PATENT CLAIMS

1. A method for laying down a pavement (6) consisting of paving material (5) on a subgrade (7) with a screed (3) of a road paver (1), in which a compaction unit (13) of the screed (3), particularly a tamper (14), pre-compacts the paving material (5) at cyclical work cycles with selectable stroke (H) and selectable frequency (F) while the pavement (6) having a selectable pavement thickness (S) is in the process of being laid down at a selectable paving speed (V), **characterized in** that at least the stroke (H) of the compaction unit (13) is automatically adjusted in response to at least one paving parameter, such as at least the paving speed (V) and/or the pavement thickness (S).

2. The method according to claim 1, **characterized in** that as a support for the stroke (H) the frequency (F) and/or the setting angle α of the screed (3) is/are also adjusted automatically in response to at least one paving parameter.

3. The method according to claim 1, **characterized in** that as at least one paving parameter causing an adjustment at least of the stroke (H), the setting angle of the screed (3) and/or the density and/or the stiffness and/or the temperature of the paving material (5) is/are sensed during paving and preferably compared with a target value.

4. The method according to claim 1, **characterized in** that as a support for the stroke (H) the frequency (F) is also adjusted automatically along a characteristic curve depending on at least one paving parameter or in a characteristic map, preferably with ongoing paving operation and in such a manner that the precompaction in the pavement (6) is constant at least substantially independently of changes in the pavement thickness (S) and/or the paving speed (V).

5. The method according to claim 2, **characterized in** that the frequency (F) is adjusted in conformity with a characteristic curve or a characteristic map that is based on a predetermined proportionality between the stroke (H) and the frequency (F) and/or the

setting angle (α), wherein preferably said proportionality is selected depending on at least one paving parameter or a predetermined change in at least one paving parameter.

6. The method according to at least one of the preceding claims, **characterized in** that at least the stroke (H) is adjusted by a control system (25) into which a target precompaction degree is entered, as well as paving parameters, such as at least the paving speed (V) and/or the pavement thickness (S), as control variables.

7. The method according to at least one of the preceding claims, **characterized in** that the stroke (H) of the tamper bar (14) is adjusted preferably continuously or in steps, and hydraulically and/or electrically and/or mechanically by an adjusting mechanism (24) arranged between the eccentric shaft (15) and the eccentric bush (23).

8. The method according to at least one of the preceding claims, **characterized in** that a setting angle (α) and/or pavement thickness (S) respectively varying over the pave width of the screed (3) in transverse direction is/are sensed and at least the stroke (H) is adapted individually over the pave width to the transverse variation of the setting angle (α) and/or the pavement thickness (S).

9. A screed (3) for road pavers (1), comprising a compaction unit (13), particularly a tamper (14) with a tamper bar, that is drivable at cyclical work cycles with selectable stroke (H) and selectable frequency (F) for pre-compacting a pavement (6) made from paving material (5), **characterized in** that the compaction unit (13) comprises an adjusting mechanism (24) for the remote-controlled adjustment of the stroke (H) of the compaction unit.

10. The screed according to claim 9, **characterized by** an adjusting mechanism (24) which can be operated hydraulically and/or electrically and/or mechanically, preferably continuously or in steps, preferably during the ongoing paving work.

11. The screed according to claim 9, **characterized in** that an automatic, preferably computerized, control system (25) is provided which is operatively connected to the

adjusting mechanism (24), and into which paving parameters, such as the paving speed (V) and/or the pavement thickness (S) as well as a target precompaction degree producible by the compaction unit, can be entered or in which said parameters can be stored.

12. The screed according to claim 9, **characterized in** that the control system (25) comprises at least one characteristic curve depending on paving parameters for automatically adjusting the stroke (H) in response to the paving parameters.

13. The screed according to claim 11, **characterized in** that the control system (25) comprises a characteristic map depending on paving parameters for automatically adjusting the stroke (H) and the frequency (F) of the work cycles of the compaction unit in response to paving parameters.

14. The screed according to at least one of claims 9 to 13, **characterized in** that the adjusting mechanism (24) is arranged between a rotatingly drivable eccentric shaft (15) in the screed (3) and an eccentric bush (23) which is rotatable on the eccentric shaft (15) in a connecting rod (21) driving the tamper bar (14) at substantially vertical work cycles, in such a manner that the stroke (H) of the tamper bar (14) is adjustable by a relative rotational adjustment between the eccentric bush (23) and the eccentric shaft (15).

15. The screed according to at least one of claims 9 to 13, **characterized in** that the adjusting mechanism (24) is arranged between a rotatingly drivable eccentric shaft (15) in the screed (3) and an eccentric bush (23) which is arranged on the eccentric shaft (15) in a rotationally fixed manner and is displaceable in a direction transverse to the axis of the eccentric shaft (15) and is rotatable in a connecting rod (21) driving the tamper bar (14), in such a manner that the stroke (H) is adjustable by a transverse displacement of the eccentric bush (23) relative to the eccentric shaft (15).

