US011466812B1

(12) **United States Patent**
Kelley

(10) **Patent No.: US 11,466,812 B1**
(45) **Date of Patent: Oct. 11, 2022**

(54) **UNIVERSALLY ADJUSTING ULTRA SHORT THROW PROJECTOR CREDENZA**

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(72) Inventor: **Michael Edward Kelley**, San Angelo, TX (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **17/146,432**

(22) Filed: **Jan. 11, 2021**

Related U.S. Application Data

(60) Provisional application No. 62/933,782, filed on Nov. 11, 2019.

(51) **Int. Cl.**

F16M 13/02	(2006.01)
F16M 11/24	(2006.01)
H04N 9/31	(2006.01)
G03B 21/20	(2006.01)

(52) **U.S. Cl.**
CPC ***F16M 13/02*** (2013.01); ***F16M 11/24*** (2013.01); ***G03B 21/20*** (2013.01); ***H04N 9/3141*** (2013.01)

(58) **Field of Classification Search**
CPC .. H04N 9/3141; H04N 9/3144; H04N 9/3185; F16M 11/02; F16M 11/048; F16M 11/16; F16M 11/18; F16M 11/24; F16M 11/42; F16M 11/242; A47B 2220/0061; A47B 2220/0091
See application file for complete search history.

(56) **References Cited**

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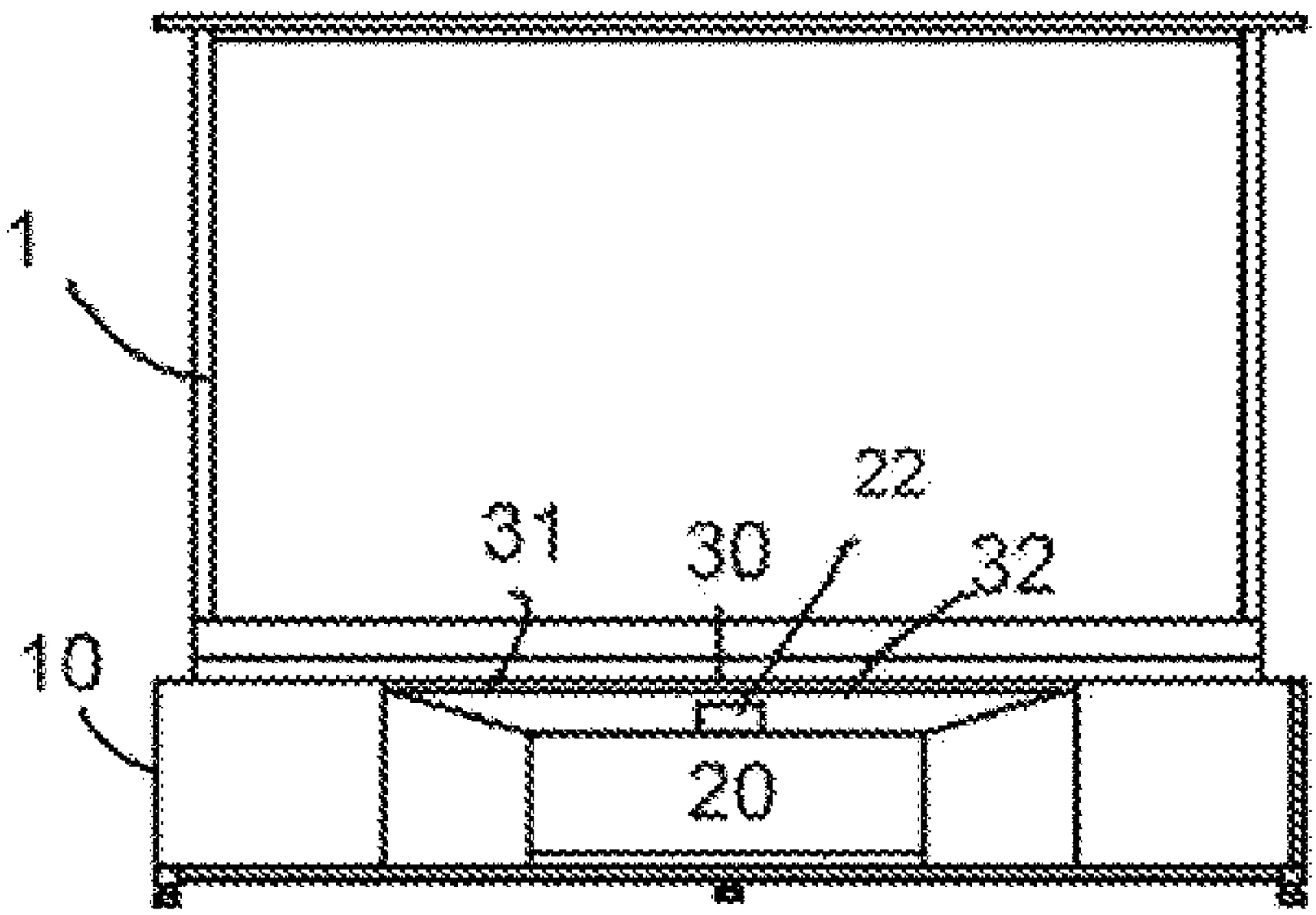
Primary Examiner — Sultan Chowdhury
(74) *Attorney, Agent, or Firm* — Bycer & Marion, PLC; Matthew L. Bycer

(57) **ABSTRACT**

Universally adjusting Ultra Short Throw (UST) projector credenza having a sliding UST compartment allowing for the cabinet to lie flush or near flush with a forward wall. The UST compartment expands out to a predetermined position to accommodate projecting images onto 100+ inch screens above. Each UST compartment comes with a cross-drilled and ventilated floating shelf that can be adjusted in three dimensions withing the compartment to allow adjustments. Ventilation holes in the shelf aerate the projector without obstructing ventilation. The UST compartment may have a low iron pane of glass over the projector to make it more discrete and hidden, but does not obstruct the image or color of the projected image passing through it in any way.

5 Claims, 12 Drawing Sheets



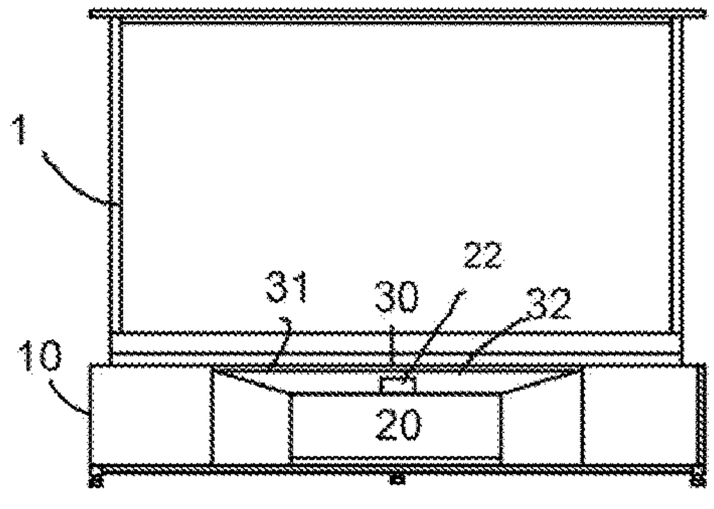


FIG.1A

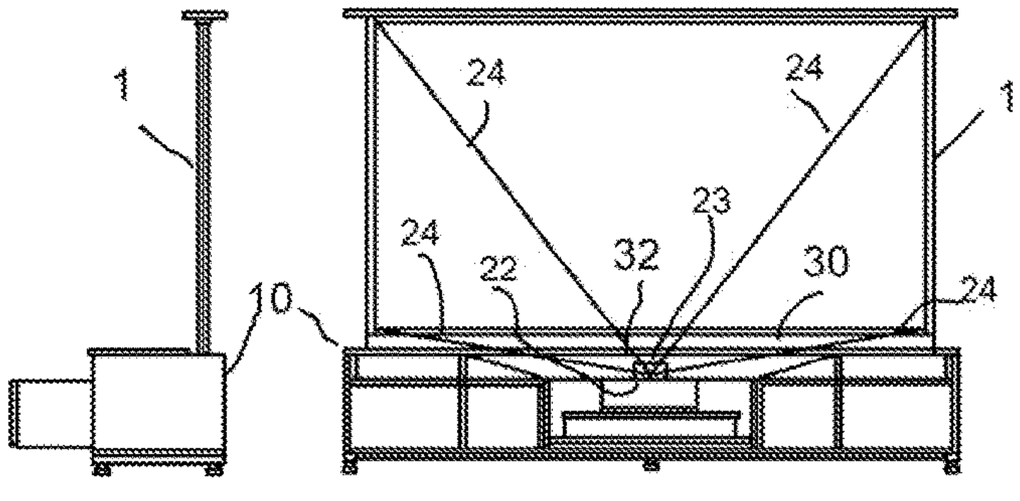


FIG.1B

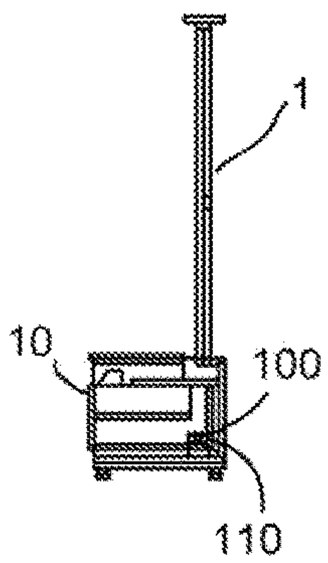


FIG.1C

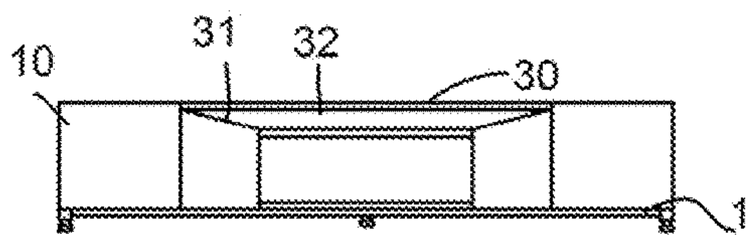


FIG.1D

FIG.1E

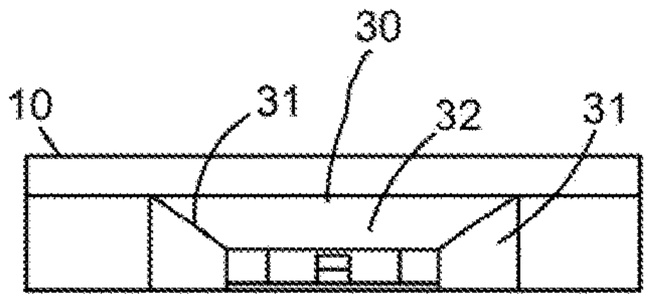


FIG.1F

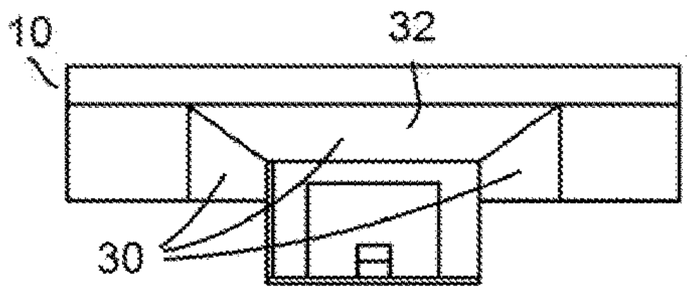


FIG.1G

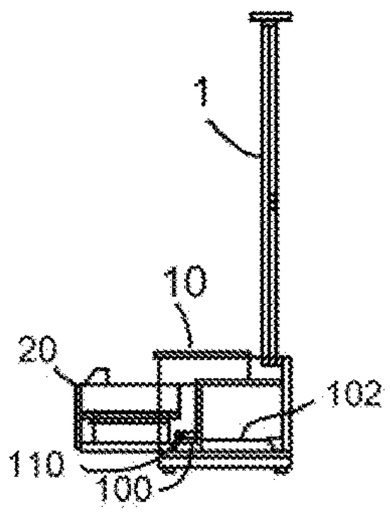


FIG.1H

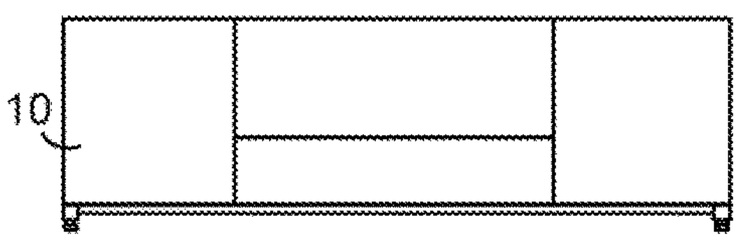
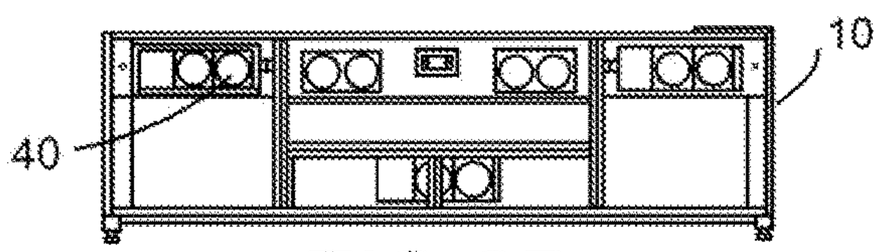


