

AN IMPROVED SAMPLING CART

Utility Model Patent — English Translation

English translation prepared for reference only. In case of any discrepancy, the original Chinese patent publication (CN 210322339 U) shall prevail.

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(57) ABSTRACT

The present utility model provides an improved sampling cart, comprising a housing. The interior of the housing is divided by a vertical partition into an equipment compartment and a storage compartment. Inside the equipment compartment, a blower, an activated-carbon filter mesh layer and a HEPA filter are sequentially provided from left to right. The vertical partition is provided with an opening which communicates the equipment compartment with the storage compartment. A ventilation duct is provided between the housing and outer walls of the equipment compartment and the storage compartment, and an outer wall of the storage compartment is provided with an opening communicating with the ventilation duct. An air inlet is provided at a position, corresponding to the blower, of the top of the housing, and the ventilation duct communicates with the air inlet. The housing is enclosed by a front enclosure panel, a rear enclosure panel, a side enclosure panel, an upper enclosure panel, a bottom plate and a left-right sliding door. Each of the front enclosure panel, the rear enclosure panel, the side enclosure panel and the upper enclosure panel sequentially comprises, from outside to inside, a flame-retardant layer, a metal plate, a sound-insulating layer and a heat-insulating layer. Universal wheels are mounted at the bottom of the bottom plate. By adjusting the structure of the housing, the sampling cart has flame-retardant, sound-insulating and heat-insulating functions.

CLAIMS

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1. An improved sampling cart, characterized by comprising a housing (30), the interior of the housing (30) being divided by a vertical partition (29) into an equipment compartment (15) and a storage compartment (21);
inside the equipment compartment (15), a blower (24), an activated-carbon filter mesh layer (14) and a HEPA filter (13) are sequentially provided from left to right, the vertical partition (29) is provided with an opening (10), and the opening (10) communicates the equipment compartment (15) with the storage compartment (21);
a ventilation duct (20) is provided between the housing (30) and outer walls of the equipment compartment (15) and the storage compartment (21), and an outer wall of the storage compartment (21) is provided with an opening (10) communicating with the ventilation duct (20);
an air inlet (12) is provided at a position, corresponding to the blower (24), of the top of the housing (30), and the ventilation duct (20) communicates with the air inlet (12);
the housing (30) is enclosed by a front enclosure panel (31), a rear enclosure panel (34), a side enclosure panel (37), an upper enclosure panel (35), a bottom plate (33) and a left-right sliding door (36), and each of the front enclosure panel (31), the rear enclosure panel (34), the side enclosure panel (37) and the upper enclosure panel (35) sequentially comprises, from outside to inside, a flame-retardant layer (28), a metal plate (27), a sound-insulating layer (26) and a heat-insulating layer (25);
universal wheels (17) are mounted at the bottom of the bottom plate (33).
 2. The improved sampling cart according to claim 1, characterized in that an air filter mesh (11) is fixedly provided at the air inlet (12), and the air filter mesh (11) is configured as an activated-carbon filter mesh.
 3. The improved sampling cart according to claim 1, characterized in that the flame-retardant layer (28) is configured as a flame-retardant coating layer.
 4. The improved sampling cart according to claim 1, characterized in that the sound-insulating layer (26) is configured as a honeycomb-structured fireproof foam layer.
 5. The improved sampling cart according to claim 1, characterized in that the heat-insulating layer (25) is configured as a glass fiber layer.
 6. The improved sampling cart according to claim 1, characterized in that a horizontal partition (22) is fixedly provided in the storage compartment (21).
 7. The improved sampling cart according to claim 1, characterized in that an anti-seismic buffer plate (19) is provided at the bottom of the storage compartment (21), a plurality of buffer springs (16) are provided at the bottom of the anti-seismic buffer plate (19), and bottoms of the buffer springs (16) are fixed to the bottom of an inner cavity of the storage compartment (21).
 8. The improved sampling cart according to claim 7, characterized in that each side edge of the anti-seismic buffer plate (19) is connected to an inner wall of the storage compartment (21) by a dust-isolating edge-sealing rubber strip (18).
 9. The improved sampling cart according to claim 1, characterized in that an anti-collision soft rubber block (32) is provided at a position, close to a universal wheel (17), of an outer side face of the front enclosure panel (31).

