CLAIMS

1. A tile spacer and levelling system comprising:

(a) a tile spacer comprising: a base for engaging a bottom surface of each of four adjacent tiles to be spaced and levelled; a stem projecting upward from the base, the stem comprising: a tile alignment portion having a cross-shaped profile; a frangible portion located between the base and the tile alignment portion, a plurality of teeth located above the tile alignment portion, and one or more ribs located at or above the plurality of teeth;

(b) a tile leveller for engaging a top surface of the four adjacent tiles, the tile leveller comprising an aperture for receiving the stem portion of the tile spacer, a ratchet mechanism such that the tile leveller is restricted to only move downward along the stem toward the base, a stem engaging portion comprising one or more projections for engaging with the plurality of teeth of the stem portion, wherein at least one of the projections and teeth are resilient and orientated to allow one way movement of the stem with respect to the stem engaging portion;

(c) a levelling hand tool comprising a stem receiving portion comprising a pair of laterally movable opposed grips for engaging and gripping the ribs of the stem, with each grip being laterally moveable and each grip including teeth for locating in gaps between the ribs of the stem of the tile spacer, a tile leveller engaging portion, a trigger, and a trigger mechanism;

wherein, in use, the tile spacer is located at the intersection of the four adjacent tiles such that the base is located beneath the four adjacent tiles, and each tile abuts a corner of the alignment portion so as to space the four adjacent tiles at a predetermined distance with respect to each other; and

wherein, in use, the four adjacent tiles are levelled by applying a clamping force on the four adjacent tiles between the base and the tile leveller, to simultaneously level the four adjacent tiles; and

wherein, in use, actuating the trigger of the levelling hand tool causes the stem receiving portion to be pulled inward with respect to the tile leveller engaging portion so that the pair of laterally movable opposed grips actuation of the trigger engage and grip the ribs of the stem and cause the application of the clamping force and levelling of the tiles.

2. The tile spacer and levelling system as claimed in claim 1, wherein the levelling hand tool further comprises a height adjustable stop that in use allows a user to set the maximum height difference between the tile leveller engaging portion and the stem receiving portion when the trigger is actuated.

3. The tile spacer and levelling system as claimed in claim 2, wherein the levelling hand tool further comprises a barrel, an internal sliding member located within the barrel, a grip and a cap, wherein the forward end of the barrel forms the tile leveller engaging portion, and the rear end of the barrel comprises

a threaded aperture, and the cap comprises a threaded shaft that screws into and extends through the threaded aperture and the end of the shaft forms the stop, and the stem receiving portion is located at a forward end of the internal sliding member and is pivotally connected to the trigger, and the trigger is pivotally connected to the grip that is connected to the barrel, such that actuation of the trigger causes the internal sliding member to slide rearward within the barrel until it hits the stop, and the height of the stop relative to the forward end of the barrel is adjustable by screwing the cap, wherein screwing the cap in one direction adjusts the stop inward along the axis of the barrel and screwing the cap in the opposite direction adjusts the stop outward along the axis of the barrel.

4. The tile spacer and levelling system as claimed in any one of the preceding claims, wherein the tile leveller comprises (a) a wheel member having a flat lower surface that, in use, engages the top surface of the four adjacent tiles, (b) a central portion comprising the aperture and the stem engaging portion, and (c) a plurality of struts that connect the wheel member to the central portion.

5. The tile spacer and levelling system as claimed in any one of the preceding claims, wherein the tile spacer and tile leveller are injection moulded components.

6. The tile spacer and levelling system as claimed in claim 5, wherein the tile spacer is constructed of a translucent or transparent plastic.

7. A tile spacer for use in the tile spacer and levelling system claimed in any one of the preceding claims, the tile spacer comprising:

a base for engaging a bottom surface of each of four adjacent tiles to be spaced and levelled;

a stem projecting upward from the base, the stem comprising:

a tile alignment portion having a cross-shaped profile;

a frangible portion located between the base and the tile alignment portion; and

wherein, in use, the tile spacer is located at the intersection of the four adjacent tiles such that the base is located beneath the four adjacent tiles, and each tile abuts a corner of the alignment portion so as to space the four adjacent tiles at a predetermined distance with respect to each other; and

wherein, in use, the four adjacent tiles are levelled by applying a clamping force on the four adjacent tiles between the base and a tile leveller, to simultaneously level the four adjacent tiles.

8. A tile leveller for use in the tile spacer and levelling system claimed in any one of claims 1 to 6, the tile leveller for engaging a top surface of the four adjacent tiles, and comprising an aperture for receiving the stem portion of a tile spacer and a ratchet mechanism such that the tile leveller is restricted to only move downward along the stem toward a base of a tile spacer;

wherein, in use, the tile spacer is located at the intersection of the four adjacent tiles such that the base is located beneath the four adjacent tiles, and each tile abuts a corner of the alignment portion so as to space the four adjacent tiles at a predetermined distance with respect to each other; and

wherein the four adjacent tiles are levelled by applying a clamping force on the four adjacent tiles between the base and the tile leveller, to simultaneously level the four adjacent tiles.

9. A levelling hand tool for use in the tile spacer and levelling system claimed in any one of claims 1 to 6, the levelling hand tool comprising:

a barrel, an internal sliding member located within the barrel, a grip and a cap, wherein the forward end of the barrel forms a tile leveller engaging portion, and the rear end of the barrel comprises a threaded aperture, and the cap comprises a threaded shaft that screws into and extends through the threaded aperture and the end of the shaft forms a stop, and a stem receiving portion is located at a forward end of the internal sliding member and is pivotally connected to a trigger, and the trigger is pivotally connected to the grip that is connected to the barrel, such that actuation of the trigger causes the internal sliding member to slide rearward within the barrel until it hits the stop, and the height of the stop relative to the forward end of the barrel is adjustable by screwing the cap, wherein screwing the cap in one direction adjusts the stop inward along the axis of the barrel and screwing the cap in the opposite direction adjusts the stop outward along the axis of the barrel.

10. A method for spacing and levelling tiles using the system of claim 2, the method comprising:

locating a base of the tile spacer under a first tile and an adjacent second tile;

laying a further two adjacent tiles;

spacing the four adjacent tiles using a tile alignment portion on a stem of the tile spacer;

inserting a tile leveller over the stem of the tile spacer;

setting a stop of a levelling hand tool to a first setting to set a separation distance between a forward end of the levelling hand tool and the stop;

placing the levelling hand tool over the stem and actuating a trigger of the levelling hand tool to pull the stem into the levelling hand tool and thus to force the forward end of the levelling hand tool to engage with tile leveller and force the tile leveller down the stem and against the top of the tiles so as clamp the tiles between the base and the tile leveller so as to level the tiles, until the stop prevents further movement of the stem into the levelling hand tool;

removing the levelling hand tool from the stem;

leaving the tiles in a levelled state for a period of time;

adjusting the stop to increase the separation distance relative to the first setting;

placing the levelling hand tool over the stem and actuating the trigger to pull the stem into the levelling hand tool and to force to the tile leveller and against the top of the tiles to force the frangible portion to break; and

removing the stem of the spacer and the tile leveller.