FIG.2A



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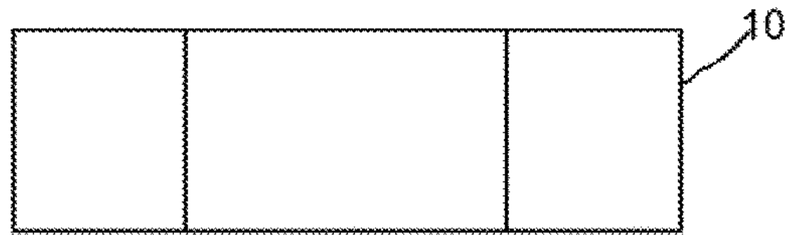
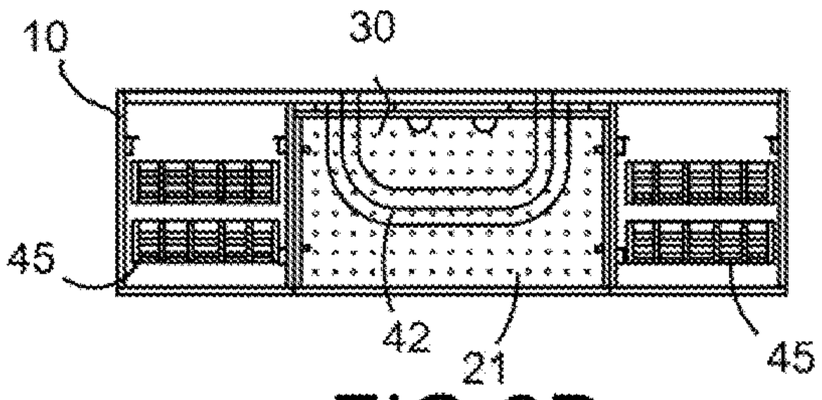


FIG.2C



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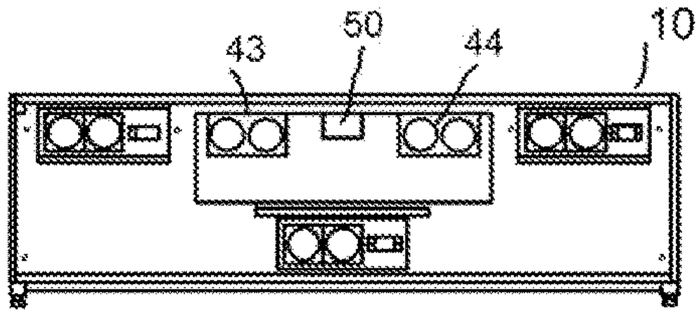

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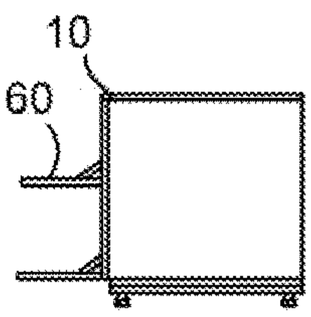

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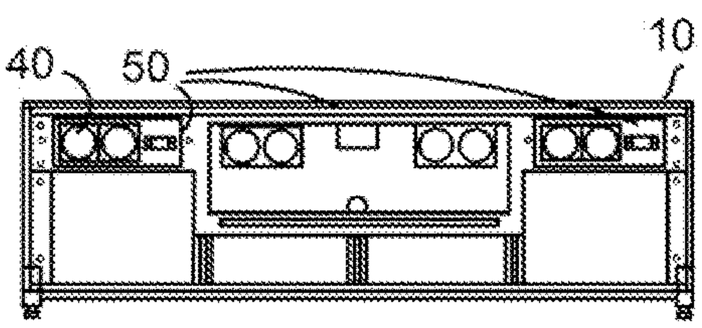

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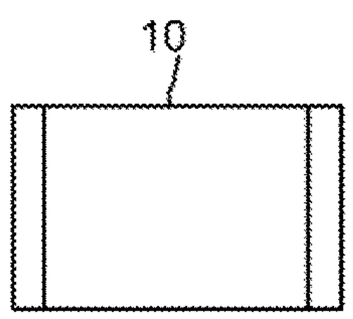
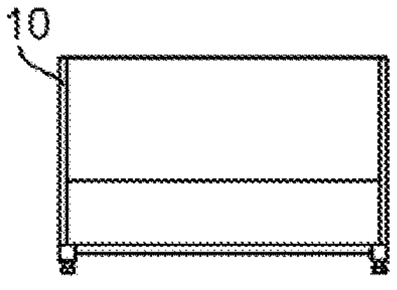


FIG.3A



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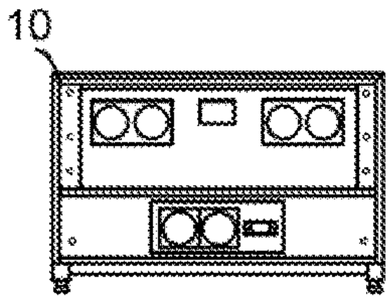

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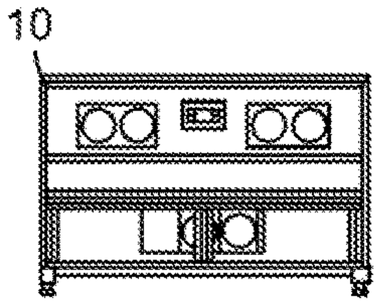
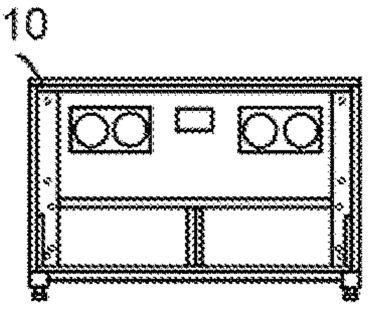


FIG.3D



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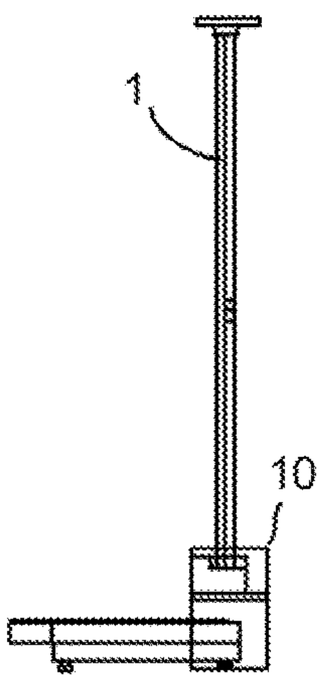
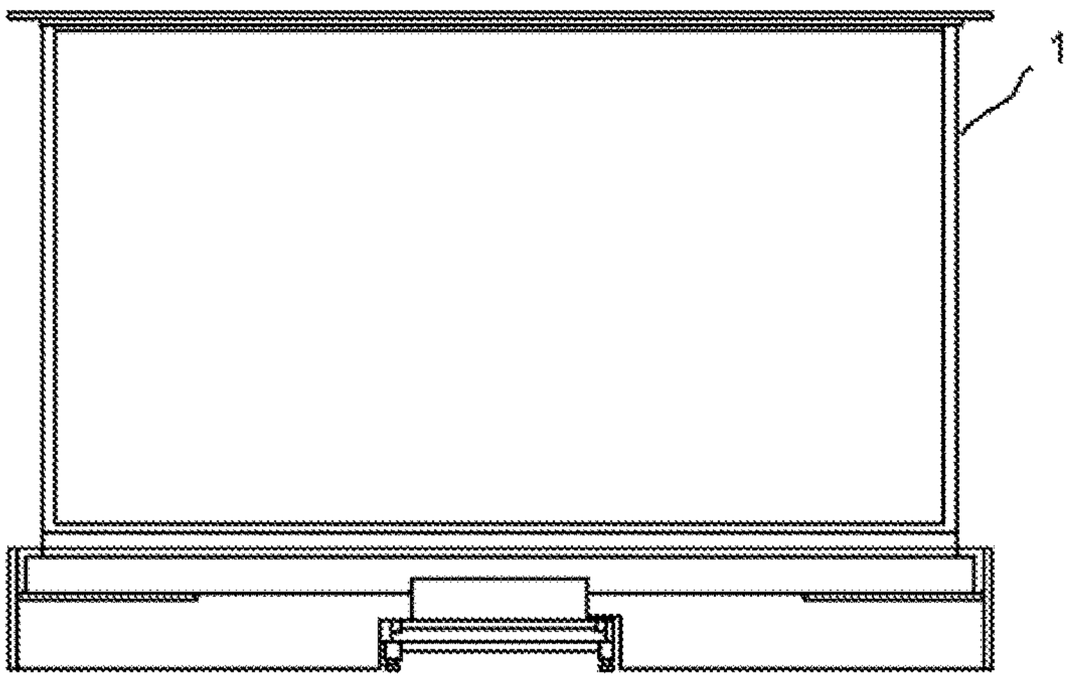


FIG.4A



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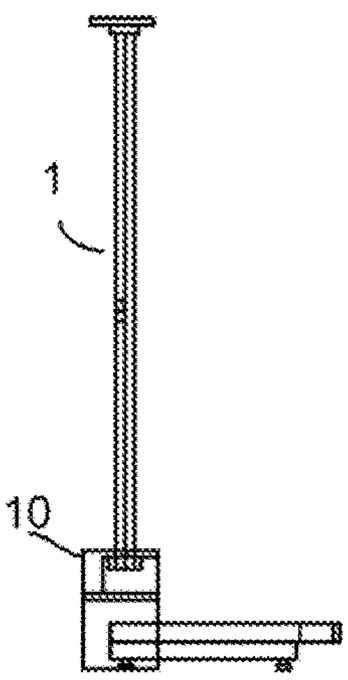

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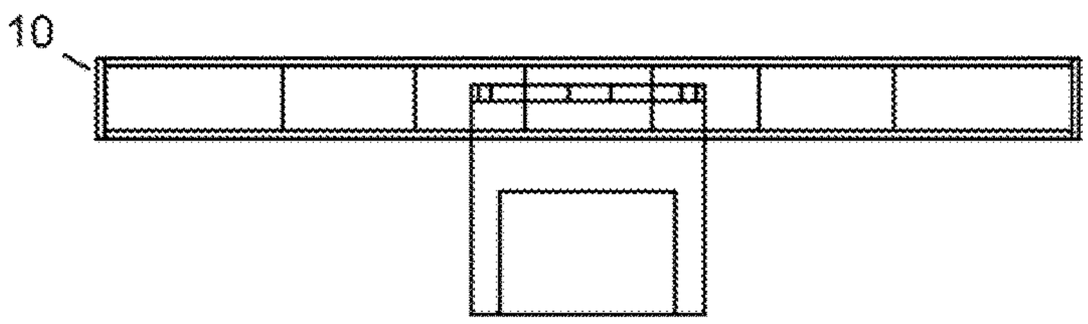

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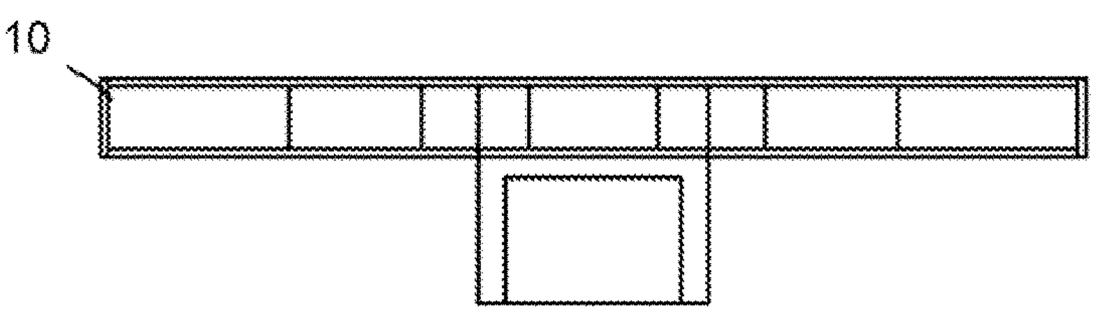


FIG.4E

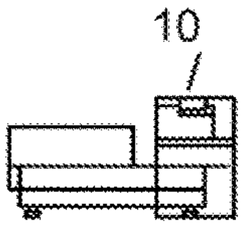


FIG.4F

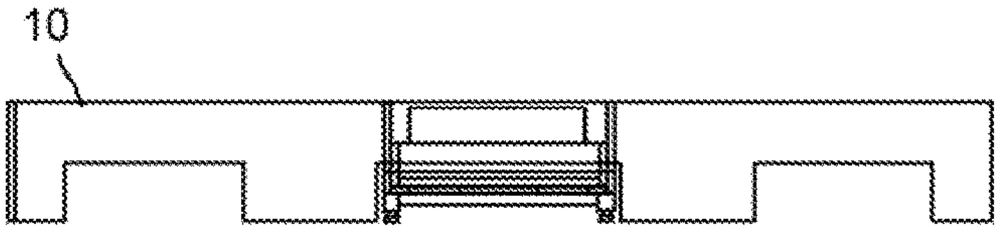
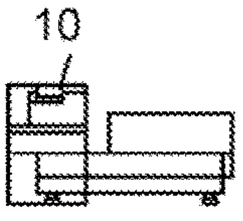


