April 22, 1947. L. D. GOLDEN 2,419,398

HANGER DEVICE

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Fig. 1.

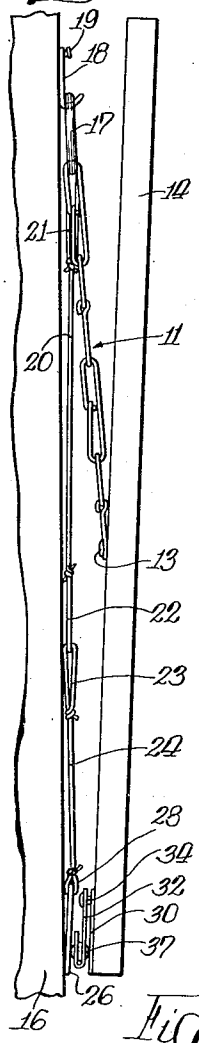


Fig. 2.

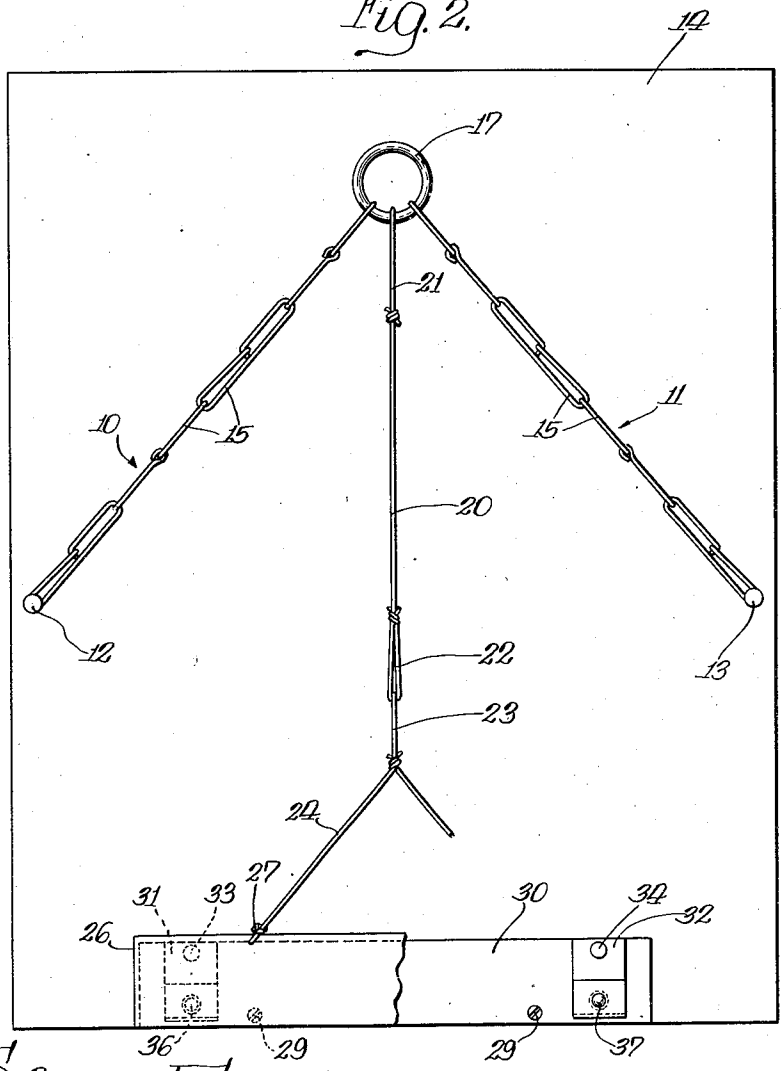


Fig. 3.

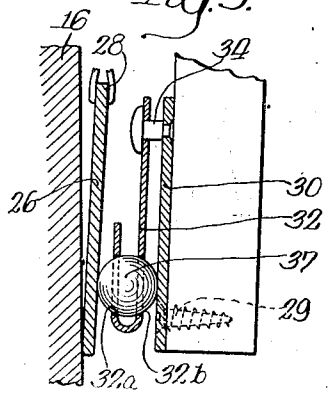


Fig. 4.

