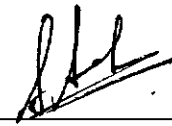


ABSTRACT

## FOLDABLE ELEVATOR

The present subject matter provides foldable elevator. The foldable elevator is foldable and de-foldable in nature. The foldable elevator comprises interlocking platforms to form chamber to carry objects. The subject matter further provides a process for manufacturing foldable elevator, particularly foldable hydraulic elevator.



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# FOLDABLE ELEVATOR

## TECHNICAL FIELD

[001] The present subject matter generally relates to a foldable elevator. Particularly, the subject matter relates to manually or automatically operated foldable elevator. More particularly, the subject matter relates to a compact, cost effective and user friendly foldable hydraulic elevator.

## BACKGROUND

[002] Conventional/existing foldable elevator including hydraulic elevator has several limitations such as lifting of an object to a certain restricted height; carrying mostly single object at a time and also complex in nature, hence it is not user friendly. Also it is common observations that a continuous pressure such as hydraulic pressure required for the movement of the conventional/existing foldable elevator, therefore continuous consumption of energy.

[003] More so, the foldable elevator is one of the cost effective equipment for the mobility of people, who have difficulty in walking and aged people.

[004] As the operation of conventional foldable elevator and conventional foldable hydraulic elevators lead to continuous energy consumption, thereby more maintenance cost and also complex in nature. Therefore, not only running devices such as conventional foldable elevator and conventional foldable hydraulic elevator is expensive but also required proper maintenance. In view thereof, it is desirable of energy efficient, cost effective foldable hydraulic elevator, wherein the running cost of a foldable hydraulic elevator and similar other devices are brought under control and at the same time occupied minimal space for operation.

## SUMMARY OF THE SUBJECT MATTER

[005] Although the subject matter is explained with the help of an example of foldable hydraulic elevator, however, it shall become abundantly clear after reading this specification, that the subject matter may, without departing from the spirit and scope of

the subject matter, also be applied to other similar devices, such as electric based elevator, wind power based elevator, sensor based elevator, Screw based elevator, lever based elevator, portable hydraulic elevator, portable foldable hydraulic elevator or other similar devices.

[006] The present subject matter provides a foldable elevator that not only has relatively lower running and maintenance cost but also required minimal space to operate. In past, foldable elevator has limited scope and may consume continuous energy to operate, may leads to more energy consumption. Also no provision of utilization of gravity force for controlled downward movement of the elevator. Hence the present subject matter solve the aforementioned and other problems by providing foldable elevator. The elevator is foldable and de-foldable in nature, so gets folded and de-folded, whenever required.

[007] In one embodiment, the present subject matter provides a hydraulically operated foldable elevator. The foldable hydraulic elevator comprises at least one interlocking platform, a hydraulic cylinder, a power pack, a guide rail, a pulley, atleast one frame and a manual system to control the movement of elevator during the emergency. The interlocking platform is configured to be coupled with each other to provide a chamber. The interlocking platform is foldable and de-foldable in nature. During rest or un-operation mode, the hydraulic elevator is in folded condition and to start the operation, the elevator gets de-folded. Further during de-folding, first left platform get de-folded, then right platform and at last bottom platform and interchangeably. The bottom platform gets connected to hydraulic cylinder through a wire, a rope, a chain, a belt and a similar device. The one end of wire/rope fitted to the top of the interlocking platforms and other end is fitted to bottom extended arm of hydraulic cylinder. It is important to note that the height of cylinder would be pre-determined based on total travel distance of the foldable hydraulic elevator and the height of the cylinder would almost half of the total travel distance of the foldable hydraulic elevator. The upward movement of elevator is being governed and controlled by hydraulic pressure, whereas the downward movement is being governed and controlled by gravitational force. Thereby minimal consumption of energy to operate the foldable hydraulic elevator and also the elevator is well equipped with interlock system for safety purpose and to avoid accidents.

[008] In another embodiment, the foldable hydraulic elevator of present subject matter comprises at least one interlocking platform, a hydraulic cylinder, a hydraulic power pack, a guide rail, a pulley, atleast one frame and a manual system to control the movement of elevator during emergency. The hydraulic power pack is a driving unit comprises an electrical motor and a hydraulic pump. The hydraulic pump supply hydraulic oil from oil reservoirs to various valves such as pressure control valve, direction control valve, check valve etc. The electrical panel of the hydraulic power pack provide pre-determined electrical signals, which mainly control the upward and downward movement of the elevator. This electrical signals are of low voltage direct current (D.C.) to prevent any adverse incidents. The present subject matter also provides a method for manufacturing the foldable Hydraulic elevator.

[009] In one embodiment, the present subject matter provides a foldable hydraulic elevator comprises interlocking platforms, which interlink to form chamber to carry object. The interlocking platform is foldable and de-foldable in nature. The interlocking platform is configured to be engaged to provide chamber. The chamber is configured to be connected with hydraulic cylinder through wire/rope/chain/belt or similar device. The one end of wire/rope fitted with the top of the interlocking platform and other end is fitted through pulley to hydraulic cylinder. It is important to note that the height of hydraulic cylinder would be pre-determined and based on total travel distance of the foldable hydraulic elevator. The height of the hydraulic cylinder is almost half of the total travel distance of the foldable hydraulic elevator.

[0010] The present subject matter provides a hydraulically operated foldable elevator. The foldable hydraulic elevator comprises an interlocking platform. The interlocking platform interlink to provide chamber to carry objects. The interlocking platform is foldable and de-foldable in nature. During rest or un-operation phase, the interlocking platform is in folded mode on the ground or along with the wall, therefore occupied minimal space for operation. Further during the operation mode, elevator starts de-folding. At first, left platform get de-folded, then right platform and at last bottom platform and interchangeably. The bottom platform gets connected to hydraulic cylinder through wire/rope/belt/chain. The one end of wire/rope/chain/belt is fitted with top of the interlocking platform and other end is fitted through pulley to bottom extended arm of the hydraulic

cylinder. The system is well supported by safety interlock system to avoid adverse incidents. In one embodiment, the present subject matter provides a method for manufacturing the foldable hydraulic elevator, wherein the downward movement of the elevator is governed and controlled by gravitational force in controlled manner.