FIG.4G



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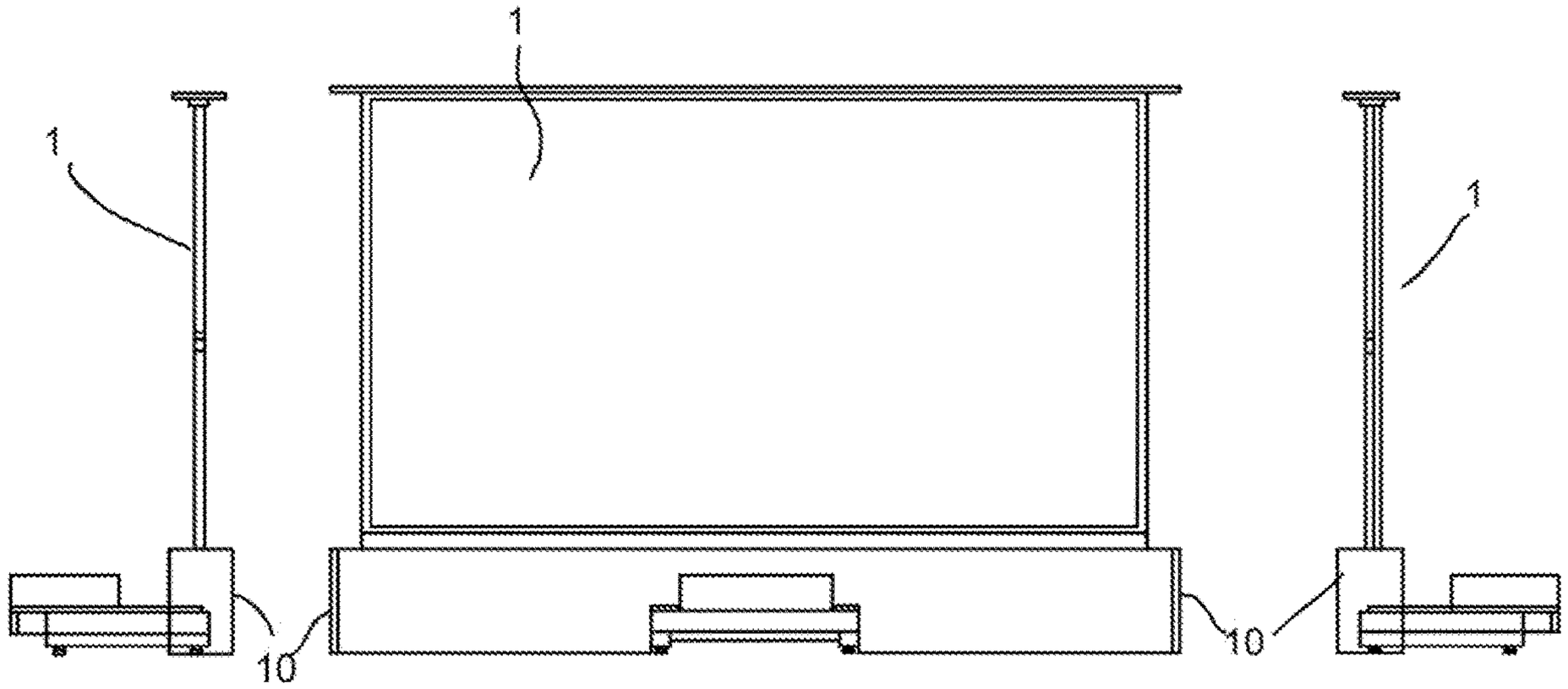
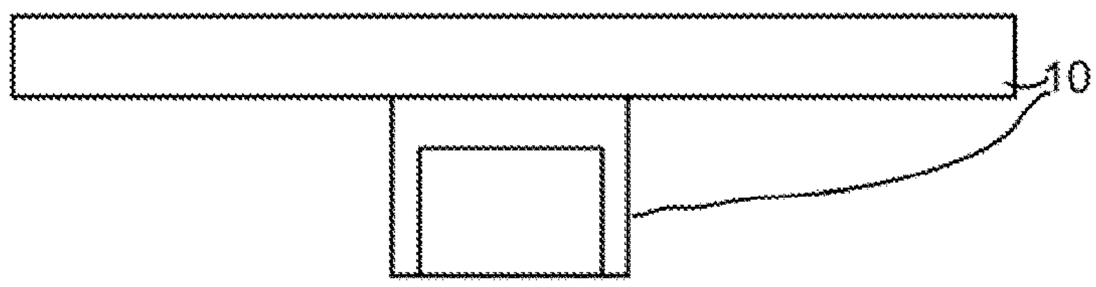


FIG.5A FIG.5B FIG.5C



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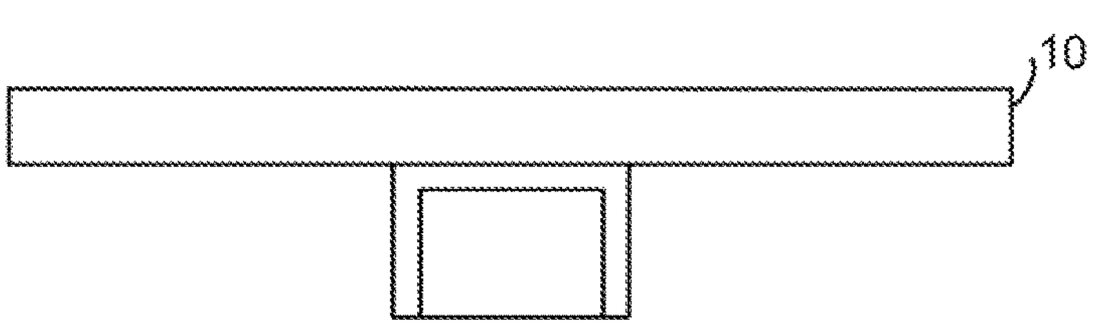

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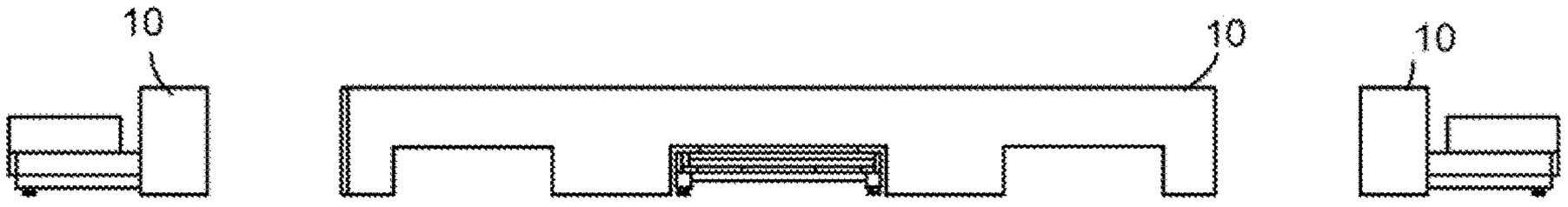


FIG.5F FIG.5G FIG.5H

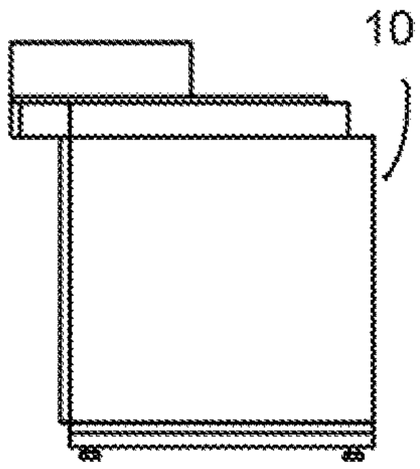
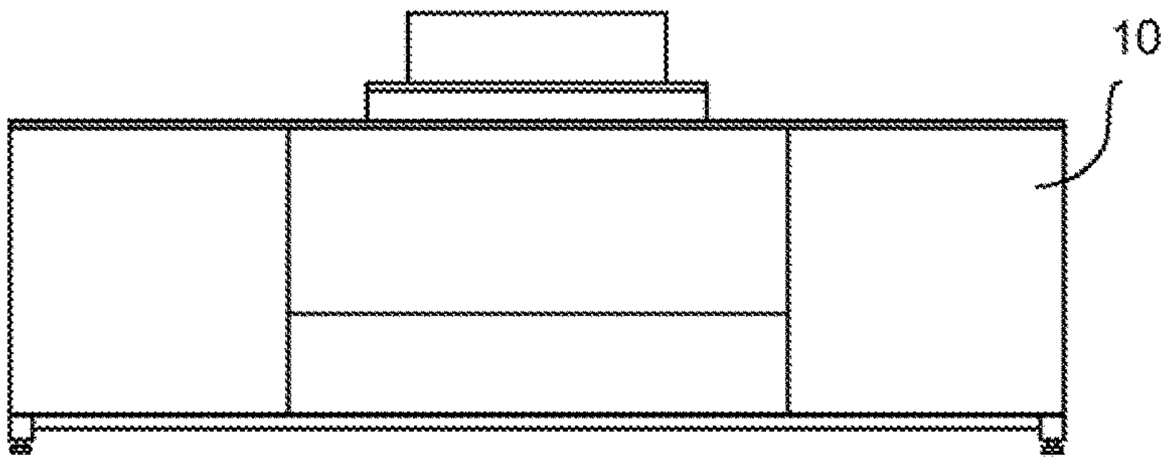


FIG.6A



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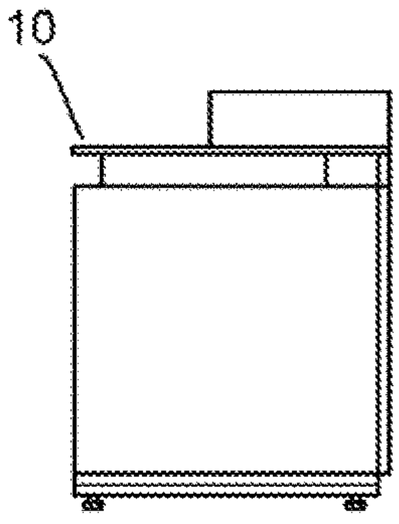

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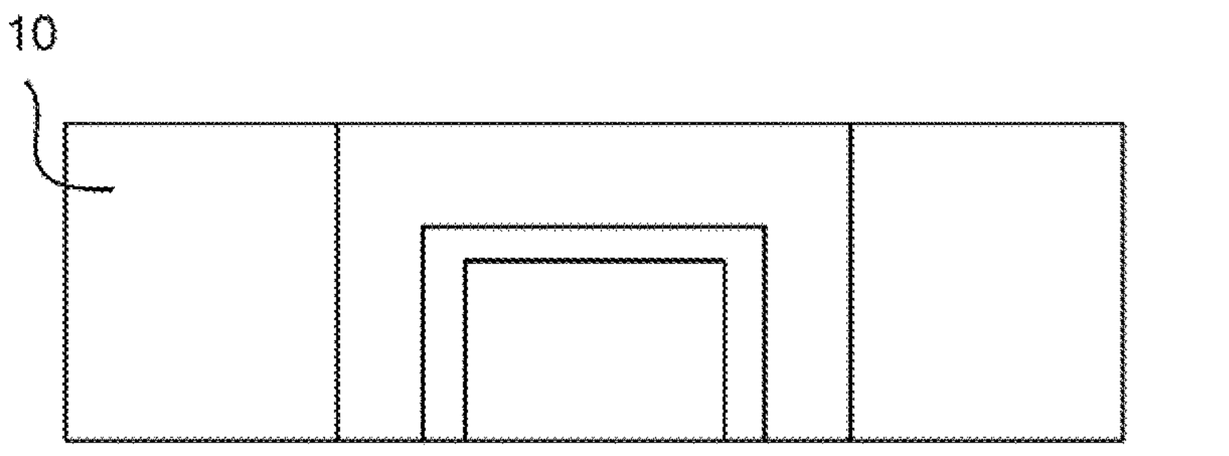

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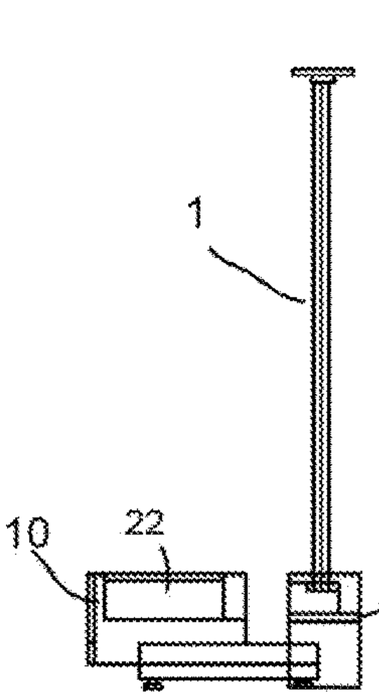

