WHAT IS CLAIMED IS:

1. A build plate-clamping assembly 500, comprising:

a work station 200 having a build plate-receiving surface 202; and

a lock-pin 204 extending from the build plate-receiving surface 202 of the work station 200, the lock-pin 204 comprising:

a hollow pin body 400;

a piston 402 disposed within the hollow pin body 400, the piston 402 axially movable from a retracted position 502 to an actuated position 504;

a plurality of detents 206, the plurality of detents 206 radially extensible through respective ones of a plurality of detent-apertures 406 in the hollow pin body 400 responsive to the piston 402 having been axially moved to the actuated position 504; and

a flushing channel defining a pathway for a fluid to flush debris from the lock-pin, wherein the flushing channel traverses helically along the piston and/or helically along an inner surface of the hollow pin body.

2. The build plate-clamping assembly 500 of claim 1, comprising:

a wedging element 408 disposed within the hollow pin body 400 between the piston 402 and the plurality of detents 206, the wedging element 408 comprising a sloped or curved surface that slidably translates an axial movement of the piston 402 to a radial extension of the plurality of detents 206 responsive to the piston 402 having been axially moved to the actuated position 504.

3. The build plate-clamping assembly 500 of claim 2, wherein the detents 206 have a spherical shape; and/or wherein the wedging element 408 has a spherical shape.

4. The build plate-clamping assembly 500 of claim 1, wherein the piston 402 comprises a pneumatic piston 402 actuable by a pneumatic fluid 512.

5. The build plate-clamping assembly 500 of claim 1, wherein the lock-pin 204 comprises a flushing fluid supply line configured to supply fluid to the flushing channel 414, wherein the flushing channel and the flushing fluid supply line are configured to align and thereby fluidly communicate with one another when the piston moves to a retracted position and/or when the piston moves to an actuated position.

6. The build plate-clamping assembly 500 of claim 5, wherein the plurality of detent-apertures 406 are in fluid communication with the flushing channel 414 so as to allow the fluid 512 to flush debris from the lock-pin 204 through the plurality of detent-apertures 406.

7. The build plate-clamping assembly 500 of claim 5, comprising:

one or more flushing apertures 416 disposed about the hollow pin body 400, the one or more flushing apertures 416 in fluid communication with the flushing channel 414 so as to allow the fluid 512 to flush debris from the lock-pin 204 through the one or more flushing apertures 416.

8. The build plate-clamping assembly of claim 7, comprising

at least one of the one or more flushing apertures disposed at an axial end of the hollow pin body.

9. The build plate-clamping assembly of claim 7, wherein the one or more flushing apertures comprises a plurality of flushing apertures disposed about at least one of the plurality of detent-apertures.

10. The build plate-clamping assembly 500 of claim 1, comprising:

a build plate 118 configured to be clamped to the work station 200 at least in part by the lock-pin 204, the build plate 118 comprising a socket 300 having an inside surface 304 defining an engagement surface 506 for the plurality of detents 206 to lockingly engage the lock-pin 204 with the socket 300.

11. The build plate-clamping assembly 500 of claim 10, wherein the build plate 118 comprises a socket-receiving recess 302 configured to receive the socket 300, the socket 300 comprising an outside surface corresponding to the socket-receiving recess 302.

12. The build plate-clamping assembly 500 of claim 11, wherein the build plate 118 comprises a socket bolt-receiving bore 306 intersecting the socket-receiving recess 302, the socket bolt-receiving bore 306 configured to receive a socket locking-bolt 308 insertable therein, wherein the outside surface of the socket 300 comprises a socket bolt-engaging channel 310 aligning with the intersecting socket bolt-receiving bore 306, the socket 300 being lockingly engageable with the build plate 118 at least in part by the socket locking-bolt 308 having been inserted into the socket bolt-receiving bore 306 and engaging with the socket bolt-engaging channel 310.

13. The build plate-claiming assembly of claim 11, wherein the build plate comprises a first socket bolt-receiving bore intersecting a first side of the socket-receiving recess and a second socket bolt-receiving bore intersecting a second side of the socket-receiving recess, the first socket bolt-receiving bore configured to receive a first socket locking-bolt insertable therein and a second socket bolt-receiving bore configured to receive a second socket locking-bolt insertable therein, wherein first socket bolt-receiving bore and the second socket-bolt receiving bore align with a socket bolt-engaging channel on the outside surface of the socket, the socket being lockingly engageable with the build plate at least in part by the first socket locking-bolt having been inserted into the first socket bolt-receiving bore and engaging with the socket bolt-engaging channel and/or the second socket locking-bolt having been inserted into the second socket bolt-receiving bore and engaging with the socket bolt-engaging channel.