[0011] In one embodiment, the present subject matter provides a lever operated foldable elevator. The lever operated foldable elevator is connected with lever system through wire/ rod/chain. The wire/rode/chain plays a significance role in the upward & downward movement of the elevator. The gravitational force play a prominent role for the downward movement of the foldable elevator in controlled manner. The present subject matter also provides a method for manufacturing the foldable elevator, which may be folded and de-folded, whenever required. The present subject matter also provides a method for manufacturing the lever operated foldable elevator.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

[0012] The subject matter shall now be described with reference to the accompanying figures, wherein:

[0013] FIG. 1 shows a schematic diagram of a foldable hydraulic elevator 100 according to an embodiment of the present subject matter;

[0014] FIG. 2 shows a schematic diagram of the foldable hydraulic elevator 100 in accordance with one embodiment of the present subject matter;

[0015] FIG. 3 shows a schematic diagram of the foldable hydraulic elevator 100 in accordance with one embodiment of the present subject matter;

[0016] FIG. 4 shows a schematic diagram of the foldable hydraulic elevator 100 in accordance with one embodiment of the present subject matter;

[0017] FIG. 5 shows a schematic diagram of the foldable hydraulic elevator 100 in accordance with one embodiment of the present subject matter;

[0018] FIG. 6 shows a schematic diagram of the foldable hydraulic elevator 100 in accordance with one embodiment of the present subject matter;

[0019] FIG. 7 shows a schematic diagram of the foldable hydraulic elevator 100 in accordance with one embodiment of the present subject matter; and

[0020] FIG. 8 shows a schematic diagram of the foldable hydraulic elevator 100 in accordance with one embodiment of the present subject matter.

[0021] FIG. 9 shows a schematic diagram of the lever operated foldable elevator 900 in accordance with one embodiment of the present subject matter.

[0022] FIG. 10 shows a schematic diagram of the lever operated foldable elevator 900 in accordance with one embodiment of the present subject matter.

### **DESCRIPTION OF THE SUBJECT MATTER**

[0023] Before the present subject matter is described in further detail, it is to be understood that the subject matter is not limited to the particular embodiments described, as such may, of course, vary. It is also to be understood that the terminology used herein is for the purpose of describing particular embodiments only, and is not intended to be limiting, since the scope of the present invention will be limited only by the appended claims. It must be noted that as used herein and in the appended claims, the singular forms "a", "an", and "the" include plural referents unless the context clearly dictates otherwise.

[0024] FIG. 1 shows a schematic diagram of a foldable hydraulic elevator 100 according to an embodiment of the present subject matter. The foldable hydraulic elevator 100 comprises a power pack 101, a hydraulic cylinder 103, a guide rail 105, a left frame 107, a right frame 109, a pulley 111, a support frame 113, left platform 115, right platform 117, and bottom platform 119. These left platform of the elevator, right platform of the elevator and bottom platform of the elevator configured to be engaged together to form chamber 121 to carry objects.

[0025] The foldable hydraulic elevator 100 is monitored and operated by hydraulic system. The hydraulic system of the foldable hydraulic elevator comprises hydraulic power pack 101 & hydraulic cylinder 103. The hydraulic power pack 101 generate hydraulic power to operate the elevator 100. The hydraulic power pack 101 comprises an electrical motor and hydraulic pump. The hydraulic pump supply hydraulic oil from oil reservoirs to various valves such as pressure control valve, direction control valve, check valve etc. The electrical panel

of the hydraulic power pack **101** provide pre-determined electrical signals, which mainly control the upward and downward movement of the elevator **100**. This electrical signals are of low voltage direct current (D.C.) to prevent any adverse incidents. The electric motor configured to connect with external power source. The electric motor get power from external power source to generate the hydraulic pressure. The hydraulic power pack **101** is configured to be engage with hydraulic cylinder **103**. The hydraulic cylinder **103** is configured to be supported with the left frame **107**, the right frame **109**, the support frame **113** and the guide rail **105**. The guide rail **105** is configured to be attached to the rigid and static object to fix the foldable hydraulic elevator **100**. The guide rail **105** is configured to be engaged with the left frame **107** and the right frame **109**. The left frame **107** and right frame **109** is configured to be connected with pulley system **111**. The pulley system **111** supports the upward and downward movement of hydraulic elevator **100**. The pulley system **111** comprises a plurality of rope or wire or chain or belt. The rope/wire/chain/belt have one end attached to the chamber by a rope hitch and the opposite end is anchored in the hoistway and assist in the upward and downward movement of foldable hydraulic elevator **100**. The hydraulic elevator is foldable and de-foldable in nature. The hydraulic elevator may folded and de-folded manually or automatically. The folding and de-folding of the hydraulic elevator is interlocking of left platform **115**, right platform **117** and bottom platform **119**.

[0026] The foldable hydraulic elevator **100** of present subject matter comprises left platform **115**, right platform **117** and bottom platform **119**. The left platform **115**, the right platform **117** and the bottom platform **119** is configured to engage with support frame **113** to provide foldable and de-foldable chamber **121**. The chamber **121** is configured to be engaged with guide rail **105**, hydraulic cylinder **103** and plurality of ropes or similar device. The ropes have one end attached to the chamber and other end anchored in the hoistway. The ropes extended over a sheave mounted on the upper end of the piston. Movement of piston is guided by yoke engaged with the pair of guide rails. During operation, the piston moves within the cylinder and causes to sheaves to raise and lower within the hoistway. Movement of sheave causes the chamber to raise and lower in the hoistway via the engagement with the rope.

[0027] During the rest condition, the left platform **115**, the right platform **117** and the bottom platform **119** of the chamber get compact and closely confined to support frame **113**

and guide rail **105**. During the operation condition, the left platform **115**, right platform **117** and bottom platform **119** get extended outwardly to form chamber **121** to carry passengers.

**[0028]** In one embodiment, the present subject matter discloses a hydraulic elevator **100**. The elevator is foldable and de-foldable in nature and preferably suitable for domestic purpose. The elevator comprises chamber **121** to carry passengers. The chamber **121** comprises interlocking platforms. During the interlocking process, left platform **115** extended outwardly, then right platform **117** and at last bottom platform **119** to construct chamber. The roof or upper portion of the chamber **121** may open or close and it depend upon the requirement. Further the interlocking mechanism of foldable elevator **100** may interchange based on the requirement.