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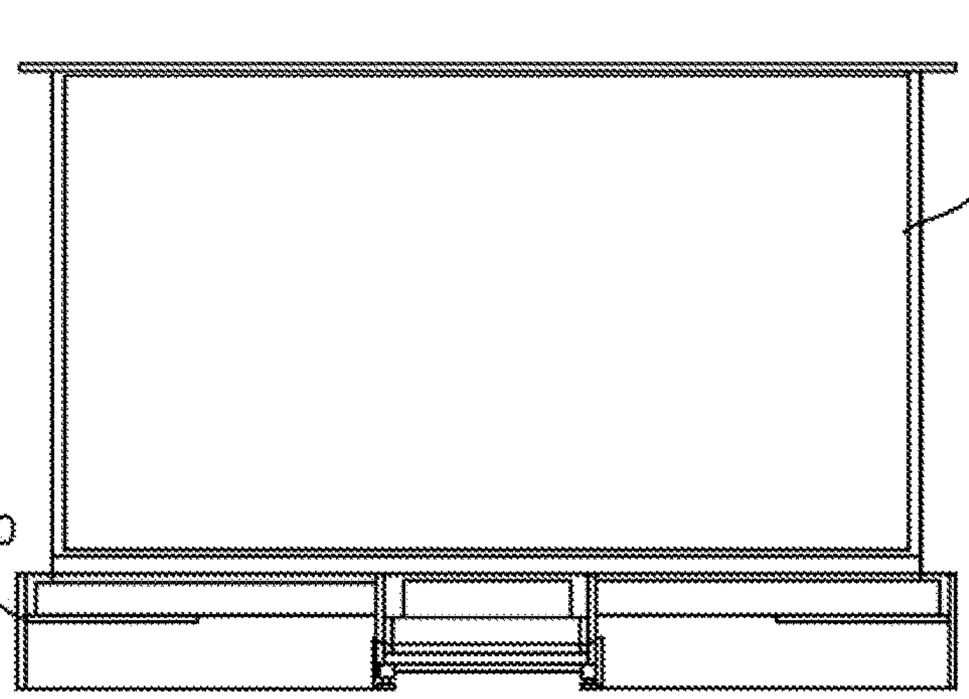

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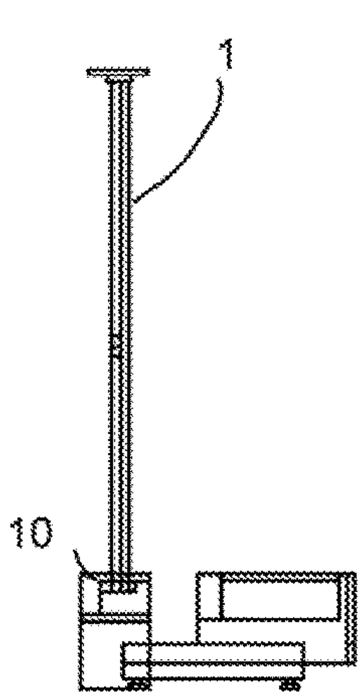

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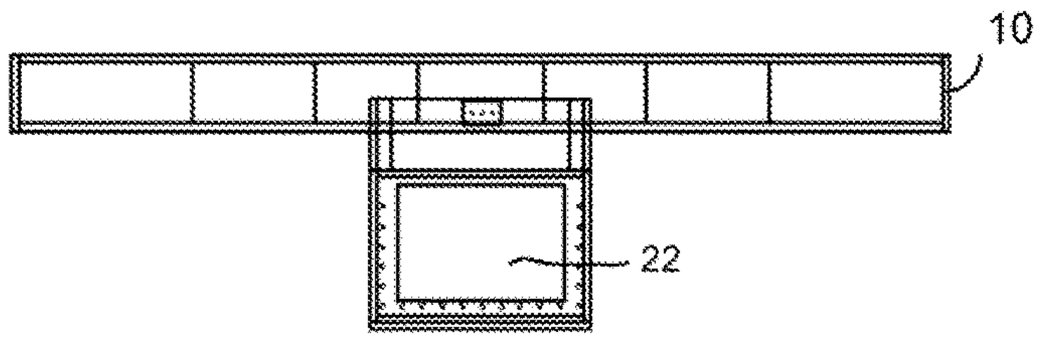

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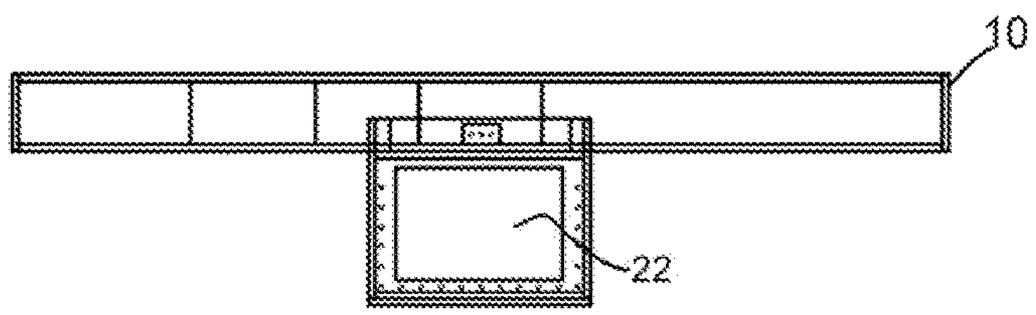

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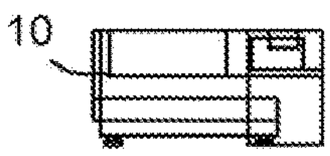

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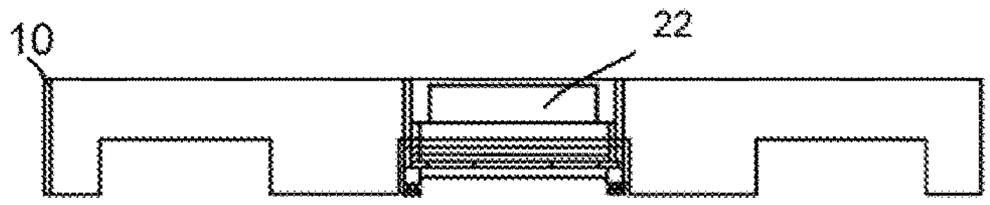
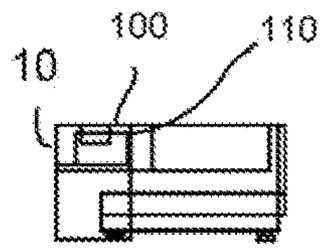


FIG.7G



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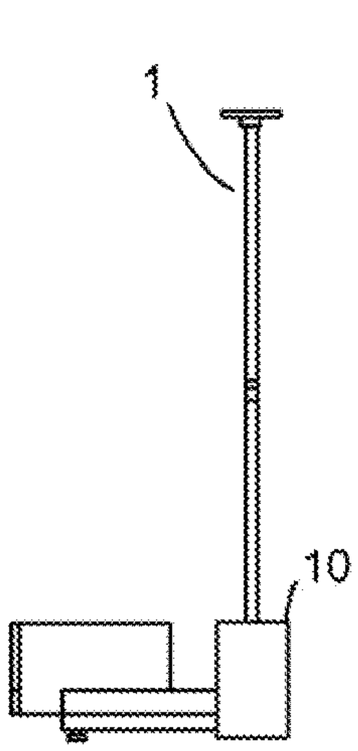


FIG.8A

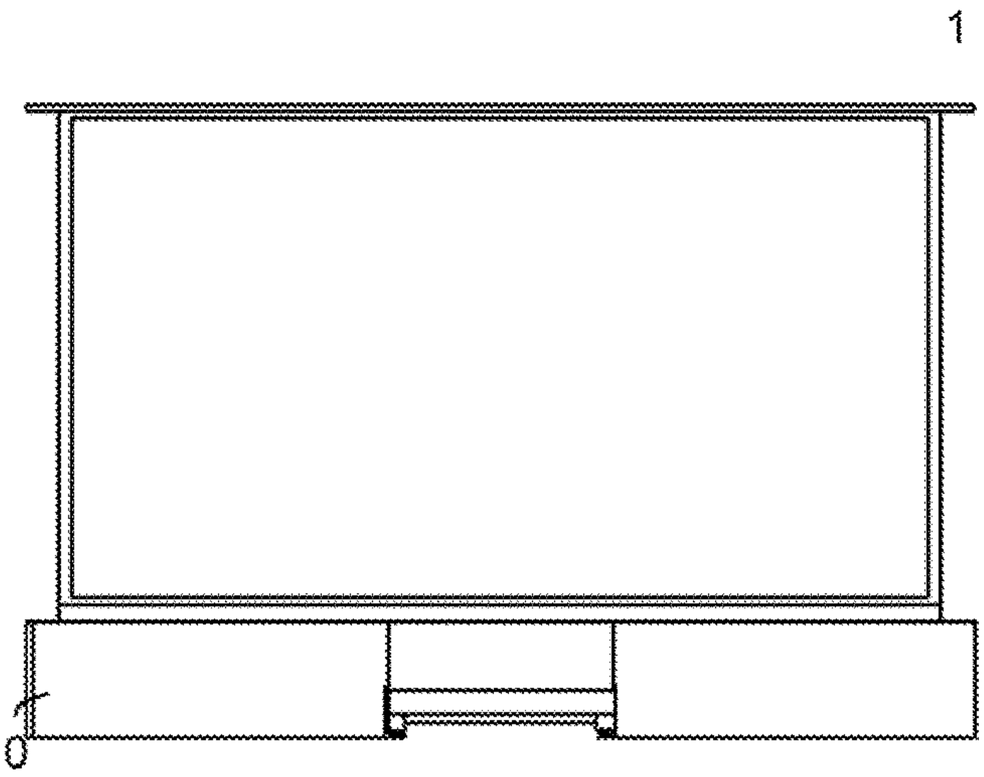


FIG.8B

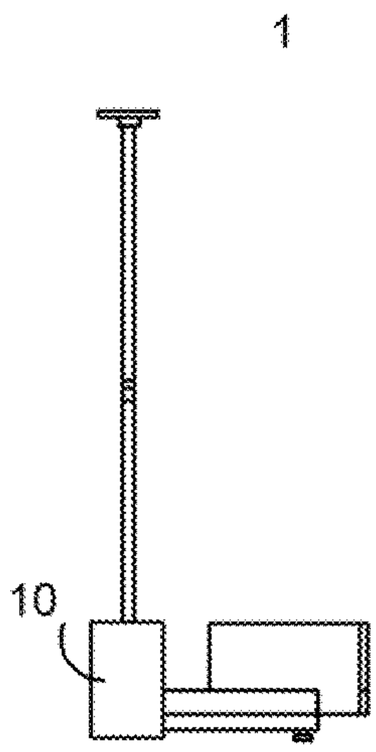
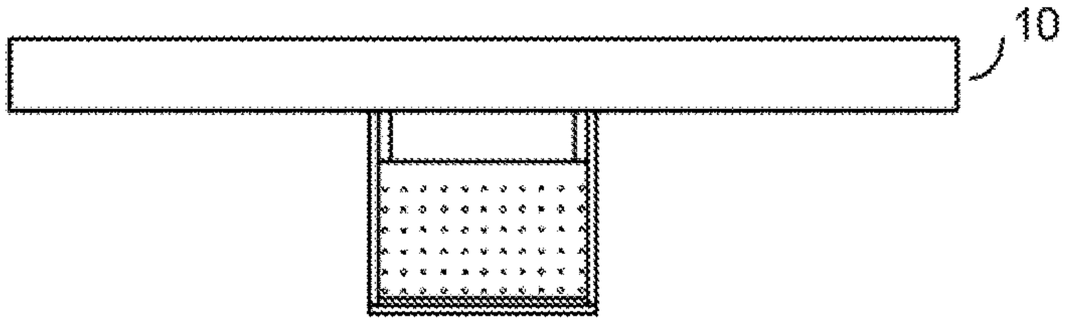


FIG.8C



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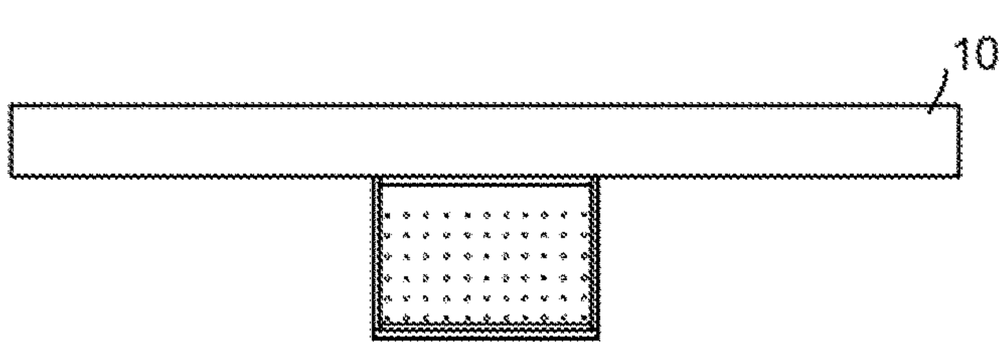