10. The improved sampling cart according to claim 1, characterized in that an anti-collision soft rubber block (32) is provided at a position, close to a universal wheel (17), of an outer side face of the rear enclosure panel (34).

DESCRIPTION

An Improved Sampling Cart

TECHNICAL FIELD

[0001] The present utility model relates to the technical field of sampling carts, and in particular to an improved sampling cart.

BACKGROUND ART

[0002] The clean sampling cart is suitable for sampling raw and auxiliary materials of pharmaceutical preparations and sterile preparations. It is widely applicable to sampling of raw and auxiliary materials in special occasions in industries such as medicine, preparations, electronics, precision instruments and meters, and food. In use, the sampling cart is fixed, the power supply is connected, the power switch and the blower switch are turned on, and the blower starts to operate; the voltage is adjusted (generally 220 V), and after the sampling cart has run for 15 minutes, a sampling bucket is placed therein. After sampling ends, the blower and the power supply are turned off, and the sampling cart is moved back to its original place. Sampling carts in existing structures generally focus mainly on improving their air purification function, with little consideration given to the functionalities of flame retardancy and noise reduction of the sampling cart; however, flame retardancy and noise reduction are among the very important functions in daily use, because the safety of samples stored in the sampling cart is particularly important. In view of this situation, improvement is urgently needed.

SUMMARY OF THE UTILITY MODEL

[0003] Based on this, the object of the present utility model is to provide an improved sampling cart which has flame-retardant, sound-insulating and heat-insulating functions by adjusting the structure of the housing.

[0004] The present utility model provides an improved sampling cart, comprising a housing. The interior of the housing is divided by a vertical partition into an equipment compartment and a storage compartment. Inside the equipment compartment, a blower, an activated-carbon filter mesh layer and a HEPA filter are sequentially provided from left to right. The vertical partition is provided with an opening which communicates the equipment compartment with the storage compartment. A ventilation duct is provided between the housing and outer walls of the equipment compartment and the storage compartment, and an outer wall of the storage compartment is provided with an opening communicating with the ventilation duct. An air inlet is provided at a position, corresponding to the blower, of the top of the housing, and the ventilation duct communicates with the air inlet. The housing is enclosed by a front enclosure panel, a rear enclosure panel, a side enclosure panel, an upper enclosure panel, a bottom plate and a left-right sliding door. Each of the front enclosure panel, the rear enclosure panel, the side enclosure panel and the upper enclosure panel sequentially comprises, from outside to inside, a flame-retardant layer, a metal plate, a sound-insulating layer and a heat-insulating layer. Universal wheels are mounted at the bottom of the bottom plate.

[0005] As a preferred solution, an air filter mesh is fixedly provided at the air inlet, and the air filter mesh is configured as an activated-carbon filter mesh.

