

## Title (en)

COMBINED TUNNELLING OR SHAFT BORING MACHINE WITH SIMULTANEOUS SHUTTERING AND SUPPORTING OF THE TUNNEL  
EXCAVATION, AND REMOVAL OF THE EXCAVATED MATERIAL

## Publication

**EP 0084365 A3 19831130 (DE)**

## Application

**EP 83100314 A 19830115**

## Priority

DE 3201087 A 19820115

## Abstract (en)

[origin: EP0084365A2] The wind-mill like stripping percussion drill point, which is provided with hard cutting edges and has built-in automatic neutron bombardment, ultrasonic bombardment or laser beam devices guides the strippings via stiffeners to a conveyor belt for hauling away. The remnants of the strippings or water are sucked off using suction pumps. The drive shaft, which is supported by 6 hydraulic cylinders, is controlled in the measuring and control housing - hanging centre shaft - by computer, ultrasound, infrared, laser or display screen upon presentation of test cards. By means of pumps, hoses, nozzles and welding equipment, insulating and fixing material is moved up to stationary material via a steel ring, which is mounted on the drive shaft with a spherical joint, bearing and untensioning springs and is equipped with external and internal plastic spray nozzles and connecting sockets for construction material, and a steel funnel joined to the steel ring. Rolls, which are mounted on spring holders are for their part fixed to the steel ring on rails provided longitudinally and transversely with spherical joints, press against insulating and fixing material until it sets. The overall drive of the drive shaft, which is provided with the stripping percussion drill point is performed by an electric motor, internal combustion engine or compressed air. Drilling, removal of the stripped material, reinforcement and insulating of the tunnel are performed in one operation.

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## Citation (search report)

- [A] FR 1567230 A 19690516
- [A] DE 2538033 B1 19761118 - BERGWERKSVERBAND GMBH
- [A] US 1751147 A 19300318 - HACKLEY ROY C
- [A] GB 710494 A 19540616 - EDMUND NUTTALL SONS & COMPANY, et al
- [A] CH 472547 A 19690515 - SKANSKA CEMENTGJUTERIET AB [SE]
- [A] DE 1232182 C
- [A] DE 1229962 B 19661208 - BERGWERKSVERBAND GMBH
- [A] DE 1006879 B 19570425 - WAYSS & FREYTAG AG
- [A] DE 915925 C 19540802 - PAUL CHLEBUS DIPL ING DR
- [A] DE 913403 C 19540614 - PAUL CHLEBUS DIPL ING DR
- [A] DE 1534663 A1 19690220 - ROBBINS & ASSOC JAMES S
- [A] DE 1658758 A1 19710107 - ROBBINS & ASSOC JAMES S
- [A] DE 1534602 A1 19711111 - BADE & CO GMBH
- [A] US 4043600 A 19770823 - DYER NORMAN DEAN
- [A] FR 1506054 A 19671215 - MEKH ZD N DEG 5

## Cited by

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