14. The build plate-clamping assembly of claim 11, wherein the build plate comprises one or more socket bolts respectively inserted into a corresponding one or more socket bolt-receiving bores, the one or more socket bolt-receiving bores intersecting the socket-receiving recess, wherein the socket comprises a socket bolt-

engaging channel disposed about at least a portion of an outer surface of the respective socket, the one or more socket bolts lockingly engaging with the socket bolt-engaging channel.

15. A method working on workpieces 116 at multiple work stations 200, the method comprising:

lockingly engaging a build plate 118 at a first work station 200, the first work station 200 having a first lock-pin 204 extending from a first build plate-receiving surface 202, and the build plate 118 comprising a socket 300 configured to lockingly engage with the first lock-pin 204;

performing a first work-step on a plurality of workpieces 116 secured to the build plate 118;

releasing the build plate 118 from the first work station 200;

lockingly engaging the build plate 118 at a second work station 200, the second work station 200 having a second lock-pin 204 extending from a second build plate-receiving surface 202, and the socket 300 of the build plate 118 configured to lockingly engage with the second lock-pin 204; and

performing a second work-step on the plurality of workpieces 116 secured to the build plate 118;

wherein the first lock-pin comprises: a first hollow pin body, a first piston disposed within the first hollow pin body, the first piston axially movable from a first retracted position to a first actuated position, and a first plurality of detents, the first plurality of detents radially extensible through respective ones of a first plurality of detent-apertures in the first hollow pin body responsive to the first piston having been axially moved to the first actuated position;

wherein the second lock-pin comprises: a second hollow pin body, a second piston disposed within the second hollow pin body, the second piston axially movable from a second retracted position to a second actuated position, and a second plurality of detents, the second plurality of detents radially extensible through respective ones of a second plurality of detent-apertures in the second hollow pin body responsive to the second piston having been axially moved to the second actuated position; and

wherein the method comprises at least one of:

flushing debris from the first lock-pin before, during, and/or after lockingly engaging the build plate at the first work station, the first lock-pin comprising a first flushing channel defining a first pathway for fluid to flush debris from the first lock-pin, and wherein the first flushing channel traverses helically along the first piston and/or helically along an inner surface of the first hollow pin body, and

flushing debris from the second lock-pin before, during, and/or after lockingly engaging the build plate at the second work station, the second lock-pin comprising a second flushing channel defining a second pathway for fluid to flush debris from the second lock-pin, and wherein the second flushing channel traverses helically along the second piston and/or helically along an inner surface of the second hollow pin body.

16. The method of claim 15, wherein:

the first work-step comprises obtaining with a vision system 102, one or more digital representations of a workpiece-interface 120 of each of the plurality of workpieces 116; and/or

the second work-step comprises additively printing on the workpiece-interface 120 of the plurality of workpieces 116.

17. The method of claim 15, wherein:

the first work-step comprises preparing a workpiece-interface 120 on the plurality of workpieces 116; and/or

the second work-step comprises obtaining with a vision system 102, one or more digital representations of the workpiece-interface 120 of the plurality of workpieces 116.

18. The method of claim 17, comprising:

releasing the build plate 118 from the second work station 200;

lockingly engaging the build plate 118 at a third work station 200, the third work station 200 having a third lock-pin 204 extending from a third build plate-receiving surface 202, and the socket 300 of the build plate 118 configured to lockingly engage with the third lock-pin 204; and

performing a third work-step on the plurality of workpieces 116 secured to the build plate 118, wherein the third work-step comprises additively printing on the workpiece-interface 120 of the plurality of workpieces 116.

19. The build plate-clamping assembly of claim 1, wherein the lock-pin comprises:

a plurality of flushing apertures disposed about respective ones of the plurality of detent-apertures, the plurality of flushing apertures in fluid communication with the flushing channel.

20. A build plate-clamping assembly, comprising:

a work station having a build plate-receiving surface; and

a lock-pin extending from the build plate-receiving surface of the work station, the lock-pin comprising:

a hollow pin body;

a piston disposed within the hollow pin body, the piston axially movable from a retracted position to an actuated position;

a plurality of detents, the plurality of detents radially extensible through respective ones of a plurality of detent-apertures in the hollow pin body responsive to the piston having been axially moved to the actuated position;

a flushing channel defining a pathway for a fluid to flush debris from the lock-pin; and

a flushing fluid supply line configured to supply fluid to the flushing channel; wherein the flushing channel and the flushing fluid supply line are configured to align and thereby fluidly communicate with one another when the piston moves to a retracted position and/or when the piston moves to an actuated position.