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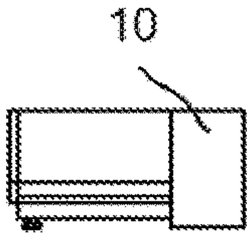

FIG.8F

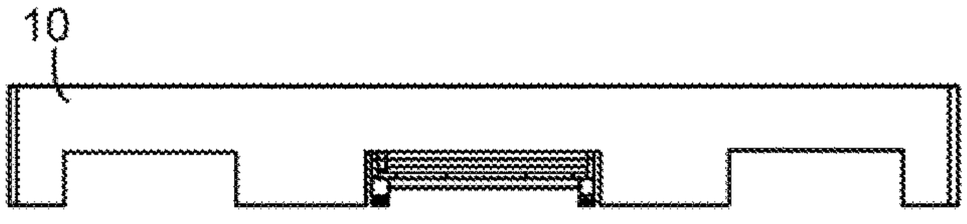

FIG.8G

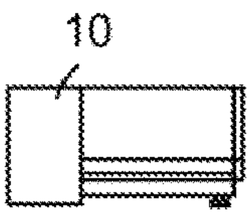

FIG.8H

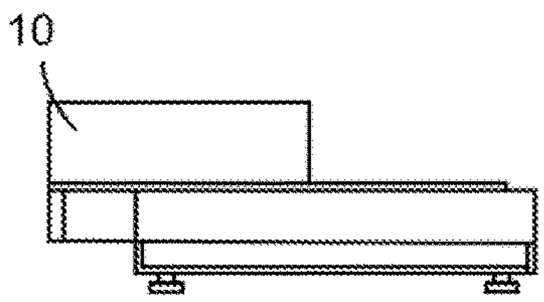

FIG.9A

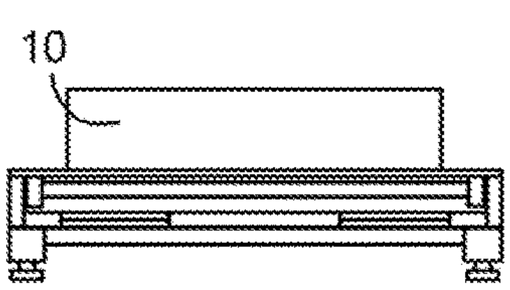

FIG.9B

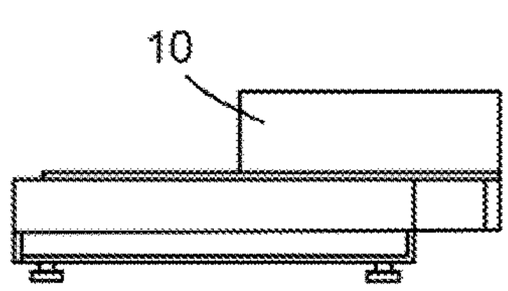

FIG.9C

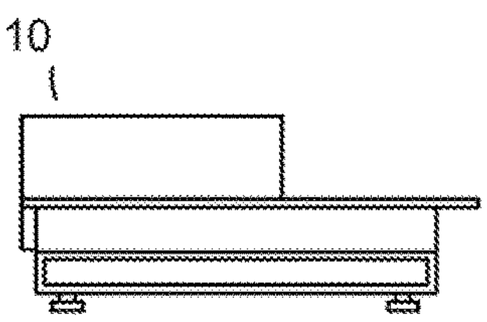

FIG.9D

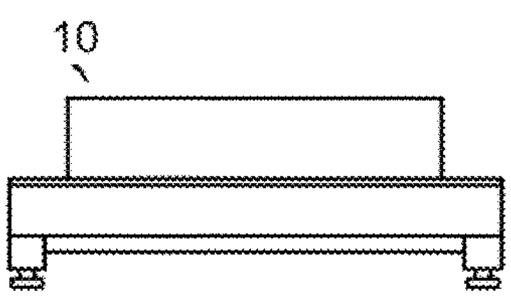

FIG.9E

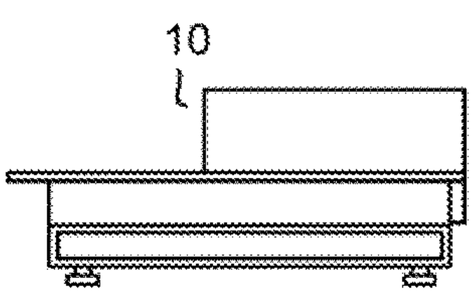

FIG.9F

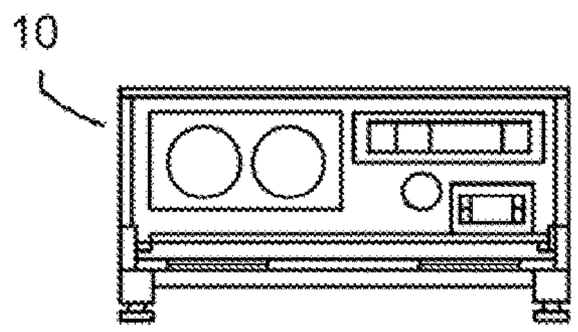

FIG.10A

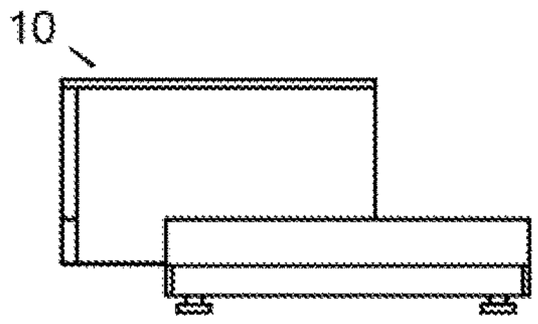

FIG.10B

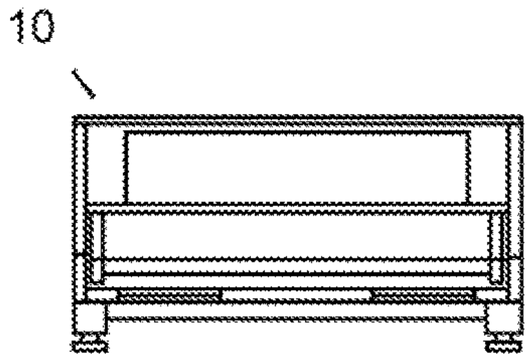

FIG.10C

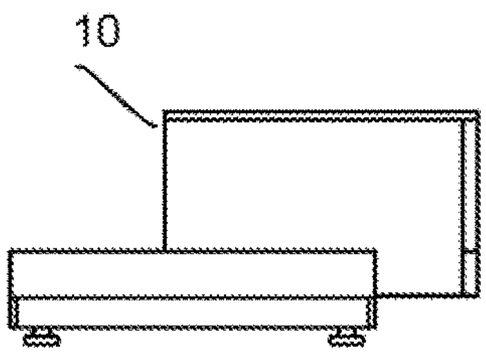

FIG.10D

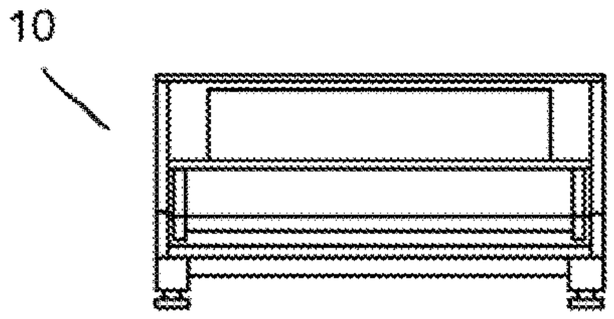

FIG.10E

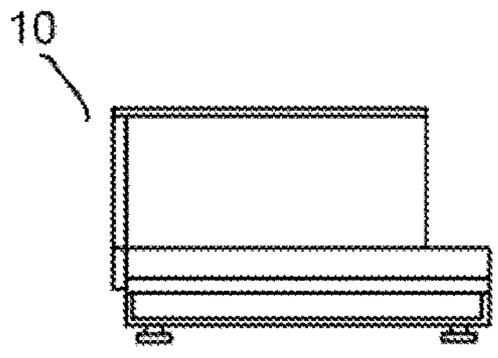

FIG.10F

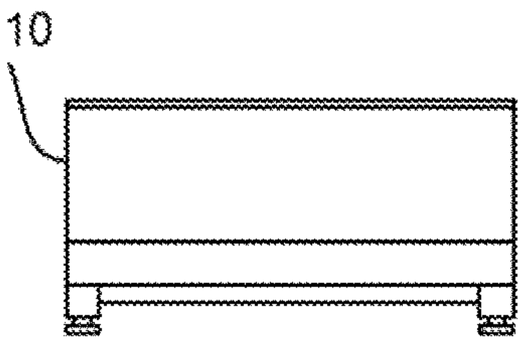

FIG.10G

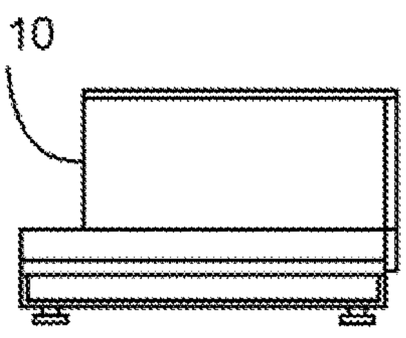

FIG.10H

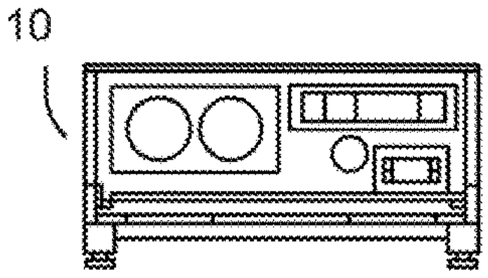

FIG.11A

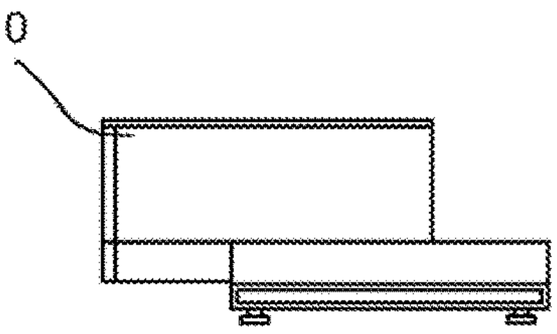

FIG.11B

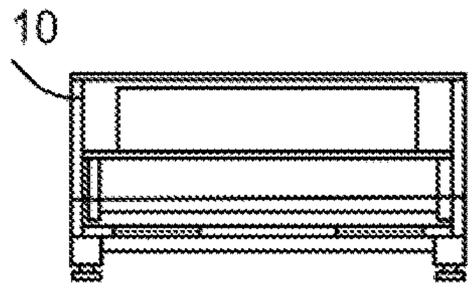

FIG.11C

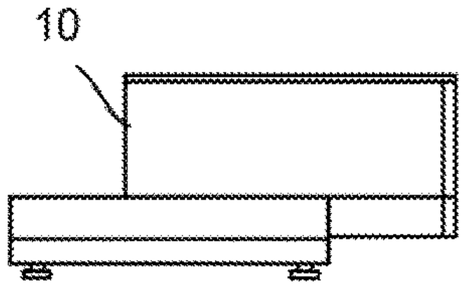

FIG.11D

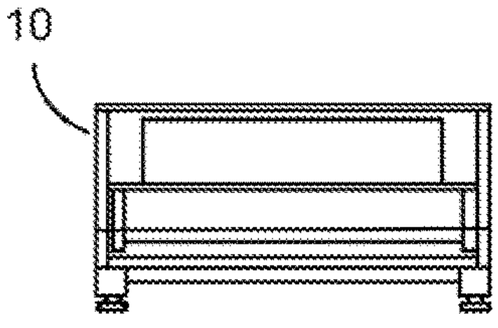

FIG.11E

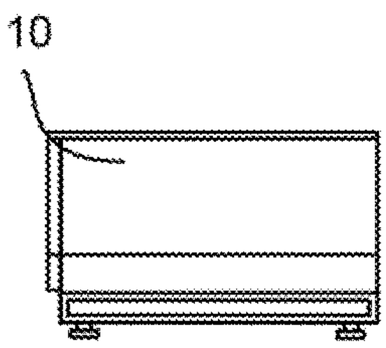

FIG.11F

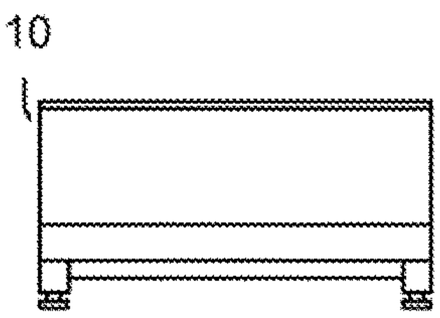

FIG.11G

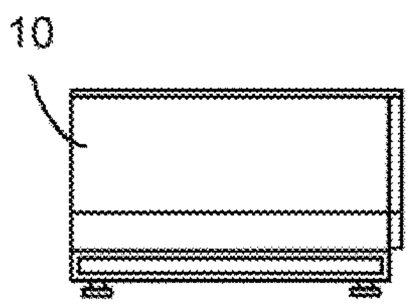

FIG.11H

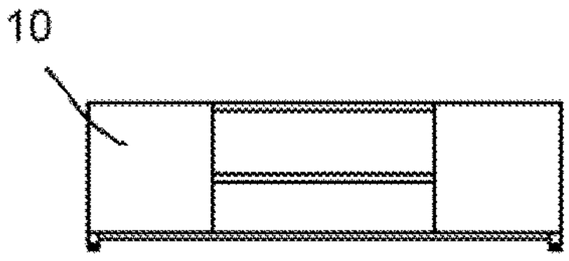

FIG.12A

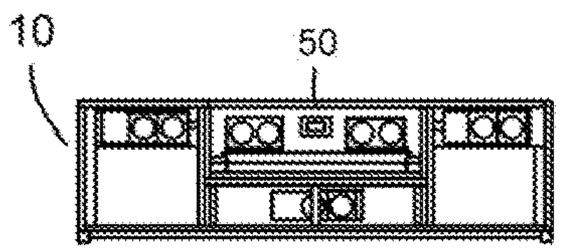

FIG.12B

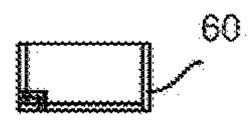

FIG.12C

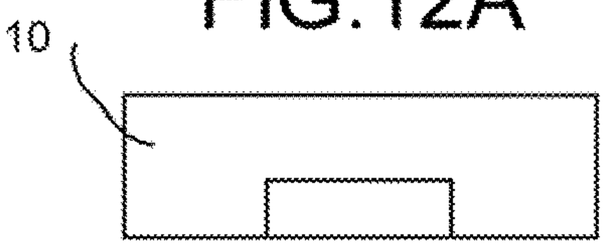

FIG.12D

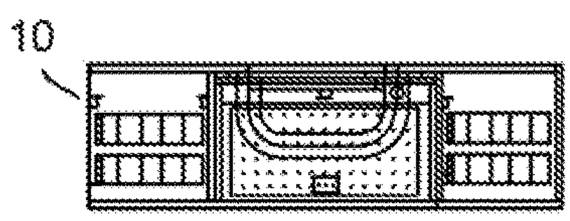

FIG.12E

FIG.12F

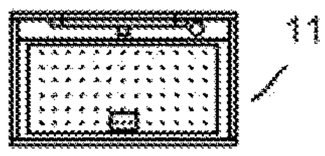

FIG.12G

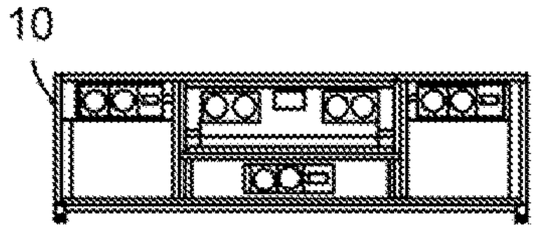

FIG.12H

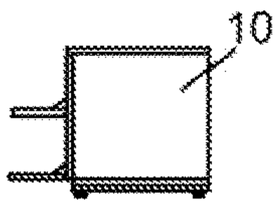

FIG.12I

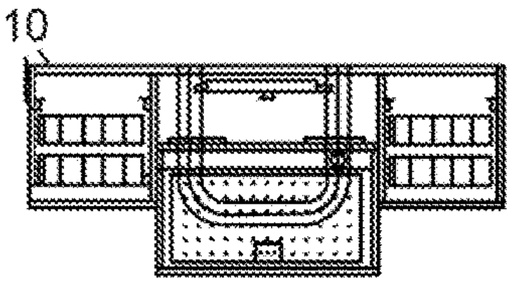

FIG.12J

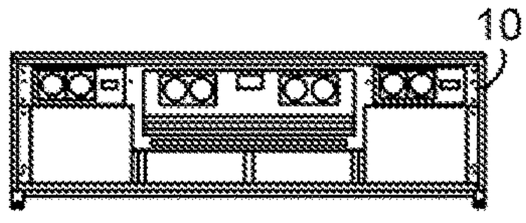

FIG.12K

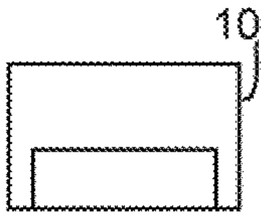

FIG.13A

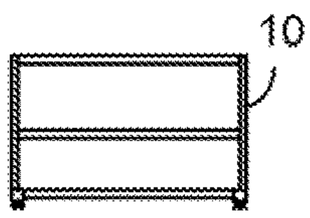

FIG.13B

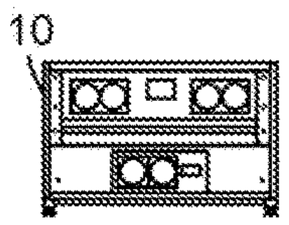

FIG.13C

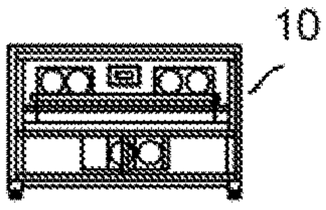

FIG.13D

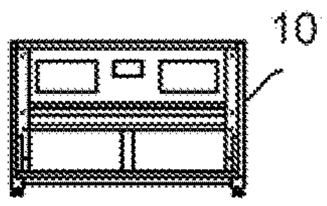

FIG.13E

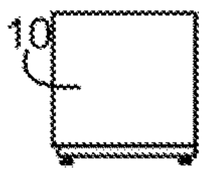

FIG.13F

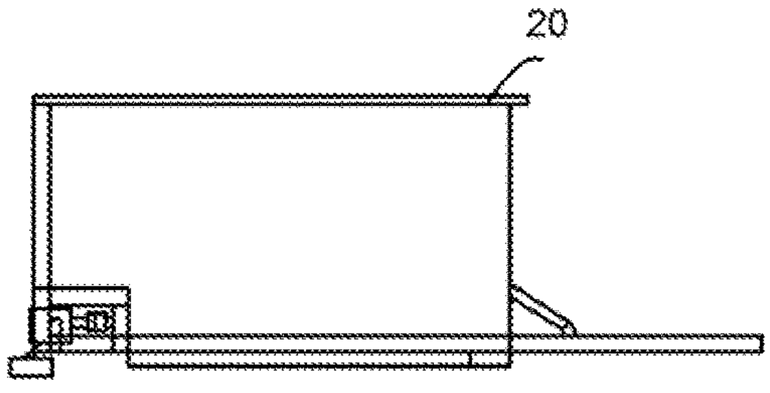

FIG.14A

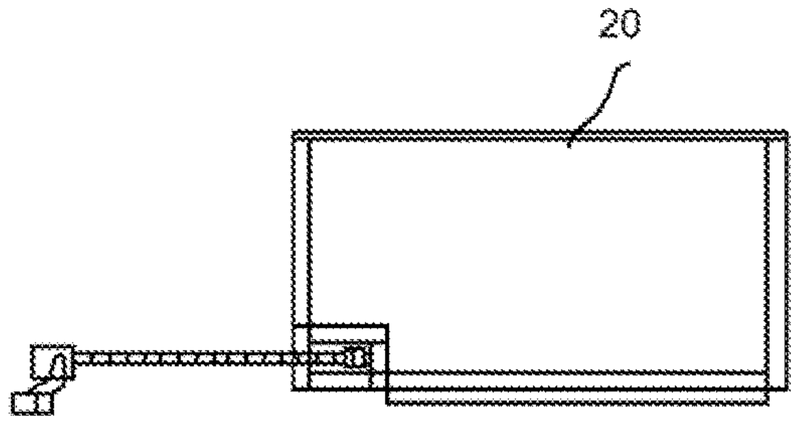

FIG.14B

