

Title (en)  
FLATNESS-MEASURING APPARATUS FOR MEASURING THE FLATNESS OF A METAL STRIP

Title (de)  
PLANHEITSMESSVORRICHTUNG ZUR MESSUNG DER PLANHEIT EINES METALLISCHEN BANDES

Title (fr)  
DISPOSITIF DE MESURE DE PLANÉITÉ CONÇU POUR MESURER LA PLANÉITÉ D'UNE BANDE MÉTALLIQUE

Publication  
**EP 3990200 C0 20240214 (DE)**

Application  
**EP 20726356 A 20200513**

Priority  
• DE 102019209124 A 20190625  
• EP 2020063312 W 20200513  
• DE 102019217569 A 20191114

Abstract (en)  
[origin: WO2020259912A1] The invention relates to a flatness-measuring apparatus (1) for measuring the flatness of a metal strip, comprising a measuring roller (2) which has a roller axis (a) and is designed for contact with the strip for the purpose of measuring flatness, wherein the measuring roller (2) is connected to a cooling system (3) by means of which the measuring roller (2) can be cooled. The aim of the invention is to maintain a high level of measuring precision even at high temperatures and in particular in hot-rolling systems. This aim is achieved in that the cooling system (3) has a nozzle bar (4) which extends in parallel with the roller axis (a), wherein: at least one spray nozzle, preferably a number of spray nozzles (5), is arranged on the nozzle bar (4), by means of which spray nozzles cooling medium can be sprayed out onto the surface of the measuring roller (2) in a spray-out direction (b); the spray-out direction (b) meets a surface portion (6) of the measuring roller (2); and the angle ( $\alpha$ ) between the spray-out direction (b) and the tangent (t) to the measuring roller (2) is smaller than  $30^\circ$  at the location of the surface portion (6).

IPC 8 full level  
**B21B 38/02** (2006.01)

CPC (source: EP US)  
**B21B 1/24** (2013.01 - US); **B21B 37/28** (2013.01 - US); **B21B 38/02** (2013.01 - EP); **B21B 45/0218** (2013.01 - US)

Designated contracting state (EPC)  
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Participating member state (EPC – UP)  
AT BE BG DE DK EE FI FR IT LT LU LV MT NL PT SE SI

DOCDB simple family (publication)  
**DE 102019217569 A1 20201231**; CN 114025893 A 20220208; CN 114025893 B 20240621; EP 3990200 A1 20220504;  
EP 3990200 B1 20240214; EP 3990200 C0 20240214; JP 2022538520 A 20220905; JP 7245365 B2 20230323; US 12036592 B2 20240716;  
US 2022347730 A1 20221103; WO 2020259912 A1 20201230

DOCDB simple family (application)  
**DE 102019217569 A 20191114**; CN 202080047374 A 20200513; EP 2020063312 W 20200513; EP 20726356 A 20200513;  
JP 2021572391 A 20200513; US 202017621473 A 20200513