

alteration of the groove geometry. In the case of a material that is too hard, the frictional engagement between wire and wire guide roll can no longer be ensured, as a result of which the wire web can no longer be optimally set in motion.

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In order to reduce the wear of the coating of a wire guide roll, JP 2006102917 A2 proposes a coating in the form of urethane comprising 5 to 30 percent by weight of silicon carbide grain, such that the coating is significantly harder
10 than just a coating consisting of urethane.

Although a harder coating lengthens the period of time between the renewal of worn grooves, it has the disadvantages mentioned above.

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Embodiments of the present invention seek to provide a method for slicing a multiplicity of wafers from a workpiece by means of a wire saw, wherein the period of time between the renewal of worn grooves of the wire guide rolls is lengthened and the
20 outage times of the wire saw are thus reduced, without having the disadvantages of a material that is too hard for the coating.

In an embodiment, there is provided a method for slicing wafers
25 from a workpiece 3 by means of a sawing wire 2a, wherein the sawing wire 2a forms a wire web 2 comprising a multiplicity of wire sections arranged parallel, said wire web being clamped at least by two wire guide rolls 1, the sawing wire 2a is guided by the at least two wire guide rolls 1 through grooves 4, which
30 have a distance A among one another, in the two lateral surfaces, and each groove 4 has a width C, wherein at least one groove 4a in which no wire 2a is inserted during the wire sawing is present alongside a wire-guiding groove 4 and wherein the width C of the grooves 4 and respectively 4a decreases from
35 the wire inlet side to the wire outlet side.

The invention and preferred embodiments are described in detail below.

alteration of the groove geometry. In the case of a material that is too hard, the frictional engagement between wire and wire guide roll can no longer be ensured, as a result of which the wire web can no longer be optimally set in motion.

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Although a harder coating lengthens the period of time between the renewal of worn grooves, it has the disadvantages mentioned above.

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Therefore, the object of the present invention was to provide a method for slicing a multiplicity of wafers from a workpiece by means of a wire saw, wherein the period of time between the renewal of worn grooves of the wire guide rolls is lengthened and the outage times of the wire saw are thus reduced, without having the disadvantages of a material that is too hard for the coating.

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The object is achieved by means of a method for slicing wafers from a workpiece 3 by means of a sawing wire 2a, wherein the sawing wire 2a forms a wire web 2 comprising a multiplicity of wire sections arranged parallel, said wire web being clamped at least by two wire guide rolls 1, the sawing wire 2a is guided by the at least two wire guide rolls 1 through grooves 4, which have a distance A among one another, in the two lateral surfaces, characterized in that at least one groove 4a in which no wire 2a is inserted during the wire sawing is present alongside a wire-guiding groove 4.

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The invention and preferred embodiments are described in detail below

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Patent claims:

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1. A method for slicing wafers from a workpiece 3 by means of a sawing wire 2a, wherein the sawing wire 2a forms a wire web 2 comprising a multiplicity of wire sections arranged parallel, said wire web being clamped at least by two wire guide rolls 1, 10 the sawing wire 2a is guided by the at least two wire guide rolls 1 through grooves 4, which have a distance A among one another, in the two lateral surfaces, and each groove 4 has a width C, wherein at least one groove 4a in which no wire 2a is inserted during the wire sawing is present alongside a wire-guiding groove 4 and wherein the width C of the grooves 4 and 15 respectively 4a decreases from the wire inlet side to the wire outlet side.

2. The method as claimed in claim 1, wherein the distance A 20 between two grooves 4 is constant over the entire length of the wire guide roll 1.

3. The method as claimed in claim 1, wherein the distance A 25 between two grooves 4 decreases from the wire inlet side to the wire outlet side.

4. The method as claimed in any of claims 1 to 3, wherein once 30 the wire-guiding grooves 4 are worn, the sawing wire 2a is wound over into the closest adjacent groove 4a not yet guiding a sawing wire 2a.

5. The method as claimed in any of claims 1 to 3, wherein once the wire-guiding grooves 4 are used for a first defined number

of sawing processes, the sawing wire 2a is periodically wound over into the closest adjacent groove 4a not yet guiding a sawing wire 2a, and after a second defined number of sawing processes the sawing wire 2a is then wound back into the
5 previously used wire-guiding grooves 4.

Patent claims:

1. A method for slicing wafers from a workpiece 3 by means of a sawing wire 2a, wherein the sawing wire 2a forms a wire web 2 comprising a multiplicity of wire sections arranged parallel, said wire web being clamped at least by two wire guide rolls 1, the sawing wire 2a is guided by the at least two wire guide rolls 1 through grooves 4, which have a distance A among one another, in the two lateral surfaces, wherein at least one groove 4a in which no wire 2a is inserted during the wire sawing is present alongside a wire-guiding groove 4.
2. The method as claimed in claim 1, wherein the distance A between two grooves 4 is constant over the entire length of the wire guide roll 1.
3. The method as claimed in claim 1, wherein the distance A between two grooves 4 decreases from the wire inlet side to the wire outlet side.
4. The method as claimed in any of claims 1 to 3, wherein the width B of the grooves 4 and respectively 4a is identical over the entire length of the wire guide roll 1.
5. The method as claimed in any of claims 1 to 3, wherein the width B of the grooves 4 and respectively 4a decreases from the wire inlet side to the wire outlet side.
6. The method as claimed in any of claims 1 to 5, wherein once the wire-guiding grooves 4 are worn, the sawing wire 2a is wound over into the closest adjacent groove 4a not yet guiding a sawing wire 2a.
7. The method as claimed in any of claims 1 to 5, wherein once the wire-guiding grooves 4 are used for a first defined number of sawing processes, the sawing wire 2a is periodically wound over into the closest adjacent groove 4a

not yet guiding a sawing wire 2a, and after a second defined number of sawing processes the sawing wire 2a is then wound back into the previously used wire-guiding grooves 4.