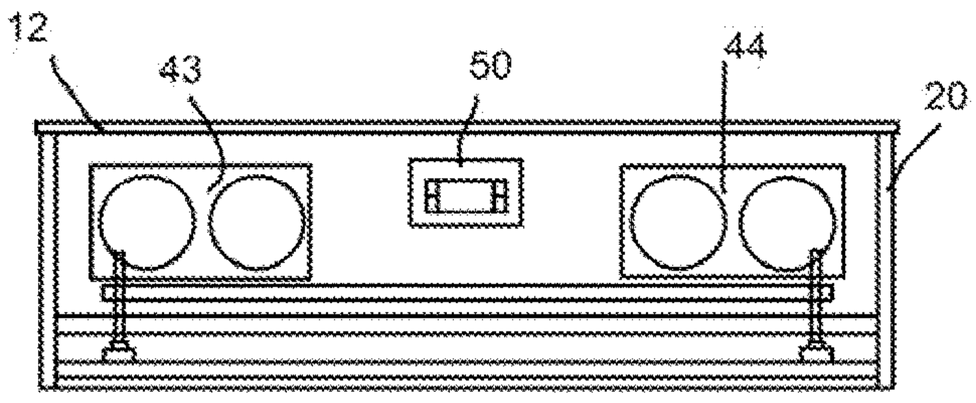

FIG.14C

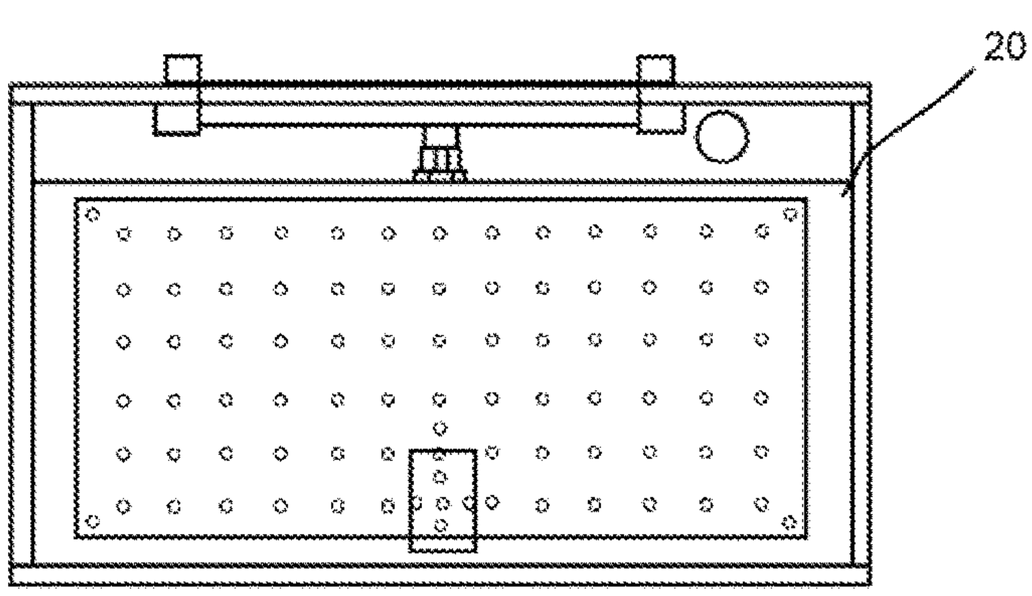

FIG.14D

UNIVERSALLY ADJUSTING ULTRA SHORT THROW PROJECTOR CREDENZA

CLAIM OF PRIORITY

The present application includes subject matter disclosed in and claims priority to a provisional application entitled "Universally Adjusting Ultra Short Throw Projector Credenza" filed Nov. 11, 2019 and assigned Ser. No. 62/933,782, describing an invention made by the present inventor, herein incorporated by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to audio/visual entertainment systems. The present invention is more particularly directed to display systems utilizing ultra-short throw video projection systems.

2. Description of Related Prior Art

As is known in the art, ultra-short throw (UST) projectors have various predetermined throw ratios varying depending on projector design, style, and manufacturer specifications. Two companies dominate the market for manufacture UST credenzas to support or secure UST projectors. The current solution is a fixed credenza that houses the UST projector, or otherwise support an UST on a top surface of the cabinet. When projecting onto 100+ inches and larger screens, due to the throw ration, the UST must be pulled from the wall/screen and the cabinets are often set up away from the wall. In certain circumstances with long throw rations, or larger screen sizes, the UST is positioned well into the entertainment venue. In some cases, a cabinet could be set as much as two feet from the projection wall/screen. From an ergonomic design perspective, this impinges on the working and sound space in the entertainment room, impedes the owners living space, and aesthetically incorrect.

Current models offered are either custom made, or pre-manufactured for specific projectors, are not universal. When the UST is to be replaced or upgraded, or a different size screen is required, or the UST becomes obsolete, the supporting furniture cabinets are not adaptable, or upgradeable to the new design, and must also be replaced. (Example: 4K projection is replaced by 8K projection, and the customer wishes to upgrade his or her equipment to 8K, the cabinet design is only made for the obsolete projector and you have to buy a new cabinet).