- [0006] As a preferred solution, the flame-retardant layer is configured as a flame-retardant coating layer.
- [0007] As a preferred solution, the sound-insulating layer is configured as a honeycomb-structured fireproof foam layer.
- [0008] As a preferred solution, the heat-insulating layer is configured as a glass fiber layer.
- [0009] As a preferred solution, a horizontal partition is fixedly provided in the storage compartment.
- [0010] As a preferred solution, an anti-seismic buffer plate is provided at the bottom of the storage compartment, a plurality of buffer springs are provided at the bottom of the anti-seismic buffer plate, and bottoms of the buffer springs are fixed to the bottom of an inner cavity of the storage compartment.
- [0011] As a preferred solution, each side edge of the anti-seismic buffer plate is connected to an inner wall of the storage compartment by a dust-isolating edge-sealing rubber strip.
- [0012] As a preferred solution, an anti-collision soft rubber block is provided at a position, close to a universal wheel, of an outer side face of the front enclosure panel.
- [0013] As a preferred solution, an anti-collision soft rubber block is provided at a position, close to a universal wheel, of an outer side face of the rear enclosure panel.
- [0014] The beneficial effects of the present utility model are as follows:
- [0015] 1. Each of the front enclosure panel, the rear enclosure panel, the side enclosure panel and the upper enclosure panel sequentially comprises, from outside to inside, a flame-retardant layer, a metal plate, a sound-insulating layer and a heat-insulating layer. Through such structural arrangement, the front enclosure panel, the rear enclosure panel, the side enclosure panel and the upper enclosure panel have flame-retardant, sound-insulating and heat-insulating functions, improving the safety performance of the sampling cart housing;
- [0016] 2. After the blower is started by the power supply, on the one hand, air enters the blower from the air inlet, and on the other hand, air is recirculated from the ventilation duct to the blower, then passes through the activated-carbon filter mesh layer and the HEPA filter in sequence, and enters the storage compartment after air filtration is completed; the air then enters the ventilation duct through the opening, and such circulation is repeated, thereby ensuring that the air in the storage compartment is clean;
- [0017] 3. An air filter mesh is fixedly provided at the air inlet, which on the one hand prevents large-size foreign matters from entering the blower through the air inlet, and on the other hand further improves the quality of air purification;
- [0018] 4. An anti-seismic buffer plate is provided at the bottom of the storage compartment, a plurality of buffer springs are provided at the bottom of the anti-seismic buffer plate, and bottoms of the buffer springs are fixed to the bottom of an inner cavity of the storage compartment, so that samples placed on the anti-seismic buffer plate have an anti-seismic buffering function;
- [0019] 5. A horizontal partition is fixedly provided in the storage compartment, and the storage compartment is divided into two parts by the partition, so that different samples can be placed separately;
- [0020] 6. Each side edge of the anti-seismic buffer plate is connected to an inner wall of the storage compartment by a dust-isolating edge-sealing rubber strip, so as to avoid gaps between the anti-seismic buffer plate and the inner wall of the storage compartment through

which dust and debris would pass, thereby preventing accumulation of dust and debris which would affect the cleanliness inside the storage compartment.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] FIG. 1 is a sectional structural view of the present utility model.

[0022] FIG. 2 is a side view of the present utility model.

[0023] FIG. 3 is a perspective view of the present utility model.

[0024] The reference numerals are as follows: opening 10; air filter mesh 11; air inlet 12; HEPA filter 13; activated-carbon filter mesh layer 14; equipment compartment 15; buffer springs 16; universal wheels 17; dust-isolating edge-sealing rubber strip 18; anti-seismic buffer plate 19; ventilation duct 20; storage compartment 21; horizontal partition 22; push rod 23; blower 24; heat-insulating layer 25; sound-insulating layer 26; metal plate 27; flame-retardant layer 28; vertical partition 29; housing 30; front enclosure panel 31; anti-collision soft rubber block 32; bottom plate 33; rear enclosure panel 34; upper enclosure panel 35; door 36; side enclosure panel 37; cover plate 38; handle 39.

DETAILED DESCRIPTION OF EMBODIMENTS

[0025] To further understand the features, technical means and specific objects and functions achieved by the present utility model, the present utility model will be described in further detail below in conjunction with the accompanying drawings and specific embodiments.

[0026] Referring to FIGS. 1-3, an improved sampling cart comprises a housing 30. The interior of the housing 30 is divided by a vertical partition 29 into an equipment compartment 15 and a storage compartment 21. Inside the equipment compartment 15, a blower 24, an activated-carbon filter mesh layer 14 and a HEPA filter 13 are sequentially provided from left to right. The vertical partition 29 is provided with an opening 10 which communicates the equipment compartment 15 with the storage compartment 21. The blower 24 is connected to a power supply, and its opening and closing are controlled by a control switch.

[0027] A ventilation duct 20 is provided between the housing 30 and outer walls of the equipment compartment 15 and the storage compartment 21, and an outer wall of the storage compartment 21 is provided with an opening 10 communicating with the ventilation duct 20. An air inlet 12 is provided at a position, corresponding to the blower 24, of the top of the housing 30, and the ventilation duct 20 communicates with the air inlet 12.

[0028] The housing 30 is enclosed by a front enclosure panel 31, a rear enclosure panel 34, a side enclosure panel 37, an upper enclosure panel 35, a bottom plate 33 and a left-right sliding door 36. A cover plate is provided at a position, on a side edge of the door 36, that is located at the equipment compartment 15, and the equipment compartment 15 is closed by means of the side enclosure panel 37, the cover plate 38 and the vertical partition 29. A push rod 23 is fixedly provided on the rear enclosure panel 34, and a handle 39 is provided on the door 36.

