view thereof; FIG. 16 is a right side view thereof, the left side view being the

360/265.2; 384/222, 258, 273, 274, 384/295, 300, 412, 428, 537, 588 See application file for complete search history.

(56)**References** Cited

U.S. PATENT DOCUMENTS

4,240,677	Α	12/1980	Payne et al
4,302,901	Α	12/1981	Psyras
4,571,098	А	2/1986	Rudnik

same; and, FIG. 17 is a front view thereof, the rear view being the same.

1 Claim, 13 Drawing Sheets



US D696,320 S Page 2

(56)	References Cited			/			Ito et al Bickert et al.	D15/143
	U.S. PATENT DO	OCUMENTS		2003/0117031 2004/0130827	A1	6/2003	Wang et al.	
I	D459,732 S * 7/2002 Sa	asaki et al D	15/3	2008/0285906	A1	11/2008	Georgi et al.	
	7,044,471 B2 5/2006 E1 7,954,998 B2 6/2011 Sa			* cited by exan	niner			

U.S. Patent US D696,320 S Dec. 24, 2013 Sheet 1 of 13





U.S. Patent Dec. 24, 2013 Sheet 2 of 13 US D696,320 S





U.S. Patent Dec. 24, 2013 Sheet 3 of 13 US D696,320 S





U.S. Patent Dec. 24, 2013 Sheet 4 of 13 US D696,320 S



U.S. Patent Dec. 24, 2013 Sheet 5 of 13 US D696,320 S



U.S. Patent Dec. 24, 2013 Sheet 6 of 13 US D696,320 S



FIG. 6



U.S. Patent Dec. 24, 2013 Sheet 7 of 13 US D696,320 S



FIG. 8



U.S. Patent Dec. 24, 2013 Sheet 8 of 13 US D696,320 S



U.S. Patent Dec. 24, 2013 Sheet 9 of 13 US D696,320 S



U.S. Patent Dec. 24, 2013 Sheet 10 of 13 US D696,320 S





U.S. Patent Dec. 24, 2013 Sheet 11 of 13 US D696,320 S



U.S. Patent Dec. 24, 2013 Sheet 12 of 13 US D696,320 S



U.S. Patent Dec. 24, 2013 Sheet 13 of 13 US D696,320 S



FIG. 16

