An object of the present invention is to provide versatility within one device during the process of opening and closing the lid. The device for opening and closing lids on containers compensates for the weight of the lid in order to ensure that the impact of the lid against the container is controlled.

More specifically, an object of the present invention is to provide a lid-opening and closing device which has resilient means for compensating for the weight of the lid depending on the mass and position thereof.

In order to achieve this, an aspect of the present invention discloses a container comprising a lid and a device for opening and closing container lids in order to control the movement of a lid during the opening and closing thereof, said device comprising: a fixed structure which is connected to the container; a common rotary shaft that hinges the lid to the fixed structure; characterized by a spring which generates a force on the lid, the magnitude of which varies according to the relative position of the lid; and, the lid receiving the force of the spring at a point that is remote from the common rotary shaft, which is arranged such that the force exerted by the spring compensates for the weight of the lid, wherein the container further comprises: two screws, screwed into an upper portion of a handle, such that said screws pass through the fixed structure; said screws being configured to allow an oscillating movement of the handle and of a bar with respect to the fixed structure.

Preferably, the resilient means is connected to the fixed structure by means of a hinge which allows the force of the resilient means to be transferred to said fixed structure and moreover allows said resilient means to tilt. More preferably, the resilient means is connected to the lid by means of a hinge which allows said resilient means to tilt.

Preferably, the device comprises a movable structure which is connected to the lid and hinged to the fixed structure by means of the common rotary shaft, such that rotation of said movable structure about said common rotary shaft is possible.

Preferably, the device comprises a bar that is hinged with respect to the movable structure and with respect to the fixed structure, the longitudinal axis of the bar coinciding with the longitudinal axis of the resilient means, such that said hinge between the bar and the movable structure moves in a circular manner with respect to the common shaft during movement of the lid.

Preferably, the resilient means is arranged between the fixed structure and a retaining nut, such that when the lid makes an opening or closing movement, the movable structure rotates about the common rotary shaft causing a change in the length of the resilient means.

Preferably, the common rotary shaft is a first bolt or long bolt that hinges the movable structure and the fixed structure, whereas the hinge between the movable structure and the bar is a second bolt, also referred to as the short bolt.

Preferably, a recess in the fixed structure has a shape that matches the travel of the short bolt, thus allowing said bolt to be received, such that when the lid has reached the open position, one end of the short bolt contacts a wall of the recess, stopping the opening movement of the lid.

CLAIMS

1. A container comprising a lid and a device for opening and closing container lids in order to control the movement of a lid during opening or closing thereof, said device comprising:

a) a fixed structure which is connected to the container;

b) a common rotary shaft that hinges the lid to the fixed structure;

characterized by

c) a spring which generates a force on the lid, the magnitude of which varies according to the relative position of the lid; and

the lid receiving the force of the spring at a point that is remote from the common rotary shaft, which is arranged such that the force exerted by the spring compensates for the weight of the lid,

wherein the container further comprises:

d) two screws, screwed into an upper portion of a handle, such that said screws pass through the fixed structure;

said screws being configured to allow an oscillating movement of the handle and of a bar with respect to the fixed structure.

2. Container according to any one of the preceding claims, characterised in that the spring is connected to the fixed structure by means of a hinge.

3. Container according to any one of the preceding claims, characterised in that the spring is connected to the lid by means of a hinge.

4. Container according to any one of the preceding claims, characterised in that it comprises a movable structure which is connected to the lid and hinged to the fixed structure by means of the common rotary shaft.

5. Container according to claim 4, characterised in that it comprises a bar that is hinged with respect to the movable structure and with respect to the fixed structure, the longitudinal axis of the bar coinciding with the longitudinal axis of the resilient means.

6. Container according to claims 4 and 5, characterised in that the spring is arranged between the fixed structure and a retaining nut, such that when the lid makes an opening or closing movement, the movable structure rotates about the common rotary shaft causing a change in the length of the spring.

7. Container according to claims 4 to 6, characterised in that the common rotary shaft is a first bolt that hinges the movable structure and the fixed structure, whereas the hinge between the movable structure and the bar is a second bolt.

8. Container according to any one of the preceding claims, characterised in that a recess in the fixed structure has a shape that matches the travel of the second bolt, thus allowing said bolt to be received, such that when the lid has reached the open position, one end of the second bolt contacts a wall of the recess.

9. Container according to any one of the preceding claims, characterised in that one end of the fixed structure is at a substantially lower height than the position of an upper corner of the recess in the fixed structure, such that said end acts as a stop against the lid in the open position.

10. Container according to any one of the preceding claims, characterised in that it comprises the handle, the longitudinal axis thereof coinciding with the longitudinal axis of the spring.

11. Container according to claims 4 to 10, characterised in that an upper portion of the handle connects at the top to the bar by means of at least one fixing sleeve and at the bottom to the upper portion of the spring, such that the force exerted by the spring is received by the upper portion of the handle, transferring said force in turn to the bar, which in turn transfers said force to the movable structure via the second bolt.

12. Container according to any one of the preceding claims, characterised in that the spring is always tensioned, apart from when the lid is at 90°.

13. Container according to claims 4 to 12, characterised in that it comprises two movable structures and two fixed structures.

14. Container according to claims 4 to 13, characterised in that the movable structures and the fixed structures have the shape of a rigid, planar plate.