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Gano

[11] **3,912,216**

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[54] **LOCKABLE, SELF-LEVELING WALL MOUNTING DEVICE FOR PICTURE FRAMES AND THE LIKE**

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[51] **Int. Cl.²** **A47F 7/14**

[58] **Field of Search** ..... 248/203, 475 R, 475 B, 248/474, 476, 479, 480, 481, 482, 483, 484, 495, 466, 491, 494, 489, 478, 224; 24/230 AT

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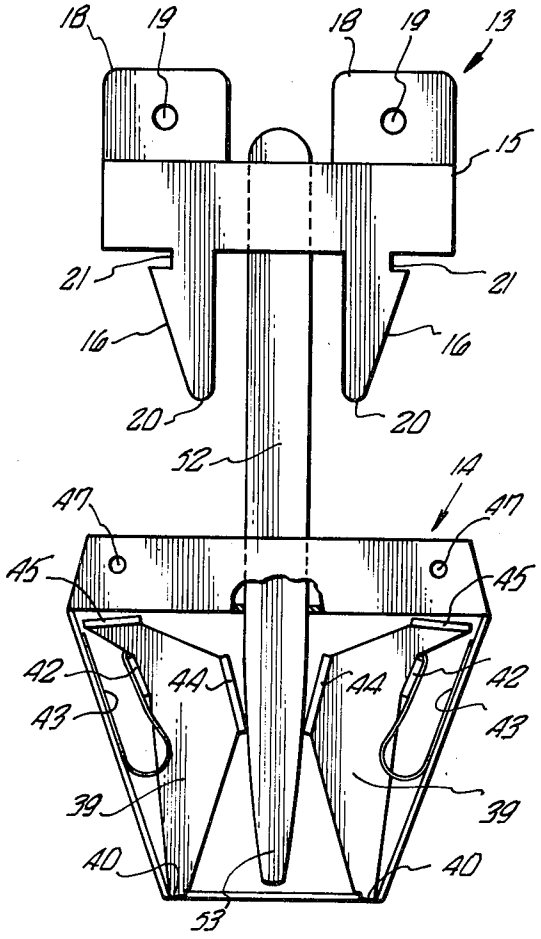
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[57] **ABSTRACT**

A lockable, self-leveling wall-mounting device for hanging picture frames and the like on a wall, comprising a male unit attached to the back of a picture frame having a pair of notched latching arms extending therefrom, and a female unit for receiving the male unit thereinto and having a pair of spring-biased lugs for lockable engagement with the notches of the latching arms of the male unit and a wall-attachable hanger unit swivelably secured to the back of the female unit. A key constructed of a blade-like body with a tapered nose is insertable into the female unit to wedgingly engage, in a simultaneous fashion, the latching arms and thereby force the lugs away from each other while disengaging the lugs from the notches of the arms, to effect unlocking of the device.