Prior art ultra-short throw (UST) cabinets offer a low-profile credenza with built in rising screens. Sliding capability for a UST compartment has not been known, leading to credenza, and other further supporting the USTs to be positioned either too close, or away from the wall eating up space in the entertainment venue room.

The current cabinets available have to be pulled away from the wall substantially for larger UST projection images. They do not have cooling systems and components are exposed to outside particles that can get clogged into filters and heat sinks causing equipment to work harder and harder over its life span till it fails.

The current solution may be piece of furniture, preferably a credenza with a hole cut out of the top sized to the exact dimensions of the projector going in it, often with minimal space around the perimeter. They do not have any cooling, and do not protect the projector from dust intake. If the customer wants to achieve more than 100-inch projection, the cabinet has to be pulled substantially away from the wall.

Prior art cabinets offer low-profile compact cassette "sleeve" with built-in rising screens, but do not offer a sliding capability for their UST compartment, and therefore cannot be positioned close to the screen.

Speaker doors have yet been adopted in this functional furniture to remedy the issue of the UST projector AV equipment taking up the space where the center channel or peripheral AV equipment would traditionally go.

None of the current solutions offer a complete all-in-one AV/home theater UST projection credenza that can create from 100"-150" of display with full sound in thirty seconds.

It is therefore a primary object of the present invention to provide a display system that allows for flush or near flush positioning against a forward wall.

It is another object of the present invention provide a UST display system with climate, dust, and/or safety features.

These and other objects of the present invention will become apparent to those skilled in the art as the description thereof proceeds.

SUMMARY OF THE INVENTION

The present invention is directed to a complementary furniture system and UST with a universal sliding UST Projector compartment. A filtered climate-controlled cooling system may be designed to ensure the longevity of the equipment and projector inside through proper thermal and dust management. A magnetically-connected actuator drive safety feature may be employed to disengage in the event a safety event.

A manually or motorized ultra-short throw compartment on a wall mounted cabinet may slide out from the projection screen. A preferred embodiment includes a fixed, manually, or motorized floating shelf throw mantel for housing and supporting a UST, or may be a manually, or motorized floor mounted credenza with projector compartment, or may be a fixed, manually, or motorized dedicated universal cabinet.

A universal motorized UST compartment may include a cooling system designed to cool UST projectors. A UST compartment may be fully enclosed and projects images through low iron glass with and without anti-glare film. The UST compartment may be designed to fit all residential ultra-short throw projectors in production.

A chain actuator may be repurposed as an actuator to motorize the forward and backwards movement of the UST projector compartment, or a linear actuator for motorizing forward and backwards the movement may be employed.

A safety magnetic disengage designed to separate with approximately 10 lbs. of pressure in the event a child or adult gets their finger or hand between the UST projector compartment and the cabinet while closing, and self-re-engages with the actuator automatically when closed.

A low-profile rising screen cabinet may be used in conjunction with the motorized UST projector compartment to create an all in one 120"-150" Ultra Short Throw home theater.

An amphitheater style UST projector compartment may slide under the screen cassette to minimize cabinet depth when not in use, and prevents from obstructing projection when extended, and is capable of projecting onto a concealed rising 100"-150" ambient light rejecting (ALR) UST screen.

An ultra-slim high-performance speaker or speaker system may be built into the doors of cabinets embodying this invention, and may be positioned to avoid contact with AV

equipment and UST projectors in the UST compartment behind them, allowing for a truly complete all-in-one AV/Home theater cabinet system.

A motorized UST enclosed or non-enclosed "sled", may provide for universal UST positioning and support. The system may be automated using Google Home and Amazon Echo, and offers 100"-150" of display from a cabinet that is only 14" tall.

A rising screen cassette "sleeve" style AV cabinets may be designed for 100"-150" rising ambient light rejecting UST screens that work in conjunction with the first ever motorized Ultra Short Throw (UST) sled.

A motorized Ultra Short Throw (UST) "shelf" may be designed to be mounted to any existing entertainment credenza that slides the projector out to compensate for throw ratio to make from 100"-150" of projection onto a wall mounted or hung Ambient Light Rejecting UST screens, and is designed to accommodate all UST projectors in production.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be described with greater specificity and clarity with reference to the following drawings, in which:

FIG. **1**A illustrates a frontal view of a credenza and screen embodiment of the present invention with screen extended vertically upwards.

FIG. **1**B illustrates a frontal view of the embodiment of FIG. **1**A.

FIG. **1**C illustrates a top view of the embodiment of FIG. **1**A.

FIG. **1**D illustrates a side view of the embodiment of FIG. **1**A of credenza with projection slide extended and with screen extended vertically upwards.

FIG. **1**E illustrates a partial cutaway frontal view of the embodiment of FIG. **1**A of credenza with screen extended vertically upwards.

FIG. **1**F illustrates a top view of the embodiment of FIG. **1**A of credenza with projection slide extended.

FIG. **1**G illustrates a cross-sectional side view of the embodiment of FIG. **1**A.

FIG. **1**H illustrates a cross-sectional side view of the embodiment of FIG. **1**A of credenza with projection slide extended.

FIG. **2**A illustrates a frontal view of a credenza system embodiment of the present invention.

FIG. **2**B illustrates a top view of the embodiment of FIG. **2**A.

FIG. **2**C illustrates a cross-sectional frontal view of the embodiment of FIG. **2**A.

FIG. **2**D illustrates a side view of the embodiment of FIG. **2**A with tail-gates open.

FIG. **2**E illustrates a partial cutaway frontal view of the embodiment of FIG. **2**A.

FIG. **2**F illustrates a partial cutaway top view of the embodiment of FIG. **2**A.

FIG. **2**G illustrates a partial cutaway rear view of the embodiment of FIG. **2**A.

FIG. **3**A illustrates a top view of a credenza embodiment of the present invention.

FIG. **3**B illustrates a front view of the embodiment of FIG. **3**A.

FIG. **3**C illustrates a rear view of the embodiment of FIG. **3**A.

FIG. **3**D illustrates a partial cut away front view of the embodiment of FIG. **3**A.

FIG. **3**E illustrates an alternative partial cut away front view of the embodiment of FIG. **3**A.

FIG. **4**A illustrates a left side view of a credenza embodiment of the present invention with sled and screen extended.

FIG. **4**B illustrates a frontal view of the embodiment of FIG. **4**A with screen extended.

FIG. **4**C illustrates a left side view of the embodiment of FIG. **4**A with sled and screen extended.

FIG. **4**D illustrates a top view of the embodiment of FIG. **4**A with screen extended.

FIG. **4**E illustrates a top view of the embodiment of FIG. **4**A.

FIG. **4**F illustrates a left side view of the embodiment of FIG. **4**A with sled and screen retracted.

FIG. **4**G illustrates a frontal view of the embodiment of FIG. **4**A with screen retracted.

FIG. **4**H illustrates a left side view of the embodiment of FIG. **4**A with sled and screen retracted.

FIG. **5**A illustrates a left side view of a credenza embodiment of the present invention lacking a projector with sled and screen extended.

FIG. **5**B illustrates a frontal view of the embodiment of FIG. **5**A with screen extended.

FIG. **5**C illustrates a left side view of the embodiment of FIG. **5**A with sled and screen extended.

FIG. **5**D illustrates a top view of the embodiment of FIG. **5**A with screen extended.

FIG. **5**E illustrates a top view of the embodiment of Figure SA.

FIG. **5**F illustrates a left side view of the embodiment of FIG. **5**A with sled and screen retracted.

FIG. **5**G illustrates a frontal view of the embodiment of FIG. **5**A with screen retracted.

FIG. **5**H illustrates a left side view of the embodiment of Figure SA with sled and screen retracted.

FIG. **6**A illustrates a left side view of the embodiment of FIG. **4**A with sled extended.

FIG. **6**B illustrates a frontal view of the embodiment of FIG. **4**A.

FIG. **6**C illustrates a right side view of the embodiment of FIG. **4**A with sled retracted.

FIG. **6**D illustrates a top view of the embodiment of FIG. **4**A with sled retracted. extended.

FIG. **7**A illustrates a left side view of a credenza system embodiment of the present invention with sled and screen extended.

FIG. **78** illustrates a frontal view of the embodiment of FIG. **7**A with screen extended.

FIG. **7**C illustrates a left side view of the embodiment of FIG. **7**A with sled and screen extended.

FIG. **7**D illustrates a top view of the embodiment of FIG. **7**A with screen extended.

FIG. **7**E illustrates a top view of the embodiment of FIG. **7**A.

FIG. **7**F illustrates a left side view of the embodiment of FIG. **7**A with sled and screen retracted.

FIG. **7**G illustrates a frontal view of the embodiment of FIG. **7**A with screen retracted.

FIG. **7**H illustrates a left side view of the embodiment of FIG. **7**A with sled and screen retracted.

FIG. **8**A illustrates a left side view of the embodiment of FIG. **7**A with sled and screen extended.

FIG. **8**H illustrates a frontal view of the embodiment of FIG. **7**A with screen extended.

FIG. **8**C illustrates a left side view of the embodiment of FIG. **7**A with sled and screen extended.

FIG. **8**D illustrates a top view of the embodiment of FIG. **7**A with screen extended.

FIG. **8**E illustrates a top view of the embodiment of FIG. **7**A.

FIG. **8**F illustrates a left side view of the embodiment of FIG. **7**A with sled and screen retracted.

FIG. **8**G illustrates a frontal view of the embodiment of FIG. **7**A with screen retracted.

FIG. **8**H illustrates a left side view of the embodiment of FIG. **7**A with sled and screen retracted.

FIG. **9**A illustrates a left side view of a projector sled of an embodiment of the present invention with sled extended.

FIG. **9**B illustrates a rear view of the embodiment of FIG. **9**A.

FIG. **9**C illustrates a right-side view of the embodiment of FIG. **9**A with sled extended.

FIG. **9**D illustrates a left side view of the embodiment of FIG. **9**A with sled retracted.

FIG. **9**E illustrates a front view of the embodiment of FIG. **9**A.

FIG. **9**F illustrates a right-side view of the embodiment of FIG. **9**A with sled retracted.

FIG. **10**A illustrates a rear view of a projector sled of an embodiment of the present invention.

FIG. **10**B illustrates a left side view of the embodiment of FIG. **10**A with sled extended.

FIG. **10**C illustrates a partial cut away rear view of the embodiment of FIG. **10**A.

FIG. **10**D illustrates a right-side view of the embodiment of FIG. **10**A with sled extended.

FIG. **10**E illustrates a partial cut away frontal view of the embodiment of FIG. **10**A.

FIG. **10**F illustrates a right-side view of the embodiment of FIG. **10**A with sled retracted.

FIG. **10**G illustrates a front view of the embodiment of FIG. **10**A.

FIG. **10**H illustrates a right-side view of the embodiment of FIG. **10**A with sled retracted.

FIG. **11**A illustrates a rear view of a projector sled of an embodiment of the present invention.

FIG. **11**B illustrates a left side view of the embodiment of FIG. **11**A with sled extended.

FIG. **11**C illustrates a partial cut away rear view of the embodiment of FIG. **11**A.

FIG. **11**D illustrates a right-side view of the embodiment of FIG. **11**A with sled extended.

FIG. **11**E illustrates a partial cut away frontal view of the embodiment of FIG. **11**A.

FIG. **11**F illustrates a right-side view of the embodiment of FIG. **11**A with sled retracted.

FIG. **11**G illustrates a front view of the embodiment of FIG. **11**A.

FIG. **11**H illustrates a right-side view of the embodiment of FIG. **11**A with sled retracted.

FIG. **12**A illustrates a frontal view of a credenza embodiment of the present invention.

FIG. **12**B illustrates a top view of the embodiment of FIG. **12**A.

FIG. **12**C illustrates a rear view of the embodiment of FIG. **12**A.

FIG. **12**D illustrates a side view of the embodiment of FIG. **12**A with tail-gates open.

FIG. **12**E illustrates a partial cutaway frontal view of the embodiment of FIG. **12**A.

FIG. **12**F illustrates a partial cutaway top view of the embodiment of FIG. **12**A with sled retracted.

FIG. **12**G illustrates a partial cutaway top view of the embodiment of FIG. **12**A with sled extended.

FIG. **12**H illustrates a partial cutaway rear view of the embodiment of FIG. **12**A.

FIG. **12**I illustrates a side view of the sled of embodiment of FIG. **12**A.

FIG. **12**J illustrates a partial cutaway frontal view of the sled of embodiment of FIG. **12**A.

FIG. **12**K illustrates a partial cutaway top view of the sled of embodiment of FIG. **12**A.

FIG. **13**A illustrates a top view of a credenza embodiment of the present invention.

FIG. **13**B illustrates a front view of the embodiment of FIG. **13**A.

FIG. **13**C illustrates a rear view of the embodiment of FIG. **13**A.

FIG. **13**D illustrates a partial cut away front view of the embodiment of FIG. **13**A.

FIG. **13**E illustrates an alternative partial cut away front view of the embodiment of FIG. **13**A.

FIG. **13**F illustrates a right-side view of the embodiment of FIG. **13**A.

FIG. **14**A illustrates a right side view of a compartment sled of an embodiment of the present invention. with the sled retracted.