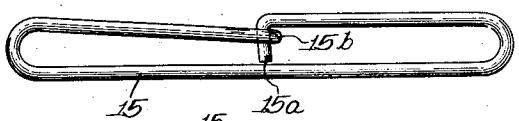
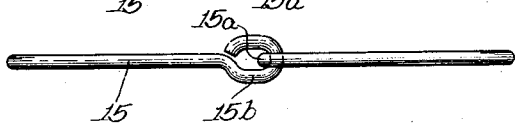


Fig. 5.



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HANGER DEVICE

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10 Claims. (Cl. 248—29)

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This invention relates to hangers and more particularly to a hanger device by which pictures, mirrors and other articles may be hung on walls or other vertical surfaces.

It has been observed and well known for many years that mirrors, pictures or other articles, which are suspended from a wall hook by means of a wire extending between fastening means at either side of such articles, tend to move out of proper vertical position and become tilted to one side or the other. This movement is occasioned in most instances by building vibrations resulting from the passage of heavy trucks, streetcars, trains or the like; but it sometimes is the consequence of the article being struck inadvertently during cleaning or dusting. After being so tilted, the suspended articles then were incapable of reassuming their proper position and remained in tilted position until they were readjusted by manual operation. This tendency of such suspended articles to become and remain tilted has, therefore, long been a source of constant irritation and annoyance, although some attempts have been made to provide a solution for the problem.

However, such attempts have for one reason or another proven unsuccessful with the result that until the advent of the hanger device comprising my invention, no means for suspending or hanging articles on walls and capable of restoring the articles to proper vertical position had been found commercially acceptable. Some of such previous devices failed to operate satisfactorily or even to accomplish the ultimate purpose for which they had been devised.

For instance, one such relatively unsuccessful hanger device comprised a frame which was swingably supported on a vertical wall and provided with a rotatable roller fixed on the rear of the frame at its bottom for rotative movement against the wall. However, this device was not adaptable to all types of wall surfaces in that the roller was unable to freely rotate over rough wall surfaces and actually prevented return of the frame to normal vertical position. This inability of the roller to rotate freely at all times was also caused in part by the fact that the roller was fixed in position.

Other devices, although being relatively successful in performing their designed purposes, were nevertheless expensive or were so complicated that their correct installation was rendered impossible by those inexperienced in mechanics.

It is, therefore, an object of the present invention to provide an improved hanger device for

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suspending or hanging articles on walls or other vertical surfaces.

Another object of my invention is to provide an improved hanger device by which articles such as pictures, mirrors or other articles may be suspended on walls or other vertical surfaces and may be automatically returned to proper vertical position upon lateral tilting movement thereof.

A further object of my invention is to provide an improved hanger device for suspending articles such as pictures, mirrors or other articles on walls or other vertical surfaces which may be readily installed on such articles and by which the articles may be suspended and automatically returned to proper vertical position upon lateral tilting movement thereof.

Still another object of my invention is to provide an improved hanger device of the foregoing character that is capable of being adjusted and applied to articles such as pictures, mirrors or the like in a variety of different sizes.

A still further object of my invention is to provide an improved type of disengageable chain link with which link chains of a variety of desired lengths may be formed.

Other and further objects of my invention will become apparent hereinafter as this description progresses, reference being had to the accompanying drawing in which:

Figure 1 is a side elevation of the improved hanger device comprising my invention illustrated in operable applied position on the back of a picture frame and in suspended engagement with a wall hook;

Fig. 2 is a rear elevational view of my improved hanger device secured in operable position on the rear side of a picture frame with part of the suspended bearing plate broken away;

Fig. 3 is a vertical sectional view of the lower portion of the hanger device showing the details of construction of the suspended bearing plate, the right-hand swingable pendulum, the pendulum bearing and the pendulum plate;

Fig. 4 is a front elevational view of an improved form of link of which the suspension chains of the hanger device are comprised; and

Fig. 5 is a side elevational view of the improved form link shown in Fig. 4.

In the drawing the improved hanger device is shown as applied to the back of a picture frame, although it is to be understood that the device has application to mirrors and a variety of other objects which are hung from walls.