**[0029]** *The present subject matter further provides a method for manufacturing a foldable hydraulic elevator **100**. The method comprises of providing left platform **115**, right platform **117** and bottom platform **119**. These platform interlink to provide chamber **121** to carry passengers. The method provides the power pack **101** for generating hydraulic pressure, the hydraulic cylinder **103** for upward and downward movement of elevator **100** and the support frame **113** to support the foldable hydraulic elevator **100**. The chamber **121** further configured to be engaged with guide rail **105**, hydraulic cylinder **103** and a plurality of ropes. The method includes transmitting hydraulic pressure from power pack **101** to hydraulic cylinder **103** to operate the foldable hydraulic elevator **100**. The method includes providing a guide rail **105** to support the foldable hydraulic elevator. The guide rail **105** is configured to support chamber **121**, hydraulic cylinder **103** and support frame **113**. The method further includes providing a hydraulic cylinder **103** configured to be engaged with power pack **101** to transmit hydraulic power from power pack **101** to chamber **121**. The hydraulic cylinder **103** comprises piston engaged with guide rail **105** and ropes. During operation, the piston moves within the cylinder and causes the sheave to raise and lower within hoistway. Movement of the sheave causes the chamber to raise and lower in the hoistway via the engagement with the rope.*

**[0030]** **FIG. 2** shows a schematic diagram of the hydraulic elevator **100** in foldable position in accordance with one embodiment of the present subject matter. The foldable

hydraulic elevator **100** comprises the power pack **101**, the hydraulic cylinder **103**, the guide rail **105**, the left frame **107**, the right frame **109**, the pulley **111** and the support frame **113**.

[0031] The foldable hydraulic elevator **100** comprises foldable, de-foldable interlocking left platform, right platform and bottom platform to provide chamber **121**. The power pack **101** is configured to engage with the hydraulic cylinder **103**. The power pack **101** is configured to generate and transmit hydraulic power to hydraulic cylinder **103**. The hydraulic cylinder **103** comprises a piston, a fluid tank having a pump disposed within the tank and plurality of ropes. The rope have one end attached to the chamber by a rope hitch and the opposite end anchored in the hoistway. The rope is extended over a sheave mounted on the upper end of the piston. Movement of piston is guided by a yoke engaged with the pair of guide rails. During the operation, the piston moves within the cylinder and causes the sheave to raise and lower within hoistway. Movement of the sheaves causes the chamber to raise and lower in the hoistway via the engagement with the rope.

[0032] It is pertinent to note that during rest or un-operational condition, the foldable hydraulic elevator **100** get folded and remains in folded condition. However during operational or condition mode, first left platform **115** get un-folded, then right platform **117** and at last the bottom platform **119** of get un-folded. These platform interlocked to form chamber **121** to carry passengers. The chamber **121** is configured to be supported by the support frame **113** and the guide rail **105**. The guide rail **105** configured to be connected with support frame **113**. The support frame **113** is configured to be engaged with hydraulic cylinder **103**.

[0033] The present subject matter further provides a method for manufacturing the foldable hydraulic elevator **100**. The method includes providing chamber **121** having left platform, right platform and bottom platform. The method includes interlocking left platform, right platform and bottom platform to provide chamber **121** to carry passengers. The interlocking platform is configured to be connected with the support frame **113** and the guide rail **105**. The method further includes engaging the support frame **113** with guide rail **105** to support the foldable hydraulic elevator **100** and control the function of the foldable hydraulic elevator **100**. The method further includes configuring chamber with hydraulic system. The hydraulic system comprises hydraulic cylinder **103**. The hydraulic cylinder **103**

generate power to operate the elevator. The hydraulic system is configured to be engaged with chamber 121 by resilient wire/rope. The resilient wire/rope/chain/belt operate and control the upward and downward movement of foldable hydraulic elevator 100.

[0034] FIG. 3 shows a schematic diagram of a foldable hydraulic elevator 100 according to an embodiment of the present subject matter. The foldable hydraulic elevator 100 comprises the power pack 101, the hydraulic cylinder 103, the guide rail 105, the left frame 107, the right frame 109, the pulley 111, the support frame 113, the left platform, the right platform 117 and the bottom platform. The left platform of the elevator, the right platform 117 of the elevator and the bottom platform of the elevator engaged together to form chamber to carry objects.

[0035] The foldable hydraulic elevator 100 comprises the left platform, the right platform 117, the bottom platform, the power pack 101, the guide rail 105, the left frame 107, the right frame 109, the pulley 111, the support frame 113 and the resilient rope/wire/belt/chain. The foldable hydraulic elevator 100 of present subject matter is configured to be attached to rigid structure such as wall of the house or other rigid object of the building to fix the elevator with the object. The foldable hydraulic elevator 100 get fixed with rigid object with the help of guide rail 105. In other sense, the guide rail 105 provide rigidity to foldable hydraulic elevator 100. Further the guide rail 105 is configured to be supported with the set of pulley. The set of pulley comprises resilient rope or wire or belt or chain being connected with bottom part of the interlocking platforms of the foldable hydraulic elevator 100 for upward and downward movement of the foldable hydraulic elevator 100. The necessary power for movement of hydraulic elevator 100 is being provided by power pack 101. The power pack 101 comprises an electrical motor and hydraulic pump. The hydraulic pump supply hydraulic oil from oil reservoirs to various valves such as pressure control valve, direction control valve, check valve etc. The electrical panel of the hydraulic power pack 101 provides pre-determined electrical signals, which mainly control the upward and downward movement of the elevator. The electrical signals are of low voltage direct current (D.C.) to prevent adverse incidents. The electric motor generate necessary power to operate the foldable hydraulic elevator 100. During the operation, the left platform get extended outwardly, then right platform 117 and at last bottom platform to provide chamber. The chamber is being connected to the set of pulley and guide rail 105 at their

support frame end **113**. The support frame **113** is the back support of the chamber. The chamber is coupled to the support frame **113**, set of pulley and guide rail **105**. The set of pulley is arranged along the guide rail **105** in such a way that foldable hydraulic elevator **100** may occupied minimal space and even during foldable condition, that space may be used for various purpose.

[0036] The platform of interlocking chamber may selected from carbon fiber, aluminum, steel, Iron or similar materials. The platforms interlinked to provide chamber to carry the passengers. As the interlocking platforms are foldable, it may occupied minimal or no space and can be place at any place of the house or industrial apartment. The further advantages of foldable elevator is that it may not require specific space arrangement for installation and operation of elevator. Further during the un-operation/rest condition, the space of elevator may be utilized for other purpose such as parking of vehicle at the night.

