

TITLE: LOAD ASSISTED LAUNDRY HANGING DEVICE

DESCRIPTION:

FIELD OF THE INVENTION

The present invention relates to clothes drying particularly to hang out laundry to dry through the open windows out onto the pole holders or rack allocated on the parapet wall of high rise residential.

BACKGROUND OF THE INVENTION

Clothes drying carried out in high rise residential buildings are commonly performed by manual lifting of one end of a pole laden with pegged wet laundry. It is then lifted high up to clear the parapet wall as not to stain the cleaned clothes. Finally, it is cantilevered out to slot the holding end of the pole into the existing parapet wall's pole holder or cantilevered the pole out to reach the far end pole slot of another model of the wall façade's poles rack.

The common practice in manual lifting of drying the wet laundry is both physically strenuous and risks injuries to the elderly, physically challenged person or person with prior ailments or old injuries. Further, there also exist the risks of the laundry laden poles falling from heights during the hanging process as the person may loose his grip if the cantilevered load is unbearable.

Most commonly, the façade drying holder or rack is situated on building walls near the kitchen or washing area. The area is usually limited and congested with sink, washing machine or other fixture, which would restrict or hamper the person in hanging out to dry the laundry safely and properly. Such person may also find it challenging to reach and secure the laundry laden pole on the extreme ends of the pole holders or rack.

In an attempt to solve these problems, the present invention can be installed and operated without having to perform any alteration or make changes to existing window panels, may it be 'swinging out' or sliding types. Further, for safety reasons, the existing security metal or aluminum grills can be closed to prevent children falling through when the invention is in use.

The present invention, not only is to improve the process of hanging out of laundry laden poles but to even allow an one arm person to easily hang out and retrieve the heavily laundry laden pole onto the parapet wall.

SUMMARY OF THE INVENTION

The present invention includes bare pole fitted with locking pins at one end, an independent free standing pole support stand for pegging of laundry onto the pole and a cantilevered mounting bracket with a pole rest that can be either attached and secured into or onto any of the existing parapet wall pole holders or pole rack or directly onto any parapet wall. An off-set counter-weighted main arm assembly is connected to the cantilevered mounting bracket with the pole rest. Followed by another off-set secondary arm assembly fitted with a limit rotating pole end catch assembly. The off-set swiveled counter-weighted arms are to provide support of heavy laundry during the pegging of laundry onto the pole and the actual hanging and retrieving process of the laundry laden pole from the parapet wall through the existing windows. The off-set swiveled arms are contoured to allow for long fabrics or laundry to hang naturally downwards, fully spread and open, and not to restrict the hanging out or retrieving process of laundry laden poles. It also prevents unnecessary contact of cleaned and wet laundry with the arms of the invention.

During the use of the invention, the user will collapse or retract the arms of the invention towards the windows and attach the laundry pole fitted with locking pins into its limit rotating pole end catch assembly. The other end of the pole is placed onto the pole support stand so as to peg down the laundry onto the pole. Once done, the user needs to lift the end of the pole near the support stand and push out the laundry laden pole out of the window, supported and guided by the off-set counter-weighted arm assembly of the invention. With the upward swiveled deployment of the arms when pushed from the pole, the pegged laundry will clear the top of the window's ledge as much as possible to prevent staining of dirt from the ledge onto the wet laundry and to provide unobstructed deployment of the invention. The majority of heavy laundry laden pole's load bearing is balance off and assisted by its counter-weighted arm assembly through its limit rotating pole end catch assembly. Instead of manual cantilevered lifting, the user just needs to push out or pull in the pole by holding on to one pole end through the opened windows with the aid of the invention. Once the arms are fully deployed, the handheld end of the pole is placed and secured into the pole rest of the cantilever-mounting bracket to prevent the arms from retracting or pole from falling from heights. Further, with the limit rotating pole end catch, the user need not operate the hanging or retrieving operation by standing directly behind the invention considering certain built-in area may be congested with fixtures. The pole can be manually pivoted up to or more than 45 degrees to deploy or retract the swiveled arms so as to hang out or retrieve the laundry from the parapet wall during such operation.