[0029] Each of the front enclosure panel 31, the rear enclosure panel 34, the side enclosure panel 37 and the upper enclosure panel 35 sequentially comprises, from outside to inside, a flame-retardant layer 28, a metal plate 27, a sound-insulating layer 26 and a heat-insulating layer 25. The flame-retardant layer 28 is configured as a flame-retardant coating layer, the sound-insulating layer 26 is configured as a honeycomb-structured fireproof foam layer, and the heat-insulating layer 25 is configured as a glass fiber layer. Universal wheels 17 are mounted at the bottom of the bottom plate 33. Through such structural arrangement, the front enclosure panel, the rear enclosure panel, the side enclosure panel and the upper enclosure

panel have flame-retardant, sound-insulating and heat-insulating functions, improving the safety performance of the sampling cart housing.

[0030] In actual operation, after the blower is started by the power supply, on the one hand, air enters the blower from the air inlet, and on the other hand, air is recirculated from the ventilation duct to the blower, then passes through the activated-carbon filter mesh layer and the HEPA filter in sequence, and enters the storage compartment after air filtration is completed; the air then enters the ventilation duct through the opening, and such circulation is repeated, thereby ensuring that the air in the storage compartment is clean.

[0031] As a preferred embodiment, an air filter mesh 11 is fixedly provided at the air inlet 12, and the air filter mesh 11 is configured as an activated-carbon filter mesh, which on the one hand prevents large-size foreign matters from entering the blower through the air inlet, and on the other hand further improves the quality of air purification.

[0032] As a preferred embodiment, a horizontal partition 22 is fixedly provided in the storage compartment 21, and the storage compartment is divided into two parts by the partition, so that different samples can be placed separately.

[0033] As a preferred embodiment, an anti-seismic buffer plate 19 is provided at the bottom of the storage compartment 21, a plurality of buffer springs 16 are provided at the bottom of the anti-seismic buffer plate 19, and bottoms of the buffer springs 16 are fixed to the bottom of an inner cavity of the storage compartment 21. By providing the anti-seismic buffer plate 19, samples placed on the anti-seismic buffer plate have an anti-seismic buffering function. Each side edge of the anti-seismic buffer plate 19 is connected to an inner wall of the storage compartment 21 by a dust-isolating edge-sealing rubber strip 18, so as to avoid gaps between the anti-seismic buffer plate and the inner wall of the storage compartment through which dust and debris would pass, thereby preventing accumulation of dust and debris which would affect the cleanliness inside the storage compartment.

[0034] As a preferred embodiment, an anti-collision soft rubber block 32 is provided at a position, close to a universal wheel 17, of an outer side face of the front enclosure panel 31. An anti-collision soft rubber block 32 is provided at a position, close to a universal wheel 17, of an outer side face of the rear enclosure panel 34. When the sampling cart is rapidly moved toward another object or a wall, the anti-collision soft rubber block 32 first contacts the object or the wall, preventing the impact force from damaging the sampling cart.

[0035] The above embodiments only illustrate several embodiments of the present utility model, and the description thereof is relatively specific and detailed, but it should not be construed as limiting the patent scope of the present utility model. It should be noted that those of ordinary skill in the art may make various modifications and improvements without departing from the concept of the present utility model, and these all fall within the protection scope of the present utility model. Therefore, the patent protection scope of the present utility model shall be subject to the appended claims.