Referring more specifically to Figs. 1 and 2 of

the drawing, the improved hanger device constituting my invention comprises a pair of link chains 10 and 11 of equal length secured at their lower ends by means of screws 12 and 13, respectively, to the vertical side edges of a picture frame 14. The screws 12 and 13 are secured in the vertical sides of the frame 14 at points equidistant from its center vertical line and slightly removed from the respective side edges and at points slightly below the middle point between the top and bottom edges thereof in order that the frame 14 will be suspended at the proper operable angle with respect to the wall 16 as shown in Fig. 1 of the drawings. At this angle, the lower end of the picture frame 14 to which certain operating parts of my improved hanger device are secured will be forced into engagement with the wall 16 as will be described more fully hereinafter.

The upper ends of the link chains 10 and 11 are loosely connected to a suspension ring 17 which is adapted to engage and be suspended on a wall hook 18 secured in the wall 16 by a nail 19. Since the chains 10 and 11 are of equal length, the suspension ring 17, when raised to its uppermost possible position with respect to the frame 14, as, for instance, when the picture frame 14 is hung in suspended position from the wall hook 18, will be exactly centrally located with respect to the side edges of the frame 14. In this position the center vertical line of the frame 14 is in alignment with the center point of the ring 17. By the link and ring construction, the uppermost links of their respective chains 10 and 11 are able to move relatively circumferentially with respect to the ring 17 so that the ring 17 will always assume a central position with respect to the side edges of the frame 14 for insuring perfect balance thereof. The chains 10 and 11 are of such length that the top of the ring 17 in its uppermost position is a short distance below the upper edge of the frame 14. This distance is sufficient to permit the ring 17 and the wall hook 18 to be concealed by the upper portion of the frame 14 when the ring 17 and wall hook 18 are in operable suspending engagement.

Each of the chains 10 and 11 are composed of a plurality of specially designed and novel type link 15 which for satisfactory operation may be composed of steel wire or the like. The gauge and relative size of the material from which the links 15 are formed may be increased or decreased in accordance with the size and weight of the article to be hung by the improved hanger device. As shown more particularly in Figs. 4 and 5 of the drawings, the link 15 comprises an elongated narrow loop which is adapted to be detachably interlinked with another loop of similar construction. A tongue 15a is formed from one of the free ends of the loop and extends transversely of the loop at its central portion through an eye 15b formed at the other free end of the loop, and by this construction the links 15 may easily be linked together or detached from each other so that the lengths of the chains 10 and 11 may be readily lengthened or shortened depending upon the size of the article to be hung.

A further advantage of the linked construction is that the number of links may be readily counted and equalized in number on each chain 10 and 11 to insure that the center of the ring 17 will always be in proper position in alignment with the vertical center line of the frame 14. In actual use it has been found advantageous to form the links 15 of a length of at least one inch

in order to prevent miscounting of the number of links in each chain as would tend to occur if they were shorter. However, a link of a length of two inches has been found somewhat long and not too desirable in that it failed to provide a sufficiently fine adjustment in varying the length of the suspension chains 10 and 11 in adapting them to pictures of different sizes. For the purposes of the present invention a link 15 having a length of one and one-half inches has been found very satisfactory.

At the lower central portion of the ring 17 there is secured a depending flexible suspension cord 20 which is provided with a loop 21 at its upper end in loose engagement with the ring 17. By this loose connection the suspension cord loop 21, like the upper links of the chains 10 and 11, is capable of moving relatively circumferentially with respect to the ring 17 so that no matter to what relative circumferential position the ring 17 may be turned when the frame 14 is hung on the wall hook 18, the cord 21 will always assume an absolute vertical position in alignment with the vertical center line of the frame 14. The lower end of the suspension cord 20 is also provided with a loop 22 which is loosely engaged in a loop 23 of an inverted Y-shaped suspension cord 24. The lower ends of the downwardly and outwardly diverging portions of the suspension cord 24 are tied to the upper edge of a flat transversely extending bearing plate 26 at points 27 and 28 which points are equidistant from the upper side corners of the bearing plate 26. The bearing plate 26 is freely swingable with respect to the frame 14 and is provided with an uninterrupted, smooth surface. With this balanced suspension, the vertical center line of the bearing plate 26 is in alignment with the vertical center line of the frame 14.