[0037] The present subject matter further provides a method for manufacturing a foldable hydraulic elevator **100**. The method includes providing the left platform, the right platform **117** and the bottom platform. These platforms are configured to be coupled to provide chamber. The method further includes engaging the chamber to power pack **101**, hydraulic cylinder **103**, guide rail **105** and the set of pulley. The power pack **101** coupled to the hydraulic cylinder **103**. The necessary hydraulic power to operate the foldable hydraulic elevator **100** is being provided by power pack **101**. The hydraulic cylinder **103** is configured to be connected to the guide rail **105** and set of pulleys and external rigid object to arrange the foldable hydraulic elevator at the appropriate place. The method further provides a resilient rope over the pulley to operate the upward and downward movement of foldable hydraulic elevator. The method includes providing power pack **101** comprises electric motor and oil to generate the hydraulic pressure and transfer the hydraulic pressure to hydraulic cylinder **103**. The method includes coupling the power pack **101** to an external power source. The method includes configuring the foldable hydraulic cylinder **103** along with the wall of the house or Industrial building. The hydraulic cylinder configured to engage with guide rail **105** and a set of pulley. The guide rail **105** support the set of pulley. Further the set of pulley is configured to align with resilient rope or wire or chain or belt. The rope/wire/chain/belt play a prominent role in the upward and downward movement of foldable hydraulic elevator **100**.

[0038] FIG. 4 shows a schematic diagram of a foldable hydraulic elevator 100 according to an embodiment of the present subject matter. The foldable hydraulic elevator 100 comprises the power pack 101, the hydraulic cylinder 103, the guide rail 105, the left frame 107, the right frame 109, the pulley 111, the support frame 113, the left platform 115, the right platform 117, and the bottom platform 119. The left platform 115 of the elevator, the right platform 117 of the elevator and the bottom platform of 119 of the elevator engaged together to form chamber to carry objects.

[0039] The foldable hydraulic elevator 100 according to present subject matter comprises a chamber. The chamber is configured to provide the left platform 115, the right platform 117 and the bottom platform 119. These platform are interlinked to form chamber to carry passengers. The chamber is configured to engage with power pack 101, hydraulic cylinder 103, guide rail 105 and the set of pulley. The power pack 101 comprises electric motor and oil to generate the hydraulic pressure. The power pack 101 may receive the electric power to operate the electric motor from external power source. Further the power source configured to connect with hydraulic cylinder 103. The hydraulic cylinder 103 receive hydraulic pressure from the power pack 101 and operate the upward and downward movement of the foldable hydraulic elevator 100. The hydraulic cylinder 100 is configured to engage with guide rail 105 and the set of pulley. The set of pulley is configured to engage with resilient rope or wire or chain or belt. The resilient rope/wire/chain/belt assist the upward and downward movement of the foldable hydraulic elevator 100. The foldable hydraulic elevator 100 is configured to fix with the rigid support such as wall of house or building with the help of guide rail 105. The guide rail 105 may solid and rigid structure and may made up from steel, aluminum, iron, steel or similar material. The guide rail 105 is configured to engage the foldable hydraulic elevator with wall or rigid support of the house.

[0040] According to the present subject matter, the foldable hydraulic elevator 100 may install at any place based on user requirement. During the operation phase, the elevator get un-folded. To un-fold the foldable hydraulic elevator, left platform 115 get un-folded, then right platform 117 and at last bottom platform 119 to form chamber. The chamber is configured to be engaged with support frame 113. The support frame 113 is configured to be connected with guide rail 105, the set of pulley and the hydraulic cylinder 103. The guide rail 105 get connected to wall of house or rigid structure to fix the foldable hydraulic elevator at

one location. The guide rail **105** further supported by the set of pulley comprises a resilient rope or wire or chain or belt. The resilient rope/wire/belt/chain is connected to set of pulley. The set of pulley control the operation of foldable hydraulic elevator **100**. The necessary hydraulic pressure to operate the foldable hydraulic elevator **100** is come from power pack **101**. The power pack **101** transmit necessary power to hydraulic cylinder **103** to operate the foldable hydraulic elevator **100**.

[0041] The present subject matter further provides a method of manufacturing the foldable hydraulic elevator **100**. The method includes providing the left platform **115**, the right platform **117** and the bottom platform **119**. These platforms interlinked to form chamber to carry passengers. The method further includes coupling the chamber to the support frame **113**. The support frame **113** is configured to connect to guide rail **105** and set of pulley. Further the chamber is configured to engage with power pack **101**. The power pack **101** comprises electric motor and oil. The electric motor generate hydraulic pressure to operate the elevator **100**. The method further includes configuring the power pack **101** with the hydraulic cylinder **103**. The hydraulic cylinder **103** is configured to receive hydraulic pressure from the power pack **101**. The hydraulic cylinder **103** is further provided with support frame **113**, guide rail **105** and the set of pulley to operate and control the operation of foldable hydraulic elevator **100**.

[0042] FIG. 5 shows a schematic diagram of a foldable hydraulic elevator **100** according to an embodiment of the present subject matter. The foldable hydraulic elevator **100** comprises the power pack **101**, the hydraulic cylinder **103**, the guide rail **105**, the left frame **107**, the right frame **109**, the pulley **111**, the support frame **113**, the left platform **115**, the right platform **117**, and bottom platform **119**. The left platform **115** of the elevator, the right platform **117** of the elevator and the bottom platform **119** of the elevator engaged together to form chamber.

[0043] The foldable hydraulic elevator **100** according to present subject matter comprises the left platform **115**, the right platform **117** and the bottom platform **119**. These platforms are interlinked with each other to form chamber to carry passengers. The chamber is configured to engage with power pack **101**, hydraulic cylinder **103**, guide rail **105** and the set of pulley. The power pack **101** comprises an electrical motor and hydraulic pump. The

hydraulic pump supply hydraulic oil from oil reservoirs to various valves such as pressure control valve, direction control valve, check valve etc. The electrical panel of the hydraulic power pack provide pre-determined electrical signals, which mainly controlling the upward and downward movement of the elevator. This electrical signals are of low voltage direct current (D.C.) to prevent any adverse incidents. The power pack **101** may receive the electric power to operate the electric motor from external power source. Further the power source **101** configured to be engaged to hydraulic cylinder **103**. The hydraulic cylinder **103** receive the hydraulic pressure from power pack **101** and operate the upward and downward movement of the foldable hydraulic elevator **100**. The hydraulic cylinder **103** is configured to engage with guide rail **105** and set pulley. The set of pulley is configured to engage with resilient rope or wire or belt or chain. The resilient rope/wire/belt/chain assist in the upward and downward movement of the foldable hydraulic elevator **100**. The foldable hydraulic elevator **100** is configured to fix with the rigid support such as wall of house or building with the help of guide rail **105**. The guide rail **105** may solid and rigid structure and may made up from steel, aluminum, iron, steel or similar material. The guide rail **105** configured to engage with foldable hydraulic elevator **100** and wall or rigid support of the house.

