(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :24/09/2025
(21) Application No.202511091660 A
(43) Publication Date : 31/10/2025

(54) Title of the invention : BIOMECHANICALLY ADAPTIVE MIDSOLE

(51) International classification	:A43B13/20, A43B13/00, A43B7/00, A43B7/02, A61F7/00
(31) Priority Document No	:NA
(32) Priority Date	:NA
(33) Name of priority country	:NA
(86) International Application No Filing Date	: :01/01/1900
(87) International Publication No	: NA
(61) Patent of Addition to Application Number Filing Date	:NA :NA
(62) Divisional to Application Number Filing Date	:NA :NA

(71)**Name of Applicant :**
1)Chitkara University
Address of Applicant :Chandigarh-Patiala National Highway, Village Jhansla, Rajpura, Punjab - 140401, India. Rajpura Punjab India
2)Chitkara Innovation Incubator Foundation
(72)**Name of Inventor :**
1)Dr. Manu Midha
2)Raman Garg
3)Rohan Verma
4)Shubh Jain
5)Sube Singh

(57) Abstract :
A biomechanically adaptive midsole is comprising, a body 101 constructed as a midsole is provided, comprising a plurality of carbon-fiber plates 102 stacked one over another, designed to deliver enhanced biomechanical support and improved energy return during running activities, a foam layering 103 is arranged between the carbon fiber plates 102, resists bending under a wearer's weight, a plurality of inflating units 104, configured to provide adaptive support by selectively inflating in response to detected foot contact and pressure, a set of capacitive touch sensors is distributed over the body 101 to accurately detect areas of foot contact and non-contact, and to regulate inflation of the inflating units 104 accordingly, a thermal sensor is integrated within the body 101 to identify abnormal temperature changes that indicates wounds or injuries, a Peltier unit 105, coupled with a temperature sensor, enables thermoregulation by dynamically switching between heating and cooling modes.

No. of Pages : 20 No. of Claims : 10