6 Claims, 4 Drawing Figures



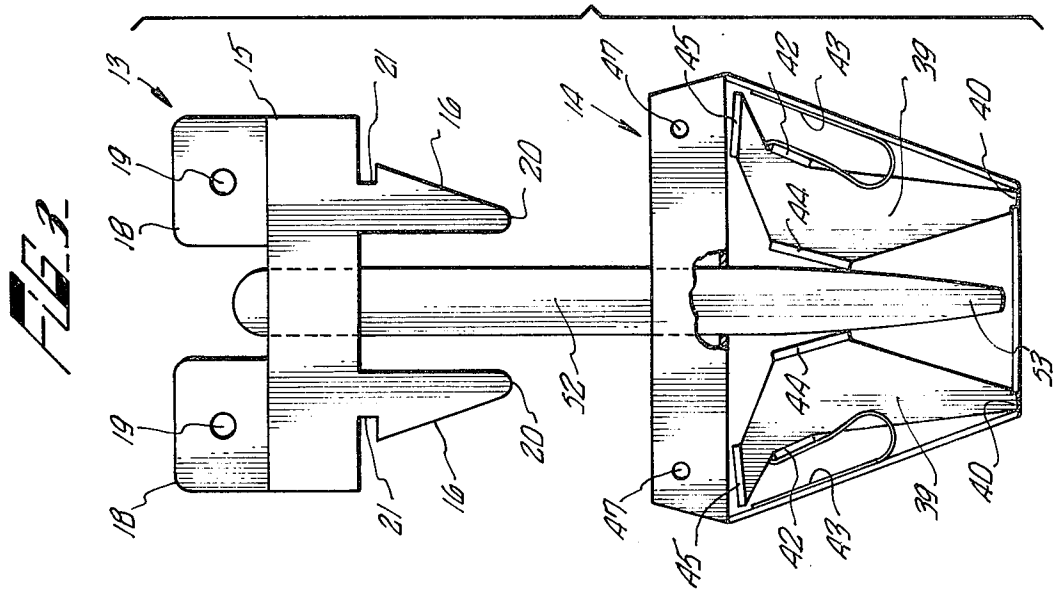


FIG. 3

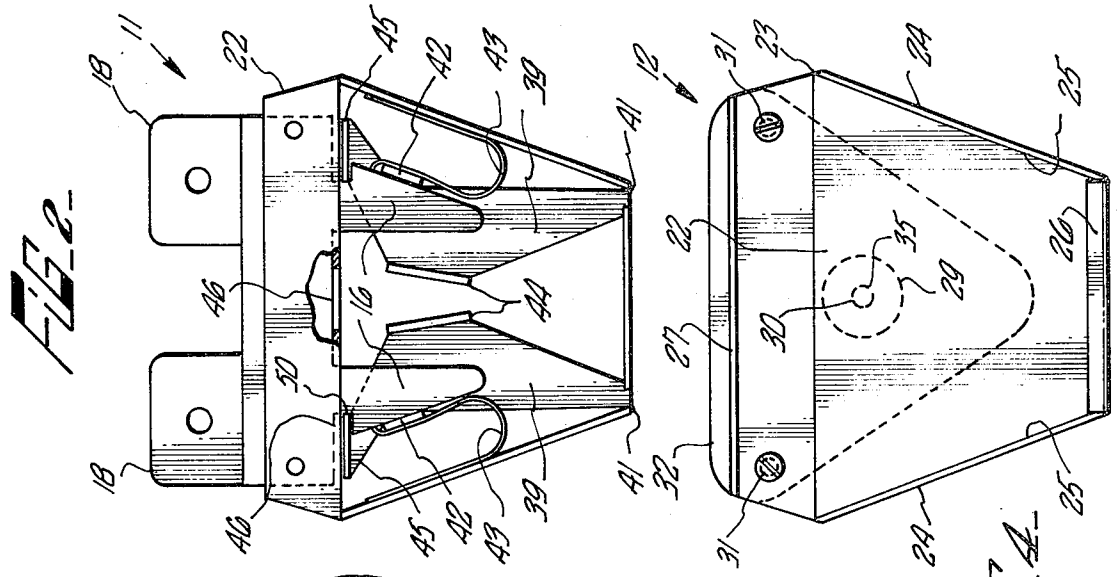


FIG. 2

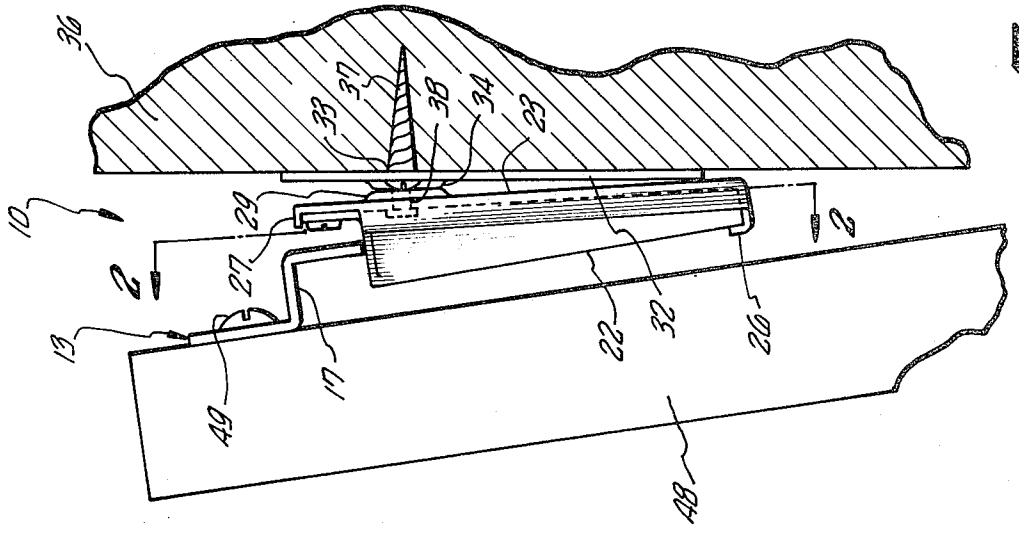


FIG. 1

FIG. 4

LOCKABLE, SELF-LEVELING WALL MOUNTING DEVICE FOR PICTURE FRAMES AND THE LIKE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to the field of theft-proof, wall-hung, self-leveling, lockable mountings for picture frames and the like.