DRAWINGS

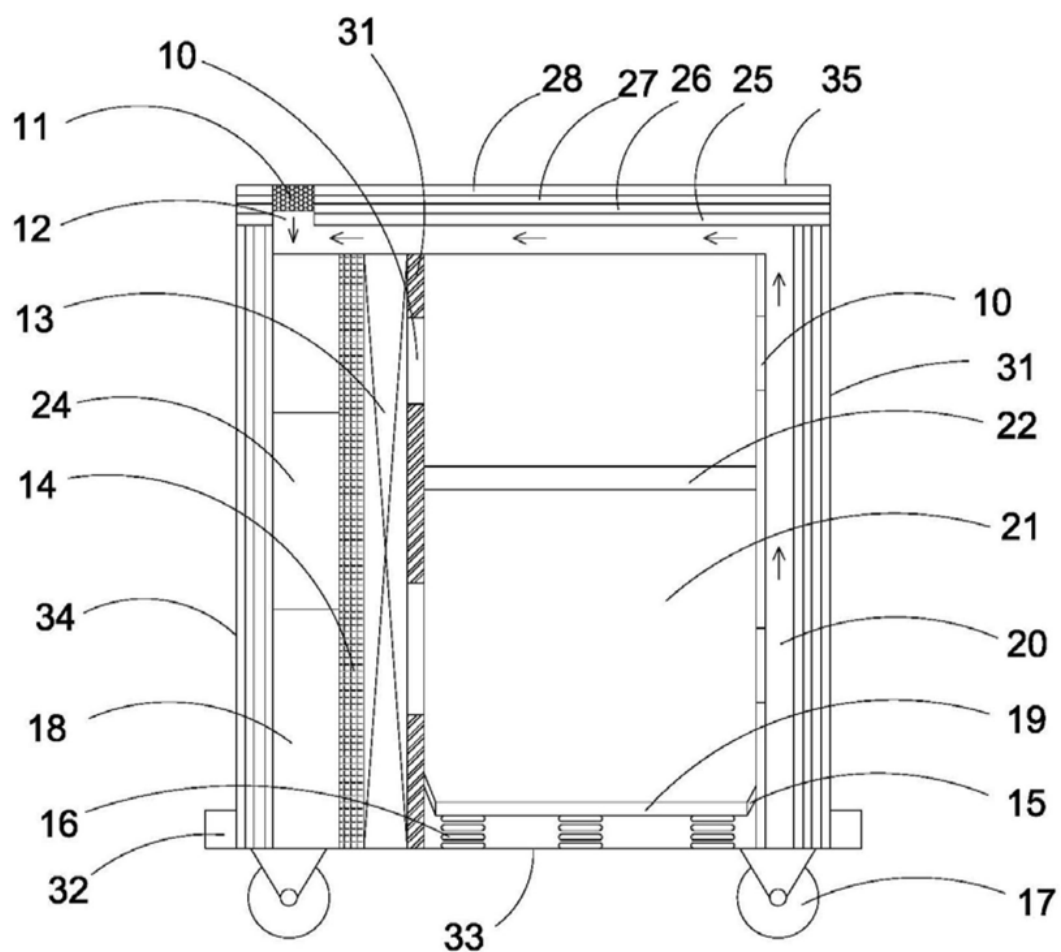


FIG. 1 — Sectional structural view of the improved sampling cart

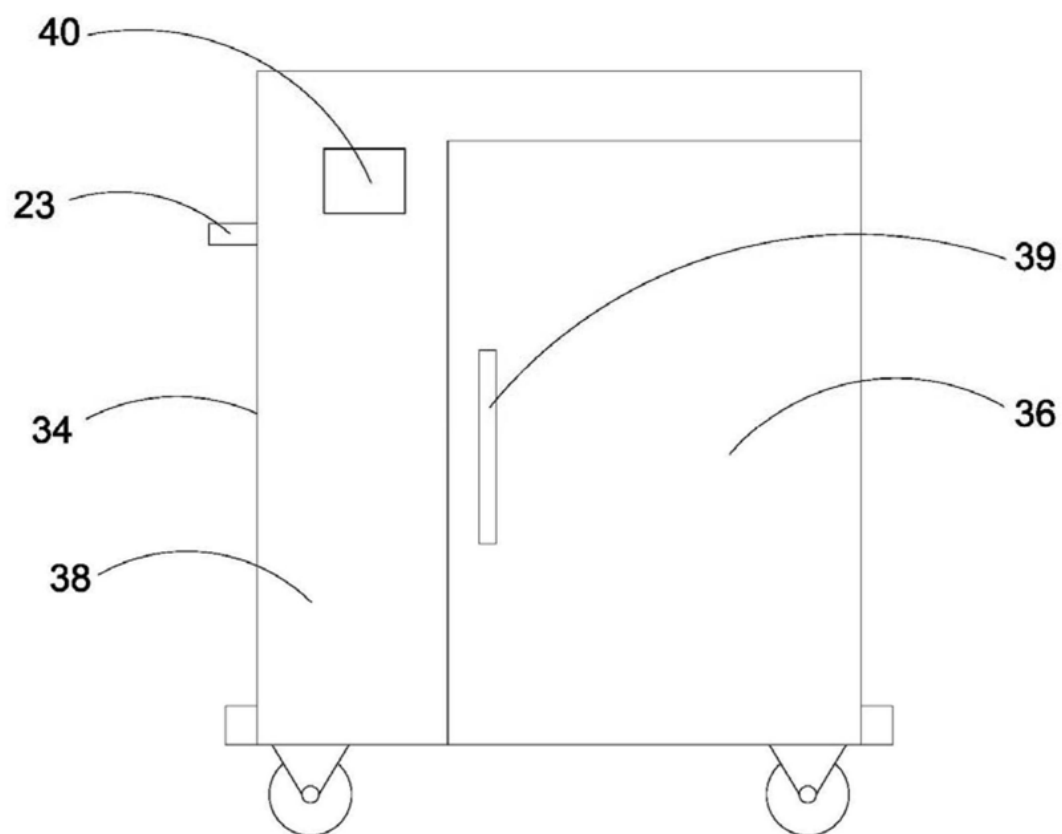