DESCRIPTION OF THE DRAWINGS

An embodiment of the present invention will be described by the attached drawings as follows in which:

Figure 1 is the perspective view of the load assisted laundry hanging device secured on the parapet wall with a laundry-laden pole in a deployed position,

Figure 1A is the side elevation of the load assisted laundry hanging device in a deployed or extended configuration,

Figure 1B is the side elevation of the load assisted laundry hanging device in a collapsed or retracted configuration,

Figure 1C is the plan view of the load assisted laundry hanging device in a deployed or extended configuration,

Figure 2 is the perspective view of a laundry pole fitted with protruding pins prior to be attached to the limit rotating pole end catch and forms part of the load assisted laundry hanging device,

Figure 2A is the perspective view of a laundry pole fitted with protruding pins attached to an inverted limit rotating pole end catch assembly and forms part of the load assisted laundry hanging device,

Figure 2B is the side elevation of the laundry pole fitted with protruding pins prior to be attached to an inverted limit rotating pole end catch assembly and forms part of the load assisted laundry hanging device which is in the retracted position,

Figure 2C is the front view of the laundry pole fitted with protruding pins prior to be attached to an inverted limit rotating pole end catch assembly and forms part of the load assisted laundry hanging device which is in the retracted position,

Figure 2D is the side elevation of the laundry pole fitted with protruding pins attached to a upright limit rotating pole end catch assembly and forms part of the load assisted laundry hanging device which is in the deployed position,

Figure 2E is the front view of the laundry pole fitted with protruding pins attached to a upright limit rotating pole end catch assembly and forms part of the load assisted laundry hanging device which is in the deployed position,

Figure 3 is the perspective view of a pole rest and forms part of the load assisted laundry hanging device,

Figure 3A is the side elevation of the pole rest and forms part of the load assisted laundry hanging device,

Figure 4 is the perspective view of a pole support stand and forms part of the load assisted laundry hanging device,

Figure 5 is the side elevation of a laundry laden pole fitted with protruding pins attached to the upright limit rotating pole end catch assembly with the other end of the pole supported by a pole

support stand and forms part of the load assisted laundry hanging device which is in the retracted or collapsed position.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Turning now to a detailed consideration of a preferred embodiment of the present invention, FIG. 1 illustrates a load assisted laundry hanging device 80 mounted on the parapet wall 20 of a high-rise building in a deployed or extended position.

The load assisted laundry hanging device 80 is particular useful to assist the elderly, physically challenged person, person with prior ailments or injuries or prevents unnecessary manual lifting injuries and also prevents unassisted manual cantilevered lifting of laundry poles falling from heights during the hanging of laundry onto the parapet wall 20 to dry by using counterweight leverage to compensate the load stress.

Referring to the FIG 1, 1A and 1B, the load assisted laundry hanging device 80 in its deployed and extended position is comprised of a cantilever mounting bracket 1, a off-set counterweight main arm assembly 2, a off-set secondary arm assembly 3 attached to a limit rotating pole end catch assembly 4 by swivel joint 12.

The mounting plate 7 of the cantilever mounting bracket 1 is bolted down to the external parapet wall 20. A pole rest 5 is attached upright to the top of the cantilever mounting bracket 1 at a height not higher than the window ledge to allow window panels to close and open.

The off-set counterweight main arm assembly 2 is connected to the cantilever mounting bracket 1 by a set of bearings 9 to provide a swivel motion and reduce the load bearing stress of the off-set counterweight main arm assembly 2.

The off-set secondary arm assembly 3 is further connected to the off-set counterweight main arm assembly 2 by a set of bearings 11 to provide a swivel motion and reduce the load bearing stress of the off-set secondary arm assembly 3.

A limit rotating pole end catch assembly 4 is attached by swivel joint 12 to the end of the off-set secondary arm assembly 3 to hold in position the laundry pole 15.

Referring to FIG 1B, the load assisted laundry hanging device 80 is started off in the retracted or collapsed position with the inverted limit rotating pole end catch assembly 4 close to the window opening from its outside. The limit rotating pole end catch assembly 4 will not strike the window

panels as the angle stopper 17 determines the final position or angle of the retracted off-set secondary arm assembly 3 in conjunction with the angle stopper 16 mounted on the cantilever mounting bracket 1 which also determines the final position or angle of the retracted off-set counterweight main arm assembly 2.

