CLAIMS

1. A lid-opening/closing device for a storage container provided with a container body storing therein an object to be stored, a lid portion forming a bottom portion openable and closable with respect to the container body and on which the object to be stored is placed, and a locking mechanism performing unlocking and locking the lid portion with respect to the container body, the lid-opening/closing device opening and closing the lid portion with respect to the container body and comprising:

a device body on which the storage container is placed;

a plurality of moving units, each of which includes an engaging portion configured to engage with the locking mechanism when the storage container is placed on the device body, and performs unlocking operation to cause the locking mechanism to perform the unlocking and locking operation to cause the locking mechanism to perform the locking by moving the engaging portion;

a linkage unit that causes the moving units to perform the unlocking operation by moving the moving units in conjunction with each other when causing the locking mechanism to perform the unlocking, and causes the moving units to perform the locking operation by moving the moving units in conjunction with each other when causing the locking mechanism to perform the locking; and

one actuator that is provided for the moving units and the linkage unit and simultaneously drives the moving units and the linkage unit.

2. The lid-opening/closing device according to claim 1, wherein

each of the moving units further includes a first rotating member that is rotatably supported by the device body and moves the engaging portion, and

the linkage unit includes a first connecting member that connects at least a pair of the first rotating members to rotate the first rotating members.

3. The lid-opening/closing device according to claim 2, wherein

the pair of the first rotating members connected by the first connecting member are provided in a plurality of pairs so that the respective pairs are positioned on one side and on the other side of the lid portion when the storage container is placed on the device body, and

the linkage unit further includes: a pair of second rotating members that are rotatably supported by the device body and to which the respective first connecting members are connected; and a second connecting member that connects the pair of the second rotating members to rotate the second rotating members.

4. The lid-opening/closing device according to claim 2 or 3, wherein

the device body includes: a recessed portion in which the moving units, the linkage unit, and the actuator are arranged; and a top panel portion that covers the recessed portion and forms a placement surface on which the storage container is placed,

the engaging portion is an engaging pin that is installed upright on each of the first rotating members, and

the top panel portion is provided with an opening that has an elongated hole shape and through which the engaging pin protrudes from the placement surface to be able to move between a position of the unlocking operation and a position of the locking operation.

5. The lid-opening/closing device according to claim 3, wherein

the actuator is an air cylinder that includes: a cylinder portion attached to the device body; and a rod portion a base end of which is inserted into the cylinder portion and a leading end of which is attached to the second connecting member, and

the rod portions is slid by charging or discharging gas into or from the cylinder portion.

CLAIMS

1. A lid-opening/closing device for a storage container provided with a container body storing therein an object to be stored, a lid portion forming a bottom portion openable and closable with respect to the container body and on which the object to be stored is placed, and a locking mechanism performing unlocking and locking the lid portion with respect to the container body, the lid-opening/closing device opening and closing the lid portion with respect to the container body and comprising:

a device body on which the storage container is placed;

a plurality of moving units, each of which includes an engaging portion configured to engage with the locking mechanism when the storage container is placed on the device body, and performs unlocking operation to cause the locking mechanism to perform the unlocking and locking operation to cause the locking mechanism to perform the locking by moving the engaging portion;

a linkage unit that causes the moving units to perform the unlocking operation by moving the moving units in conjunction with each other when causing the locking mechanism to perform the unlocking, and causes the moving units to perform the locking operation by moving the moving units in conjunction with each other when causing the locking mechanism to perform the locking; and

one actuator that is provided for the moving units and the linkage unit and simultaneously drives the moving units and the linkage unit wherein

each of the moving units further includes a first rotating member that is rotatably supported by the device body and moves the engaging portion, and

the linkage unit includes a first connecting member that connects at least a pair of the first rotating members to rotate the first rotating members and wherein

the pair of the first rotating members connected by the first connecting member are provided in a plurality of pairs so that the respective pairs are positioned on one side and on the other side of the lid portion when the storage container is placed on the device body, and

the linkage unit further includes: a pair of second rotating members that are rotatably supported by the device body and to which the respective first connecting members are connected; and a second connecting member that connects the pair of the second rotating members to rotate the second rotating members.

2. The lid-opening/closing device according to claim 1, wherein the device body includes: a recessed portion in which the moving units, the linkage unit, and the actuator are arranged; and a top panel portion that covers the recessed portion and forms a placement surface on which the storage container is placed,

the engaging portion is an engaging pin that is installed upright on each of the first rotating members, and

the top panel portion is provided with an opening that has an elongated hole shape and through which the engaging pin protrudes from the placement surface to be able to move between a position of the unlocking operation and a position of the locking operation.

3. The lid-opening/closing device according to claim 1, wherein the actuator is an air cylinder that includes: a cylinder portion attached to the device body; and a rod portion a base end of which is inserted into the cylinder portion and a leading end of which is attached to the second connecting member, and

the rod portions is slid by charging or discharging gas into or from the cylinder portion.