CLAIMS

1. A compact tube sealer for sealing a polymeric tube, the tube sealer comprising:
   clamping jaws comprising a fixed jaw and a movable jaw movable between a rest position where the tube may be placed or removed from between the clamping jaws and an activated position where the tube is diametrally compressed between the clamping jaws;
   an energy generator provided to raise a temperature of the tube to its melting point when the movable jaw is in the activated position, the energy generator comprising one of: a radio frequency (RF) generator to provide RF through the tube via the clamping jaws, and heating elements to heat the clamping jaws and consequently the tube;
   a lever to actuate movement of the movable jaw from the rest position to the activated position when the lever is depressed;
   a resilient member biased against movement of the movable jaw towards the fixed jaw so as to return the movable jaw from the activated position to the rest position when the lever is released;
   a handgun on which the clamping jaws, the lever, the resilient member and at least part of the energy generator are provided;
   a portable control unit to house control circuitry of the energy generator; and
   a detachable cable, wherein the handgun is connectable to the portable control unit via the detachable cable.

2. The compact tube sealer of claim 1, further comprising a female port provided on a first side of the tube sealer and a male port provided on a second side of the tube sealer opposite the first side, the female port of one unit of the tube sealer and the male port of another unit of the tube sealer configured to releasably engage each other to allow multiple identical units of the tube sealer to be connected side by side, thereby allowing a single tube to be laid between the clamping jaws of the multiple units of the tube sealer for simultaneous sealing of the single tube at fixed intervals apart.

3. The compact tube sealer of claim 1 or claim 2,

wherein the movable jaw has a pin hook provided below a clamping surface of the movable jaw, wherein the lever comprises a lever pin fixedly provided on the lever to rotatably engage the pin hook, wherein bias action of the resilient member keeps the pin hook in engagement with the lever pin, wherein the lever pin is provided between a pivoting end of the lever and a free end of the lever;

wherein the pivoting end of the lever is provided with a slot to pivotably and translatably engage a fixed pivot provided on the handgun, a first end of the slot being nearer the pivoting end and a second end of the slot being nearer the free end;

wherein moving the movable jaw towards the fixed jaw against the bias of the resilient member without depressing the lever disengages the pin hook from the lever pin to allow movement of the lever to a disengaged position via translation of the slot relative to the fixed pivot; and wherein when the lever is in the disengaged position, the lever pin is moved away from the pin hook to allow removable of the movable jaw from the handgun.

4. The compact tube sealer of claim 2 or claim 3 when dependent on claim 2, further comprising a charging dock having a charging case for placing the portable control unit therein for charging and a handgun support for placing the handgun therein.

5. The compact tube sealer of claim 4, wherein the female port is provided on a first side of the charging dock and the male port is provided on a second side of the charging dock opposite the first side, and wherein the clamping jaws are provided on a third side of the charging dock between the first side and the second side when the handgun is placed in the handgun support.

6. The compact tube sealer of claim 4 or claim 5, wherein the handgun support is provided above the charging case.

7. The compact tube sealer of any one of claims 4 to 6, wherein the charging dock includes an external lever arm movable to actuate depression of the lever.

8. The compact tube sealer of any one of claims 1 to 7, wherein the portable control unit houses an internal battery or battery pack for powering the energy generator.

9. The compact tube sealer of any one of claims 1 to 8, further comprising a sling pouch provided to carry the portable control unit about.

10. The compact tube sealer of any one of claims 1 to 9, wherein the energy generator comprises a RF generator control circuit provided in the portable control unit in connection with a RF transmission circuit board provided in the handgun, the RF generator control circuit provided to generate RF energy and the RF transmission circuit board provided to transmit the generated RF energy to the clamping jaws, wherein the clamping jaws serve as electrodes through which the generated RF energy is passed through the tube when the tube is diametrally compressed between the clamping jaws.

11. The compact tube sealer of any one of claims 1 to 9, wherein the energy generator comprises a temperature and timer controller circuit board provided in the portable control unit in connection with a heater driver circuit board provided in the handgun and heating elements and thermal sensors provided in the clamping jaws, wherein the heater driver circuit board is provided to turn on and off the heating elements under the control of the temperature and timer controller circuit board.

12. The compact tube sealer of any one of the preceding claims, further comprising a bushing provided in a fixed position relative to the fixed jaw and an adjustment screw in threaded engagement with the bushing, wherein the adjustment screw is attached to the movable jaw such that rotating the adjustment screw within the fixed bushing translates the movable jaw relative to the fixed jaw to allow adjustment of spacing between the fixed jaw and the movable jaw.

13. The compact tube sealer of any one of the preceding claims, wherein the portable control unit further includes a power connector port for connection with the handgun via the detachable cable.

14. The compact tube sealer of claim 8 or any one of claims 9 to 13 when dependent on claim 8, wherein the portable control unit comprises a power button, and a power supply input port for charging the internal battery or battery pack.

15. The compact tube sealer of any one of claims 1 to 13, wherein the portable control unit comprises a power button, temperature and timer adjustment knobs, a display panel to indicate a selected temperature, and a buzzer configured to sound when a selected time duration has elapsed.