2. Description of the Prior Art

Various and diverse devices have been invented to provide picture frames, mirrors and similar frame-like structures with means for attaching these structures to walls in a theft-proof like fashion. Some of these structures rely on setscrew means requiring the use of either easily or readily available tools, such as screwdrivers, or even special wrenches, for attachment to the wall. Others rely on a wedging action, and some utilize interlocking or interengaging parts. In many cases, however, the parts forming the theft-proof, lockable frame mounting device are complicated and difficult to assemble and install, or they may lack sufficient strength and rigidity to resist removal if a concerted effort is made to remove the frame from its mounting on the wall. Cost of the mounting device is also a significant factor, not only from the standpoint of its commercial acceptability, but from the standpoint of the number of parts involved. Obviously, a greater number of parts increases typically involves a substantial amount of labor for assembling the unit, but also in the installation thereof.

Examples which typify the prior art are found in U.S. Pat. Nos. 1,883,834; 1,908,147; 2,129,189; 2,928,199 and 3,612,469. All of these prior art devices exhibit one or more of the shortcomings previously enumerated and discussed.

Losses due to the theft of wall-mounted pictures and mirrors and the like from public areas, such as hotels, motels, automobile service stations, public toilets, and the like, each year amount to many thousands of dollars in losses. Experience has also shown that similar existing wall installations in public institutions, such as mental institutions, prisons, jails, and the like, are an open invitation to tampering and vandalizing by the inmates thereof. The present invention affords a strong and resistent wall mounting device for a picture frame or the like which is theft-proof.

The present invention seeks to overcome the shortcomings of the prior art devices by providing a rugged yet inexpensive mounting which may be readily fabricated from inexpensive sheet metal and being capable of rapid installation with a minimum of time and effort. In addition, the present invention is inherently self-leveling to preclude the need for precisely orienting the attachment of the mounting frame to the invention and mounting to the wall.

SUMMARY OF THE INVENTION AND OBJECTS

A lockable, self-leveling device for locking a picture frame or the like to a wall. A pair of notched, tapered arms extending from a sheet metal formed body form a male unit of the latching mechanism and is secured to the back of the picture frame. A female unit for receiving the male unit thereinto and having a pair of spring-biased lugs for lockable engagement with the notches of the latching arms of the male unit is swivelably attached to a hanger unit which is mountable to a wall. A wedge-shaped key is inserted into a slot of the female unit to disengage the lugs from the notches of the tapered arms of the male unit, thereby unlocking it.

It is an object of the present invention to provide a mounting structure which is both tamper-proof, and theft-proof, while requiring no externally accessible securing means to secure the picture frame or the like in place, while, on the other hand, employing securing provisions which are readily and easily manipulated by authorized personnel in the event that it is desired to release the picture frame, mirror or the like from its wall mount.

Another important object of the invention is to provide a frame mounting structure as described in which the picture frame is readily positioned against the wall, is self-leveling, and is theft-proof.

To this end, it is an object of the invention to provide a picture frame wall mounting means which does not rely upon the use of externally exposed and accessible screws, hooking provisions, clamps, latches or the like. On the contrary, all of the wall securing provisions are completely enclosed within the internal confines of the present invention.

Another important object of the present invention is to provide a picture frame mounting structure as described, in which the frame is readily positioned into place against the wall and latched in a firmly locked position by a single movement of the picture frame in the hands of the person mounting the frame on the wall.

A further object of the present invention is to provide a frame mounting unit which is positively locked and held in place by resilient metal spring members.

A still further object of the invention is to provide a lockable mechanism in a frame mounting structure of the type under consideration, in which the latch springs are readily released to permit removal of the picture frame from the wall by means of a simple blade-like release tool furnished to authorized personnel.

Another object is to provide in a theft-proof jimmy-proof mount, a novel and unique means for holding a frame securely in place in relation to a wall. The provisions to this end are extremely simple, and have a novel relationship to the picture frame which enables engagement and disengagement from the mounting wall in a rapid fashion.

The foregoing as well as other features and objects will become clearer and more readily apparent as the description proceeds hereinafterwards, especially when considered in connection with the accompanying drawings illustrating a preferred embodiment of the invention, wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a side elevational view of the present invention interlocking a picture frame to a wall.

FIG. **2** is a front elevational view of a portion of the present invention taken along Plane **2** — **2** of FIG. **1** and illustrating the latch portion of the invention in a locked position.