16. The screed according to at least one of claims 9 to 13, **characterized in** that the adjusting mechanism (24) is arranged between a bearing block (16) supporting a rotatingly driven eccentric shaft (15) and an adjusting lever (50) which is articulated to a

connecting rod (21) driving the tamper bar (14) and is adjustable in the bearing block (16'), the adjusting lever (50) and the one push rod (48) drivable by the eccentric shaft (15) being coupled with the connecting rod (21) in a, preferably joint, articulation axis (49).

17. The screed according to claim 14, **characterized in** that in the eccentric shaft (15) a driver (28) which is axially adjustable, preferably electrically and/or hydraulically and/or mechanically adjustable, is supported in a rotationally fixed manner, the driver (28) engaging into a thread-like guide path (31) of the eccentric bush (23) which is rotatably supported on the eccentric shaft (15).

18. The screed according to claim 14, **characterized in** that an axially, preferably electrically and/or hydraulically and/or mechanically, movable adjusting mechanism (33) is arranged in a rotationally fixed manner in the eccentric shaft (15), the adjusting mechanism (33) comprising a rotary type step switching mechanism (35, 36, 34, 37) cooperating with the eccentric bush (23) that is rotatably supported on the eccentric shaft (15).

19. The screed according to claim 14, **characterized in** that the eccentric shaft (15) and the eccentric bush (23) rotatably arranged on the eccentric shaft (32) have provided thereinbetween a clamping mechanism (39, 42) which couples the eccentric bush (23) in a force-fit and/or friction-fit and/or form-fit manner in a rotationally fixed way with the eccentric shaft (15) and that the clamping mechanism is temporarily movable into a release position by a preferably hydraulic axial release mechanism (41) which is supported in the screed (3), in which release position the coupling between the eccentric shaft (15) and the eccentric bush (23) is decoupled and the eccentric shaft (15) and the eccentric bush (23) are rotatable relative to each other.

20. The screed according to claim 13, **characterized in** that the eccentric shaft (15) and the transversely adjustable eccentric bush (23), which is coupled with the eccentric shaft (15) in a rotationally fixed manner, have provided thereinbetween guide blocks (44) which are adjustable in a direction transverse to the eccentric shaft (15) by means of at least one

control rod (46, 46') which is guided in the eccentric shaft (15) in an axially shiftable manner and which are each equipped with an inclined guide surface (45, 47').

21. The screed according to claim 20, **characterized in** that the inclined guide surface (45 and 47', respectively) abuts in an axially movable manner on an inclined ramp (47, 47') either in the eccentric bush (23) or on the control rod (46, 46').

22. The screed according to any one of claims 15, 20 or 21, **characterized in** that the transversely adjustable eccentric bush (23) is cylindrically configured with coaxial inner and outer circumferences and exhibits an eccentric effect with its outer circumference for the connecting rod.

23. The screed according to claim 16, **characterized in** that the bearing block (16') has a straight or arcuate guide path (52) which is engaged by an adjusting-lever pivot abutment (51) which is movable by means of the adjusting mechanism (24) along the guide path (52), and that the direction of extension of the guide path oriented in a direction transverse to the eccentric shaft (15) is at least approximately oriented towards the axis of the eccentric shaft (15), and that preferably the guide path (52) is arranged in relation to the axis of the eccentric shaft (15) and the articulation axis (49) on the connection rod (21) in such a manner that a lower dead center of the work cycle of the tamper bar (14) connected to the connecting rod (21) remains stationary independently of the adjustment of the pivot abutment (51) of the adjusting lever (50) along the guide path (52) in relation to a sole plate (18) mounted on a frame (17) of the screed (3) that is carrying the bearing block (16').

24. A road paver (1) comprising at least one screed (3) mounted on traction bars (8), said traction bars (8) being articulated to the road paver and the articulation points (9) thereof being vertically adjustable with leveling cylinders (10) and the screed (3) comprising a compaction unit (13) having at least one tamper (14) that is operable with selectable stroke (H) and selectable frequency (F), **characterized in** that a computerized control system (25) is provided for automatically adjusting at least the stroke (H) of the tamper

(14) in response to at least one paving parameter by means of control variables generated by the control system (25) and implemented by actuators.

25. The road paver according to claim 24, **characterized in** that sensors (29, 37, 30), preferably a plurality of sensors distributed in or transverse to the paving travel direction, are provided on the road paver (1) and/or the screed (3) and/or the bars (8) for sensing actual paving parameters, such as the setting angle (α) of the screed (3), and are coupled with the control system (25).

26. The road paver according to claim 24, **characterized in** that on the road paver (1) and/or the screed (3) an input and display section (27) is provided on the control system (25) or on a machine controller coupled with the control system (25) for additionally or alternatively setting control variables for at least the stroke (H) and/or the frequency (F), preferably also the setting angle (α).

27. A method for laying down a pavement consisting of paving material on a subgrade with a screed of a road paver substantially as herein described with reference to the foregoing description and the accompanying drawings.

Dated this 12th day of November 2010

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To
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