What is claimed is:

1. A heat storage device comprising:

a heat storage tank having a receiving space;

a heat conduction unit, a part of which is mounted in the receiving space of the heat storage tank; and

at least one heat storage material is filled in the receiving space of the heat storage tank and the heat storage material is selected from metal, sand and crushed stone, brick clay, cement, cinder, shell or their combinations.

2. The device as claimed in claim 1, wherein a wall of the heat storage tank includes an outer wall and an inner wall while a sandwich space is formed between the inner wall and the outer wall; the sandwich space is disposed with heat insulation material.

3. The device as claimed in claim 2, wherein the heat insulation material is selected from calcium silicate board, calcium oxide, an object of magnesium oxide or construction waste with heat insulation property, or their combinations.

4. The device as claimed in claim 1, wherein the heat conduction unit includes a heat conductor and a heat exchanger; a part of the heat conductor and a part of the heat exchanger are mounted in the receiving space and are in contact with each other; another part of the heat conductor extending out of the heat storage tank is connected to a heat source while another part of the heat exchanger extending out

of the heat storage tank forms a heat supply segment; the heat supply segment is connected to an object to be heated.

5. The device as claimed in claim 4, wherein both the heat conductor and the heat exchanger are tubes filled with fluid therein.

6. The device as claimed in claim 4, wherein the heat source is a light gathering cup having a concave surface and an upward opening; a light gathering point is formed on a center of the heat source and a connection part is arranged under the light gathering point; the connection part is connected to the heat conductor.

7. The device as claimed in claim 1, wherein the heat storage material is a physical object whose diameter is less than thirty centimeters.

8. The device as claimed in claim 1, wherein the heat storage tank is a vacant container.

What is claimed is:

1. A heat storage device comprising:

   a heat storage tank having a receiving space, a sandwich space being formed between an inner wall and an outer wall thereof, and a heat insulation material disposed within the sandwich space;

   a heat conduction unit, a part of which is mounted in the receiving space of the heat storage tank;

   at least one heat storage material is filled in the receiving space of the heat storage tank and the heat storage material is selected from metal, sand and crushed stone, brick clay, cement, cinder, shell or their combinations; and wherein the heat conduction unit includes a heat conductor and a heat exchanger; a part of the heat conductor and a part of the heat exchanger are mounted in the receiving space and are in contact with each other; another part of the heat conductor extending out of the heat storage tank is connected to a heat source while another part of the heat exchanger extending out of the heat storage tank forms a heat supply segment; the heat supply segment is connected to an object to be heated.
2. The device as claimed in claim 1, wherein the heat insulation material is selected from calcium silicate board, calcium oxide, an object of magnesium oxide or construction waste with heat insulation property, or their combinations.
3. The device as claimed in claim 2, wherein both the heat conductor and the heat exchanger are tubes filled with fluid therein.

4. The device as claimed in claim 2, wherein the heat source is a light gathering cup having a concave surface and an upward opening; a light gathering point is formed on a center of the heat source and a connection part is arranged under the light gathering point; the connection part is connected to the heat conductor.