Referring to FIG 2, 2B and 2C, a laundry pole 15 with protruding pins 13 approaches in an incline path to be attached or coupled to the inverted limit rotating pole end catch assembly 4 by positioning the protruding pins 13 at an inclined and vertical alignment to the elongated openings 14.

Turning to FIG 2A, the said laundry pole 15 is then rotated clockwise or anti-clockwise to 90 degrees to engage the two protruding pins 13 into the elongated openings 14. The laundry pole is then put to rest and the protruding pins 13 are lodged into the lower part of the elongated openings 14 to provide means of self-locking.

Looking at FIGS. 4 and 5, the pole support stand 60 is independently self-standing and stabilized by a disc plate 62. The rubberized pole support head 61 is mounted on top of the shaft to hold on the end of the laundry pole 15. With the laundry pole held in position by both the pole support stand 60 and the inverted limit rotating pole end catch assembly 4. A person can hang and peg laundry 18 onto the laundry pole 15.

Further in accordance with the present invention, the person lifts up the laden laundry pole 15 at the pole support stand 60 end and push the pole outwards. From FIG 1B and 5, as the push motion is in progress, the off-set secondary arm assembly 3 will begin to swing and pivot upwards and away from the window opening. At the same time, the laundry laden pole 15 will also begin to incline upwards to prevent the laundry 18 from coming into contact with window ledge and staining the laundry 18 and prevent any obstruction with the said ledge.

When the off-set secondary arm assembly 3 is pivoted to a certain angle away from the window ledge, the gravitational forces of the laden laundry pole and the off-set secondary arm assembly 3 will leverage against the counterweight 6 of the off-set counterweight main arm assembly 2. Such as the energy of lowering of the laden laundry pole 15 will be cancelled by the counterweight 6 of the off-set counterweight main arm assembly 2 towards the complete deployment of the load assisted laundry hanging device 80. The leveling plate stopper 10 of the off-set secondary arm assembly 3 and the top of counterweight 6 that comes in contact to the base of the horizontal member of the cantilever mounting bracket 1 will maintain a straight and horizontal deployed unit.

In FIGS 2D and 2E show deployed or extended position of the off-set secondary arm assembly 3 and the upright limit rotating pole end catch assembly 4. The laden laundry pole 15 and its protruding pins 13 are hence locked and secured in the upright limit rotating pole end catch assembly 4. The laundry pole 15 cannot be easily removed or dislodged from the upright limit rotating pole end catch assembly 4 in such position.

In FIGS 3 and 3A shows the pole rest 5 mounted on the cantilever mounting bracket 1 comprising of rings 53 and 54 respectively, mounted a base plate and with a backstop 51 attached with a uplift stopper 52. The rings' 53 and 54 openings are positioned in an incline plane to accommodate an incline laundry pole to be slotted through the inclined openings. The rings 53 opening is higher than the ring's 54 opening. The laundry pole 15 is then set down horizontally inside the pole rest 5 to effect a self-lock mode. The length of the laundry pole 15 is determined by the distance between the pole rest 5 and the limit rotating pole end catch assembly 4, the length is in conjunction with the length of the deployed off-set counterweight main arm assembly 2 and the off-set secondary arm assembly 3. With the fixed length, the laundry pole 15 cannot be dislodged or be removed from the pole rest 5 in its horizontal position.

Likewise, in order to return the load assisted laundry hanging device 80 from the deployed to the retracted position, laundry pole 15 end at the pole rest 5 is lifted up to an inclined position and pivoted outwards from the rings' 53 and 54 openings. The laundry pole 15 which is coupled to the upright limit rotating pole end catch assembly 4 is then pulled back in towards the window ledge. The off-set secondary arm assembly 3 will follow with a inward swivel motion and causing the counterweight 6 of the off-set counterweight main arm assembly 2 to act as a leverage to uplift the weight of the laden laundry pole 15 and off-set secondary arm assembly 3 as the laundry pole 15 is being pulled back in. The retrieval sequence of the load assisted laundry hanging device 80 from a deployed position provides the same sequence as to the deployment when the invention is being operated for its intended purpose.

