

The United States of America



The Director of the United States Patent and Trademark Office

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States of America, or importing into the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.

Leea Staret Lee

Deputy Director of the United States Patent and Trademark Office



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(12) United States Patent Patel

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(45) Date of Patent: Sep. 17, 2013

(54) MULTI DRILL CULTIVATOR

(76) Inventor: Chaitanya A. Patel, Ahmedabad (IN)

(*) 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.: 13/516,666

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PCT Pub. Date: Apr. 26, 2012

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(51) Int. Cl. A01B 39/19 (2006.01)

(52) U.S. Cl. USPC 172/44, 172/57, 172/676

(58) Field of Classification Search USPC 172/44, 48, 57, 58, 105, 124, 257, 172/431, 436, 527, 676

See application file for complete search history.

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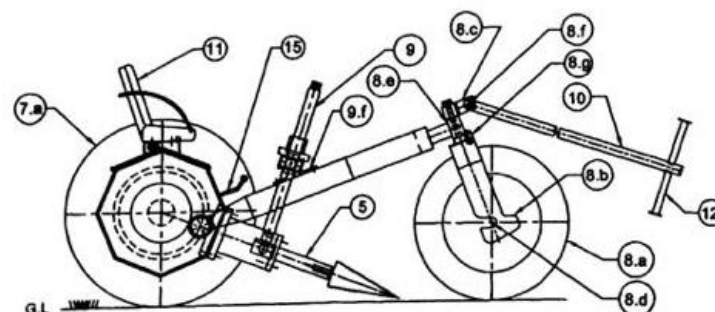
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(57) ABSTRACT

An improved multi drill cultivator which mainly consists of octagonal central drum (2), gear housing Assembly which further comprise of four big gears, four bevel gears and cover (3), teeth for big gears, chassis, drill Ploughing Assembly further comprises of projected portion and drills, bearing housing further comprises of bearing and collar for bearing, rear wheel Assembly further comprises of rear wheel and rear wheel axle, front wheel assembly further comprise of front wheel and front wheel bracket, front wheel bracket hub, one end of front wheel, other end of front wheel bracket, lock nut, A jack screw mechanism consists of lifting screw steering wheel, a guide bar being attached to the lifting screw steering wheel, drum lifting block and a ball wherein the said ball is fixed into the locking for ball, provided at the end of the said jack screw mechanism assembly.

22 Claims, 11 Drawing Sheets



क्रमांक : 022 005173
Sl. No. :



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Patent Certificate
(Rule 74 of Patents Rules)



Patent No. : 224088
Application No. : 250/MUM/2005
Date of Filing : 07/03/2005
Patentee : DR. CHAITANYA A. PATEL

It is hereby certified that a patent has been granted to the patentee for an invention entitled MULTI DRILL CULTIVATOR as disclosed in the above mentioned application for the term of 20 years from the 7 day of MARCH 2005, in accordance with the provisions of the Patents Act, 1970.

Date of Grant: 29/09/2008

Controller of Patents

Note.-The fees for renewal of this patent, if it is to be maintained, will fall / has fallen due on 7 day of MARCH 2007 and on the same day in every year thereafter.



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PATENT CERTIFICATE
(Rule 74 of The Patents Rules)

क्रमांक : 022102575
SL No :



पेटेंट सं. / Patent No. : 298143
आवेदन सं. / Application No. : 2895/MUM/2010
फाइल करने की तारीख / Date of Filing : 18/10/2010
पेटेंटी / Patentee : DR. CHAITANYA A. PATEL

प्रमाणित किया जाता है कि पेटेंटी को उपरोक्त आवेदन में यथाप्रकटित AN IMPROVED MULTI DRILL CULTIVATOR नामक आविष्कार के लिए, पेटेंट अधिनियम, 1970 के उपबंधों के अनुसार आज तारीख 18th day of October 2010 से बीस वर्ष की अवधि के लिए पेटेंट अनुदान किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled AN IMPROVED MULTI DRILL CULTIVATOR as disclosed in the above mentioned application for the term of 20 years from the 18th day of October 2010 in accordance with the provisions of the Patents Act, 1970.



अनुदान की तारीख : 27/06/2018
Date of Grant :

पेटेंट नियंत्रक
Controller of Patent

टिप्पणी - इस पेटेंट के नवीकरण के लिए शुल्क, यदि इसे बनाए रखा जाना है, 18th day of October 2012 को और उसके परवर्ती प्रत्येक वर्ष में उसी दिन देय होगा।
Note - The fees for renewal of this patent, if it is to be maintained will fall / has fallen due on 18th day of October 2012 and on the same day in every year thereafter.



Centre for Innovation, Incubation & Entrepreneurship
Indian Institute of Management, Ahmedabad

Dr. Chaitanya A. Patel
participated in the Third Workshop
on

Inventors of India

Knowledge Network for Incubating Innovations into Enterprises

held at Ahmedabad
from October 25 to 28, 2006

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