Claims:

1. A container terminal comprising a shore working area, loading-unloading passages, a yard area and collection-evacuation passages, wherein shore operation equipments are arranged in the shore working area, yard operation equipments are arranged in the yard area, loading-unloading transportation vehicles run on the loading-unloading passages and collection-evacuation vehicles run on the collection-evacuation passages, the shore operation equipments perform loading-unloading operations of containers with a ship, the loading-unloading transportation vehicles transport the containers between the shore working area and the yard area, the collection-evacuation vehicles perform collection or evacuation transportations for the containers disposed in the yard area, wherein

the shore working area is arranged on the shore and a ship is docked at the shore;

the yard area comprises a plurality of yard units, spacing areas are formed between adjacent yard units, each yard unit comprises at least one yard and is arranged with a collection-evacuation passage surrounding the at least one yard, loading-unloading passages are arranged in the spacing areas between adjacent yard units;

the loading-unloading passages connect the yard area and the shore working area, the collection-evacuation passages are arranged in the yard units, the loading-unloading passages and the collection-evacuation passages are in a same horizontal plane but do not intersect with each other; and

each yard unit comprises a first yard and a second yard arranged with an interval, the collection-evacuation passage comprises a plurality of collection-evacuation passage units, each collection-evacuation passage unit is U-shaped, each collection-evacuation passage unit is arranged in a respective one of the yard units and surrounds the first yard, the collection-evacuation passage unit occupies the interval between the first yard and the second yard, a first end area of the first yard, and an

area within the yard unit and being a part of a side area of the first yard opposite to the second yard.

2. The container terminal according claim 1, wherein

the loading-unloading passage comprises a plurality of on-site loading-unloading passages and connection loading-unloading passages;

the connection loading-unloading passages are arranged between the yard area and the shore working area;

the on-site loading-unloading passages are arranged in the spacing areas between adjacent yard units, but do not enter into a single yard unit.

3. The container terminal according to claim 2, wherein each yard operation equipment serves one yard, and an operation range of each yard operation equipment at least covers:

the yard which is served, the nearest collection-evacuation passage unit, and the nearest on-site loading-unloading passage.

4. The container terminal according to claim 2, wherein

the shore working area comprises shore loading-unloading passages, the shore loading-unloading passages are located below landside operation areas of the shore operation equipments;

the connection loading-unloading passage comprises a first connection loading-unloading passage and a second connection loading-unloading passage, the plurality of on-site loading-unloading passages are connected with the first connection loading-unloading passage, the second connection loading-unloading passage connects the first connection loading-unloading passage and the shore loading-unloading passage.

5. The container terminal according to claim 1, wherein

the direction of the yard area and the yard units therein is at an angle to the shore, and the angle is between 0 and 180 degrees.

6. A container loading method for loading a container from a yard area to a ship on a container terminal according to claim 1, comprising:

transporting, by a yard operation equipment, a container from the yard area to a loading-unloading transportation vehicle on an on-site loading-unloading passage in the yard area;

the loading-unloading transportation vehicle running along the on-site loading-unloading passage, a connection loading-unloading passage and arriving a shore loading-unloading passage, wherein the loading-unloading transportation vehicle never enters into a collection-evacuation passage;

loading, by a shore operation equipment, the container from the loading-unloading transportation vehicle to the ship.

7. A container unloading method for unloading a container from a ship to a yard area on a container terminal according to claim 1, comprising:

unloading, by a shore operation equipment, a container from the ship to a loading-unloading transportation vehicle;

the loading-unloading transportation vehicle running along a shore loading-unloading passage, a connection loading-unloading passage and arriving an on-site loading-unloading passage, wherein the loading-unloading transportation vehicle never enters into a collection-evacuation passage;

stacking, by a yard operation equipment, the container from the loading-unloading transportation vehicle to the yard area.

8. A container evacuation method for evacuating a container from a yard area on a container terminal according to claim 1, comprising:

transporting, by a yard operation equipment, a container from the yard area to a collection-evacuation vehicle on a collection-evacuation passage;

the collection-evacuation vehicle running away from the yard area along the collection-evacuation passage, wherein the collection-evacuation vehicle never enters into a loading-unloading passage.

9. A container collection method for collecting a container to a yard area on a container terminal according to claim 1, comprising:

a collection-evacuation vehicle running to the yard area along a collection-evacuation passage, wherein the collection-evacuation vehicle never enters into a loading-unloading passage;

stacking, by a yard operation equipment, the container from the collection-evacuation vehicle to the yard area.