FIG. **3** is a front view of the present invention detailing the placement of the key means for unlocking the assembly illustrated in FIG. **2.**

FIG. **4** is a front elevational view of the self-leveling wall attachment portion of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT OF THE INVENTION

With continued reference to the drawings, FIGS. **1**

through 4, and with particular emphasis now on FIG. 3, the improved structure of the invention, typically referred to as a theft-proof, wall-hung, self-leveling mounting for picture frames and the like, and generally indicated at 10, comprises a latching mechanism generally indicated at 11, and a hanger unit generally indicated at 12.

The latching mechanism 11 comprises a male unit indicated at 13, and a female unit shown generally at 14.

The male unit 13 has a rigid body 15 which is typically formed of sheet metal, such as stainless steel, and, in turn, has a pair of spaced-apart latching arms 16 at one end of the body 15 and a pair of spaced-apart legs 17 with flange-like feet 18 with a pair of corresponding openings 19 therethrough at the opposite end of the body 15.

The latching arms 16 are generally characterized as having blade-like, triangularly-shaped bodies having a blunted nose 20 at the unattached extremity thereof, and a notched portion 21 adjacently disposed to the point at which the latching arms 16 are joined to the body 15. The function and purpose of these arms 16 will become more clearly understood as the description of the invention and its operation are further described hereinafterwards.

The female unit 14 generally comprises a two-piece housing for the latching mechanism 11 consisting of a front cover 22 and a rear backing plate 23.

With particular reference now to FIG. 4, the backing plate 23 is specifically shown and illustrated. The backing plate 23 is generally shaped with a pair of inwardly tapered sides 24 having edges 25 which are turned forwardly 90°. The bottom edge 26 and the top edge 27 of the backing plate 23 are also turned forwardly 90°. When the front cover 22 is mated with the rear backing plate 23 to form a housing for the latching mechanism 11, the cover 22 is slideably nested and captured between the forwardly turned edges 25, 26, and 27.

A rearwardly-projecting platform 29 is formed by dimpling the backing plate 23, and an opening 30 is placed therein, the purpose of which will become clearer as the description proceeds hereinafterwards.

Further, a pair of threaded holes 31 are located in the upper portion of the backing plate 23.

A mounting plate 32 having a plurality of holes 33 and an outwardly projecting platform 34, similar to platform 29, with an opening 35 therethrough, is dimpled into the mounting plate 32.

As shown in FIG. 1, the mounting plate 32 is secured to the wall 36 upon which the picture frame is to be hung by means of a plurality of threaded fasteners 37 passed through the holes 33.

The mounting plate 32 is pivotally joined to the backing plate 23 by means of a loose-fitting rivet 38 which is passed through the corresponding openings 30, 35 in the respective platforms 29, 34. As is clearly illustrated in FIG. 1, the platforms 29, 34 serve to space apart the backing plate 23 and the mounting plate 32 to permit free pivotal movement therebetween to effectuate self-leveling of the backing plate 23 as further described herein.

With particular emphasis now on FIGS. 2 and 3, the latching mechanism 11 is shown comprising a pair of side-by-side latching members 39. The bottom portions 40 of the latching members 39 are pivotally engaged in slotted spaces 41 disposed between the bottom edge 26 and edges 25 of the backing plate 23. The pivotal action of the latching members 39 is generally limited to movement which is towards or away from each other in a side-by-side fashion.

A pair of outwardly-turned members 42 disposed on the outside edges of the latching members 39 engage a corresponding compression spring 43 which urges the latching members 39 towards each other.

On the inside of the latching members 39 are a pair of outwardly-turned elements 44 whose function will become apparent as the description of the invention continues herein.

Along the upper edge of the latching members 39 are a pair of corresponding outwardly-turned lugs 45 whose purpose and function is described below.

Turning now to the front cover 22 of the housing for the latching mechanism 11, three elongated slots 46 are located in the upper portion in the cover 22 in side-by-side relationship. Further, a pair of holes 47 in the cover 22 are oriented so as to be capable of coming into axial alignment with the holes 31 in the backing plate 23 when the cover 22 and the backing plate 23 are nested with each other. Once aligned, screws 48 are passed therethrough to effect attachment of the cover 22 with the backing plate 23, thereby forming a housing for the latching mechanism 11.

OPERATION OF THE INVENTION

The mounting plate 32 is fastened to a wall 36 by fasteners 37 and thereby secures the hanger unit 12 to the wall 36. The male unit 13 of the latching mechanism 11 is fastened to the picture frame 48 by means of fasteners 49. The latching arms 16 of the male unit 13 are then aligned with the two outside slots 46 in the upper portion of the cover 22 and inserted thereinto. The inwardly-facing edges 50 are contacted by the outwardly-facing edges 51 of the lugs 45, and due to the wedging action of the triangularly shaped latching arms 16 force the latching members 39 away from each other. When the notched portions 21 are aligned with the lugs 45, the lugs are forced thereinto by means of the springs 43 which are urging the latching members 39 towards each other. Once this occurs, the picture frame 48 is effectively locked to the hanger unit 12 which is secured to the wall 36, as clearly depicted in FIG. 2.

