Claims

1. A cross-sectional profile (1) for a flat key or the keyway of a cylinder lock, comprising a back surface (2), a first lateral surface (4) and a second lateral surface (4'), wherein
    a. the lateral surfaces (4, 4') extend in the vertical direction to the back surface (2),
    b. the lateral surfaces (4, 4') are arranged offset to one another by a distance (5), which optionally varies along their extension,
    c. the outline of the cross-sectional profile (1) defines a preferably substantially rectangular base profile (6),
    d. the lateral surfaces (4, 4') each extend at least in sections along sinusoidal profiling lines (7, 7'), and wherein
    e. the centerlines (8, 8') of the profiling lines (7, 7') lie within the base profile (6),

    characterized in that the centerlines (8, 8') of the profiling lines (7, 7')
    f. extend at an angle α to the center plane (22) of the base profile (6), which is preferably approximately 5°, and
    g. linearly approach one another along their extension from the back surface (2).

2. The cross-sectional profile (1) according to claim 1, characterized in that, in addition to the profiling lines (7, 7'), any number N, preferably two, of sinusoidal variation lines (9, 9'), which intersect the profiling lines (7, 7'), are provided, wherein
    a. for forming variation ribs (10, 10'), the lateral surfaces (4, 4') extend at least in sections along one of the variation lines (9, 9'), and
    b. the centerlines of the variation lines (9, 9') lie within the base profile (6), and
    c. the variation lines (9, 9') are offset by a phase offset of about 360°/N, particularly preferably about 180°.

3. The cross-sectional profile (1) according to claim 2, characterized in that

a. for forming first variation ribs (10), a number N1, preferably two, of sinusoidal first variation lines (9) are provided on the first lateral surface (4), which are offset by a phase offset of about 360°/N1, particularly preferably about 180°, and
b. for forming second variation ribs (10'), a number N2, preferably two, of sinusoidal second variation lines (9') are provided on the second lateral surface (4'), which are offset by a phase offset of about 360°/N2, particularly preferably about 180°.

4. The cross-sectional profile (1) according to ~~one of~~ claim~~s~~ ~~1~~2 ~~to~~or 3, characterized in that the centerlines (12, 12') of the variation lines (9, 9') coincide and lie in the center plane (22) of the base profile (6).

5. The cross-sectional profile (1) according to any one of claims ~~1~~2 to 4, characterized in that the centerlines (12, 12') of the variation lines (9, 9') lie outside the center plane (22) of the base profile (6).

6. The cross-sectional profile (1) according to claim 5, characterized in that the centerlines (12, 12') of the variation lines (9, 9')
   a. extend at an angle β to the center plane (22) of the base profile (6), which is preferably approximately 5°, and
   b. linearly diverge in their extension from the back surface (2).

7. The cross-sectional profile (1) according to any one of claims ~~1~~2 to 6, characterized in that the profiling lines (7, 7') and the variation lines (9, 9') have substantially the same period duration T.

~~8. The cross-sectional profile (1) according to one of claims 1 to 7, characterized in that the amplitude of the profiling lines (7, 7') is at least half the distance (5) of the lateral surfaces (4, 4').~~

~~9~~8. The cross-sectional profile (1) according to any one of claims ~~1~~2 to ~~8~~7, characterized in that the profiling lines (7, 7') and the variation lines (9, 9') have substantially the same amplitude.

~~10~~9. The cross-sectional profile (1) according to any one of claims ~~1~~2 to ~~8~~7, characterized in that the profiling lines (7, 7') and the variation lines (9, 9') have a different amplitude at least in sections.

10. The cross-sectional profile (1) according to any one of claims 1 to 9, characterized in that the amplitude of the profiling lines (7, 7') is at least half the distance (5) of the lateral surfaces (4, 4').

11. A flat key (16) with a cross-sectional profile (1) according to any one of claims 1 to 10, comprising two longitudinally profiled key lateral surfaces (17, 17'), which extend at least in sections along the profiling lines (7, 7') and optionally ~~the~~ variation lines (9, 9') of the cross-sectional profile (1), a key back surface (18) and an optionally encoded key front surface (19).

12. The flat key (16) according to claim 11, characterized in that the flat key (16) has a key bow (20) and a key tip (21), wherein the amplitudes of the profiling lines (7, 7') and the variation lines (9, 9') are smaller in the area of the key tip (21) than in the area of the key bow (20), in particular smaller by ~~about~~ 20 % to 80 %.

13. The flat key (16) according to claim 11 or 12, characterized in that the amplitudes of the profiling lines (7, 7') and the variation lines (9, 9') are in sections reduced by in particular ~~about~~ 20 % to 80 % in the area between the key tip (21) and the key bow (20), preferably in the area of scanning positions at which a code is provided for being read in the associated cylinder lock.

14. A cylinder lock with a keyway (13) for receiving a flat key (16) according to any one of claims 11 to 13, comprising two lateral surfaces, which extend at least in sections along the profiling lines (7, 7') and optionally the variation lines (9, 9') of the cross-sectional profile (1).

15. The cylinder lock according to claim 14, characterized in that at least one lateral surface has a trapping calotte (14), which is designed as a sinusoidal undercut around a baseline (15, 15'), the baseline (15, 15') optionally extending along the profiling line (7, 7') and/or variation line (9, 9') of the lateral surface.

16. The cylinder lock according to claim 15, characterized in that the baseline (15, 15') extends at an angle of ~~about~~ 60° to ~~about~~ 90° to the central plane (22) of the base profile (6) of the cross-sectional profile (1).

17. The cylinder lock according to any one of claims 14 to 16, characterized in that, for reading codes on the key front surface (19) of a flat key (16) according to any one of claims ~~13~~ 11 to ~~15~~13, at least one core pin (23) is provided, which is of hip-shaped design at its end projecting into the keyway (13) and has a scanning surface (24), which is designed symmetrically or optionally asymmetrically to the longitudinal axis (25) of the substantially cylindrical base body of the core pin (23).

18. The cylinder lock according to claim 17, characterized in that the scanning surface (24) extends linearly substantially along the entire diameter of the cylindrical base body.

19. The cylinder lock according to claim 17, characterized in that the scanning surface (24) extends linearly along a section of the diameter of the cylindrical base body.

20. A locking system, comprising one or more flat keys (16) according to any one of claims 11 to 13 and one or more cylinder locks according to any one of claims 14 to 19.

21. The locking system according to claim 20, characterized in that
    a. the flat key (16) has a cross-sectional profile (1) in which the centerlines (12, 12') of the variation lines (9, 9') lie outside the center plane (22) of the base profile (6), and
    b. the cylinder lock comprises at least one core pin (23), which is of hip-shaped design at its end projecting into the keyway (13) in order to scan codes of the flat key (16) which lie outside the center plane (22) of the base profile (6).

22. The locking system according to claim 20 or 21, comprising multiple flat keys (16) and multiple cylinder locks, characterized in that a locking hierarchy is formed by designing the cross-sectional profiles (1) of the flat keys (16) and the cross-sectional profiles (1) of the keyways (13) differently and hierarchically.