[0044] According to the present subject matter, the foldable hydraulic elevator **100** may install at any place based on user requirement. The foldable hydraulic elevator **100** is placed in such a way that during the operation phase, the elevator get un-folded. To un-fold the foldable hydraulic elevator, left platform **115** get un-folded, then right platform **117** and at last bottom platform **119** to form chamber. The chamber is connected to support frame **113**. The support frame **113** is configured to engage with guide rail **105**, set of pulley and the hydraulic cylinder **103**. The guide rail **105** get connected to wall of house or rigid structure, by which foldable elevator fix to one location. The guide rail **105** is further supported by a set of pulley comprises a resilient rope or wire or chain or belt. The resilient rope/wire/chain/belt connected to set of pulley control the operation of foldable hydraulic elevator **100**. To operate foldable hydraulic elevator **100**, the necessary hydraulic pressure come from power pack **101**. The power pack **101** transmit necessary power to hydraulic cylinder to operate the foldable hydraulic elevator **100**.

[0045] The present subject matter further provides a method of manufacturing the foldable hydraulic elevator **100**. The method includes providing interlocking the left platform

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115, the right platform 117 and the bottom platform 119 to form chamber. The chamber is meant for carry passengers. The method further includes coupling the chamber to the support frame 113. The support frame 113 is configured to be connected to guide rail 105 and the set of pulley. Further the chamber is configured to engage with power pack 101. The power pack 101 comprises an electrical motor and hydraulic pump. The hydraulic pump supply hydraulic oil from oil reservoirs to various valves such as pressure control valve, direction control valve, check valve etc. The electrical panel of the hydraulic power pack provide pre-determined electrical signals, which mainly controlling the upward and downward movement of the elevator. This electrical signals are of low voltage direct current (D.C.) to prevent any adverse incidents. The electric motor generate hydraulic pressure to operate the elevator 100. The method further includes configuring the power pack 101 with the hydraulic cylinder 103. The hydraulic cylinder 103 is configured to receive hydraulic pressure from the power pack 101. The hydraulic cylinder 103 is further provided with the support frame 113, the guide rail 105 and the set of pulley to operate and control the operation of foldable hydraulic elevator 100.

[0046] FIG. 6 shows a schematic diagram of a foldable hydraulic elevator 100 according to an embodiment of the present subject matter. The foldable hydraulic elevator 100 comprises the power pack 101, the hydraulic cylinder 103, the guide rail 105, the left frame 107, the right frame 109, the pulley 111, the support frame 113, the left platform 115, the right platform 117, and the bottom platform 119. The left platform 115 of the elevator, the right platform 117 of the elevator and the bottom platform 119 of the elevator engaged together to form chamber to carry objects.

[0047] The foldable hydraulic elevator 100 according to present subject matter comprises the left platform 115, the right platform 117 and the bottom platform 119. These platforms are interlinked with each other to form chamber to carry passengers. The chamber is configured to engage with power pack 101, hydraulic cylinder 103, guide rail 105 and set of pulley. The power pack 101 comprises electric motor and oil to generate the hydraulic pressure. The power pack 101 may receive the electric power to operate the electric motor from external power source. Further the power source configured to connect to hydraulic cylinder 103. The hydraulic cylinder 103 receive hydraulic pressure from power pack 101 and operate the upward and downward movement of the foldable hydraulic elevator 100. The

hydraulic cylinder **103** is configured to engage with guide rail **105** and the set of pulley. The set of pulley is configured to engage with resilient rope or wire or chain or belt. The resilient rope/wire/chain/belt assist in the upward and downward movement of the foldable hydraulic elevator **100**. The foldable hydraulic elevator **100** is configured to fix with the rigid support such as wall of house or building with the help of guide rail **105**. The guide rail **105** may solid and rigid structure and may made up from steel, aluminum, iron, steel or similar material. The guide rail **105** configured to engage the foldable hydraulic elevator with wall or rigid support of the house or building.

[0048] According to the present subject matter, the foldable hydraulic elevator **100** may install at any place based on user requirement. The foldable hydraulic elevator **100** is placed in such a way that during the operation phase, the elevator get un-folded. To un-fold the foldable hydraulic elevator **100**, the left platform **115** get un-folded, then right platform **117** and at last bottom platform **119** to form chamber. The chamber is configured to be engaged to the support frame **113**. The support frame **113** is configured to engage with the guide rail **105**, the set of pulley and the hydraulic cylinder **103**. The guide rail **105** get connected to wall of house or rigid structure to fix the foldable hydraulic elevator **100** to one location. The guide rail **105** is further supported by set of pulley comprises resilient rope or wire or belt or chain. The resilient rope/wire/chain/belt is connected to set of pulley, which control the operation of foldable hydraulic elevator **100**. The necessary hydraulic pressure to operate the foldable hydraulic elevator **100** is come from the power pack **101**. The power pack **101** transmit the necessary power to hydraulic cylinder **103** to operate the foldable hydraulic elevator **100**. The hydraulic cylinder **103** transmit necessary power to foldable hydraulic elevator **100** for upward and downward movement of foldable hydraulic elevator **100**. There is foldable and de-foldable areas at each floor in such a way that there would minimal requirement of space for upward and downward movement of foldable elevator. In other way, there would foldable and de-foldable floor system in each floor so that while moving up and down, the foldable and de-foldable part of each floor aligned with foldable elevator and assist the movement of foldable elevator. Since there is no requirement of any specific arrangement for upward and downward movement of foldable elevator.