FIG. 2 — Side view of the improved sampling cart

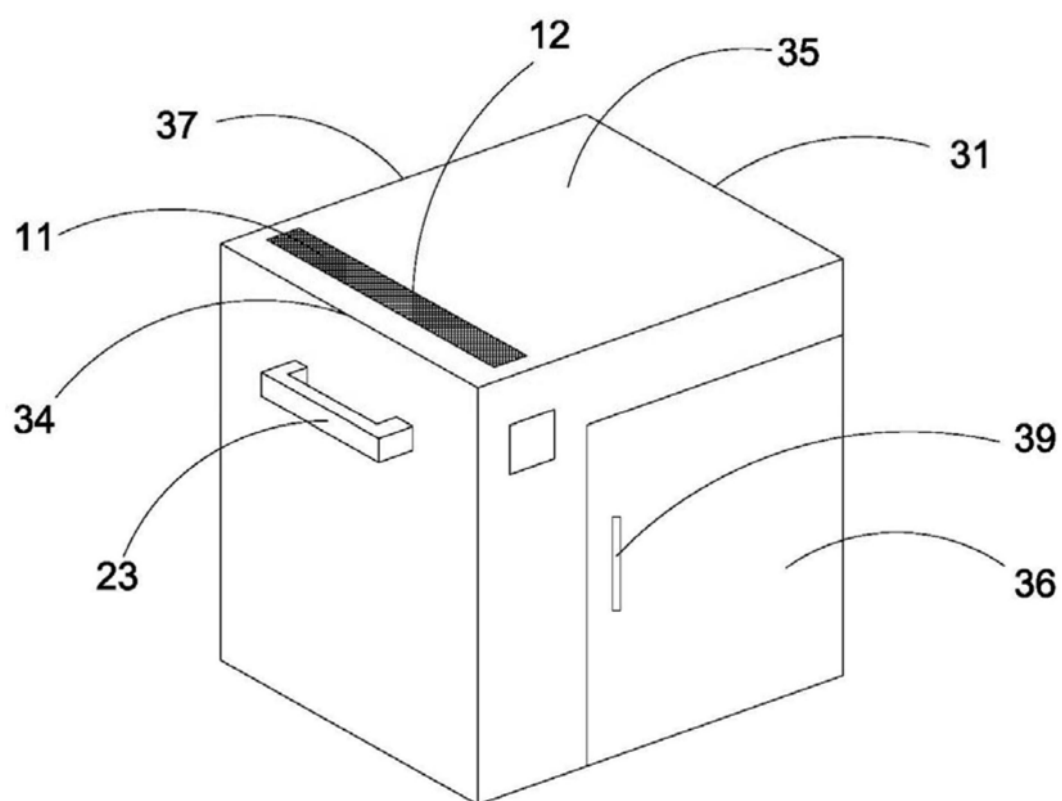


FIG. 3 — Perspective view of the improved sampling cart