The latching mechanism 11 is unlocked by inserting a special key 52 formed from a blade-like piece of sheet metal and having in the front portion thereof a tapered nose 53, nose first into the centrally-disposed slot 46 in the upper portion of the cover 22. The nose 53 of the key 52 contacts the elements 44 of the latching members 39. As the key 52 is moved further into the latching mechanism 11, the wedging action of the tapered nose 53 of the key 52, forces the latching members 39 apart and disengages the lugs 45 from the notched portions 21 of the latching members 39, thereby allowing the male unit 13 to be withdrawn from the female unit 14.

In some applications it may be undesirable to utilize the aforementioned blade-like key 52. In these applications, the elements 44 of the latching members 39 are spaced apart by a distance greater than the length of the centrally-disposed elongated slot 46 so that if a blade-like key 52 were inserted into the central slot 46 as before, it would be of insufficient width to contact the elements 44, as previously described, to wedgingly force the latching members 39 apart to unlatch the latching mechanism 11. In this particular arrangement,

a scissors-like pair of spreader tongs (not shown) would be inserted into the central slot **46.** As the handles of the spreader tongs are brought together in a scissors-like motion, the ends of the spreader are urged away from each other thereby contacting the elements **44.** Once this occurs, the elements **44** are forced outwardly against the springs **43** thereby disengaging the lugs **45** from the notches **21** and unlocking the latch mechanism **11.**

While the instant invention has been described with reference to a particular embodiment thereof, it will be readily understood that variations and modifications thereof may be made without departing from the spirit and scope of the invention.

I claim:

1. A lockable, self-leveling picture frame hanger for mounting to a wall, comprising:

a. a latching mechanism, comprising:

a male unit, comprising:

a body having a forwardly-projecting end and a rearwardly-projecting end;

a pair of spaced-apart, blade-like, latching arms depending downwardly from said rearwardly-projecting end of said body, said arms each having a notched portion therein adjacently disposed to said body; and

means for attaching said forwardly-projecting end of said body to the backside of a picture frame;

a female unit for receiving said latching arms of said male unit thereinto and effecting a key-releaseable coupling therewith, comprising:

a housing having an opening therein through which said latching arms may be inserted;

latching means within said housing, comprising:

a pair of latching members, the corresponding ends of which are pivotally mounted to said housing, whereby said latching members are disposed in side-by-side, edgewise relationship and movable towards and away from each other, said pair of latching members further having a pair of lugs at the ends opposite said pivotally mounted ends, which are correspondingly mateable with said pair of notches in said latching arms of said male unit; and

spring biasing means disposed between each of said pair of latching members and said housing, whereby said pair of latching members are urgingly biased towards each other;

b. a mounting plate having a plurality of apertures therein through which wall-anchoring fasteners may be inserted to secure said mounting plate to a wall; and

c. coupling means for swivellably interconnecting said mounting plate to said housing.

2. The picture frame hanger of claim **1,** further including key means insertable through said opening in said housing through which said latching arms are inserted for simultaneously forcing said latching members from each other and out of said notches in said latching arms of said male unit with which said latching members are lockably engaged.

3. The picture frame hanger of claim **2,** wherein said key means is a blade having a width sufficient to spread said latching members apart to effect disengagement from said notches of said latching arms, one end having a tapered edge for progressively spreading said latching members apart following the initial contact between said blade and said pair of latching members.

4. The picture frame hanger of claim **1,** wherein each of said latching arms is triangularly-shaped with the longest side of said triangle forming the outside edge thereof with the base of said triangle being joined to said body along a portion of said base so as to form a notched portion therebetween with said notched portion having its opening facing outwardly from said body, so that as said latching arms are progressively inserted into said housing and engage said pivotable latching members, said latching members ride the longest side of each triangularly-shaped latching arms to effect a progressively spreading apart of said latching members to compress the spring biasing means to increase the bias force exerted thereby on said latching members for positively urging said latching arms into said notches when alignment therebetween is achieved.

5. The picture frame hanger of claim **1,** wherein said mounting plate further includes a forwardly-projecting, raised platform disposed intermediately thereof and having an aperture therethrough, said platform serving to space apart said mounting plate from said housing.

6. The picture frame hanger of claim **1,** wherein said coupling means is a loosely-fitting rivet.

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