grooves in an entry region at the key tip running at a high level and in the coding region of first coding positions running in a sunk manner at a lower level, wherein the lateral grooves are suitably shaped, in order to correspond to an additional lateral shoulder extending in the longitudinal and transverse direction to the key axis (x) of an associated cylindrical special tumbler pin and an extended counter pin at the rearmost coding position of the cylinder, so that an additional insertion block acting by means of ~~an~~ the extended counter pin in the entry region and an additional rotation block in the coding region can be carried out by the lateral grooves of the blank and the lateral shoulders of the associated special tumbler pin.

According to a second aspect of the invention, a security key with at least two coding rows / pin rows on the flat sides of the key for an assigned cylinder with tumbler pins and with counter pins of a lock system with an insertion block, acting by means of an extended counter pin is described, the security key is characterised by two parallel lateral grooves, a central groove and a central projecting part between the lateral grooves, and these are formed parallel to the key axis and symmetrically to the central plane of a coding row / pin row, wherein the lateral grooves, the central groove and the central projecting part are extending from the key tip to a coding region of first coding positions, wherein coding recesses are formed at the first coding positions in the region of the central groove in the coding region, and wherein the lateral grooves in an entry region at the key tip running at a high level and in the coding region of the first coding positions running in a sunk manner at a lower level, wherein the lateral grooves are suitably shaped, in order to correspond to an additional lateral shoulder extending in the longitudinal and transverse direction to the key axis of an associated cylindrical special tumbler pin and an extended counter pin at the rearmost coding position of the cylinder, so that an additional insertion block acting by means of ~~an~~ the extended counter pin in the entry region and an additional rotation block in the coding region can be carried out by the lateral grooves of the key and the lateral shoulders of the associated special tumbler pin.

According to a third aspect of the invention, a lock system with security keys with at least two coding rows / pin rows on the flat sides of the key and with assigned cylinders with tumbler pins and with counter pins and with an insertion block, acting by means of an extended counter pin is descibed, the lock system is characterised by keys with two parallel lateral grooves, a central groove and a central projecting part which are formed parallel to the key axis and symmetrically to the central plane of a coding row / pin row, with coding recesses in the region of the central groove at first coding positions, wherein the lateral grooves, the central groove and the central projecting part are extending from the key tip to a coding region of the first coding positions, and said lateral

grooves in an entry region at the key tip running at a high level and in the coding region of the first coding positions running in a sunk manner at a lower level, and with assigned cylinders with a cylindrical special tumbler pin at the rearmost coding position of the cylinder, said special tumbler pin comprising an additional lateral shoulder, which extends in the longitudinal and transverse direction to the key axis, wherein ~~these~~ this lateral shoulders of the special tumbler pin ~~are~~ is shaped such that ~~they~~ it corresponds to the lateral grooves of the key, and wherein in the entry region, the length of the special tumbler pin and an extended counter pin up to the lateral shoulder corresponds to the distance from the cylinder housing up to the lateral groove, and at a first coding position, the length of the special tumbler pin up to the lateral shoulder corresponds to the distance from the shear line up to the lateral groove, with a tolerance region, so that an additional insertion block acting by means of ~~an~~ the extended counter pin, in the entry region and an additional rotation block in the coding region can be carried out with the lateral grooves of the key and with the lateral shoulders of the assigned special tumbler pin.

This new blank block-code system emanates for example from the previous block-code system and additionally comprises new features, characteristics and functions, with which the mentioned objects can be achieved, as shown and explained further also by way of the figures.

PATENT CLAIMS

1. A blank (R) for manufacturing a security key with at least two coding rows / pin rows (Ai) on the flat sides of the key for an assigned cylinder (Z) with tumbler pins (ZH) and with counter pins (GZH) of a lock system with an insertion block, acting by means of an extended counter pin, characterised by
- two parallel lateral grooves (RB-SN) and a central projecting part (RB-M) between the lateral grooves, and which are formed parallel to the key axis (x) and symmetrically to the central plane of a coding row / pin row (A),
- wherein the lateral grooves (RB-SN) and the central projecting part (RB-M) are extending from the key tip to a coding region (RB-P) of first coding positions (P1, P2)
- and said lateral grooves (RB-SN) in an entry region (RB-E) at the key tip running at a high level (N1) and in the coding region (RB-P) of first coding positions (P1, P2) running in a sunk manner at a lower level (N2),
- wherein the lateral grooves (RB-SN) are suitably shaped, in order to correspond to an additional lateral shoulder (RB-ZH-S) extending in the longitudinal and transverse direction to the key axis (x) of an associated cylindrical special tumbler pin (RB-ZH) and an extended counter pin (RB-GZH) at the rearmost coding position (P1, P2) of the cylinder,
- so that an additional insertion block, acting by means of ~~an~~ the extended counter pin (RB-GZH), in the entry region (RB-E) and an additional rotation block in the coding region (RB-P) can be carried out by the lateral grooves (RB-SN) of the blank and the lateral shoulders (RB-ZH-S) of the associated special tumbler pin.

2. A blank according to claim 1, characterised in that the central projecting part RB-M is sunk to a lower level (RB-M(2)) in the coding region (RB-P).

3. A blank according to claim 1 or 2, characterised in that the complete width bg(2) of lateral grooves RB-SN and the central projecting part RB-M on both sides is larger than the width (bcv) of the coding recesses (Cod-V) of the coding row (A) by an amount (bb): bg (2) = bcv + 2 bb.

4. A blank according to one of the preceding claims, characterised in that the width (bm) of the central projecting part RB-M is at least 33% of the complete groove width (bg).