The composite length of the suspension cords 20 and 24 is such that the bottom edge of the bearing plate 26 does not extend below the bottom edge of the picture frame 14 so as to be exposed to view. The suspension cords 20 and 24 may preferably be composed of heavy string or twine which may more readily adapt itself to conform to rearwardly extending bulges, which are commonly found in the backs of pictures that have been in use for a relatively long period of time, so as to permit the bearing plate 26 to hang properly and freely in operable position against the wall 16. Also, the use of heavy string or twine is all that is required since the cords 20 and 24 do not support the weight of the frame 14 but only the relatively light weight bearing plate 26. In addition, the cords 20 and 24 may be tied with a finer adjustment with respect to frames of different sizes so as to align the bottom edge of the plate 26 with the bottom edge of the frame 14.

Secured along the bottom edge on the back of the frame 14 by means of short screws 29 and extending transversely thereof, is a flat plate 30 which is somewhat shorter than the width of the frame 14 and has its central vertical line in alignment with the central vertical line of the frame 14. The fixed plate 30 which also has a smooth uninterrupted outer surface is slightly smaller in dimensions than the swingable bearing plate 26 but is in substantial alignment therewith. A pair of transversely spaced pendulum bearings 31 and 32 are pivotally supported by and depend from rivets 33 and 34, respectively, for free and independent swingable movement, which rivets are spaced equidistant from the vertical center line of the fixed plate 30. The swingable pendulum

bearings 31 and 32, as shown in Figs. 1 and 3 of the drawing, are formed of flat plate elements folded backwardly and upwardly upon themselves at their lower ends so as to be substantially U-shaped in cross section at their lower ends. Each of the upstanding portions of the U-shaped ends of the pendulum bearings 31 and 32 are provided with circular openings, shown in the drawing only with respect to bearing 32 and indicated by the numerals 32*a* and 32*b*. Supported in and extending through the circular openings of the pendulum bearings 31 and 32 are freely rotatable bearing balls 36 and 37 which are adapted to be in rolling engagement with the outer faces of the suspended bearing plate 26 and the fixed plate 30 when the frame 14 is suspended from the wall hook 18. The bearing balls 36 and 37 upon engagement with the bearing plate 26 maintain the picture frame 14 in spaced relationship away from the wall 16 to provide sufficient clearance for the suspension cords 20 and 24 and prevent their engagement with the back of the picture frame 14.

A picture frame 14 which has been hung from a wall hook 18 by means of the improved hanger device comprising my invention is capable of maintaining itself in its straight or plumb position. If lateral movement of the frame 14 is produced as the result of building vibration such as is commonly caused by heavy trucks, streetcars, trains or the like or as the result of being disturbed upon dusting or cleaning, the picture frame 14 will readily and freely return of its own accord to its straight position. The two bearing balls 36 and 37 during such lateral movement of the frame 14 are in freely rolling and relatively frictionless contact with the smooth outer surfaces of the suspended and swingable bearing plate 26 and the fixed plate 30 and, therefore, the bearing pressure of the lower end of the picture frame 14 against the wall 16 is without any retarding effect as far as preventing return of the frame 14 to proper vertical position is concerned. The small amount of friction arising from the ball bearing contact above described is also further reduced by the fact that the pendulum bearings 31 and 32 which contain the freely rolling balls 36 and 37 are hung for free pivotal or swingable movement from the rivets 33 and 34 and the bearing plate 26 is freely suspended from the ring 17. As a result of the foregoing construction, there exists no fixed or rigid relationship between the bearing plate 26 and the pendulum plate 30. Their operation is substantially frictionless for all practical purposes, which facilitates the automatic return of the frame 14 to proper position.

Another factor in keeping the frame 14 in proper vertical position or permitting its return thereto is that the chains 10 and 11 and the suspension cord 20 are so freely and loosely connected and supported by the ring 17 that they are able to readily reassume their proper angles of suspension from the ring 17 in the event relative movement between those parts occurs.

My improved hanger device, although being efficient and practical in operation, also has a simplicity of construction that enables it to be applied in correct operable position to articles to be hung from walls by even those most inexperienced in mechanics. Its installation may be accomplished by following a few simple instructions and by making a few correct and accurate measurements.

Although I have set forth one form of an improved hanger device comprising my invention, it is to be understood that changes in details of construction may be resorted to without departing from the scope and spirit of the appended claims.

I claim:

1. A hanger device for hanging an object from a vertical wall surface comprising means for swingably supporting said object on the vertical wall, a freely swingable member interposed between the surfaces of said wall and said object, and a freely rotatable member carried by said freely swingable member and adapted to engage one of said surfaces for rotation thereagainst upon relative swinging movement of said object or said freely swingable member.

