

Title (en)

TUNNEL BORING SYSTEM FOR DRIVING TUNNELS BY MEANS OF PIPE PUSHING

Publication

**EP 0146918 B1 19880316 (DE)**

Application

**EP 84115807 A 19841219**

Priority

CH 691483 A 19831223

Abstract (en)

[origin: EP0146918A1] 1. A tunnel boring system for driving tunnels by advancing a pipe, in particular for tunnel pipes of non-negotiable inside diameter, comprising a substantially cylindrical tunnel boring machine (80) which can be pressed into the ground in the direction of its longitudinal centre line (L) and which at a boring machine head end (81) has a mining means (82) corresponding to the pipe size of a tunnel pipe to be laid, and which at a boring machine tail end (84) can be brought into supporting relationship with an end of a tunnel pipe portion (83) of the tunnel pipe to be advanced, wherein earth which is loosened by the mining means, with the addition of water, is conveyed away through the interior of the boring machine and, in regard to the tunnel pipe portion fitted to the tail end thereof, also through the interior of said tunnel pipe portion, characterised in that the mining means (82) has a mining tool bell (6) which is mounted rotatably coaxially with respect to the boring machine longitudinal centre line (L) and whose bell opening edge region (85) lies at the boring machine head end (81), that the width of opening of the tool bell approximately corresponds to the respective tunnel cross-section to be bored, that provided at the bell opening edge region (85) is a cutting and grinding tool crown (2), that conveyor and crushing tools (1, 15) are provided starting from said cutting and grinding tool crown into a tool bell inner region (86) which decreases towards the drilling machine tail end (84), along at least the major part of a tool bell inner wall (87), that there is additionally provided a grinding tool (89) which extends out of a tool bell bottom portion (88) disposed in opposite relationship to the bell opening edge region in the direction of the longitudinal centre line and which extends into the tool bell inner region (86) and which is also mounted rotatably and longitudinally displaceably relative to the tool bell coaxially with respect to the boring machine longitudinal centre line and which in longitudinal section is of such an outside profile that formed between the reducing tool bell inner wall (87) and an outside peripheral surface (90) of the grinding tool (89) is an annular space (91) which reduces in the direction of the tool bell bottom portion (88), that there are provided conveyor nozzles (16) which open into said annular space (91) and which serve for the feed of pressurised water, and that the annular space communicates with the boring machine tail end (84) by way of discharge passages (17, 92) for transporting away the earth which is introduced into the tool bell inner region and which is possibly crushed in the annular space.

IPC 1-7

**E21D 9/10**; **E21D 9/12**; **E21B 4/16**

IPC 8 full level

**E21B 4/16** (2006.01); **E21B 7/20** (2006.01); **E21D 9/10** (2006.01); **E21D 9/12** (2006.01); **E21D 9/13** (2006.01)

CPC (source: EP)

**E21B 4/16** (2013.01); **E21B 7/208** (2013.01); **E21D 9/13** (2013.01)

Cited by

DE29516058U1; DE3537379A1; CN112160762A; EP1416119A1; FR2846703A1; WO02066780A1; KR101247664B1

Designated contracting state (EPC)

AT BE CH DE FR GB LI LU NL

DOCDB simple family (publication)

**EP 0146918 A1 19850703**; **EP 0146918 B1 19880316**; AT E33057 T1 19880415; DE 3469934 D1 19880421

DOCDB simple family (application)

**EP 84115807 A 19841219**; AT 84115807 T 19841219; DE 3469934 T 19841219