FIG. **14**B illustrates a partial cutaway frontal of the embodiment of FIG. **14**A.

FIG. **14**C illustrates a partial cutaway top view of the embodiment of FIG. **14**A.

FIG. **14**D illustrates a right side view of the embodiment of FIG. **14**A with the sled extended.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

AEGIS AV Cabinets has developed a completely universal solution (credenza/cabinet) designed to accommodate all Ultra Short Throw (UST) projectors in production, and is completely upgrade-able to technology and design advancements in projection. (Example: when 8K projection is replaced by 8K Projection, the universal UST compartment is able to house the new projector)

The current solution is a credenza with a hole cut out of the top of it that is the exact dimensions of the projector going in it. They do not have any cooling, and do not protect the projector from dust intake. If the customer wants to achieve more than 100-inch projection, the cabinet may have to be pulled substantially away from the wall.

A universal cabinet may be designed to accommodate all the ultra-short throw (UST) projectors in production. The UST projector compartment is deep, and may have a cross drilled ventilated floating adjustable shelf that can move in XYZ direction anywhere in the compartment. The UST compartment itself is connected to an actuator **100**, and can slide out of the cabinet for longer throw ratios onto 100+ inch screens.

The UST compartment may be completely enclosed, and may have an ultra-low iron tempered and polished pane of glass over it. The glass may have a very low iron, making it extremely transparent. The image may be shot through the glass, onto the screen above.

The UST compartment may be also equipped with a digitally controlled and filtered cooling system, may have two intake fans **43**, as well as two exhaust fans **44**, and may be completely self-monitoring. All gaps between the glass and door openings have weather stripping along the edges to keep dust from being able to enter the compartment. Main-

taining a pristine environment inside the UST compartment can double the life span of equipment inside, and ensure it operates at its peak performance during its lifespan.

The UST compartment may also incorporate a safety feature designed to prevent injury when the UST compartment is closing. The connection between the actuator **100** and the UST compartment mounting plate may be connected by a low weight magnet, such as a 10-pound magnet, and may be designed to disengage the actuator when sensing any tension, thus eliminating the possibility of injury to adults or children's hands and fingers.

In preferred embodiments, the UST compartment may be used with five different styles of cabinet. 1) Floor Standing designed to work with external screens. 2) Floor Standing designed to work with internally located rising screens. 3) Wall Mounted. 4) Credenza mounted. 5) Over the fireplace.

A universal cabinet that may be designed to accommodate many varied designs of USTs. A UST projector compartment may be deep, and may have a cross-drilled ventilated floating adjustable shelf that can move in XYZ direction anywhere in the compartment. The UST compartment itself may be connected to an actuator **100**, and can slide out of the cabinet for longer throw ratios onto 100+ inch screens.

The UST compartment may be completely enclosed, and may have an ultra-low iron tempered and polished pane of glass over it. The glass may have a very low iron, making it light and extremely transparent. The image may be shot through the glass, onto the screen above.

The UST compartment may be also equipped with a digitally controlled and filtered cooling system, may have two intake fans, as well as two exhaust fans, and may be completely self-monitoring. All gaps between the glass and door openings have weather stripping along the edges to keep dust from being able to enter the compartment. Maintaining a pristine environment inside the UST compartment can double the life span of equipment inside, and ensure it operates at its peak performance during its lifespan.

The UST compartment also may have a safety feature designed to prevent injury when the UST compartment is closing. The connection between the actuator **100** and the UST compartment **11** mounting plate may be connected by a 10 lb. magnet, and may be designed to disengage if there is any tension, thus eliminating the possibility of injury to adults or children's hands and fingers.

The sliding UST compartment allows for the cabinet to be only two inches away from the wall and the UST compartment expands out to a programmed position to accommodate projecting images onto 100+ inch screens above.

Each UST compartment may include a cross-drilled and ventilated floating shelf that can be adjusted in XYZ direction inside the compartment to make easy quick adjustments. The holes drilled in the shelf are designed for the projector to be able to breath in every direction without obstructing ventilation.

The UST compartment may have a low iron pane of glass over the projector to make it more discrete and hidden, while not obstructing the image or color of the projected image passing through it in any way.

The UST compartment may have a standard digitally controlled and monitored filtered cooling system **41** that sucks in clean air through two intake fans, and may be exhausted out with two other fans. Customer can set temperature triggers for when to start cooling, and also include a smart featured designed to start fans at a lower RPM before the rigger, and will ramp up RPM's as the temperature moves closer to the temperature threshold chosen. Filters easily pop off, can be cleaned in a sink, dried with a paper towel, and re used.

The UST compartment may be enclosed with weather stripping along all the door openings and gaps to prevent dust from being sucked in by the projector, or the UST compartment exhaust fans.

The UST compartment may be completely universal for all residential UST projectors in production, and when newer UST projectors come out, and older models become obsolete, the UST compartment preferably accommodates new designs, shapes and sizes (within reason).

Components may include:

1. 21-inch drawer slider assembly (Blum)
2. ¾ medium density fiber core with high pressure laminate, or maple veneer wood
3. Four 6-inch cooling fans with filters and digitally controlled thermostat (AC Infinity)
4. ¼-inch low iron tempered and polished glass
5. ⅛- and ¼-inch foam weather stripping
6. Soft open lid stays (such as those provided by SUGATSUNE)
7. Two 90-degree flap hinges (such as those provided by BLUM)
8. 250 Lb. actuator, remote, and controller box (NEXUS 21)
9. 2×2¼-inch steel plate
10. 10 lb. magnet
11. Fifteen connectors (as provided by KNAPP)
12. Four 4-inch leg levelers
13. One magnetic door latch
14. 3M VHB Adhesive tape
15. floor standing with 100, 120, 150 rising screens.
16. 12"-16" chain actuator
17. Linear actuator with 12"-16" of travel

The credenza may be first constructed and connected to its frame and base. After the drawer slides are installed and screwed into its base and side walls of the middle section.

The UST compartment pieces are cut, edge banded, and assembled using snap together connectors (such as those provided by KNAPP). The CNC machine may use a specially designed bit to routed paths in the wood. Connectors are screwed to the edges of the connecting parts, and parts are snapped together.

The connectors allow play so the parts can slide and be adjusted. Once the UST compartment is aligned, joints that are hidden get nailed for a firm hold on all the connections of the UST compartment panels.

A 2-inch by 2-inch metal plate may be screwed to a mount that may be hammered (rubber mallet) into a rectangular hole in the floor of the UST compartment and meets with a second layer that connects to the actuator **100**. Once aligned, nails are put in to hold its place.

UST compartment may be then placed onto the drawer slides and locked into position using the drawer connectors from the drawer slider assembly mounted at the front corners under the UST compartments belly.

Thermostat **51** and cooling fans **41** are installed and wired. $\frac{1}{8}^{th}$- and ¼-inch peal and stick weather stripping may be applied to the front and top open edges of the cabinet.

Soft open lid stays are screwed into pre drilled holes in the inside walls of the UST compartment, ninety-degree flap hinges are installed in pre drilled holes. Door may be attached to the flap hinges, and the soft open lid stays are screwed to the tailgate style door. Latch magnet may be installed and tested with door. Magnets may be attached to the actuator **100** mounting plate using their own magnetic strength and are held using 3M VHB adhesive tape. Actua-

tor, IR box, and controller, and other similar devices, may be mounted to the credenza shelf the slides and UST compartment are connected to. Drawer may be closed and makes contact with the magnet.

Before or after glass may be installed, the compartment may be function-tested, and adjustments are made where needed. T-nuts may be hammered into the pre-drilled holes in the corners of the adjustable shelf. Legs levelers **14** are then screwed in and the shelf may be inserted into the UST compartment.

The actuator **10** for the UST compartment **11** can be controlled by radio frequency and/or infrared (IR) triggers, and can be integrated with all the major home automation controllers on the market. The device can be opened and closed using the IR remote control, tablet or phone connected to the customers home automation controller, or using voice assistants like AMAZON Alexa and GOOGLE Home.

After the projector is set up within the furniture, the UST compartment may be slid out to the desired position, a LAN connector may be plugged into the controller, and the drawer may be programmed to only slide out to that position from then on unless the connector is removed from the controller.

When the motion to open is triggered, the actuator motor **101** may rotate a screw in the actuator **100** to slowly push the metal plate and the UST compartment forward with it. The Slide drawer is preferably programmed to stop at the pre-programmed spot. When the command to close the compartment may be triggered, the UST compartment may return back to its original flush closed position.

In the event that a child or someone get their hand or fingers caught in the gaps of the UST slider and the outside cabinet, a ten-pound magnet may be designed to break away from the UST compartments metal plate to prevent injury. The actuator will still continue to retract, and when it gets to its full position, it hits a specially designed lip that brings the mounting plate and magnets upright. To re-engage, gently slide the UST compartment shut, and the compartment may be re engaged and re aligned.

The UST compartment cooling system may be controlled by a digitally controlled thermostat **51**. Customers can choose the temperature threshold for when they want the fans to cool. There may be also a smart mode that turns the fans on before the trigger at a lower RPM to start moving air through the compartment, then gradually ramps up the RPMs as the temperature climbs to full speed when it hits the threshold.

Attached filters easily pop off with no tools, can be cleaned in the sink, dried, and re used. You can also set temperature alarms to notify of when filters need to be cleaned.

Tailgate style door opens and close and may be held closed using a magnetic latch. When open, the adjustable shelf may be raised and lowered using the four leg levelers **14**, and can slide in any direction in the cabinet by hand tor projector image adjustments.

Every aspect of the design is important to achieve proper calibration, safety, and overall function. The only element that could be added would be a weight threshold on the actuator that would reverse the motor when it hits the 10 lbs. of pressure if someone got a hand or finger caught in the gaps during closing. This could be added, but it would not be as fool proof as the magnetic break away design.

Referring to FIG. **1**, an ANDROMEDA version is shown. Screen **1** may next into credenza **10**. Motorized sled **20** may be set on actuator **100** to extend out of credenza **10** backwards into room, when credenza **10** set along forward wall, with rea of credenza facing wall. Screen may include anti-pinch hook-and-loop fastener **6**. Credenza **10** may include amphitheater USA compartment **11** to allow door wide projection. Amphitheater **30** includes angled side walls **31** and back wall **32** to allow for light path of rays **24** to from UST **22** to screen **1**. Cassette **11** is hidden in the credenza under black glass **12** that is mounted to the top of the screen **1**. Actuator **100** is fixed onto a surface **33** of the credenza, and extends via linear or chain link **102** to sled **20**. A magnetic plate **110** may mate with sled **20**, as between sled end/back and actuating link to allow for safety release.

Figures demonstrate vents **40** and controllers **50** to allow for separate climate control of each compartment in the credenza unit **10**. Credenza being referred to here generally as a furniture or system capable of maintaining, supporting and providing access to components described herein. Sled **20** includes raised plate stand **21** with apertures to allow for air flow around projector. Vents **40** provide for incoming or outgoing airflow, preferably outgoing. Air exhaust lines **42** are show for items that are placed above the lowest level to run in horseshoe pattern causing a draft across the compartment to aide in cooling/air circulation. Bottom vents are placed on the lower surface of the compartment(s) and are filtered, preferably by HEPA, to allow inflow of air to be drawn and exhausted out of vent **40**. Tail gate doors **60** may be opened to provide access to components within compartments.

Referring to FIG. **9**, et seq. magnetic disengage for safety is provided with actuator **100** and UST. Preferably the safety magnet is set to release at 10-17 lbs. of pressure to prevent serious injury. Black glass surface **12** is provided, tempered polished with grey screen printed to blend in, printed black underneath. Infinity glass is preferred to be exposed at upper end of sled and set to provide no gap between the glass and the cassette sleeve a.k.a. sled.

Intake vents are preferably filtered, and may be repurposed from electronics, such as a 120 mm intake fans **43** with snap on reusable air filters. Exhaust fan **44** may be set.

I claim:

1. A credenza for the support, storage, and presentation of audio visual media, said credenza comprising:

a. a leg support;

b. a sled comprising a sealed compartment with the exception of vents and exhausts, a transparent top; a raised support comprising apertures; an exhaust vent, an intake vent, a controller with thermostat and controlled and monitored filtered cooling system coupled with at least one of said intake fan or exhaust fan;

c. an actuator mounted to a surface of said credenza and coupled with said sled, said actuator comprising a motor, and an extension arm, said extension arm coupled to a magnetic plate, said magnetic plate coupling said actuator and said sled; and

d. an ultra-short throw projector mounted in said sled said ultra-short throw projector directing light upwards through said transparent top.

2. The credenza of claim **1** further comprising an amphitheater top with angled back wall, and complementary angled side walls comprising an amphitheater shape.

3. The credenza of claim **1** comprising a retracted display screen.

4. The credenza of claim **1** wherein said credenza is mounted to a wall.

5. A method of displaying an audio and/or visual program, comprising the steps of:

a. mounting an ultra-short throw projector in a sled;

b. actuating the sled horizontally away from a screen while maintaining a support furniture in location relative a projection screen and/or wall;

c. locking the sled in a predetermined position.

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