Looking at FIG 5, the person operating load assisted laundry hanging device 80 need not be standing directing behind it as the limit rotating pole end catch assembly 4 is able to pivot when the coupled laundry pole 15 is pushed or swing in an arc manner to facilitate a pivoted deployment or retrieval means of the laundry pole 15 back into the household whereby household fixtures like kitchen sink, washing machines or other movable or immovable items or objects congest the working area directly behind the positioned load assisted laundry hanging device 80.

It is noted that more than one unit of load assisted laundry hanging device 80 can be mounted and operated on independently on the external parapet wall 20 near any window openings in a

determined distance alongside each other to facilitate the high volume of laundry drying by atmospheric condition.

Although the present invention has been disclosed in terms of a preferred embodiment, it will be understood that numerous variations and modifications could be made thereto without departing from the scope of the invention as set forth in the following claims.

CLAIMS:

What is claimed is:

1. A load assisted laundry hanging device comprising:
 - a cantilever mounting bracket assembly wherein the cantilever mounting bracket assembly comprises:
 - a pole rest mounted on the horizontal member of the cantilever mounting bracket to permit a pole end to be slotted at an angle or inclined plane into the two elevated positions of opened rings to offer a self-locking pole rest;
 - a series of holes on the wall plate of the said cantilever mounting bracket for permitting it to be bolted onto the façade wall or onto the existing façade pole holder or rack;
 - an off-set counterweight main arm assembly attached with counterweight connected to the cantilever mounting bracket to response in a upward swivel motion in order to provide a balance on the dead load of the off-set counterweight main arm and the laden weight of the laundry;
 - an off-set secondary arm assembly connected to said off-set counterweight main arm assembly to response in a upward swivel motion in order to provide a leverage balance, extension and retraction of said load assisted laundry device comprises:
 - a limit rotating pole end catch assembly with 2 elongated openings positioned at a determined angle to accommodate the quick coupling of laundry pole with protruding pins is pivotally connected to off-set secondary arm assembly;
 - a laundry pole with protruding pins; and
 - a pole support stand.
2. The load assisted laundry hanging device of claim 1 wherein: the horizontal member of the cantilever mounting bracket assembly is mounted on the parapet wall in order to support the load of the said load assisted laundry device, the laundry laden pole and the forces of the person performing the operation.
3. The load assisted laundry hanging device of claim 2 wherein: a pole rest comprises of 2 “C” shaped rings mounted upright on a base plate. The rings are spaced side by side respectively with their high and low openings positioned to form an incline path as to allow an incoming inclined laundry pole to be slotted through the inclined openings of the rings. The said laundry pole will sit and rest horizontally whilst inside the said rings. Such that the said laundry pole at horizontal position cannot be dislodged from the rings and offer a self-locking mode without the need of any other moving mechanism. An inverted “L” shape plate is

mounted on the end of the said base plate to resist the horizontal compression and to prevent uplift of the said laundry pole.

4. The load assisted laundry hanging device of claim 2 wherein: a plate is mounted on the horizontal member of the cantilever mounting bracket assembly to put a stop at a desired position or angle of the upwards swivel motion of the off-set counterweight main arm assembly.
5. The load assisted laundry hanging device of claim 2 wherein: the end of the horizontal member is fitted with bearing set to support the forces of the load assisted laundry hanging device and its intended operation and to further reduce friction on the swivel motion of the off-set counterweight main arm assembly.
6. The load assisted laundry hanging device of claim 1 wherein: a off-set counterweight main arm assembly to provide means of a leverage balance on the dead load of the off-set counterweight main arm, the off-set secondary arm assembly and the laden weight of the laundry. When the process of hanging out the laundry laden pole is carried out, the said counterweight will counter and compensate the load gradually into its intended deployed position. When the person recovers the laundry laden pole, the counterweight will be pulled down by gravitational forces to generate lift for the laundry laden pole at its far end of the arm when the said pole is being retrieved.
7. The load assisted laundry hanging device of claim 6 wherein: a plate is mounted on the horizontal member of the off-set counterweight main arm assembly to put a stop at a desired position or angle of the upwards swivel motion of the off-set secondary arm assembly.
8. The load assisted laundry hanging device of claim 6 wherein: the off-set configuration of the horizontal arm provides the means of preventing laundry hanging from the pole having contact with off-set counterweight main arm assembly.
9. The load assisted laundry hanging device of claim 6 wherein: the end of the horizontal member is fitted with bearing set to support the forces of the load assisted laundry hanging device and its intended operation and to further reduce friction on the swivel motion of the off-set secondary arm assembly.
10. The load assisted laundry hanging device of claim 1 wherein: the off-set secondary arm assembly is connected to the off-set main arm assembly to provide response in a upward

