

(12) **United States Patent**
Sasayama et al.

(10) **Patent No.:** **US 9,408,759 B2**
(45) **Date of Patent:** ***Aug. 9, 2016**

(54) **DISPOSABLE DIAPER**

A61F 13/49406; A61F 13/49413; A61F 13/49446; A61F 13/49453; A61F 13/64; A61F 13/49061; A61F 13/4906

(71) Applicant: **UNICHARM CORPORATION**,
Shikokuchuo-shi, Ehime (JP)

See application file for complete search history.

(72) Inventors: **Kenichi Sasayama**, Kanonji (JP);
Kunihiko Katsuragawa, Kanonji (JP)

(56) **References Cited**

(73) Assignee: **UNICHARM CORPORATION**, Ehime (JP)

U.S. PATENT DOCUMENTS

5,554,145 A 9/1996 Roe et al.
5,649,919 A 7/1997 Roessler et al.

(Continued)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

FOREIGN PATENT DOCUMENTS

This patent is subject to a terminal disclaimer.

EP 1011582 A1 6/2000
EP 1827335 A1 9/2007

(Continued)

(21) Appl. No.: **14/403,742**

OTHER PUBLICATIONS

(22) PCT Filed: **Jun. 3, 2013**

International Search Report mailed Aug. 27, 2013 in International Application No. PCT/JP2013/065403 filed Jun. 3, 2013.
Extended European Search Report in EP Application No. 13801014.5 dated Jan. 18, 2016.

(86) PCT No.: **PCT/JP2013/065403**
§ 371 (c)(1),
(2) Date: **Nov. 25, 2014**

Primary Examiner — Bradley Philips

(87) PCT Pub. No.: **WO2013/183603**
PCT Pub. Date: **Dec. 12, 2013**

(74) *Attorney, Agent, or Firm* — Hauptman Ham, LLP

(65) **Prior Publication Data**
US 2015/0126953 A1 May 7, 2015

(57) **ABSTRACT**

(30) **Foreign Application Priority Data**
Jun. 4, 2012 (JP) 2012-127462

A disposable diaper includes a chassis, front and rear waist regions, and a crotch region between the front and rear waist regions and a liquid-absorbent structure extending at least in the crotch region. The chassis includes a pair of first leg elastics, and a pair of second leg elastics. The first leg elastics are arranged so as to be rectilinear in the longitudinal direction. The second leg elastics are arranged at a distance from the longitudinal axis as viewed in the transverse direction larger than a distance from the longitudinal axis at which the first leg elastics are arranged and have rectilinear portions extending in the longitudinal direction at least in a portion of the crotch region close to the front waist region and curved portions spaced apart outwardly from each other from the rear waist region side ends of the rectilinear portions.

(51) **Int. Cl.**
A61F 13/15 (2006.01)
A61F 13/49 (2006.01)

(52) **U.S. Cl.**
CPC **A61F 13/49014** (2013.01); **A61F 13/49017** (2013.01); **A61F 13/49061** (2013.01)

(58) **Field of Classification Search**
CPC A61F 13/49017; A61F 13/49092;

7 Claims, 8 Drawing Sheets

