

(12) **United States Patent**
Hyun

(10) **Patent No.:** **US 9,510,577 B2**
(45) **Date of Patent:** **Dec. 6, 2016**

(54) **FISHING REEL HAVING HYBRID CLUTCH**

(71) Applicant: **DOYO ENGINEERING CO., LTD.**,
Bucheon (KR)

(72) Inventor: **Kang-Ho Hyun**, Bucheon (KR)

(73) Assignee: **DOYO ENGINEERING CO., LTD.**
(KR)

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

(21) Appl. No.: **14/565,683**

(22) Filed: **Dec. 10, 2014**

(65) **Prior Publication Data**
US 2015/0164057 A1 Jun. 18, 2015

(30) **Foreign Application Priority Data**
Dec. 17, 2013 (KR) 10-2013-0157123

(51) **Int. Cl.**
A01K 89/01 (2006.01)

(52) **U.S. Cl.**
CPC **A01K 89/01901** (2015.05); **A01K 89/0189**
(2015.05)

(58) **Field of Classification Search**
CPC A01K 89/015; A01K 89/0188; A01K
89/0189; A01K 89/01901; A01K 89/0191
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

- 5,358,197 A * 10/1994 Sakaguchi A01K 89/015
242/261
5,775,614 A * 7/1998 Yamaguchi A01K 89/015
242/261
6,315,228 B1 * 11/2001 Sato A01K 89/015
242/261
2004/0075005 A1 * 4/2004 Myojo A01K 89/015
242/310
2007/0181728 A1 * 8/2007 Kawasaki A01K 89/00
242/310
2010/0327098 A1 * 12/2010 Hyun A01K 89/015
242/301
2013/0193250 A1 * 8/2013 Ikebukuro A01K 89/015
242/261

FOREIGN PATENT DOCUMENTS

KR 200191968 5/2000

* cited by examiner

Primary Examiner — Emmanuel M Marcelo
(74) *Attorney, Agent, or Firm* — Cantor Colburn LLP

(57) **ABSTRACT**

Disclosed herein is a fishing reel having a hybrid clutch. The clutch controls rotation of a spool such that when casting a fishing line, the rotation of the spool is not restricted, and only when a handle is rotated to reel in the fishing line is the rotation of the spool restricted so that the spool can be rotated only in the direction in which the fishing line is reeled in. For this, the fishing reel includes: an integrated clutch unit including a clutch link coupled to the clutch bar, and a clutch cam connected to the clutch link and rotated around a shaft of the spool; and a ratchet pawl coupled to the clutch cam by a hinge and selectively coming into contact with a ratchet provided on a rotating shaft of the handle depending on rotation of the clutch cam, thus controlling the rotation of the spool.

2 Claims, 21 Drawing Sheets