2. A hanger device for hanging an object from a vertical wall surface comprising means for swingably supporting said object on said vertical wall, a freely swingable member interposed between the lower portion of the object and the wall, and a rotatable member carried by said freely swingable member and adapted to engage surfaces of said wall and said object for rotative movement thereagainst.

3. A hanger device for hanging an object from a vertical wall surface comprising means for swingably supporting said object on said vertical wall, a freely swingable member secured to said object, and a rotatable member carried by said freely swingable member and adapted to engage surfaces of said wall and said object for rotative movement thereagainst.

4. A hanger device for hanging an object from a vertical wall surface comprising means for swingably supporting said object on said vertical wall, a bearing plate member supported below the point of swingable support, and adapted to engage said vertical wall surface, a freely swingable member secured to said object between the bearing plate member and the object, and a rotatable member carried by said freely swingable member and adapted to engage the surface of said bearing plate member.

5. A hanger device for hanging an object from a vertical wall surface comprising means for swingably supporting said object on said vertical wall, a bearing plate member supported at the lower portion of the object and adapted to engage said vertical wall surface, a freely swingable member interposed between the bearing plate member and the object, and a rotatable member carried by said freely swingable member and adapted to engage surfaces of said bearing plate member and said object.

6. A hanger device for hanging an object from a vertical wall surface comprising means for swingably supporting said object on said vertical wall, a bearing plate member freely suspended at the lower portion of said object and adapted to engage said vertical wall surface, suspension means for freely suspending said plate member from said object, a plurality of freely swingable members secured to said object in spaced relation adjacent its bottom, and a plurality of rotatable members carried by said respective freely swingable members and adapted to engage surfaces of the freely suspended plate member and said object for rotative movement thereagainst.

7. A hanger device for hanging an object from a vertical wall surface comprising means for swingably supporting said object on said vertical wall, a bearing plate member freely suspended at the lower portion of said object and adapted to engage said vertical wall surface, suspension means for freely suspending said plate member

from said object, a fixed plate member secured to said object at its lower portion, a plurality of freely swingable members pivotally secured in spaced relation to the fixed plate member, and a plurality of rotatable members carried by said respective freely swingable members and adapted to engage surfaces of the freely suspended plate member and said fixed plate member for rotative movement thereagainst.

8. A hanger device for hanging an object from a vertical wall surface comprising a plurality of elongated suspension elements of equal length adapted to be secured at their lower respective ends to the object at its respective sides, a central supporting member at the top of said object connected to the upper ends of said elongated suspension elements, a bearing plate member freely suspended at the lower portion of said object and adapted to engage said vertical wall surface, suspension means for suspending said plate member from said object, a freely swingable member secured to said object at its lower portion, and a rotatable member carried by said freely swingable member and adapted to engage surfaces of said freely suspended plate member and said object for rotative movement thereagainst.

9. A hanger for hanging an object from a vertical wall surface comprising a plurality of flexible elongated suspension elements of equal length adapted to be secured at their lower respective ends to said object at its respective sides at points equally spaced from the center vertical line of said object and below the center horizontal line thereof, a central supporting member at the top of said object having its center in alignment with the center vertical line of said object and being connected to the upper ends of said elongated suspension elements, a bearing plate member freely suspended at the bottom of said object and adapted to engage said vertical wall surface, flexible suspension means also in alignment with the center vertical line of said object for suspending said plate member and connected at its upper end to said central supporting member and at its lower end to said freely suspended plate member, a freely swingable member secured to said object at its lower portion, and a rotatable member carried by said freely swingable member and adapted to engage surfaces of said freely suspended plate member and said object for rotative movement thereagainst.

10. A hanger device for hanging an object from a vertical wall surface comprising a plurality of elongated suspension elements of equal length adapted to be secured at their lower respective ends to said object at its respective sides, a central supporting ring adjacent the top of said object and loosely connected to the upper ends of said elongated suspension elements, a bearing plate member freely suspended at the bottom of said object and adapted to engage said vertical wall surface, suspension means for suspending said plate member and loosely connected at its upper end to said central supporting ring and at its lower end to said freely suspended plate member, a freely swingable member secured to said object at its lower portion, and a rotatable member carried by said freely swingable member and adapted to engage surfaces of said freely suspended plate member and said object for rotative movement thereagainst.

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