[0049] The present subject matter further provides a method of manufacturing the foldable hydraulic elevator **100**. The method includes providing a chamber comprises

interlocking the left platform **115**, the right platform **117** and the bottom platform **119**. The chamber is meant for carry passengers. The method further includes coupling the chamber to the support frame **113**. The support frame **113** is configured to be connected with the guide rail **105** and the set of pulley. Further the chamber is configured to engage with power pack **101**. The power pack **101** comprises an electrical motor and hydraulic pump. The hydraulic pump supply hydraulic oil from oil reservoirs to various valves such as pressure control valve, direction control valve, check valve etc. The electrical panel of the hydraulic power pack provide pre-determined electrical signals, which mainly controlling the upward and downward movement of the elevator **100**. This electrical signals are of low voltage direct current (D.C.) to prevent adverse incidents. The electric motor generate hydraulic pressure to operate the elevator **100**. The method further includes configuring the power pack **101** with the hydraulic cylinder **103**. The hydraulic cylinder **103** configured to receive hydraulic pressure from the power pack **101**. The hydraulic cylinder **103** is further provided with the support frame **113**, the guide rail **105** and the set of pulley to operate and control the operation of foldable hydraulic elevator **100**. There is foldable and de-foldable areas at each floor in such a way that there would minimal requirement of space for upward and downward movement of foldable elevator. In other way, there would foldable and de-foldable floor system in each floor so that while moving up and down, the foldable and de-foldable part of each floor aligned with foldable elevator and assist the movement of foldable elevator. Since there is no requirement of any specific arrangement for upward and downward movement of foldable elevator.

**[0050] FIG. 7** shows a schematic diagram of a foldable hydraulic elevator **100** according to an embodiment of the present subject matter. The foldable hydraulic elevator **100** comprises the power pack **101**, the hydraulic cylinder **103**, the guide rail **105**, the left frame **107**, the right frame, the pulley **111**, the support frame **113**, the left platform **115**, the right platform **117**, and the bottom platform **119**. The left platform of the elevator **115**, the right platform **117** of the elevator and the bottom platform **119** of the elevator engaged together to form chamber to carry objects.

**[0051]** The foldable hydraulic elevator **100** according to present subject matter comprises the left platform **115**, the right platform **117** and the bottom platform **119**. The platforms are interlinked with each other to form chamber to carry passengers. The chamber

is configured to engage with power pack **101**, hydraulic cylinder **103**, guide rail **105** and the set of pulley. The power pack **101** comprises an electrical motor and hydraulic pump. The hydraulic pump supply hydraulic oil from oil reservoirs to various valves such as pressure control valve, direction control valve, check valve etc. The electrical panel of the hydraulic power pack provide pre-determined electrical signals, which mainly controlling the upward and downward movement of the elevator. This electrical signals are of low voltage direct current (D.C.) to prevent adverse incidents. The power pack may receive the electric power to operate the electric motor from external power source. Further the power source **101** configured to connect to hydraulic cylinder **103**. The hydraulic cylinder **103** receive hydraulic pressure from power pack **101** and operate the upward and downward movement of the foldable hydraulic elevator **100**. The hydraulic cylinder **103** is configured to engage with guide rail **105** and set of pulley. The set of pulley is configured to engage with resilient rope/wire/belt/chain. The resilient rope/wire/belt/chain involve in the upward and downward movement of the foldable hydraulic elevator **100**. The foldable hydraulic elevator **100** is configured to fix with the rigid support such as wall of house or building with the help of guide rail **105**. The guide rail **105** may solid and rigid structure and may made up from steel, aluminum, iron, steel or similar material. The guide rail configured to engage the foldable hydraulic elevator with wall or rigid support of the house or building.

[0052] According to the present subject matter, the foldable hydraulic elevator **100** may install at any place based on user requirement. The foldable hydraulic elevator **100** is placed in such a way that during the operation phase, the elevator get un-folded. To un-fold the foldable hydraulic elevator, left platform **115** get un-folded, then right platform **117** and at last bottom platform **119** to form chamber. The chamber is configured to be engaged with support frame **113**. The support frame **113** is configured to engage with guide rail **105**, the set of pulley and the hydraulic cylinder **103**. The guide rail **105** get connected to wall of house or rigid structure, by which foldable elevator fix to one location. The guide rail **105** is further supported by a set of pulley comprises a resilient rope. The resilient rope connected to set of pulley to control the operation of foldable hydraulic elevator **100**. To operate elevator the necessary hydraulic pressure come from power pack **101**. The power pack **101** transmit necessary power to hydraulic cylinder **103** to operate the hydraulic cylinder **103**. The hydraulic cylinder **103** transmit necessary power to foldable elevator **100** for upward and

downward movement of foldable elevator. There is foldable and de-foldable areas at each floor in such a way that there would minimal requirement of space for upward and downward movement of foldable elevator. In other way, there would foldable and de-foldable arrangement in each floor so that while moving up and down, the foldable and de-foldable part of each floor aligned with foldable elevator and assist in the movement of foldable elevator. Since there is no requirement of any specific arrangement for upward and downward movement of foldable elevator.

[0053] In one embodiment, when the foldable hydraulic elevator 100 moving upward and touch the first floor of building, the foldable and de-foldable areas of each floor get unfolded and assist in the upward movement of the foldable hydraulic elevator 100 and automatically get folded, when the elevator move away from the foldable and de-foldable areas of each floor.

[0054] The present subject matter further provides a method of manufacturing the foldable hydraulic elevator 100. The method includes interlocking the left platform 115, the right platform 117 and the bottom platform 119 to form chamber for carry passengers. The method further includes coupling the chamber 100 to the support frame 113. The support frame 113 is configured to be connected with guide rail 105 and the set of pulley. Further the chamber is configured to engage with hydraulic system. The hydraulic system comprises the hydraulic cylinder 103 and the power pack 101. The power pack 101 comprises an electrical motor and hydraulic pump. The hydraulic pump supply hydraulic oil from oil reservoirs to various valves such as pressure control valve, direction control valve, check valve etc. The electrical panel of the hydraulic power pack provide pre-determined electrical signals, which mainly controlling the upward and downward movement of the elevator. This electrical signals are of low voltage direct current (D.C.) to prevent adverse incidents. The electric motor generate hydraulic pressure to operate the elevator 100. The method further includes configuring the power pack 100 with the hydraulic cylinder 103. The hydraulic cylinder 103 is configured to receive hydraulic pressure from the power pack 101. The hydraulic cylinder 103 is further provided with support frame 113, guide rail 105 and the set of pulley to operate and control the operation of foldable hydraulic elevator 100. There is foldable and de-foldable areas at each floor in such a way that there would minimal requirement of space for upward and downward movement of foldable elevator. In other way, there would foldable and de-

foldable arrangement in each floor so that while moving up and down, the foldable and de-foldable part of each floor aligned with foldable elevator and assist the movement of foldable elevator. Since there is no requirement of any specific arrangement for upward and downward movement of foldable elevator.