5 A blank according to one of the preceding claims, characterised in that the width (bn) of a lateral groove RB-SN is at least 20% of the complete groove width (bg).

7. A blank according to claim 6, characterised in that the angle Wm is = 10° - 40°.

8. A blank according to one of the preceding claims, characterised in that with an inclined pin plane (A) with an inclination angle Wa > 0, on the inner side, an additional side groove RB-nn adjoins to the lateral groove RB-SN, said side groove forming a supporting surface orthogonal to the coding plane / pin plane (A).

9. A security key with at least two coding rows / pin rows (Ai) on the flat sides of the key for an assigned cylinder (Z) with tumbler pins (ZH) and with counter pins (GZH) of a lock system with an insertion block, acting by means of an extended counter pin, characterised by
- two parallel lateral grooves (RB-SN), a central groove (RB-MN) and a central projecting part (RB-M) between the lateral grooves, and these are formed parallel to the key axis (x) and symmetrically to the central plane of a coding row / pin row (A),
- wherein the lateral grooves (RB-SN), the central groove (RB-MN) and the central projecting part (RB-M) are extending from the key tip to a coding region (RB-P) of first coding positions (P1, P2)
- wherein coding recesses are formed at the first coding positions (P1, P2) in the region of the central groove (RB-MN) in the coding region (RB-P),
- and wherein the lateral grooves (RB-SN) in an entry region (RB-E) at the key tip running at a high level (N1) and in the coding region (RB-P) of the first coding positions (P1, P2) running in a sunk manner at a lower level (N2),
- wherein the lateral grooves (RB-SN) are suitably shaped, in order to correspond to an additional lateral shoulder (RB-ZH-S) extending in the longitudinal and transverse direction to the key axis (x) of an associated cylindrical special tumbler pin (RB-ZH) and an extended counter pin (RB-GZH) at the rearmost coding position (P1, P2) of the cylinder,
- so that an additional insertion block, acting by means of ~~an~~ the extended counter pin (RB-GZH) in the entry region (RB-E) and an additional rotation block in the coding region (RB-P) can be carried out by the lateral grooves (RB-SN) of the key and the lateral shoulders (RB-ZH-S) of the associated special tumbler pin (RB-ZH).

10. A key according to claim 9, characterised in that the coding recesses of the first coding positions (P1, P2) are formed on a sunk central projecting part RB-M(2).

11. A key according to claim 9 or 10, characterised in that the complete width bg(2) of lateral grooves RB-SN and the central groove RB-MN on both sides is larger than the width (bcv) of coding recesses (Cod-V) of the coding row (A) by an amount (bb): bg (2) = bcv + 2 bb.

adjoins to the lateral groove RB-SN, said side groove forming a supporting surface orthogonal to the pin plane (A).

13. A key according to one of the claims 9 to 12, characterised in that RB coding steps Ci* in the coding region are situated higher or more deeply than the standard coding steps (Ci) of the coding row (A) with a correspondingly different length of the assigned tumbler pin RB-ZH.

14. A key according to one of the claims 9 to 13, characterised in that the distance (dN) between the high level (N1) and the lower level (N2) is at least one coding step (dC).

15. A lock system with security keys (S) with at least two coding rows / pin rows (Ai) on the flat sides of the key and with assigned cylinders (Z) with tumbler pins (ZH) and with counter pins (GZH) and with an insertion block, acting by means of an extended counter pin, characterised by

- keys (S) with two parallel lateral grooves (RB-SN), a central groove (RB-MN) and a central projecting part which are formed parallel to the key axis (x) and symmetrically to the central plane of a coding row / pin row (A), with coding recesses in the region of the central groove (RB-MN) at first coding positions (P1, P2),
- wherein the lateral grooves (RB-SN), the central groove (RB-MN) and the central projecting part (RB-M) are extending from the key tip to a coding region (RB-P) of the first coding positions (P1, P2)
- and said lateral grooves (RB-SN) in an entry region (RB-E) at the key tip running at a high level (N1) and in the coding region (RB-P) of the first coding positions (P1, P2) running in a sunk manner at a lower level (N2),
- and with assigned cylinders (Z) with a cylindrical special tumbler pin (RB-ZH) at the rearmost coding position (P1, P2) of the cylinder, said special tumbler pin comprising an additional lateral shoulder (RB-ZH-S), which extends in the longitudinal and transverse direction to the key axis (x),
- wherein ~~these~~ this lateral shoulder~~s~~ (RB-ZH-S) of the special tumbler pin (RB-ZH) ~~are~~ is shaped such that ~~they~~ it correspond~~s~~ to the lateral grooves (RB-SN) of the key,
- and wherein in the entry region (RB-E), the length (ls) of the special tumbler pin (RB-ZH) and an extended counter pin (RB-GZH) up to the lateral shoulder (RB-ZH-S) corresponds to the distance (ds) from the cylinder housing (10) up to the lateral groove (RB-SN),
- and at a first coding position (P1, P2), the length (lz) of the special tumbler pin (RB-ZH) up to the lateral shoulder (RB-ZH-S) corresponds to the distance (dz) from the shear line (9) up to the lateral groove (RB-SN), with a tolerance region (to),
- so that an additional insertion block, acting by means of ~~an~~ the extended counter pin (RB-GZH), in the entry region (RB-E) and an additional rotation block

in the coding region (RB-P) can be carried out with the lateral grooves (RB-SN) of the key and the lateral shoulders (RB-ZH-S) of the assigned special tumbler pin (RB-ZH).