swivel motion in order to provide a leverage balance, extension and retraction of said load assisted laundry device.

11. The load assisted laundry hanging device of claim 1 wherein: the off-set secondary arm assembly is connected to the off-set main arm assembly to provide response in a upward swivel motion in order to provide means of clearing the window ledge and preventing pegged and hung clothes on the laundry pole to come in contact with window ledge when the laundry laden pole is being deployed or retrieved through the window opening by a person.
12. The load assisted laundry hanging device of claim 10 wherein: a plate is mounted on the end of the horizontal member of the off-set secondary arm assembly to stop and maintain the said off-set secondary arm assembly in a horizontal position when deployed.
13. The load assisted laundry hanging device of claim 10 wherein: the off-set configuration of the horizontal arm provides the means of preventing laundry hanging from the pole having contact with off-set secondary arm assembly.
14. The load assisted laundry hanging device of claim 10 wherein: the limit rotating pole end catch assembly with 2 elongated openings is connected at the end of the horizontal member of the off-set secondary arm assembly to provide means of securing a laundry pole.
15. The load assisted laundry hanging device of claim 14 wherein: when the limit rotating pole end catch assembly with 2 elongated openings is retracted or collapsed and inverted near a window ledge opening, the 2 elongated openings are inclined to allow an incoming laundry pole with protruding pins to enter in between the the 2 elongated openings with the protruding pins in a vertical position. The laundry pole with the protuding pins are then rotated to lodge the pins into the 2 elongated openings to provide a quick and self-lock mode.
16. The load assisted laundry hanging device of claim 14 wherein: the laundry pole is coupled onto the limit rotating pole end catch assembly with 2 elongated openings whilst in a retracted or collapsed and inverted near a window ledge opening, the other end of the laundry pole is supported by a pole support stand to provide means of hanging, pegging or removal or un-pegging of clothes on the said laundry pole.
17. The load assisted laundry hanging device of claim 14 wherein: the limit rotating pole end catch assembly provides means of pivoting the laundry pole during the retracting or collapsing or deploying or extending the said off-set counterweight main arm assembly

together with attached said off-set secondary arm assembly, in its intended operation. The person performing the operation need not stand directly behind the said load assisted laundry hanging device as that built-in area of the apartment may be congested with other household fixtures or the person may have difficulty hanging or retrieving laundry from the farthest pole on the façade.

18. The load assisted laundry hanging device of claim 14 wherein: the laundry pole coupled onto the limit rotating pole end catch assembly with 2 elongated openings is pushed by the laundry pole from a retracted to a deployed position, the limit rotating pole end catch assembly is swung out from the invert position to an upright position where the manner of the said off-set counterweight main arm assembly together with attached said off-set secondary arm assembly is fully extended and horizontal to provide means of self lock without any other moving mechanism. The laundry pole cannot be detached at the deployed or extended position of the load assisted laundry hanging device.
19. The load assisted laundry hanging device of claim 1 wherein: pole support stand is placed inside the household to support the end of the laundry pole whilst the other end with the protruding pins are coupled in the limit rotating pole end catch assembly to provide the means of hanging, pegging or removal of clothes on and off the laundry pole.
20. The load assisted laundry hanging device of claim 1 wherein: such person performing the hanging, pegging or removal of clothes on and off the laundry pole; and the manual deploying or retrieving of the laundry laden pole using the said load assisted laundry hanging device can be carried out by using one hand.