[0055] FIG. 8 shows a schematic diagram of a foldable hydraulic elevator **100** according to an embodiment of the present subject matter. The foldable hydraulic elevator **100** comprises the power pack **101**, the hydraulic cylinder **103**, the guide rail **105**, the left frame, the right frame, the pulley, the support frame **113**, the left platform **115**, the right platform **117**, and the bottom platform **119**. The left platform of the elevator **115**, the right platform **117** of the elevator and the bottom platform **119** of the elevator engaged together to form chamber to carry objects.

[0056] The foldable hydraulic elevator **100** according to present subject matter comprises the left platform **115**, the right platform **117** and the bottom platform **119**. The platforms are interlinked with each other to form chamber to carry passengers. The chamber is configured to engage with power pack **101**, hydraulic cylinder **103**, guide rail **105** and the set of pulley. The power pack **101** comprises an electrical motor and hydraulic pump. The hydraulic pump supply hydraulic oil from oil reservoirs to various valves such as pressure control valve, direction control valve, check valve etc. The electrical panel of the hydraulic power pack provide pre-determined electrical signals, which mainly controlling the upward and downward movement of the elevator. This electrical signals are of low voltage direct current (D.C.) to prevent adverse incidents. The power pack may receive the electric power to operate the electric motor from external power source. Further the power source **101** configured to connect to hydraulic cylinder. The hydraulic cylinder receive hydraulic pressure from power pack **101** and operate the upward and downward movement of the foldable hydraulic elevator **100**. The hydraulic cylinder is configured to engage with guide rail and set of pulley. The set of pulley is configured to engage with resilient rope/wire/belt/chain. The resilient rope/wire/belt/chain involve in the upward and downward movement of the foldable hydraulic elevator **100**. The foldable hydraulic elevator **100** is configured to fix with the rigid support such as wall of house or building with the help of guide rail. The guide rail may solid and rigid structure and may made up from steel, aluminum, iron, steel or similar material.

The guide rail configured to engage the foldable hydraulic elevator with wall or rigid support of the house or building.

[0057] According to the present subject matter, the foldable hydraulic elevator **100** may install at any place based on user requirement. The foldable hydraulic elevator **100** is placed in such a way that during the operation phase, the elevator get un-folded. To un-fold the foldable hydraulic elevator, left platform **115** get un-folded, then right platform **117** and at last bottom platform **119** to form chamber. The chamber is configured to be engaged with support frame **113**. The support frame **113** is configured to engage with guide rail **105**, the set of pulley and the hydraulic cylinder **103**. The guide rail **105** get connected to wall of house or rigid structure, by which foldable elevator fix to one location. The guide rail **105** is further supported by a set of pulley comprises a resilient rope. The resilient rope connected to set of pulley to control the operation of foldable hydraulic elevator **100**. To operate elevator the necessary hydraulic pressure come from power pack **101**. The power pack **101** transmit necessary power to hydraulic cylinder to operate the hydraulic cylinder. The hydraulic cylinder transmit necessary power to foldable elevator **100** for upward and downward movement of foldable elevator. There is foldable and de-foldable areas at each floor in such a way that there would minimal requirement of space for upward and downward movement of foldable elevator. In other way, there would foldable and de-foldable arrangement in each floor so that while moving up and down, the foldable and de-foldable part of each floor aligned with foldable elevator and assist in the movement of foldable elevator. Since there is no requirement of any specific arrangement for upward and downward movement of foldable elevator.

[0058] In one embodiment, when the foldable hydraulic elevator **100** moving upward and touch the first floor of building, the foldable and de-foldable areas of each floor get un-folded and assist in the upward movement of the foldable hydraulic elevator **100** an automatically get folded, when the elevator move away from the foldable and de-foldable areas of each floor.

[0059] The present subject matter further provides a method of manufacturing the foldable hydraulic elevator **100**. The method includes interlocking the left platform **115**, the right platform **117** and the bottom platform **119** to form chamber to carry passengers. The

method further includes coupling the chamber to the support frame **113**. The support frame **113** is configured to be connected with guide rail **105** and the set of pulley. Further the chamber is configured to engage with hydraulic system. The hydraulic system comprises the hydraulic cylinder and the power pack **101**. The power pack **101** comprises an electrical motor and hydraulic pump. The hydraulic pump supply hydraulic oil from oil reservoirs to various valves such as pressure control valve, direction control valve, check valve etc. The electrical panel of the hydraulic power pack provide pre-determined electrical signals, which mainly controlling the upward and downward movement of the elevator. This electrical signals are of low voltage direct current (D.C.) to prevent adverse incidents. The electric motor generate hydraulic pressure to operate the elevator **100**. The method further includes configuring the power pack **100** with the hydraulic cylinder. The hydraulic cylinder is configured to receive hydraulic pressure from the power pack **101**. The hydraulic cylinder is further provided with support frame **113**, guide rail **105** and the set of pulley to operate and control the operation of foldable hydraulic elevator **100**. There is foldable and de-foldable areas at each floor in such a way that there would minimal requirement of space for upward and downward movement of foldable elevator. In other way, there would foldable and de-foldable arrangement in each floor so that while moving up and down, the foldable and de-foldable part of each floor aligned with foldable elevator and assist the movement of foldable elevator. Since there is no requirement of any specific arrangement for upward and downward movement of foldable elevator.

**[0060]** FIG. 9 shows a schematic diagram of a foldable elevator **900** according to an embodiment of the present subject matter. The foldable elevator **900** is a lever operated foldable elevator. The lever operated foldable elevator **900** comprises a lever system **905**, a rod **907**, a support frame **903**, set of platforms to form chamber **901**. The platforms comprises a left platform of the elevator, a right platform of the elevator and a bottom platform of the elevator engaged together to form chamber **901** to carry objects.

**[0061]** The lever operated foldable elevator **900** according to present subject matter comprises the chamber **901**. The chamber **901** comprises the left platform, the right platform and the bottom platform. The platforms are interlinked with each other to form chamber **901** to carry passengers. The chamber **901** is configured to engage with the lever

system 905, the rod 907 and the support frame 903. The lever system 905 comprises pulley and lifting unit to lift the elevator with support of the rod 907.

[0062] According to the present subject matter, the lever operated foldable elevator 900 may install at any place based on user requirement. The lever operated foldable elevator 900 is placed in such a way that during the operation phase, the elevator get un-folded. To un-fold the foldable hydraulic elevator, left platform get un-folded, then right platform and at last bottom platform to form chamber 901. The chamber 901 is configured to be engaged with support frame 903. The support frame 903 is configured to engage with rod 907 and lever system 905. The rod 907 get connected to wall of house or rigid structure, by which foldable elevator fix to one location. The rod 907 is further supported by the support frame 903. The lever system 905 connected to rod 907 control the operation of foldable elevator 900. To operate elevator the lever system 903 provide the necessary power to foldable elevator. There is foldable and de-foldable areas at each floor in such a way that there would minimal requirement of space for upward and downward movement of foldable elevator. In other way, there would foldable and de-foldable arrangement in each floor so that while moving up and down, the foldable and de-foldable part of each floor aligned with foldable elevator and assist in the movement of foldable elevator. Since there is no requirement of any specific arrangement for upward and downward movement of foldable elevator.

[0063] In one embodiment, when the foldable elevator 900 moving upward and touch the first floor of building, the foldable and de-foldable areas of each floor get un-folded and assist in the upward movement of the foldable elevator 900 an automatically get folded, when the elevator move away from the foldable and de-foldable areas of each floor.

[0064] The present subject matter further provides a method of manufacturing the lever operated foldable elevator 900. The method includes interlocking the left platform, the right platform and the bottom platform to form chamber 901 to carry passengers. The method further includes coupling the chamber 901 to the support frame 903. The support frame 903 is configured to be connected with rod 907 and lever system 905. Further the chamber is configured to engage with lever system 905. The lever system 905 operate and control the upward and downward movement of the elevator 900. The method further includes configuring the lever system 905 with the rod 907. There is foldable and de-foldable

areas at each floor in such a way that there would minimal requirement of space for upward and downward movement of foldable elevator. In other way, there would foldable and de-foldable arrangement in each floor so that while moving up and down, the foldable and de-foldable part of each floor aligned with foldable elevator and assist the movement of foldable elevator. Since there is no requirement of any specific arrangement for upward and downward movement of foldable elevator.

[0065] FIG. 10 shows a schematic diagram of the foldable elevator 900 according to an embodiment of the present subject matter. The foldable elevator 900 is the lever operated foldable elevator. The lever operated foldable elevator 900 comprises the lever system 905, the rod 907, the support frame 903, set of platforms to form chamber 901. The platforms comprises a left platform 901a, a right platform 901c and a bottom platform 901b. The platforms configured to engage to form chamber 901 to carry objects.

[0066] The lever operated foldable elevator 900 according to present subject matter comprises a chamber 901. The chamber 901 comprises the left platform 901a, the right platform 901c and the bottom platform 901b. The platforms are interlinked with each other to form chamber 901 to carry passengers. The chamber 901 is configured to engage with the lever system 905, the rod 907 and the support frame 903. The lever system 905 comprises pulley and lifting unit to lift the elevator with the help of rod 907.

[0067] According to the present subject matter, the lever operated foldable elevator 900 may install at any place based on user requirement. The lever operated foldable elevator 900 is placed in such a way that during the operation phase, the elevator get un-folded. To un-fold the foldable hydraulic elevator, left platform get un-folded, then right platform and at last bottom platform to form chamber 901. The chamber 901 is configured to be engaged with support frame 903. The support frame 903 is configured to engage with rod 907 and lever system 905. The rod 907 get connected to wall of house or rigid structure, by which foldable elevator fix to one location. The rod 907 is further supported by the support frame 903. The lever system 905 connected to rod 907 control the operation of foldable elevator 900. To operate elevator the lever system 903 provide the necessary power to foldable elevator. There is foldable and de-foldable areas at each floor in such a way that there would minimal requirement of space for upward and downward movement of foldable elevator. In

other way, there would foldable and de-foldable arrangement in each floor so that while moving up and down, the foldable and de-foldable part of each floor aligned with foldable elevator and assist in the movement of foldable elevator. Since there is no requirement of any specific arrangement for upward and downward movement of foldable elevator.

[0068] In one embodiment, when the foldable elevator 900 moving upward and touch the first floor of building, the foldable and de-foldable areas of each floor get un-folded and assist in the upward movement of the foldable elevator 900 and automatically get folded, when the elevator move away from the foldable and de-foldable areas of each floor.

[0069] The present subject matter further provides a method of manufacturing the lever operated foldable elevator 900. The method includes interlocking the left platform 901a, the right platform 901c and the bottom platform 901b to form chamber. The chamber 901 is meant for carry passengers. The method further includes coupling the chamber 901 to the support frame 903. The support frame 903 is configured to be connected with rod 907 and lever system 905. Further the chamber is configured to engage with lever system. The lever system operate and control the upward and downward movement of the elevator 900. The method further includes configuring the lever system 905 with the rod 907. There is foldable and de-foldable areas at each floor in such a way that there would minimal requirement of space for upward and downward movement of foldable elevator. In other way, there would foldable and de-foldable arrangement in each floor so that while moving up and down, the foldable and de-foldable part of each floor aligned with foldable elevator and assist the movement of foldable elevator. Since there is no requirement of any specific arrangement for upward and downward movement of foldable elevator.

[0070] It would become abundantly clearly to a person in the art, after reading this specification that the present subject matter also provides a foldable elevator, more specifically foldable hydraulic elevator without departing from the spirit of the present subject matter. It would further become abundantly clear to a person in the art that the present subject matter also provides methods for manufacturing foldable elevator, more specifically foldable hydraulic elevator without departing from the spirit of the present subject matter.

[0071] While the subject matter may be susceptible to various modifications and alternative forms, specific embodiments have been shown by way of example in the drawings and have been described herein. Alternate embodiments or modifications may be practiced without departing from the spirit of the present subject matter. The drawings shown are schematic drawings and may not be to the scale. While the drawings show some features of the subject matter, some features may be omitted. Alternatively, in some other cases some features may be emphasized while others are not. Further, the methods disclosed herein may be performed in manner and/or order in which the methods are explained. Alternatively, the methods may be performed in manner or order different than what is explained without departing from the spirit of the present subject matter. It should be understood that the subject matter is not intended to be limited to the particular forms disclosed. Rather, the subject matter is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the subject matter.



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